Rhythm into Style: Studying Asymmetrical Grooves in Norwegian Folk Music

Mats Johansson

PhD thesis
Department of Musicology
The University of Oslo
2009

Contents

Preface and acknowledgments

Performing music inevitable involves shaping and controlling time. However, musical time is not equivalent to the absolute durations of events in the physical realm. Rather, it is experienced as relative, contextual, ambiguous and negotiable. Thus, the essence of time in music remains infuriatingly beyond scientific comprehension. At the same time, considering its paramount importance in the conception and realization of musical structure, the domain of time seems to be at the heart of the analytical treatment of performed music. As a fiddle player performing traditional Norwegian and Swedish dance tunes, I have always been intrigued by the way in which subtle details of phrasing and timing determine the quality of a performance. A similar and related source of fascination is the great rhythmic-temporal flexibility which stylistic conventions afford. This is especially apparent in performances of dance tunes in asymmetrical triple meter, in which the creative shaping and reshaping of musical time stand out as characteristics distinguishing a skilled performer. Thus, a seemingly contradictory relationship between temporal flexibility and fine-grained rhythmic detail is indicated, and this stylistically determined interplay between freedom and constraints is the intriguing paradox which has fueled my research endeavors.

While writing this thesis, I have had valuable support from colleagues, family and friends. First of all I would like to thank my supervisor, Professor Tellef Kvifte, for his guidance and support. I also want to thank Professor Anne Danielsen, leader of the research project “Rhythm in the Age of Digital Reproduction” on which I am a co-researcher, for her critical and encouraging reading. Moreover, the research group associated with the mentioned project has constituted a valuable platform for the exchanging of ideas, and has generated numerous fruitful discussions from which I have benefited greatly. Other colleagues and friends whom I would like to acknowledge for their motivational support are Stan Hawkins, Johan Westman and Eirik Askerøi. Finally, I wish to thank my family, Marit and Emanuel, for their endless support and patience.

Mats Johansson

Introduction

The objective of this thesis is to contribute to the field of research dealing with rhythm, groove and timing in performed music, and to help bring about a richer understanding of a certain performance style. The overall socio-musical framework within which this performance practice has consolidated itself is defined generically as Norwegian folk music. More specifically, I have chosen to work with traditional dance tunes called *pols* or *springar* in asymmetrical triple meter performed on the fiddle and Hardanger fiddle (hereafter referred to as the pols/springar style). This music is characterized by the following features: 1) The melody (i.e. the melodic rhythm) constitutes the basic groove-forming element. 2) The music is groove-based in the sense that the tempo is perceived as constant and that the unfolding of rhythmic events corresponds to a triple-time dance meter. 3) The beat duration ratio is asymmetrical, meaning that all three beats within the measure have different lengths (long-average-short or short-long-average). 4) The rhythmic framework (the meter/groove) is highly flexible in the sense that measures and beats (hereafter referred to as formal rhythmic units) may vary considerably in terms of both absolute and relative length from one part of a performance to the next without compromising the experience of flow, tempo and groove.

These stylistic features make it an intriguing and challenging task to uncover the particular constraints and possibilities that seem to guide rhythmic performance, i.e. the principles by which musical time is organized and controlled. Through analyses of recorded performances of pols/springar tunes, I show how these grooves are both inconsistent and consistent, depending on the perspective from which rhythmic patterns are viewed. On the one hand, detailed measurements of beat and measure durations illustrate that durational values may fluctuate significantly and continuously within a single performance. On the other hand, a closer analysis shows that the seemingly irregular patterns of durations are interrelated with aspects of musical structure (motivic and sectional division) and the use of expressive devices (ornamentation, dynamics, double stops etc.) in ways that make the performance internally consistent.

The rhythmic characteristics of the pols/springar style pose interesting challenges to prevailing theories on rhythm and groove on several counts. In general, findings from my research stress the need for some basic theoretical assumptions that are embedded in academic accounts of rhythm and timing to be expanded conceptually. Of particular issue is the theoretical conception of *expressive timing* and the relationship between categorical (or referential) and

expressive levels of rhythmic performance,[1] as well as the interpretation of the asymmetrical rhythms of the *pols/springar* style within a Scandinavian folk music scholarly context.[2] The project is thus located within the field of research dealing with micro-rhythmic relationships in performed music and part of my aim is to offer a commentary on some of the salient issues related to the conceptualization of performance timing from within the perspectives of my empirical findings and theorizations. Moreover, to investigate more comprehensively the performance style through which rhythmic-temporal variations manifest themselves requires a wider scope. As Gabrielsson (2003) notes, "empirical research on music performance has increased considerably during recent decades."[3] However, often seemingly lacking is a broader contextualization within an ethnographic frame of interpretation. For this reason, this project is grounded in ethnomusicology, in which ethnographic contextualization forms a part of the basic theoretical and methodical framework.

Performance studies is another central pillar in the sense that the object of study is musical performance and by virtue of the focus on performance practices as constitutive aspects of stylistic behavior.[4] From this perspective, individual performance is seen as a manifestation of stylistic knowledge via the use of the expressive resources available. At the same time, style is symbolized as a continuously ongoing *process,* in which performance is understood in terms of the totality of actions, interactions and interpretations that constitute the socio-musical reality within which the production and perception of music take place. Although this process is not in itself the main focus of my arguments or analyses, the overall theoretical perspective does inform the specific level of musical analysis in that individual performance is not seen as a mere reflection of pre-existing stylistic rules, but as a part of the ongoing process within which affordances and constraints are negotiated. Accordingly, rather than refining schematic or classificatory accounts, the aim is to study *the potential for expression* this style offers, and the principles and limits according to which possibilities are actively explored and utilized by musicians.

The broad view of disciplinary situatedness resonates with my aim to adumbrate musical analysis with ethnographic readings into a general interpretive framework. Implicit in this is the assumption that different levels of style interact in mutually interdependent ways, and that music-analytical interpretation therefore is theoretically inseparable from a conceptualization of

[1] Clarke 1987, 1989, 1999; Danielsen 2006; Desain & Honing 2003; Gabrielsson 1999; Keil 1987; Kvifte 2004, 2007; Seashore 1937; Waadeland 2000
[2] Ahlbäck 1995; Bengtsson 1974; Blom 1981, 1993; Groven 1971; Kvifte 1999
[3] Gabrielsson 2003: 221
[4] Schechner 2006

performance practice, style and genre, approached from an anthropologic-humanistic perspective. Thus, in spite of the strong focus on music analysis, I feel bound to engage with the question of the way style is historically constructed, and socially and individually negotiated and appropriated. In this way, the higher level of the interpretive framework focuses on social and institutional interactions, while research at the lower level concerns specific instances of musical production and performance, and the expressive resources and constraints on which they appear to be founded. Within Norwegian folk music, musical activity is deeply rooted in certain repertoires and specific performance traditions, which, through institutionalization, constitute boundaries within which potential musical realizations and innovations can occur. Hence, supported by their social organization, these traditions channel and consolidate musical activity in profound ways. This entails identifying style in a musical sense relying heavily on appropriated performance techniques and fine-tuned sensibilities for stylistic distinctions, which again are conditioned by the same community socialization as the one that defines style in more sociological terms (the institutionalized field of folk music activity).

The interaction between the different analytical and interpretive levels, then, finds equivalence in the relationship between the constitutive aspects of performance practices and the normative power of formal and informal institutions. Accordingly, on both levels interesting findings concerning style and performance can be arrived at by raising interpretive questions with a wide and narrow scope respectively. Furthermore, this mutuality between the different levels of the interpretive framework is not only related to the multi-dimensionality of style, but resonates symbolically with the specific levels of rhythmic analysis, where the central point of focus consists of exploring the constitutive relationship between rhythmic levels and musical parameters, as explained below.

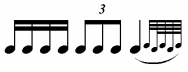
The formative dialectics of performance timing

In the second phase of this thesis, recorded performances of pols/springar tunes are analyzed by measuring the distribution of beat and measure durations within each performance. The interpretation of these data involves focusing on the intricate and overlapping relationship between *performance constraints* and *stylistic constraints*. Basically, stylistic constraints determine the nature and amount of rhythmic-temporal variation which can be afforded without disturbing stylistic coherency; performance constraints refers to a more immediate, intuitive experience and the physical sensation of performing music. These two constitutive domains are thought to be inseparable in the sense that stylistic constraints are intrinsic to the gestural routines involved in performing music within a well-known style. From this perspective,

musicians are not seen as actively reflecting on stylistic rules during performance, although their musical training is disciplined and institutionally framed by the practices and socially negotiated meanings and values of their community. Another way of looking at this is that the structural and expressive dimensions of style are so intimately bound to the practical, embodied knowledge of performing this music that it may be misleading to speak of external constraints guiding the performer. Or, rather, stylistic rules are intrinsic to the performance practices and the well-formed patterns of musical sounds through which they manifest themselves and are negotiated. Moreover, there are also absolute constraints related to idiomatic features of the instrument and the sensory-motor capacities of the performing musician. Although these could be said to operate independently of stylistic conventions, they are impossible to distinguish clearly from idiomatic features of performance style, i.e. the ways in which bodily gestures are woven through habituation into an inseparable whole. These perspectives have some implications which in different ways have informed my research process.

First, what remains from the interaction between stylistic constraints and performance constraints is a set of expressive and interpretive resources available to musicians. These idiomatic elements of performance are not primarily seen as limitations, but as an expressive medium offering a number of *possibilities* within stylistically constrained boundaries. Regarding performance timing, the interplay between freedom and constraints is believed to be accessible analytically to a certain extent. One central aspect of this approach is identifying invariant and variable elements in performed rhythms which in turn allows for a conceptualization of rhythmic performance as a continuous and dynamic interaction between stable and flexible levels. Second, the inseparability of performed rhythms and the stylistic (including rhythmic) constraints which function as references for their realization suggests a need to move beyond a search for general rules to engage in an interpretation of the patterns and correspondences that make up a musical event. This entails that the constitutive mechanisms behind rhythmic patterns cannot be revealed only with the aid of measurements. For instance, measured durational data about formal rhythmic units (beats and measures) do not necessarily inform us of the guiding constraints through which these rhythmic patterns are produced. Instead, performance timing is examined with a broad interpretive approach, the main elements of which are described in brief below.

With the methodological assumptions sketched above as a point of departure, the main analytical focus in this thesis is on how different organizational, contextual and architectural factors interact to shape rhythmic patterns. Organizational and contextual influences include two main aspects: 1) The general groove (or meter), understood as a recurrent pattern of longer and shorter beats, organizes the relationship between rhythmic levels (measure, beat and subdivision)

into a coherent and predictable order. From this perspective, the contextual influence on a beat is dependent on the placement of the beat within the measure (1st, 2nd or 3rd beat position), which determine its durational (short, average or long) and accentual (light or heavy) characteristics. 2) The unique motivic and sectional structuring of the tune/performance in question exerts influence on rhythmic components in a variety of ways. From this perspective, the contextual influence on a beat is determined by the placement of the beat within a motif (two-measure motif as a rule) and/or section (strain or longer phrase). Architectural factors, then, refer to the actual shape/contour and subdivision pattern of melodic-rhythmic segments, in particular their density and degree of complexity. Unless otherwise specified, density equals the number of tones that make up a given melodic-rhythmic segment (a beat:  vs.  etc., a measure: vs.  etc.). Degree of complexity is a less precise term and refers indirectly to how technically demanding a passage is to perform on the fiddle/Hardanger fiddle.

These interactions between rhythmic levels and constitutive mechanisms will be addressed as top-down and bottom-up processes of temporal organization. From the top-down perspective, durational properties of formal rhythmic units (measures, beats and subdivisions) are seen as subordinate to the shaping of the complete melodic-rhythmic event (motif) of which they form a part. Moreover, this stance also involves considering the organizational influence of rhythmic style, understood as the general rhythmic-temporal properties through which a range of performances are recognized as being the same groove. The bottom-up process, then, concerns how the unique architectural characteristics (density and complexity) of melodic-rhythmic units affect and constrain the shape of the pattern which functions as a context for their realization. More precisely, I examine how the absolute duration of a beat, and thereby the beat duration ratio of the whole measure of which it forms a part (relative durations), is partly determined by the rhythmic density ( vs.  etc.) and melodic contour ( vs.  etc.) of the beat.

This exploration of the dynamics of performance timing takes as a point of departure the *production* of rhythm with a focus on the *formative process* through which a groove is shaped into a well-formed pattern of performed gestures. One central claim implicit to this approach is that the constitutive influence and patterning function of melodic rhythm as it is structured in motivic sections need to be considered, rather than seeing the temporal flow of events as structured and controlled by an independent durational and accentual matrix (meter). More generally, the formulaic nature of melodic-rhythmic phrases is examined by focusing on the flexibility of parameter values conveyed in the performances analyzed. That is, a characteristic

feature of the pols/springar style is the freedom to reshape and remold the musical material without compromising its identity, and this flexibility produces infinite rhythmic, melodic, timbral and dynamic variations that mutually influence each other. Accordingly, limits of convergence for beat duration patterns are shown to be context-sensitive and flexible along a multi-parameter dimension. Principles behind timing patterns per se, then, cannot be identified if only timing data is considered. This points to the fact that my choice to use the rhythm/time parameter to approach performance is as much a means of demonstrating how parameters interact, as it is a way of showing how timing itself works and may be described. Consequently, the autonomization and reification of time in the study of musical rhythm emerges as a more general, critical issue during the course of this thesis.

As touched upon above, the two general levels of the interpretive framework (the ethnomusicological and the music-analytical) have been found within the theoretical configuration to be complementary and mutually interdependent. An interpretation of style as process needs to account for constitutive aspects of performance practices. At the same time, the micro-universe and subtleties of phrasing and rhythmic variations in musical performance need to be framed by ethnographic accounts of social processes and the historicity and contextuality of musical action and perception. Moreover, on all levels of analysis and interpretation there is a dual aim. The first is to contribute to a richer understanding of the style in question; the second is to discuss the general theoretical implications of empirical findings and theorizations.

While my work is theoretically situated within ethnomusicology and is probably of most interest to people who study traditional music in its many culturally codified styles and forms, my work also has wider implications for studying generally music as performance and for studying particularly rhythmic performance in music. Beyond the topical focus on the musical practices chosen for analysis, thematic concerns include the organization of time in other styles in which melodic rhythm constitutes the basic groove-forming element. In this way, the interpretive potential is broadened in that the research will be concerned with identifying mechanisms at work in rhythmic performance that may be generalized beyond the specific instances of rhythm production studied in this thesis. Related to this is the study of expressive timing in musical performance, including the theorizing of the micro-rhythmic relationships through which expressive behavior manifests itself empirically. Another set of implications from my empirical and theoretical inquiries concerns theories of meter and rhythm as they have been developed within different academic fields. Finally, the way in which my research centers around the formative processes through which rhythm, groove and style are consolidated as

performance practices and stylistically coded conceptions suggests a comprehensive research model which is by no means limited to any specific style.

Outline of the thesis

In Chapter 1 the reader is given a brief introduction to the historical and contemporary cultural setting where the musical style and performance practices to be investigated are situated. I then present the theoretical framework underlying this research project.

In Chapter 2 an account is provided of the historical construction of style: this is done by elucidating the socio-cultural processes and individual actions through which dominant generic worldviews have been developed, refined and consolidated. This presentation cannot do justice in any great detail to the actual progression of historical events and processes and this is not the objective of this thesis. Instead, I present what is considered to be a necessary complement to the conceptualization of rhythmic performance, namely a theoretical perspective that reminds us of the historicity and contextuality of any musical practice, and thus also how it is subject to constant change. Moreover, by gradually narrowing the interpretive focus, in the final part of this chapter the aim is to conceptualize style on a more idiomatic level with a focus on the expressivity of individual musicians engaged in a dialogue with their tradition.

In chapter 3 a review of research literature dealing with the asymmetrical styles of pols/springar playing is presented and discussed. Here, the assumptions and theoretical/methodical aspects that are found relevant to my research will be paid particular attention.

Chapter 4 deals with the methodological concerns and challenges associated with measuring music and analyzing rhythmic performance. General as well as style-specific methodological problems are discussed and a description of my own approach to analyzing rhythmic performance is presented.

Chapter 5 consists of an analysis of a performance of the tune *Markensmondagen*. First, a statistical examination of the distribution of beat and measure durations viewed from a measure-by-measure perspective is made. This is followed by an analysis of the relationship between timing data and the unique way in which the melodic-rhythmic material is architecturally shaped and contextualized in the performance. The main results are summarized at the end of the chapter, with a particular focus on the identification of stable and flexible rhythmic elements at different hierarchical levels (beat – measure – motif – section).

Chapter 6 contains the second element of the analytical part of my thesis, in which additional recorded performances are included. The aim here is to assess whether the general findings from

the analysis of *Markensmondagen,* and the analytical approach suggested by these findings, are relevant to the analysis of other pols/springar performances. This is done by exploring different manifestations of the interaction between stable and flexible rhythmic elements. The assumption underlying this objective is that different tunes/performances each are temporally structured in a unique way. The analytical challenge, then, is to uncover the possible consistent ways in which variation is generated and patterned. The core of this chapter therefore is the mutually constitutive relationship between rhythmic levels (beat – measure – motif), which will be analyzed and discussed from a top-down and bottom-up perspective respectively. Related to this is the formative dialectics between melodic rhythm and meter and the implications of this for the understanding of rhythmic style.

In Chapter 7 I attempt to synthesize my research findings by framing them within a broader theoretical and conceptual context. Here, some of the general theoretical implications of this research are discussed, with the simultaneous intention of improving the analytical methods with which to explore performed, flexible grooves. Central themes include the formulaic and multi-parametrical nature of performed rhythms, and the interaction between categorical and expressive levels in rhythmic performance. In this context, the concept of *rhythmic tolerance*, to which a formulaic conception of musical structure is intrinsic, will be employed as an interpretive and explorative model that is thought to illuminate certain aspects of rhythmic behavior. These aspects concern the precision with which rhythmic details and differences are performed and perceived, as well as the relative flexibility and stability of rhythmic categories at different levels. Finally, some proposals for further research are made.

1 Empirical and theoretical perspectives

1.1 The empirical setting

In this thesis I have chosen to look at Norwegian folk music as an overall generic framework in which specific performances and musical manifestations are ascribed social and musical meaning. The particular style on which I will focus my analytical attention is the mainly soloistic fiddle/Hardanger fiddle performance of pols/springar tunes in asymmetrical triple meter. Below, I shall attempt to contextualize this repertoire and style of performance by describing in brief the status of Norwegian folk music as a whole. This takes the form of an overview.

Historical and generic contextualization of the pols/springar style

Norwegian folk music consists of instrumental and song traditions which have developed and changed in different ways over the centuries. Historically, this music is used for dancing, recreation, work and ceremonial functions by rural Norwegian communities.[5] In addition to the singing voice, instruments often used include the fiddle, the Hardanger fiddle (an ornately decorated "Norwegian violin" with four or five sympathetic strings), Jew's harps, various flutes, the ram's horn, the wooden horn, the *langeleik* (a Norwegian zither) and one- and two-row accordions.[6] Tunes and songs were and continue as a rule to be learned by ear, although many performers have used the written score to document and learn new material. In terms of musical activity, interest, its commercial potential and general acceptance, the status of Norwegian folk music has changed considerably latterly. Broadly speaking, with few exceptions this music had lost much of its role as an integrated part of social life in rural communities around 1900. Since then, folk music activities have been formally organized. In addition, folk music styles have been performed and nurtured within small, specialized communities of musicians, whose activities cannot be underestimated in terms of preserving repertoires and playing styles. The size of these communities and the degree of interaction with their cultural and musical surroundings has varied greatly. In some districts, the tradition is considered to be unbroken, while in other regions there have been very few active folk musicians for most of the 20th century. Since the 1970s there have been tendencies toward a revival of some of these traditions thanks to the efforts of enthusiasts, whose activities have included rediscovering tunes and songs which may

[5] See Aksdal & Nyhus 1993 for an overview.
[6] Today, we also find guitars, mandolas, saxophones and percussions among the more or less commonly used instruments.

have been out of use for several decades.[7] These tendencies parallel a general increase in interest in and activity within the field the last thirty years. Accordingly, regardless of the actual continuity of musical conceptions and practices, contemporary Norwegian folk music is a well established genre characterized by a broad amateur movement as well as by a wide variety of professional and semi-professional performers and tutors.[8] In addition to the consensual and educational influence of musical activity within formal and informal institutions and practices, these performers have access to a large amount of archive material ranging from old transcriptions, tune books and ethnographical descriptions, to a variety of field recordings and radio broadcasts. In this connection it needs to be noted that most tunes and songs have no known composer. Instead, the majority of the repertoire resides within what is captured by the general notion of *tradition*, i.e. a set of anonymous contributions accumulated and eventually canonized as the melodic inventory of the style. In principle, this means that traditional tunes and songs are to be considered open forms, which may be adjusted or modulated in accordance with artistic needs and individual preferences, although there has been a clear tendency toward fixed forms, leaving small-scale expressive variation as the feature which differentiates between performances of the same tune (see chapter 2.2).

Among the styles associated with the different functions of Norwegian folk music, fiddle-based dance music has drawn most attention from recent generations of folk musicians. Generally, the music is soloistic, but different forms of instrumental ensembles appear to have been common in some parts of Norway in the late 19th and early 20th century.[9] In the latter part of the 20th century, *spellmannslag* (fiddling groups/fiddler teams/fiddler companies) became more common and serve today as important formal organizational units, as well as musical and social communities within which local musicians gather. However, until recently, leading musicians within the field have mainly been soloists, showcasing in competitions, at concerts and on recordings.

This generally accepted picture of an essentially soloistic tradition is undergoing revision in accordance with what might be called the growing ensemblefication of Norwegian folk music. In the last five to ten years there has been a tremendous increase in different band constellations formed by leading folk musicians, which is evident from recent record releases, festival programs etc. Among these bands, an experimental tendency can be discerned: new tunes are

[7] See Thedens 2004
[8] Unfortunately, the dance traditions of Norwegian folk music have not gained the same widespread use and appreciation as some instrumental styles (Arnestad 2001). However, dance still forms a part of the musical activities and social interactions characteristic of important events where folk music audiences gather.
[9] Aksdal 1993c

being composed, new instrumentations or arrangements are made and there is the effecting or assimilating of stylistic influences from other styles.

Although Norway has a rich, vocal tradition with a number of sub-styles and regional dialects, my interest here is on instrumental dance music. This repertoire can be divided roughly into two categories in terms of age, style and instrumentation. The older type is the *bygdedans* (countryside dances), which can be subdivided into types of triple meter (*pols, springar, springleik* etc.)[10] and duple meter (*gangar* and *halling*) types. Local styles are called dialects, and there is an explicit parallel to the differences in spoken language between different regional districts and local villages. This conception is strongly supported by native theorization and concerns small but important (i.e. dialectal) distinctions in repertoire, playing style (including rhythmic style) and dance style. The older segment of instrumental music also includes *lydarslåtter* (listening pieces, often performed in a free-rhythmic style), *brureslåtter* (ceremonial tunes used at weddings) and a variety of adaptations of vocal music. Recurring features that characterize the older styles are the formulaic and modally ambiguous melodic structure, the extensive use of drones and the ways that micro-rhythmic and micro-tonal modulations are highlighted in performance. The newer type of instrumental music, established in rural communities in the late 19th century, consists of music influenced by Central European dances (known as *gammaldans*), such as waltzes, reinlenders and polkas. While bygdedans has traditionally been performed mainly by solo fiddlers, gammeldans has fostered an ensemble tradition in which the instrumentation (typically fiddle, accordion, double bass and guitar) and arrangements constitute a group performance-style with well defined functions in terms of the interaction between the melody and the backing section. Gammaldans music is often tonal (major or minor key) and generally conforms to functional-harmonic rules. Except for the material and stylistic differences mentioned, this distinction is also supported by established institutions, for instance by the two national competitions dedicated to the bygdedans- and gammaldans-styles respectively (see below).

During the course of the 20th century, Norwegian folk music as a musical genre has consolidated through the establishment of organizations, competitions, festivals and educational programs. Two central organizations are *Landslaget for Spelemenn* (LfS) (The Norwegian National Association for Traditional Music and Dance) and *Norsk Folkemusikk- og Danselag* (NFD) (The Norwegian Traditional Music and Dance Association). LfS was founded in 1923

[10] There is a variety of local sub-styles and a rich set of vernacular terms within this category of tunes/dances. When some of these alternative terms are used, the reason for this will be explained from case to case. Except for these specific instances, descriptions such as ”pols/springar tunes”, “the pols/springar style” etc. will be used when addressing the general repertoire and style of performance in question.

and operates nationwide with the overarching aim of preserving Norwegian folk music and dance traditions.[11] The organization annually hosts three major folk music events: *Landskappleiken* (The Norwegian Traditional Music and Dance Competition) has been arranged each year since 1896[12] and is devoted to the oldest forms of fiddling, singing and dancing in Norway. *Landsfestivalen i gammaldansmusikk* (the national gammaldans music festival and competition[13]) was arranged for the first time in 1986 and showcases the largely ensemble-based gammaldans-style (see above). *Folkelarm* (folk-clamor) is a folk music convention and industry-gathering, as well as a music award exclusively for traditional music albums. This event was arranged for the first time in 2005 and reflects the increased level of professionalism in contemporary folk music, the search for commercial appeal by crossing over into popular styles, and the need for an urban arena in which this music can be presented to a more general public.[14]

A dispute over the founding of *Landsfestivalen i gammaldansmusikk* (see above) led to a split in the LfS and the establishing of *Norsk Folkemusikk- og Danselag* (NFD) in 1987. The disagreement basically centered on questions of style, cultural-historical value, and aesthetic preferences. What might be called the opposition claimed that an organization devoted to traditional music should not have anything to do with the kind of "popular music" that the gammeldans-style supposedly represents.[15] In terms of recent developments within the organization, it might be said that NFD represents the more specialized branch of the field with the aim of promoting professional folk musicians and bands. Although NFD is still committed to the goal of maintaining the unbroken folk music and dance tradition in Norway, there is an increasing openness to more experimental, ensemble-based folk music.[16] "The organisation also emphasises active cultural-political work for strengthening folk music and dance's position as art forms, and lobbies for more employment positions for performers."[17] NFD also organizes the annual ÁRINN international festival of traditional music and dance.[18]

There are a few, largish and organizationally independent festivals at which Norwegian folk music is central: the Førde Folk Music Festival, the Telemark International Folk Music Festival

[11] The organization has approximately 5000 individual members and 150 member associations, mostly *spellmannslag*. See the organization's website at http://www.folkemusikk.no/ for info.
[12] From 1896-1922 *Landskappleiken* was arranged by other organizations (*Vestmannalaget i Bergen*, *Den Nationale Forening*, *Huldreleiken*/*Laget for folkemusikk*, *Bondeungdomslaget* and *Foreningen til Folkedansens Fremme*).
[13] My translation. There is to my knowledge no official English translation.
[14] See the Folkelarm website at http://www.folkelarm.no/ for more information.
[15] See Arnestad 2001
[16] However, with regard to instrumental music, there is still a clear stylistic orientation toward the older bygdedans-style, even within the more ensemble-based branch of this activity.
[17] Quoted from NFD's home page in English at http://www.nfd.no/index.php?cat=40038.
[18] When this is written (October 2009), negotiations are going on between LfS and NFD to merge the two organizations.

in Bø and the Jørn Hilme Festival in Fagernes. Further, there are locally arranged concerts, dances and gatherings which are at least as important in terms of consolidating the practices and understandings that constitute this genre.

In the last two decades, establishing higher education programs to professionally train folk musicians has been an important contribution to organized, folk music activity. The programs are similar to those used for more institutionally established styles of music. How this development affects the practical and ideational conception of style deserves a lengthy study of its own, but here suffice it to say that the very existence of these institutions would seem to imply that Norwegian folk music as a distinct musical genre of its own is well enough established to constitute an autonomous sector within higher education. Moreover, this institutionalization parallels the gradual transformation of the genre into a contemporary art form, which is increasingly gaining recognition from outside specialized communities. Accordingly, the discussion of cultural-historical value and the need for preservation characteristic of the organizationally framed narratives and discourses about folk music have been moderated in favor of a rhetoric that emphasizes the aesthetic value and commercial potential of this form of music.[19]

Limiting the scope

Pols/springar tunes in asymmetrical triple meter is situated within what is known as the bygdedans-style (see above), where it has a strong position. There are three, basic subcategories of pols/springar meter. The first is known as undivided meter, found in the south-western part of Norway, where the beats are not organized in recurrent, periodic patterns. Thus, the beat forms the largest *stable* rhythmic unit, which theoretically makes it identical with the measure (**I**1**I**1**I**1**I**1**I** etc. instead of **I**1-2-3**I**1-2-3**I**), although the beats might be grouped in different ways in accordance with motivic structure. The second is symmetrical triple meter found in the western, middle and northern parts of Norway, where the periodic rhythmic structure of music and dance is defined with reference to an accentuation pattern (heavy-light-light etc.). The third type is asymmetrical triple meter, where rhythmic structure is organized according to both accentual and durational properties of the beats. Within this category, there are basically two types; one in which the 1st beat is short (short-long-average asymmetry), and one in which the 3rd beat is short (long-average-short asymmetry). The former is common in the districts of Valdres, Gudbrandsdalen and some parts of Østerdalen. The latter is found in the districts of Telemark, Numedal and some parts of Vestfold and Østerdalen. Within these traditions there is generally a

[19] See Berkaak 2004

clear correspondence between the durational and accentual structuring of rhythm and the organization of dance movements.[20] Thus, the asymmetrical beat patterns are institutionalized as basic frameworks for musical performance and interaction, and should not be regarded as expressive deviations from some basic structure at another level (symmetrical triple meter). Vernacular terms for local pols/springar-styles include as a rule a prefix indicating a significant relationship to a geographical and sub-cultural space within which the style in question has developed and been consolidated. Accordingly, a springar from Telemark is called a *Tele-springar*, a pols from Røros is called a *Røros-pols*, a springleik from Vågå is called a *Vågå-springleik* etc.[21]

As will become evident from my discussions and examples, Swedish pols/springar tunes and performances are used alongside Norwegian ones. The Swedish term *polska* covers the corresponding set of tunes and the styles of playing closely associated with this repertoire. As with Norwegian folk music, this generic term encompasses a range of local styles in which dialectal differences may be significant in terms of rhythmic organization. These variations, as well as individual and trend-bound differences, may be at least as significant as any general distinction between Swedish and Norwegian pols/springar playing. This is not meant to imply that the differences between Norwegian and Swedish folk music are not significant. In terms of the material-economic, cultural-historical, cultural-political and ideological frameworks through which these generic worlds have been negotiated and consolidated, they certainly are important. However, the Swedish examples are not held up to discuss these differences. Rather, these examples are selected in accordance with very specific analytical aims, within which trainable and generalizable aspects of performance timing are discussed. In this sense, Norwegian and Swedish asymmetrical pols/springar styles certainly are comparable, as what is at issue in these instances is the flexibility and elasticity of these performed rhythms and the possible general principles through which performance timing is structured and controlled.

Pols/springar tunes are most usually played on the fiddle or Hardanger fiddle, and are heard at dance events, competitions and concerts, as well as on an increasing number of recordings. Although other instruments are also used, the material to be analyzed consists of pols/springar tunes performed on the fiddle and Hardanger fiddle. One reason for this is related to my ambition to perform an in-depth study of a particular performance style, in which the idiomatic constraints and creative use of the expressive resources associated with these instruments are considered to

[20] Blom 1993

[21] These prefixes (Tele-, Valdres- etc.) signalize stylistic differences: terms such as pols/springar/springleik, on the other hand, are the names in different dialects for the same kind of tune and do not necessarily suggest any difference.

be crucial. In fact, the very rhythmic features under consideration are believed to be closely related to the way of *making music through performance* associated with the fiddle. In particular, the creative use of the bow as an element of phrasing and as a means for rhythmic variability is important to consider when trying to understand how the style of pols/springar-playing has developed. As will be discussed in chapter 2.2, the term *tune-playing* will be used to address the practices and aesthetics associated with this style. Tune-playing is a direct translation from a word of Swedish origin, *låtspel* (Norwegian: *slåttespel* or just *spel*). Implicit to this term is the importance placed on subtle nuances of playing style and the ability of a performer to explore the tune in a stylistically acceptable and interesting way. In other words, tune-playing does not refer to the performance of a particular repertoire, but to ”the musician’s language.” Accordingly, just ”playing tunes” (a symphony orchestra, a marching band etc. using folk music melodies) is not tune-playing if the stylistic idioms associated with this repertoire have not been appropriated.

Finally, before introducing the general theoretical framework upon which lower level analyses are based, a general comment needs to be made regarding the style of music which is the concern of my research. It is debatable to what extent Norwegian folk music should be regarded as a coherent musical genre. The variety of forms of expression within what is conventionally termed folk music, as well as recent musical innovations, emphasize the sensitivity with which one has to operate when making generalizations in this respect. Yet the style in question seems to be a highly tangible reality for those who work with or are interested in this music. These conceptions concerning generic boundaries are not only private and subjective. They are also collective, general and conventional in their being products of historical processes which are beyond immediate control. This circumstance supports the argument that a historical perspective is needed to expound the conceptual and material foundation on which this generic world is negotiated. Instead of providing a list of “facts” about the past to explain the development of the particular sub-style subject to analysis, the historical approach is believed to reveal some central aspects of the processes of institutionalization which have created the sociologically and musically given conditions under which certain musical practices are utilized. Accordingly, in chapter 2 how musicians and audiences interpret history will be discussed, and how conceptions of the past are created which legitimize predominant musical and cultural-political strategies. First, this is about the explicit use of history by leading musicians and teachers, cultural-political negotiators/lobbyists etc. Second, it is about mythologization and naturalization through cultural practices, a process which tends to mask certain aspects of the historical realities.

1.2 Theoretical foundation

This project is theoretically grounded in a combination of ethnographic and formal-analytical methodologies. More specifically, the theoretical and methodical design of my approach is developed under the disciplinary constraints of ethnomusicology. Within this discipline, this mutuality between anthropological and musicological perspectives has emerged as intrinsic to the theoretical framework. As the ethnomusicologist Alan P. Merriam writes in his groundbreaking and influential *The Anthropology of Music*:

> Ethnomusicology carries within itself the seeds of its own division, for it has always been compounded of two distinct parts, the musicological and the ethnological, and perhaps its major problem is the blending of the two in a unique fashion which emphasizes neither but takes into account both.[22]

The theoretical-methodological framework which forms the foundation of ethnomusicology as a discipline is fragmented and heterogeneous; it is informed by a diversity of thematic concerns, theoretical positions, and histories. I thus feel obliged to provide a brief historical perspective to specify my choice of approach and situate my work within a broader field of ethnomusicological research. Merriam's quote in a way represents a simplified outline of the tensions through which modern ethnomusicology has evolved, and the positions between which researchers usually situate their work. Historically, ethnomusicology is associated with the study of non-Western musics, and is thought to have developed from what is termed *comparative musicology* which was consolidated during the early 1900s.[23] Within this tradition, transcribed or recorded melodies from different parts of the world formed the empirical basis for theorizations and generalizations. Scales, intervallic structures, rhythmic organization and instruments were analyzed and compared to validate theories about the historical development and distribution of musical styles and tonal systems. Questions of culture-contacts and diffusion became central, as did the search for universals, supported by a consensual belief in cultural evolution.[24] Eventually, music scholars strongly influenced by anthropology challenged the basic assumptions and methodologies underlying comparative musicology. The social and musical evolutionism paradigm was discredited, and the broad generalizations made by the so-called "armchair ethnomusicologists" were severely problematized as fieldwork came to be insisted upon as a necessary part of any study of non-Western music.

[22] Merriam 1964:3
[23] See Meyers (1992) and Nettl (1983) for an overview.
[24] Meyers 1992

The increased concern for the cultural context within which musical practices are situated culminated with Merriam's (1964) influential book, where this disciplinary turn is accounted for explicitly by the term *anthropology of music*. The first striking aspect of Merriam's view on ethnomusicology is that he does not define the field in terms of subject matter, but as "the study of music in culture".[25] He also posited a model that tries to capture the mutual interaction between three levels in a musical system:

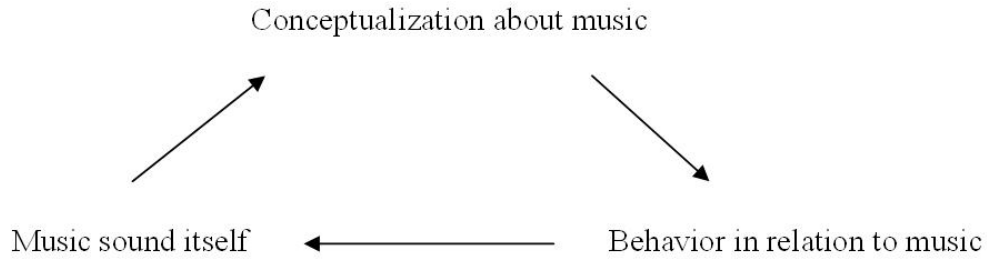


Figure 1. Merriam's model.

The imperative of the model is that music and musical behavior need to be studied within their cultural context, as a part of an ideational and behavioral framework which comprises all aspects of human life. This implies that comparative operations cannot be limited to the musical sound, in that it is assumed that an understanding of what these sounds mean relies on a comprehension of a much wider set of cultural conditions and processes through which social and musical meaning is established. This problematization of the musical text is also emphasized by John Blacking:

> Musical codes are derived neither from some universal emotional language nor from stages in the evolution of a musical art: they are socially accepted patterns of sound that have been invented and developed by interacting individuals in the context of different social and cultural systems.[26]

From Blacking's (1971) thoughts about the deep and surface structures of music, we learn that musical sound structures as a basis for comparison are insufficient, as they do not inform us of these musical codes, the culturally relative conceptions that allow for an interpretation of the potential meaning of observed similarities and differences. This view has profound implications, not only for the comparative study of different musics, but also for the study of musical change within one particular culture or style. For instance, an actual stylistic change, understood as a modification of the ideational and practical conception of realizable *possibilities* (deep structure),

[25] Merriam 1964: 6
[26] Blacking 1981: 10

may not result in any significant changes in surface structures (melodies, rhythmic patterns etc.). At the same time, observable surface variations may not imply that these conceptions have changed. Blacking writes: ”Melody is a product of human decisions about the selection and use of acoustic and physiological elements, and the significance of the musical variations cannot be assessed without knowledge of their conceptual base: ‘different’ melodies may be regarded by singers as the same[…]”.[27] Again there is the call for fieldwork, which is also one of Merriam’s principal postulations.

Although highly influential, Merriam’s approach has been criticized for being too dogmatically anthropological, for being too little concerned with the study of musical sound per se. A second disciplinary dispute about Merriam’s model is related to the fact that his focus is clearly on collective processes, leaving individual experience and creation as a secondary concern. Finally, the search for homologies between the three levels of Merriam’s model has functioned as a constraining imperative on much ethnomusicological work. As Timothy Rice writes:

> Much of the subsequent work in ‘the anthropological study of music’[…]can be interpreted as attempts to find the points of intersection, causation, or ‘homologies’ between Merriam’s ‘analytic levels’[or…]how can we convincingly speak about the relationship between music and other human behaviors.[28]

To try to tackle some of the problems of the Merriam model, Rice has presented a model of his own, directly influenced by the anthropologist Clifford Geertz’s interpretive model, constituted by the claim that “symbolic systems […] are historically constructed, socially maintained and individually applied.”[29] Rice’s model is outlined as follows:

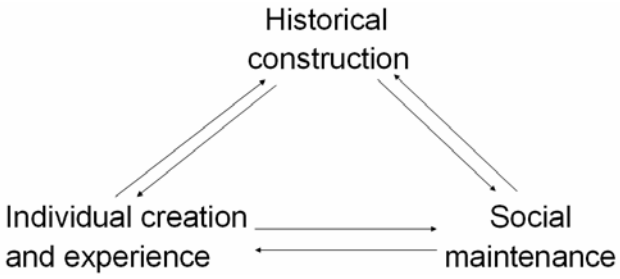


Figure 2. Rice’s model.

[27] Blacking 1995: 161
[28] Rice 1987: 470-471
[29] Geertz 1973: 363-364

In a somewhat simplified way, it could be said that if Merriam's model represented "the anthropological turn" in ethnomusicology, then Rice's model represented "the hermeneutic turn".[30] Rice claimed to have instantly recognized in Geertz's model three *formative processes* in music, whose dialectical relationship should form the core of ethnomusicological enquiry. In Rice's own words:

> I would like to examine the implication of a slightly modified form of this statement by Geertz as a "model for ethnomusicology." Simply put, I now believe that ethnomusicologists should study the "formative processes" in music, that they should ask and attempt to answer this deceptively simple question: how do people make music or, in its more elaborate form, how do people historically construct, socially maintain and individually create and experience music?[31]

Rice's model implies *interpretation* of how Merriam's three analytical levels contribute to the formative processes, rather than seeking to explain how these levels are formally related through causes and correspondences. According to Rice, this solves the problem caused by the constraining imperative of Merriam's model, i.e. to explain how musical sound is related to conceptualization and behavior: "Instead of trying to find homologies between unlike things – sound, concepts and behaviors – this model tries to relate like things, namely three formative 'processes.'"[32]

The focus on interpretation and the adaptation of Geertz's view of culture as systems[33] of shared symbols and meanings implies a "turn" in ethnomusicology in the direction of a hermeneutic, interpretive science. Through the corresponding turn toward an interpretive anthropology, represented by Geertz, it is insisted that the sharing of symbols and meanings is not to be confused with cognitive approaches suggesting that cultures are "inferred ideational codes lying behind the realm of observable events."[34] "Meanings are not 'in people's heads'; symbols and meanings are shared by social actors – *between*, not in them; they are public, not private."[35] Hence, behaviors and communicative actions are not simply seen as expressions of shared ideas about the world. Instead, symbols and meanings are thought to come into existence

[30] If the way in which this model demands a consideration of agency and efficacy in cultural production is taken into account, we might as well term this disciplinary shift "the performance turn", as this would resonate with corresponding "turns" within a range of related fields.
[31] Rice 1987: 473
[32] Rice 1987: 479
[33] The term "system" in Geertz's use is not to be confused with objectivist assumptions of a reified world independent of human experience and interpretation, as this obviously suggests a position diametrically opposed to Geertz's own.
[34] Keesing 1974: 77
[35] Keesing 1974: 79. Italics added.

through interaction between people; through ”humans engaging in symbolic action.”[36] In accordance with this view, anthropology becomes a matter of interpretation rather than decipherment:

> Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning.[37]

Interpretation, in turn “becomes ’thick description’ that must be deeply embedded in the contextual richness of social life.”[38] In Geertz’s interpretive anthropology, thick description emerges as a methodological strategy founded on the idea that symbols obtain meaning from the role which they play in the patterned behavior of social life. That is, the inseparability of culture and behavior calls for deep interpretations from the perspective of action and interaction where meaning is established.

The turn toward hermeneutics, with a focus on the production of meaning through human interaction and expressiveness resonates with my aims; specific features of performance are thought to be understandable only to the extent that one takes into account the “contextual richness” of which musical performance form a part (what I have termed the different levels of style), as well as how performance practice contributes to shaping the musical and social reality which constitutes a particular style. Put in other terms, my interest lies in the performative aspects of style in a double sense. First, the main focus is on musical performance in the sense of the way knowledge of style is utilized through the creative use of the expressive resources available. Second, musical interpretation and analysis rely on an understanding of how performance ritualizes stylistic realities through its power to create social and musical meaning. Here, the concept of performance is understood in terms wider than just the act of playing music, in that it is thought to encompass the totality of actions, choices, interactions and interpretations that constitute the reality within which the production and perception of music take place. To this end, every aspect of *style as process* is understood in terms of communication. This philosophical stance is summed up brilliantly by the ethnomusicologist Steven Feld:

> The term communication rightly evokes process and activity, but I would also like to emphasize two other aspects, those of meaning and interpretation. We cannot speak of meaning without speaking of interpretation,

[36] Keesing 1974: 79
[37] Geertz 1973: 5
[38] Keesing 1974: 79

> whether public or conscious. Communication is not, in other words, a "thing" from which people "take" meanings; it is rather, an ongoing engagement in a process of interpreting symbolic forms which makes it possible to imagine meaningful activity as subjectively experienced by other social actors. Communication is a socially interactive and intersubjective process of reality construction through message production and interpretation.[39]

Feld's statement captures a number of important concerns about studying style and musical performance. Above all, it helps to clarify the problem of homologies which troubled Rice. The communications approach Feld advocated does not treat meaning (social, musical or aesthetical) as transferable or translatable between people, or between different material and ideational domains. Instead, it is concerned with the production of meaning through processes of communication, interaction and interpretation. Or, how "engagement in the processes shapes, defines, maintains, and brings forth tacit or explicit subjective realities for participants in the scene."[40] From this perspective, it becomes rather pointless to speak of how conceptions of music are expressed in music, or how ideologies, identities and social meanings are expressed in music. A similar critical stance toward the homology model is taken within popular music studies, where the constitutive aspects of cultural activity (performance practice) have come to be considered seriously. Simon Frith, questioning the explicit or implicit assumption of homologies between social identity and musical expression within the sociology of (rock) music, writes the following:

> …the issue is not how a particular piece of music or a performance reflects the people, but how it produces them, how it creates and constructs an experience – a musical experience, an aesthetic experience - that we can only make sense of by *taking on* both a subjective and a collective identity.[41]

> What I want to suggest, in other words, is not that social groups agree on values which are then expressed in their cultural activities (the assumption of the homology models) but that they only get to know themselves *as groups* (as a particular organization of individual and social interest, of sameness and difference) *through* cultural activity, through aesthetic judgement. Making music isn't a way of expressing ideas; it is a way of living them.[42]

The way I choose to apply Rice's model in my research is thought to encompass all these fundamental theoretical concerns discussed above. First, the model reflects the general emphasis

[39] Keil & Feld 1994: 79
[40] Keil & Feld 1994: 79
[41] Frith 1996: 109
[42] Frith 1996: 111

on process rather than product, and the way in which exploring musical processes implies interpretation. Second, the model functions as a framework that integrates the different levels of style whose interaction must be accounted for to grasp what is going on at the particular level of musical performance. Third, individual perspectives are allowed to take a prominent position thanks to the focus on the way in which different musicians utilize their knowledge of style through performance. Moreover, performers are portrayed as historically, culturally and stylistically situated actors in a constant dialogue with their tradition. Thus, the rather narrow focus on particular performers and performances, and the underlying aim to contribute to the formalistically oriented area of rhythm research is not to be confused with a position that ignores the cultural meaning and contextual dependence of performance practice. More specifically, I suggest the interpretation of musical style is a dialectical process consisting of a movement between participating in the production of meaning, which is conditioned by negotiated sociological and musical imperatives, and distancing oneself to focus on the network of historical, social and individual processes according to which these constraints are shaped and reshaped. In practice, this means entering the process of music-making as a listener, musician and participant in relevant discourses, as well as trying to interpret the experiences from these primary relationships in light of the broader contexts and discourses of which they are part.

Theoretical eclecticism and methodological diversity

The general theoretical framework outlined above allows for explorations of a very wide range of musical and cultural phenomena. In principle, even elaborate and detailed music analyses, which traditionally are not closely associated with ethnomusicological work, are theoretically informed by this multi-leveled model. However, the disciplinary constraints are not treated as rigid: approaches associated with apparently conflicting paradigms have not been discarded. Thus, while all discussions are fundamentally based on an ethnomusicological (i.e. social and interactive) conception of musical processes, my investigation is situated in an interdisciplinary space between a range of separate fields of academic enquiry. For instance, in my discussions of analytical methods and principles behind performance timing I shall draw on research which is growing from music theory, psychology, music psychology, music cognition etc. Nevertheless, however intricate these enquiries may be, the overall aim is to attempt to understand style from the perspective of rhythmic performance, while attempting to theorize about principles of performance timing without losing sight of the contextual richness of the practices where particular cases are situated. In other words, measurements and detailed observations, general and specific aspects of rhythm production and perception, and style-dependent interpretations

concerning the expressive resources conveyed through the analyses are seen as inseparable within the theoretical configuration.

The historical approach in the following chapter is not intended to validate or discredit prevailing historical narratives of Norwegian folk music. Rather, I shall attempt to make a compact account of the mechanisms through which different "truths" have been created and socially and musically appropriated. This will provide a background for the analyses and interpretations presented in later sections in that the highly specialized performance practices that I have chosen to research are framed within a relevant historical and social-institutional context. It is also intended that a path of exploration and understanding be suggested, which might be productive for investigations of other styles. Thus, in accordance with the model chosen as a general framework for my work, the dialectical relationship between historical, social and individual-expressive levels of style will be clearly reflected by the outline of the text. This implies a gradual progression from general historical and sociological interpretations to more and more specific levels, with particular manifestations of individual performances as the final destination of the route. There is also a pedagogical logic to this in that the presentation requires more background knowledge as it progresses.

2 Formative processes

2.1 The historical-institutional level of style

The purpose of this chapter is to provide a theoretical rationale for investigating the processes through which musical style is historically constructed, and socially and individually negotiated and appropriated. Specific details and a chronology of historical events are accounted for only if they directly concern the development and consolidation of the pols/springar style as it has come to be generically defined. The reasoning behind this choice of approach is partly due to the impossibility of closely investigating the breadth of all relevant issues within one single study. In spite of this limitation, I insist on the necessity of a broader historical perspective for generic processes to contextualize properly the particularities of performance style, as well as to understand the constitutive interaction between these different levels of style. On a surface level, this dialogic relationship with history is evidenced through the ways in which musicians legitimize predominant musical practices by referring to historical sources, i.e. how their interpretation of history informs the discourses in which conceptions of style are rhetorically negotiated. However, there is also a latent or hidden level of historicity which is intrinsic to ideational and practical conceptions of style. Here I am referring to the fact that certain modes of musical expression which are gradually woven into the tradition come to be self-evident to such a degree that there is no need for strategies of legitimization. In this way, historization is as much about understanding the processes through which a musical style has been established as a social and musical reality from the perspective of its participants, as it is about revealing the ideological and philosophical basis upon which constitutive choices have been made and strategic actions are taken.

The dialectic between history and the present – the construction of the past

The point of departure for this brief exploration of the historical institutionalization of Norwegian folk music in general and the pols/springar style in particular is the musical and social practices and conceptualizations that prevail today and which comprise the contemporary discourse which defines the genre from the perspectives of its participants. This entails that the consensual "definitions" presented in chapter 1 form the central point of reference in a process of reflection and interpretation in which the dialectic between history and the present constitutes the horizon of comprehension and understanding. In this respect, there are two important points to be made. First, reading and interpreting history are constitutively framed by the ideologies,

historical conceptions, interpretive strands and tacit understandings of contemporary life. The theoretical point of reference for adherents to this position is a philosophy of history which emphasizes how history is created by the historians writing it[43], as well as theoretical conceptions through which it is stressed that the construction of the past is an outcome of power negotiations which reinforce political interests and ideologies.[44] *The past*, then, is seen as an ideological construction and *history* as myths reinforcing group interests. This makes historical knowledge a form of convention, or discursive formation, and although this might seem an extreme position, it quite rightly draws attention to the critical question of relativizing the relationship between history and the present. In this connection Trouillot's (1995) book *Silencing the past* is a valuable aid. According to Trouillot, history is created by historians by representing the human narration of reality, i.e. the selective interpretation of actual events and processes. A crucial part of the thesis is that regardless of the seriousness of the historian, much of the past gets *silenced*, passed over or pushed into the background. History understood as the general narrative of the past that most people of a particular culture learn and internalize, then, is the story of what is not silenced. Any historical narrative is thus a particular bundle of silences, and to the extent that one is dependent on historical knowledge, the researcher is imperatively bound to reflect critically upon how this selective silencing occurs. Accordingly, the conception of Norwegian folk music can be seen as a product of a range of historically framed processes of selection which the researcher needs to develop and maintain an awareness of.

The second aspect of historization, then, concerns the problem of interpreting fragments and clues from a musical past. Independent of the researcher's intentions, it is impossible to understand historical processes by living into the condition in which people acted in certain ways and made significant choices. This parallels the situation of contemporary folk musicians who seek inspiration from the past, in that their frame of interpretation inevitably is shaped by their historically situated biography of experiences and references, including the musical soundscapes of contemporary life. Thus, there is no "living tradition" in the sense of an unmodified and continuously nurtured musical conception, although this might be strongly believed by some groups of traditionalists. Even though old recordings are available, musical codes are not accessible by observing (surface) sound patterns, since what they signify in terms of the expressive resources utilized remains hidden from this contextually distant position. The rhythmic-temporal parameter in pols/springar styles is an illustrative example of this. For instance, it is far from obvious how to interpret the observation that there is variation in beat

[43] Trouillot 1995
[44] Anderson 1996

duration in a pols/springar recording from the early 20th century. Does this mean that beat duration is an active parameter in the sense that the fiddler intends to produce beats with different lengths? Or does it mean that beats are (passively) allowed to stretch and contract, leaving room for the active shaping, articulating and ornamenting of the melodic-rhythmic phrases in which these beats are embedded? In any case, the answer to this question cannot be deduced from the sound of the recording and the way musicians and researchers chose to interpret these signs from the past is a crucial aspect of the ongoing *construction* of style. The general point is that, through a complex pattern of interacting historical processes, the conditions for conceptualizing musical relationships are changed forever, regardless of how one wants the tradition to develop.[45] And because these changing conditions based on which musicians utilize their knowledge of style through performance are constantly being appropriated through the more or less invisible process of reinterpretation, the historization of style always needs to be an interpretation of stylistic change through *naturalization*.[46]

Mechanisms of selection – Canonization – Institutionalization

The selection processes crucial to shaping Norwegian folk music as a genre might be illustrated and illuminated by mirroring historical events in what appear to be the conditions based on which contemporary audiences and musicians understand their position and their music. Perhaps the most obvious example of these historically constructed circumstances is the vast amount of material (transcribed or recorded tunes and songs) which is available to folk musicians only because it was documented a long time ago. But it is also necessary to increase the level of abstraction and investigate how models for performing and interpreting music and handling instruments have been historically constructed, socially maintained and individually appropriated and reformulated.

The fundamental characteristic of the historical context within which Norwegian folk music as a musical genre could be established is that its forms of expression were situated within a broader musical-cultural setting in which stylistic distinctions and ideological positions become visible. Retrospectively, it seems that this occurred after that vague point in time after which folk music, as it is materially and functionally defined today, had lost its natural place as dance and

[45] Another striking example is the so-called quarter-tones (tones in between semitones) often found in early recordings. Since most Norwegian and Swedish fiddlers of today are used to a tempered scale, these tones tend to be experienced (and highlighted in performance) as deviations or exceptions from nominal pitch values, while this most certainly was not the case for fiddlers who lacked the musical "education" of growing up in a world filled with tempered music.

[46] This term is borrowed from Roland Barthes and his interpretation of the myth. According to Barthes, myth is a socially determined collective representation which is inverted through a symbolic process where the social, the cultural, the ideological and the historical are naturalized (Barthes 1977: 165).

ceremonial music in rural communities. It is within this (modern) context that *selected* parts of what had been highly localized practices and forms of musical expression can be institutionalized into a coherent and distinctive musical genre.[47] Important steps along the way include the extensive but selective work related to collecting and transcribing tunes, songs and tales from the early 19th century and onwards, and the establishment of national organizations whose explicit purpose is to preserve and promote Norwegian folk music as an exclusive form of musical and cultural expression. This kind of specialization has led to a consolidation, through making explicit characteristic musical features and attitudes associated with folk music, and by contrasting these features and attitudes to more or less undesirable alternatives. Other elements which have led to consolidation include radio and phonogram productions from the 1930s and onwards, arranging competitions, and other efforts which have created arenas where collective understandings have been nurtured and negotiated in a dialogue with more or less related positions which have been actualized in different historical settings.

The collection of Norwegian folk music – National Romantic ideology and generic canonization

Reviewing the massive efforts which aimed to document rural forms of music during the 19th century is a necessary part of the attempt to historicize the processes of canonization and consolidation which constitute the main mechanism of the historical construction of style.[48] There is a consensus which goes more or less unquestioned among folk music scholars that existing folk music collections represents a *selection* made according to criteria which were not necessarily in accordance with "the people's" own conceptions and preferences. Fieldwork efforts were initiated by a cultural elite informed by National Romantic ideologies.[49] In general, this was related to constructing a national culture, which was in turn nurtured by the historical, political and ideological circumstances surrounding Norway's desire for independence.[50] Thus, documenting tunes and songs has to be seen as a part of the historical production of official narratives of national music. This grand project also involved composers who were more or less directly inspired by folk songs and fiddle tunes, among them Edvard Grieg (1843-1907) who played an important role in forming a national music.

Roughly speaking, the first generation of folk music collectors were basically concerned with selectively gathering "raw material," and showed little interest in the diversity of repertoires

[47] Cf. Johansson 2001
[48] See Gaukstad (1980) for an exhaustive presentation of the history of the collection of Norwegian folk music.
[49] Havåg 1994
[50] Apeland 1998; Havåg 1994

and styles represented by local knowledge holders. This view was also reflected in the transcriptions, as a lot of the peculiarities of folk singing and playing were left out in favor of a straight/clean representation of the basic melodic and rhythmic outline. As Aksdal (1993a) writes: "The folk melodies were generally looked upon as a common Norwegian cultural heritage with a high intrinsic value of their own, regardless of the actual performance […]"[51] In sum, this work took the form of collecting artifacts, which were ascribed a symbolic value, rather than anything resembling an ethnographic documentation of the vernacular uses, functions and aesthetics of this music. This impression is strengthened by the fact that the folk melodies were generally modified and harmonized before publication, indicating that they were clearly intended for use within another stylistic/aesthetic context than that of "the people".[52]

During the second phase, estimated roughly to have taken place in the latter part of the 19th century and the first part of the 20th century, collecting traditional music was more explicitly motivated by the historical circumstance that the older forms gradually fell out of use as a result of a complex interplay of social-economic forces, demographic changes and musical influences. Thus, a main goal was to keep this music from disappearing, an idea and practice which prevails to the present day, although this role has now been assumed by national and regional archives and private historians.[53] The oldest, most "authentic" forms of tunes and songs drew most interest, and this was also the case with the pioneers within the field. The gradual *process* of change, typical of any culture or community generally was not considered to be an important criterion, as folk music collectors and researchers were not interested in the process of folk creation and evaluation, but in carefully selected *products* of this process.[54] As Havåg (1994) notes, in spite of ideological divergences, the aesthetical approach to folk melodies prevailed throughout the different phases of academic folk music discourse.[55] In addition to the National Romantic influence, this ideological stance was informed by aesthetical debates within the European art music discourse.[56] Apart from the unambiguous manifestation of this ideologically informed selection in the form of existing folk music collections, there is a more profound level

[51] Aksdal 1993a: 321. My translation. Original text:
"Folkemelodiene ble gjerne sett på som en felles norsk kulturarv, med en høy egenverdi uavhengig av selve fremføringen […]"
[52] Important folk music collectors during the early and mid 1800s were Ludvig Mathias Lindeman (1812-1887), Olea Crøger (1801-1855), Marius Brostrup Landstad (1802-1880) and Andreas Peter Berggren (1801-1880).
[53] The vast number of people who have contributed to the documentation of tunes and songs, and the variety of perspectives from which this work has been initiated, makes it unrealistic to cover this history in detail. However, some of the most influential researchers and collectors deserve to be mentioned. These are Catharinus Elling (1858-1942), Ole Mørk Sandvik (1875-1976), Arne Bjørndal (1882-1965), Einar Övergaard (1871-1936), Erik Eggen (1877-1957) and Eivind Groven (1901-1977).
[54] This closely parallels the way in which the Swedish folk music canon was constructed (Johansson 2001).
[55] Havåg 1994: 92
[56] Havåg 1994: 90

of constitutive power which is demonstrated by the idea of folk music as *art* and folk music entities as *art works*, i.e. as closed entities whose existence was independent of their creator and/or performer. This may have far-reaching implications for the way in which the tune as a musical entity has been conceptualized by researchers as well as by musicians. As Kvifte (1994) suggests, the idea of the tunes being art works that needed to be saved for the future implied a focus on the product (the individual tune as a closed entity), rather than on the dynamic process of learning and performing, which inevitably involves variability and change.[57] Accordingly, variation and improvisation have been dealt with only to a very limited extent during the last 200 years of academic folk music research. The most striking remnant of this aesthetic position is perhaps the prevailing conception of so-called *variants*, i.e. different versions of the same tune. The folk music collectors seem to have treated variants as a property of the music itself rather than as a result of the creative potential of the individual musician.[58] This is reflected in contemporary discourse and practice in the sense that musicians generally treat different variants of the same tune as two different melodies ("works"), rather than as examples of how *one* tune might be varied in performance.

Another influence from Romantic ideology was the idea of the folk musician, the fiddler in particular, as an *artist*, though again without focusing on the function (as a musician for dancing and ceremonies) associated with his/her role within his/her community. This was paralleled by more interest in the peculiar stylistic features of folk performance, the "exotic" features that set this style apart from other styles. Somewhat simplified, the "strange" rhythms, the "deviating" pitches etc. were no longer regarded as the result of misconceptions and a lack of musical training, but as stylistic trademarks of folk singing and playing. But folk music academics were still informed by the European art music discourse in their search for aesthetic rules that could explain and legitimize the *nationally* specific character of this music. To aid this assessment, scientific work was carried out with the more or less explicitly stated aim of proving that there are certain rules behind melodic and rhythmic patterns. The "discovery" of and controversy about the so-called quarter-tones was highly important in this respect and two doctoral theses published in the 1920s were dedicated to the subject.[59] Another stylistic trademark that drew the interest of academics, although this occurred during the latter part of the 1900s, was the asymmetrical rhythms in traditional dance tunes in triple meter.[60] This is another example of

[57] Kvifte 1994: 10
[58] Kvifte 1994: 10
[59] See Havåg (1994) for a more thorough discussion of the scientific-theoretical and ideological premises on which the construction of a Norwegian folk music canon is based.
[60] See chapter 3, where research literature on this subject is presented.

ideologically and scientifically informed selection, where the main interest was on the features that distinguished this music from other styles. The following section deals with the way in which these consolidating practices have been taken over by the folk music community and how the pols/springar styles have been framed within this activity.

Formal and informal institutionalization

Sigbjørn Apeland (1998) has, by exploring the historical and contemporary discourses which have constituted and consolidated dominant conceptions and practices, convincingly demonstrated the construction and maintenance of Norwegian folk music as a cultural field. One of his theses is that the Romantic legacy came to manifest itself in the rhetoric and musical practice of the folk musicians themselves. The aesthetical approach to the material, and the idealization of the skill and craft of the master fiddler, continued to be nurtured within the contexts of competitions and other organized folk music activities throughout the 20th century. The important difference was that it was the folk musicians themselves who had taken over the cultural-political project of preserving and refining the national musical heritage. This parallels a process where folk music as an autonomous field is consolidated through the way in which musicians, dancers and audiences organize themselves. According to Apeland, the founding of LfS (*The Norwegian National Association for Traditional Music and Dance*) in 1923 marks a pivotal point at which folk music changes from being a part of the discourse about national culture to constituting an independent cultural field.[61] As mentioned in chapter 1, a lot of organizational and informal activities developed in the latter part of the 1900s, which have further strengthened the independence of the field and continued to nurture the practices and conceptions through which this independence is manifested.

There are some general conclusions to be made from the attempt to account for the institutionalization of the practices and conceptions that make up the stylistic reality within which artistic behavior and musical evaluation are framed. First, as well as being supported by historically constructed webs of references and intrinsic meanings, certain levels of collective genre-consciousness manifest themselves in the existence of organizations, festivals, competitions, concerts, workshops, educational programs, archives, research centers etc. which explicitly and exclusively have a certain form of music as their area of specialization. The very existence of these institutions does not imply an unambiguously defined field, but is an example of mechanisms of selection and consolidation which operate institutionally rather than individually. This argument can be expanded to imply that the discourse surrounding Norwegian

[61] Apeland 1998: 65

folk music, as manifested in institutional and informal practices and rhetorical forms, constructs, constitutes and naturalizes dominant conceptions, attitudes and ideologies. As such, the instances of externalization of group beliefs do not merely reflect existing interests, ideals and conceptions. Instead, these aspects of musical and social knowledge are constructed, and come to appear as mutually recognized, implicit imperatives, *through* the practices and selection processes which characterize the field. Style, understood as the socio-musical realm within which musical expression is situated and gains meaning, then, is constituted and maintained by the spontaneous and institutionalized actions of musicians, dancers and listeners who constantly reassure one another of a shared, coherent musical and social reality. Thus, stylistic boundaries constitute both musical and social boundaries through the cultural alignment of musical style to social groups, by which a sense of sociality and musicality is mutually enacted by the members.

The second point to be made concerns stylistic change and the resistance and opposition which are inherent to any cultural practice. Within Norwegian folk music, there have been a lot of ideological and cultural-political battles during the last 25 years.[62] One conflict that has been at the very heart of these debates is the definition of tradition, and the ideologies and constraints associated with this concept. In short, should the notion of tradition imply preserving and continuing to maintain a musical heritage, or should this concept refer to the dynamic process of change and revision, thereby guaranteeing the continued musical vitality of the genre? The demand for artistic freedom and creativity from many younger, contemporary folk musicians who refuse to accept the dogma of the established, organized community highlights the relevance of this question.[63] From this perspective, collective and individual levels where style manifests itself might be conceived empirically-speaking as part of a field of tension in which prominent actors struggle for authorship. From a cultural-theoretical point of view, then, what is interesting is not only the tendency for innovating, experimenting and rejecting established conventions, but also the historically constructed conceptual foundation upon which the struggles and tensions are based, i.e. what is not discussed but taken for granted as commonsense. Thus, the presumed mutuality and intersubjectivity conditioning and constraining these investments in innovation and expanding horizons are thought to be exposed in the tension between conventional and oppositional forces. In accordance with Bourdieu's notion of the *doxa*, controversy reveals the evaluative presuppositions based on which different positions are understood.[64] This would

[62] See Arnestad 2001
[63] See Berkaak 2004
[64] In Bourdieu's words, antinomies within a field "…paradoxically, unite those whom they divide, since agents have to share a common acceptance of them to be able to fight over them, or through them, and so to produce

suggest the need for exploring how the collective level of style is continuously, silently renegotiated, rather than radically changed in parallel with emerging creative and/or radical actions and attitudes. In plain language, the discussion of preservation vs. innovation implies that it is taken for granted that the traditional styles and repertoires used as references are historically real. This underlying, commonsense understanding constitutes a powerful vehicle for defining a mutual sense of stylistic reality: it also directly concerns the maintenance of the (traditional) pols/springar styles as distinct realms of musical production and audience appreciation. In short, the *art* of playing tunes and the stylistic conventions associated with this musical practice constitute an unquestionable part of the musical-practical and conceptual framework within which artistic-innovative and conservative positions are negotiated. The implications of this consensual definition of style will be further discussed in the final section below, in which the status of the pols/springar styles is more directly addressed.

The construction of the pols/springar styles – summarizing conclusions

In general, the fiddle-based, soloistic styles of tune-playing have drawn a lot of interest from academics, organizations and musician communities throughout the 20th century. In a way, these styles represent an essence of the distinctive and exotic features of folk performance which have come to be emblematic of the musical practices that are identified as folk music within a contemporary, multi-stylistic context. The different styles of pols/springar playing are prototypical in this respect in that native theorization, supported by academic conceptions of the uniqueness of this music, have fostered a sensitivity for subtle characteristics and distinctions that are considered crucial to the stylistic identity and quality of a performance. The notion of different *playing dialects* has been particularly well theorized within this sub-style and it is generally assumed that it is here that the dialectal differences are most pronounced.[65] Rhythmic style, defined as the characteristic beat accentuation and duration structure of the different types of pols/springar dialects, is a particularly important criterion, as opposed to melodic structure, which in principle may be the same in different styles. In fact, the term *dialect* is more or less equivalent to the definition of rhythmic style. As Thedens (2000) notes, "the rhythm of the springar is the trait most often referred to as 'dialect' in the folk music community…"[66] This consensual understanding clearly manifests itself in the way performances at competitions are

position-takings which are immediately *recognized* as pertinent and meaningful by the very agents whom they oppose and who are opposed to them…" (Bourdieu 2000: 100-101)

[65] For instance, it may be difficult to determine the dialectal difference between two fiddlers playing a bridal march from their respective home villages, while the difference between two *springar* dialects is generally completely unambiguous to a knowledgeable listener.

[66] Thedens 2000: 88

evaluated. In these contexts, it is not only tacitly taken for granted but explicitly stated in statutes and evaluation forms for judges that the particular pols/springar dialect that the performer represents is the norm according to which the qualities of the performance should be judged. Each tradition/dialect is considered to have its own characteristic set of stylistic traits and decorative elements which the musicians are supposed to demonstrate and use in their performance. Thus, in addition to the general accentual and durational aspects of rhythm, there are criteria such as tempo, phrasing, the use of ornamentation and double stops etc. The judges are obliged to consider each dialect on its own terms. Accordingly, the demands for the use of embellishments, virtuoso tricks etc. vary from one style of pols/springar playing to the next and the judges should not criticize a performer for lacking such elements if the style of playing is in accordance with the stylistic norms of the dialect.[67]

The well-established map of distinct local and regional styles of pols/springar playing is a particularly striking example of the way organizationally and institutionally framed practices along with scientific and semi-scientific work have fostered the dominant conceptions of style. The argument is simple: there is no historical evidence to support the idea that fiddle-based styles of pols/springar playing were ever as distinctively separate as they are today. Rather, this style-map is constructed by the activities of the community within which such stylistic distinctions are important. Moreover, the very concept of *playing dialect*, which is an academic construction, along with a regionalist (as opposed to national) ideology, has most certainly influenced the musical practice of traditional fiddlers by creating a focus on the distinguishing hallmarks of different local styles.[68] More generally, folk music styles tend to be defined relationally in the sense that alternative styles are used as references for comparison. In other words a local/regional/national style is defined negatively by determining what it is not, as much as by describing what it is. In more theoretical terms, the construction of *stylistic markers* (see below) by assigning certain details of playing style a determinative function is an essential aspect of the cultivation of the different styles of pols/springar playing. Moreover, this process is historically determined in the sense that it only can occur in a socio-musical context in which stylistic distinctions are important. Thus, the historical context in which a range of *different* styles exists as available alternatives is in itself an important premise for the process through which distinctive stylistic hallmarks are nurtured and refined.[69]

[67] These complicated but generally agreed upon criteria are explicitly stated in the protocols/guidelines used by judges at competitions. See the LfS (*The Norwegian National Association for Traditional Music and Dance*) website at http://www.folkemusikk.no/, where current statutes and directives are published.
[68] Cf. Thedens 2000: 99
[69] Cf. Johansson 2001

The above discussion touches on the sociolinguistic concept of *marking*, which refers to a linguistic variable conveying social import, people being aware of the distinction and associating it with groups within a speech community.[70] My notion of *stylistic markers*, then, implies a cultural process through which certain musical features are assigned a determinative role, i.e. as something by which a certain style is identified and contrasted against alternative styles. There are some implications of this understanding of marking. Above all, stylistic markers should not be treated as descriptive musical-analytical terms. Rather, the concept informs a wider debate around sociological questions of identity and boundary maintenance. First, considering that styles are defined relationally, representing a style (as opposed to another style) involves the pursuit of negotiating one's position within a field of relations. Accordingly, marking serves the purpose of establishing and maintaining stylistic and social boundaries. Second, this positioning tends to result in a focus on the idiosyncratic features marking a distinction between alternative styles.[71] This may involve the cultivation and highlighting of certain stylistic traits, which through a gradual process of appropriation become naturalized as truly emblematic of the style in question. Third, the fact that certain musical features become important as markers of stylistic identity is the result of a process of selection from among many and diverse alternatives (that may be equally historically correct/authentic). Moreover, in the source material (archive recordings or other material) these features may be so closely integrated with other aspects of performance style that they are hardly noticeable as separate elements. It is when these elements are identified and labeled (marked) that they become the subject of discourse and may be assigned the function of expressive parameters of their own.[72] Thus, the stylistic markers are not just given in the sense of being already present in the source material; they are constructed through the strategic interpretive activity by which they are discovered and utilized. Finally, when established, stylistic markers may have a consolidating effect on the process of stylistic change. That is, marking produces difference and strengthens boundaries by emphasizing the distinguishing aspects of different stylistic practices. Moreover, stylistic markers may influence subsequent interpretations of old recordings and other source material by providing a culturally

[70] Coulmas 2006; Crystal 2009

[71] The different styles of beat asymmetry discussed in this thesis are striking examples of this: the difference between these styles of rhythmic articulation seems to be more pronounced today than ever before.

[72] Again, beat duration asymmetry defined as an autonomous stylistic feature is an illustrative example. That is, it is by no means given how to make rhythmic sense of many of the early recordings of pols/springar playing, which indicates the need of a selective interpretation rather than simple adoption.

acceptable model of how tunes within a particular style are to be performed, thereby reducing the infinite number of possible readings.[73]

The important conclusion to be made in my research context, however, is that the soloistic style of pols/springar playing is indeed an art form with highly distinctive stylistic conventions and performance formulas, regardless of the historical correctness of this conception. The purpose of the discussion above has been to provide a perspective on the processes through which this stylistic universe has developed and been consolidated instead of just accepting the commonsense definition provided by the existence of formal and informal institutions and practices. In the following part I shall leave this cultural-analytical perspective of the constitutive forces behind prevailing canons behind and discuss what it means to make music within this style.

2.2 Identifying the core of performance style – the individual-expressive level of the generic framework

In this part, I shall attempt to conceptualize style on a more idiomatic level with a focus on the expressivity of individual musicians engaged in a dialogue with their tradition. Though I narrow the focus, I still have the wider picture in mind, which resonates with the structure on which my thesis is modeled. For instance, the fact that soloistic tune-playing stands out as the core of folk music activity must be understood in light of the historical development of formal and informal institutions within which certain attitudes and practices have been nurtured. The same can be said of the distinctiveness of the different styles or grooves within the pols/springar genre, which are clearly historically constructed in the sense that stylistic boundaries have been strengthened through the axiomatic theorization and consolidation of practices within the organized folk music milieu. Although these processes need to be taken into account throughout, the points of reference will gradually become more detailed and specific to the style of performance under investigation. In accordance with the aim of understanding this aesthetic practice on its own terms, the increased resolution and increased attentiveness toward specifics is unavoidable. This will be made evident with reference to the fact that apparently small variations and nuances, particularly in rhythm, are crucial to the very identification of style in the first place.

[73] This reasoning may also support a more speculative interpretation, namely that the assigning of intentions to performers from the past is informed by the (contemporary) reifying process of marking. For instance, an observation of uneven beat durations in an old recording may easily lead to the conclusion that the performer's attention is centered on the temporal domain and that he/she intends to produce beats with different lengths, although several other interpretations are equally plausible. One reason for this may be that our interpretations are framed by our concerns with boundaries and distinctions (for instance between different styles of beat asymmetry), and the conceptual models according to which these distinctions are defined.

Furthermore, rhythmic and melodic variability stand out as determining, idiosyncratic characteristics of the style in question, which cannot be done justice by surface observations and mere description. This emphasizes the importance of the question of at what levels the expressive resources constituting the core of the style are located from the perspective of performers and attentive audiences. The way in which these questions resonate with more general conceptions of stylistic differences and the relationship between material and expressive levels of style is the crux of this chapter.

Compositional processes

In this section I shall attempt to outline a general perspective regarding the processes that have generated the basic inventory of tunes available to folk musicians and thereby provide a starting point for a discussion of the relationship between material and expressive levels of performance, and between individual creation and collective appropriation. Central to this approach is an account of the shifting status of the tune as a musical work.

As with many other oral traditions, rarely can an identifiable individual be established as the composer of a tune. The term *communal composition*[74] refers to the nature of the process through which the tunes are thought to have come into being, i.e. where melodic material have been added and gradually varied by generations of contributors. A related term is *communal re-creation*[75], indicating that the compositional process relies on a material base which is already known, as well as on the expressive, variational means through which ever new entities may emerge. Here it is important to note that although the basic constraints of style are negotiated collectively, the compositional process is not to be confused with the creative act of anyone within a community. There are good reasons to believe that many traditional musicians were highly specialized, constituting a kind of community of their own, across geographical locations.[76] For instance, the tremendous skill that is necessary to replicate many of the performances found on early recordings (early 20th century) of traditional fiddlers suggests that the technical and musical mastery required to actually "make a statement" was the exclusive property of specialists. Recognizing the artistic qualities of traditional musicians resonates with more recent performance approaches within folklore studies, in which the focus is on individual authorship within contextualized interactions.[77] Moreover, the so-called dialectal differences

[74] See Tokofsky (1997) for a more thorough discussion of this term.
[75] See Ben-Amos 1983
[76] See Ternhag 1992
[77] Tokofsky 1997

between local and regional styles may be attributable to the idiosyncratic, creative decisions of individual musicians to a much larger degree than is generally assumed.[78]

Mapping out the origin of a traditional tune is usually impossible, (though there are exceptions). The reason for this is the continuous process of re-composition referred to above. At the same time, it appears as if many of the distinctive features of repertoire and playing style stems from what might be called the "golden age" of Norwegian and Swedish folk fiddlers. According to a rough estimation, we are dealing with the period around the mid 1800s, when a lot of tunes seem to have been given the basic form they have today. It is well-documented that several of the most renowned fiddlers of this era, with whom many tunes are associated, took simpler song and dance melodies and built them out form-wise. This is demonstrated by the simultaneous existence of simpler and more advanced forms of the same tunes in transcriptions of different fiddlers' versions.[79] Here the different forms are often directly associated with particular fiddlers, indicating how the individual may have contributed significantly to the shaping of the tune.

The consolidation of performance style

The other aspect of style which has come to be refined and consolidated is performance style, meaning the way in which the flexibility of the material properties of the repertoire is highlighted by melodic-rhythmic transformations, the use of a range of different embellishments etc. This level of music-making through performance cannot be clearly separated from the "compositional" level previously discussed. However, here I am referring to a lower level of performance action, which contributes to the stylistically recognizable *sound* of the tune, as well as to an aesthetically pleasing variation. Hence, the development and continuation of certain styles of rhythmic articulation/phrasing, ornamentation, distinctive bowing patterns, typical ways of using double stops etc. have come to be at least as important to the identification of style as the more general structural properties of melodic-rhythmic architecture. These distinctive features of performance style are closely related to the creative use of the expressive resources and idiomatic constraints of the fiddle/Hardanger fiddle. The Hardanger fiddle styles in particular stand out as prototypical examples of the dialectic between repertoire, playing style and instrument. In addition to the sympathetic strings, this fiddle is high-pitched (H-C# instead of A), there is a very short distance between the fingerboard and the strings, and the bridge is almost flat. These features facilitate a kind of polyphonic playing-style with complex

[78] Thedens 2000
[79] Striking examples are found in the large collection of tunes *Slåttar for the Harding Fiddle* (Blom et al. 1981).

combinations of double stops and ornaments which are very difficult to imitate on an "ordinary" fiddle. While these properties of the Hardanger fiddle have naturally led to developing and refining a certain repertoire and certain styles of playing, it is important to recognize the mutuality of this process in the sense that existing repertoires and general musical conceptions most certainly have affected the construction and historical development of the instrument. This becomes evident when considering the fact that the Hardanger fiddle has been continuously modified throughout its history. Among other things, one extra sympathetic string has been added (5 instead of 4), facilitating the extensive use of double stops (rather than drones) that has come to be developed into a recognizable stylistic attribute.[80] It has also undergone significant changes in terms of its construction and overall shape so that it gradually came to resemble a violin.[81] Finally, the fact that pols/springar tunes (and tunes in general) have generally been performed by solo fiddlers has clearly been an important factor in the development and refinement of performance styles. This becomes evident when considering that playing these tunes in an ensemble has proven to be highly challenging, unless tonal and rhythmic peculiarities are "normalized".[82] Accordingly, some of the irregular and seemingly unpredictable features of the pols/springar style are believed to be directly related to the freedom of rhythmic and tonal articulation associated with this soloistic tradition.

Variation and improvisation

Regarding variation and the spontaneous act of "composition" that appear to be the process through which the basic material-structural properties of this style have developed, it should be noted that there is historical information to indicate to what extent fiddlers varied their performances at all or added new material to established forms varied greatly. At one end of the scale, one might find fiddlers who reproduced their teachers' versions as accurately as possible and who did not improvise at all. At the other end of the scale, there might have been fiddlers who always added something new to the tune, who constantly rearranged its formal setting (the succession of motifs) and who improvised by using embellishments, bowing patterns and double stops creatively.[83] Regardless of these historical considerations, however, it is noticeable that most known traditional tunes seem to have become fixed in rather rigid forms. At some point, the

[80] This has to do with the number of tones and combination of tones (double stops) that reverberate with the sympathetic strings. With only four sympathetic strings, some double stops stand out with a weak sound compared to the rich timbre of other combinations. By adding one string, the timbral contrasts are evened out, and the instrument is adjusted in accordance with a playing style where this extensive use of double stops forms an intrinsic part.
[81] See Aksdal 1993b
[82] See Johansson 2001
[83] See Kvifte 1985

process of collective and individual "composition" appears to have stopped in favor of a creative process aimed at refinement and preservation. Thus, stylistic change during the 20th century cannot be primarily attributed to the creative input of "composing" fiddlers, but to the complex process of reinterpretation, in which the ideational and practical conception of style is thought to have been constantly transformed, regardless of the rigidness with which some have attempted to preserve old forms (see chapter 2.1).

In spite of the consolidation of tunes as more or less closed structural entities, there is apparently still great freedom at what might be termed a lower level of "composition". This small-scale variability can be found at two levels. First, there is the empirically evidenced freedom to work out a basic setting of the tune in accordance with individual preferences and skills, as well as currently accepted stylistic conventions. In this creative process of shaping the tune, the fiddler tends to make use of a rather limited set of "methods". Typical examples include arranging the patterning and dramaturgical progression of bowing figures, ornaments and double stops. In some cases there is also variation in form through manipulation of the succession and repetition of motifs, or by combining different known versions of the tune. Second, there is spontaneous variation during the course of the performance. It should be noted that the span of stylistically acceptable is very large. At one end of the scale, there are performances with no variation at all except for accidental performance errors. At the other extreme, there are performances in which no motif is played the same way twice, although the tune remains clearly recognizable. Ideals of technical perfection developed within the contexts of competitions, professional recordings etc. appear to correlate to a tendency to have more fixed forms, but this is difficult to make generalizations about as the extent to which skilled performers use improvised, expressive variations varies greatly. The important point to be made here is that the culturally defined boundaries of a certain tune allow for both different degrees of compositional manipulation, and different degrees of spontaneous variation and improvisation when performing. Thus, regardless of the tendency to have rehearsed and more rigidly constructed outlines, pols/springar tunes are open forms, i.e. they constitute sets of *potential realizations* which may vary along a continuum between extremes represented by individual and unique interpretations. Moreover, the observation that many versions from the best fiddlers tend to cluster around the extremes does not mean that these interpretations are not representative. Rather, these versions are treated as the potentially most information-rich manifestations of pols/springar playing, as they comprise a variety of features that are emblematic of this style of performance (see chapter 4.3 on selection of material).

The essence of style – concepts and distinctions

While the description of performance style presented above has basically been narrative-historical in nature, in this section I shall attempt to identify some general principles in which this way of music-making may be conceptualized. The aim is to move beyond the level of generic classification and focus on what mastering a style from the perspective of the performer means. The target of this interpretive activity, then, is what might be termed ”the musician’s language.” This approach also allows for a comparative discussion in which different modes of musical creation and experience are considered to be constitutive of different styles.

The concept of *tune-playing*

The task of identifying the core of musicians’ knowledge may be approached in different ways. Generally, the term *tune-playing* appears to embrace important aspects of this narrower focus on the essentials of performance practice, as it refers to the material and performative multi-dimensionality of the practice of playing tunes. The reason for using a generic term derived from the Scandinavian languages (instead of just writing “playing tunes”) is the fact that *tune-playing* (*låtspel* or *spel*) as a linguistic construction refers to a certain conception of style, rather than to a general type of activity. It is partly related to repertoire (which melodies are played), but first and foremost to musical skill and performance style (what to do with the melodies), i.e. the craft and knowledge involved in performing music within a specific sub-genre. It is also related to processes of labeling and negotiating between more nuanced musical distinctions between style categories. The Swedish folk musician, multi-instrumentalist and band leader Ale Möller’s journey into Swedish and Norwegian folk music since the early 1980s provides an interesting case study of the process through which this essential core of stylistic knowledge is identified and appropriated. Möller’s musical background is jazz and Greek folk music, and his first attempts to approach Swedish folk music took the form of him mainly being a backing musician with the mandola/bouzouki as his main instrument. He soon discovered that an understanding of the subtleties of performance style was requisite to get on the inside of this style:

> […] I love to be obsessed and manic about music and tried to learn everything. I mean, it’s not enough to come here with your cool instrument. If you are going to be a folk musician on an instrument foreign to the tradition, then you have to learn all these codes, you have to be able to play in triple time in 30 different ways and stylistically know the difference between a *uppländsk bondpolska*, a *hambo* or a *Boda-polska*, since they all look the same on a score. But they are not the same, and this is known to anyone familiar with the style, and

here I was quite hard on myself and didn't expect to be accepted in the folk music milieu until I knew these differences.[84]

Besides suggesting the importance of the rhythmic domain and the subtle distinctions therein, Möller's reflections also capture very usual conceptions of what this music is about. When moving even further in the direction of identifying this essence of style, he employs the term *tune-playing*. He also defines folk music as a style of performance rather than a repertoire by referring to his performance-based (rather than repertoire-based) conception of the term of tune-playing:

> […] when I started playing melodies, "andrastämmor" (accompanying melodies) and the like, then the models to imitate were diminishing. I mean, I had heard a guitar accompaniment and other similar [to the mandola] instruments […] but it wasn't tune-playing, and to me *tune-playing is a musical term which is a summary of melodic performance with a focus on the intricate but very important articulations on which this entire style is founded, to perform a melody in such a way*. It has also been fruitful to remember, or remind myself of an insight that came to me, in my case rather late, namely that *folk music, as I find the concept usable, is not a repertoire but rather a way of performing the music, a way of making music, a playing style that is to say, not a repertoire*.[85]

The reason for using an exceptional case like Möller to exemplify attitudes and conceptions intrinsic to the term tune-playing is that his outsider-insider journey seems to have led to reflections which we generally would not find in "ordinary" fiddlers. Among traditional fiddlers, the importance of more nuanced levels of phrasing, timing and articulation is mostly taken for granted and these levels are only discussed or corrected when they are considered not to be working properly. As always, experience and knowledge from relevant social and musical

[84] From an interview I conducted 29-10-2000. My translation. Original text:
"[…] jag älskar att bli besatt och manisk när det gäller musik och liksom gick ju då in för lära mig allt. Jag menar det räcker ju inte att komma och tycka att här har jag ett ballt instrument, utan du måste, menar jag då, om du ska bli spelman på det instrumentet, på ett traditionsfrämmande instrument, så måste du ju lära dig alla dom här koderna, du måste kunna spela i tretakt på 30 olika sätt och stilistiskt veta vad det är som skiljer en uppländsk bondpolska från en hambo eller en *Boda-polska*, eftersom dom på noter ser likadana ut va. Men dom är inte samma, och det vet man, när man kan det, och där var jag rätt hård mot mig själv att jag förvänta mig inte att bli accepterad i spelmansmiljön förrän jag kunde dom skillnaderna."

[85] From an interview I conducted 29-10-2000. My translation. Original text:
"[…] från och med att jag liksom börja ge mig in på att spela melodier, andrastämmor och annat sådant…så glesnade förebilderna ut va. Jag hade ju hört liksom ett gitarrkomp eller hört en citter, mycke liknande instrument […] men det var inte låtspel, och låtspel blir för mig en musikalisk term som handlar om en sammanfattning av melodispel med inriktning på dom intrikata, men väldigt viktiga artikulationer som gör att…som hela spelmansmusiken bygger på va…att framföra en melodi på ett sånt sätt va. Det har också vart fruktbart att komma ihåg, eller påminna mig om en insikt som kom, i mitt fall ganska sent, nämligen att folkmusik, så som jag tycker att begreppet blir användbart, inte är en repertoar, utan är ett sätt att utföra musiken, ett sätt att musicera, en spelstil alltså, inte en repertoar."

interactions is needed to be able fully to grasp musical terms as *concepts*. As the Finnish music researcher Erkki Pekkilä points out, concepts used by musicians to suggest important aspects of their understanding of music and music-making are ”not given to us as ready ones but they are hidden in our informant's discourse about music.”[86] In the case of Ale Möller, however, we get a well-articulated account of the *concept* of tune-playing from the musician himself. As suggested, this concept implies that style is identified as a way of performing music or as the manner in which the material properties are articulated through the way the instrument is handled, phrasing, timing, intonation etc.

In sum, without considering the specificities and heterogeneities of the historical development and consolidation of repertoire and performance style, it can be concluded that identifying musical style relies heavily on appropriated performance techniques and fine-tuned sensibilities for stylistic distinctions. In short, simply playing a "folk music melody" does not mean the melody is being performed or identified *as* a folk music melody. When moving down the hierarchy of different levels of style (from generic category to a particular sub-style of pols/springar playing), these distinctions become more and more refined, although still highly important. The rhythm-timing-phrasing domain stands out as particularly crucial in this important process of differentiation. As Blom (1981) writes in an article attached to the large tune collection *Traditional Fiddle Music of Norway: The Harding Fiddle volumes*:

> When one is using the *springar* material (Vol. IV-VII), awareness of the dialectal variation in rhythm is of particular importance. Although from a bird's eye view this variation seems small, it is nevertheless of great social significance. It is the quality, not the amount of variation that matters, a fact that accounts for the observation that fiddlers and dancers, objectively speaking as well as according to native theory, have difficulties in achieving competence in more than one local tradition.[87]

As Blom points out, these apparently small differences in performance style are not only important expressive qualities of traditional music; they are in fact the very features that differentiate between local styles. This convincing assumption about the importance of the *manner* in which the material (repertoire) is shaped thus seems to suggest focusing analytically on these peculiar features of performance. Moreover, the importance of the expressive parameters defined as rhythm, timing or phrasing support my specific choice of focus, i.e. the temporal domain of performance.

[86] Quoted from Lilliestam 1995: 40
[87] Blom 1981: 310

All this depends on the culturally constituted constraints on style. In short, what it means to master a style is a matter of definition within socially negotiated boundaries. In this case, the culturally and musically negotiated sensibilities for more nuanced distinctions define stylistic knowledge rather rigidly. At the same time, stylistic categories are highly flexible in that the same tune, or the same groove or rhythmic style may materialize in a variety of ways. This is precisely why it is important to discuss how stylistic knowledge is defined and how to identify the material and conceptual base on which expressive behavior is oriented.

Structure and expression

According to a comparative perspective, with reference to structurally more elaborate styles of music, it might be concluded that that lack of complexity at a structural level is "compensated" for by a high degree of variability and rhythmic complexity at a micro-level. Thus, the complexity in tune-playing is not provided at what is traditionally regarded as the compositional level, but at the performance level, where the musicians are constantly "composing" over the tunes by giving them unique signatures *as performances*. The problem with such a view, however, is that it potentially implies a defined relationship between musical structure and expressive intentions, as if some kind of basic form were being translated into a stylistically acceptable and aesthetically interesting performance. Considering that the only representations of musical structure that most performers have heard are different, played versions of tunes, to which the use of expressive means are intrinsic, such an assumption appears to have little justification. In other words, a performed tune does not have a pre-history as a basic form without the details giving it its stylistic identity. At the same time, a detailed representation of the intricate details of a real performance may give a wrong impression of the complexity of the tune as it is experienced by the performer. This view is based on the assumption that the information about how temporal and intensive values are to be distributed, where and with how many strokes a trill is going to be performed, how to incorporate and coordinate bowing patterns etc. is intrinsic to the formulaic conception of the motifs and phrases that make up a tune. Moreover, the style and technical craft of playing a traditional instrument might be said to be so closely intertwined with this conception and the "planning" of a performance that it makes no sense to make a distinction between musical structure and expressive intentions. Thus, grace notes and ornaments, double stops and drones, bowing and phrasing patterns etc. are not details *added* to a simple structure. Rather they form an intrinsic part of a particular style of playing, what might be called the musician's language. As will become evident, this parallels the discussion of groove and expressive timing, which teases out the absurdity of the idea that these qualities of

performance should be thought of as deviations or alterations from some kind of referential structure never heard by any performer.

Extending the scope – repetitiveness, expressiveness and styles of attention

In many respects, the musical style in focus is comparable to the Irish tune-playing tradition, i.e. the instrumental style dominated by dance tunes such as jigs and reels performed mainly solo or in unison by two or more melody instruments. In this regard, James R. Cowdery's book *The Melodic Tradition of Ireland*[88] is an important source of insight, as it refers both to the prevailing body of research in the field, as well as to important musicians' comments on their music. Cowdery is explicitly concerned with variation and "…the culturally accepted possibilities and boundaries of a specific melodic entity."[89] By evoking the concept of *tune model*, he offers a way of looking at a folk music entity as it is recognized by a certain musical community. In doing this, he recognizes that the problem of characterizing and identifying this entity, in spite of vast variations, is academic, not practical. The folk musician intuitively recognizes the tune as the same, even if the melodic material is completely different according to a scholar's perspective and tools for description. Different performers generally interpret a certain tune differently, the same performer may play it differently from occasion to occasion, and there may be considerable variations within the same performance. None of this generally poses a problem for folk classification, but the academic treatment and interpretation of this material certainly is problematic. To try to solve the question of "where is the tune?", averaging out different versions to "trace a framework on which they all are built" has been suggested.[90] However, as Cowdery's qualified claim through his notion of a "tune model" suggests, these manipulations would result in artificial "renditions" which we would never encounter in real performances.

> The term [tune model] does not refer to any single performance of a tune, nor to an average of renditions by one or more performers; rather, a tune model is a generating pattern in the mind of the individual and, by extension, of the group. Any given rendition is one of an infinite number of possible manifestations of the tune model, which can be studied on the individual level (comparing renditions by one person) or various group levels. On any level, a tune model is a *living potential* which may unfold slightly differently in different situations, but which will always be recognizable as itself, just as a plant retains its identity whether it grows in sun or shade, soil or sand.[91]

[88] Cowdery 1990
[89] Cowdery 1990: 43
[90] Greig 1963: 58. Quoted from Cowdery 1990: 44.
[91] Cowdery 1990: 44. Italics added.

The transferability of Cowdery's ethnographic and musical interpretations is that the potential for musical expression is governed by the open architecture of the tunes. Thus, even though there has been a tendency to have more fixed forms in Norwegian and Swedish tune-playing, the freedom to individually shape the tunes in a unique way, either by spontaneous or planned variation, remains a striking characteristic of this performance style. A crucial theoretical point to be made in this connection is that the apparently simple and predictable structure of pols/springar tunes should be seen as an expressive resource rather than as a limitation. In other words, even though it might seem that the tunes need the creative contribution from the performer to measure up to some aesthetical standard of complexity, this is not a productive way of analyzing performance style. Rather, the simplicity and predictability at a structural level could be viewed as a basic requirement for the kind of creativity displayed in interpreting and performing tunes. When following Cowdery's reasoning further, we get a sense of this: at the same time, he suggest the possibility that significant micro-variations may be missed by someone not acquainted with the style, thus indicating a stylistic reality which is constituted partly by the sensitivity for nuances.

> In general, the regular, symmetrical forms of Irish music are very well suited to the traditional practice of varying a strain or phrase slightly each time it comes around […] Due to the predictability of overall structure, the listener is able to formulate general expectations which may then be manipulated by the performer through sensitive changes in ornamentation or small melodic variations. This subtle level of musical appreciation, so relished by those inside the tradition, is often missed by the outsider who may even be lulled into boredom by the predictability of Irish musical forms.[92]

The conclusion to be made is that stylistic behavior is a matter of attention and about being sensitive to the level at which the significant expressive dialogue takes place. In this sense, the kind of stylistic misinterpretations referred to by Cowdery might function as clues to a more thorough interpretation of different modes of musical appreciation and appropriation as emblematic of different styles.

The formulaic mode

Several of the central points made in this chapter are prevalent in Anne Danielsen's (2006) writings on funk. Drawing on Chernoff's (1979) accounts of African music and modes of social organization, she calls attention to the familiarity, repetitiveness and predictability in overall

[92] Cowdery 1990: 17

structure as preconditions for the kind of expressivity which she sets out to explore: ”Just as the stable, repetitive rhythmic framework makes it possible for the tiniest variations to emerge, conventional modes of expression and various standard formulas are means for elucidating a personal touch.”[93] Danielsen also refers to Gates' book *The Signifying Monkey*[94] to further elaborate on the argument that processes of revising and playing with well-known patterns is a central aspect of certain kinds of music-making and funk in particular. Particularly interesting about the reference to Gates is the view on “the text of the tradition”, as this appears to consist of variations of *the same* material, while this same cannot in fact be identified as a fixed form which acts as reference for the different realizations:

> As Gates points out regarding the stories of the Signifying Monkey, even though the material and the rules for the tale are shared and well known, there is no authorized original. The many stories about the monkey do not exist as one fixed text, but “as a play of differences.” [Gates 1988: 61][95]

Two very important points, which are also supported by Cowdery's accounts of Irish music (cf. above), are raised by Danielsens' interpretations. One is the view of simple, repetitive structures being a framework intimately connected with a genre-specific mode of expressivity, a perspective necessary to understand the guiding constraints which organize the musical discourse within many oral traditions. Second, since there is no identifiable original form (tale), the creative act of performance could be viewed as a constant modification of formulaic phrases, rather than in terms of a tension between formal and expressive levels. These general features of style concern what Danielsen calls the interplay of manner and matter, and the fact that the creative process within many oral traditions tends to focus on manner rather than matter. This parallels the idea that the constitutive aspects of the tune-playing style are found mainly in the way something is performed (manner), rather than on a material level (repertoire). All this obviously calls into question what “matter” really is: how can we account for “the material” in a satisfactory way if we cannot pin down an original form to use as reference? As Cowdery noted, this is an academic problem, rather than something that troubles native performers. Thus, the nature of matter is formulaic in the sense that it remains recognizable between different realizations, but cannot be accounted for in terms of an original or averaged basic structure. The formulaic conception of matter, then, is to be considered more as a prerequisite for the kind of music-making which in itself is the true emblematic feature of the style. In other words, style is

[93] Danielsen 2006: 56
[94] Gates 1988
[95] Danielsen 2006: 58

not defined by its material properties as such, but according to the possibilities for expression this material affords. In this connection, another important point which concerns the very notion of tradition is made by Danielsen:

> Within a cultural universe like this, clichés take back their proper role as that which gives form, becoming a presupposition for the individual to appear. The formal becomes the springboard for the personal: familiarity with a figure makes it easier to distinguish a special touch. The lack of innovation on the level of material or matter is not to be understood as an overwrought respect for tradition or as an interest in repetition as such. Rather, the stable repetitive structures and modest modification of tradition reveal the artist's need to indulge at the level where the artistic challenge is located. The new manner, the tiny variations that make the same into something different, has to be able to emerge.[96]

In accordance with this view, the simple outline of most pols/springar tunes is seen as a necessary condition for the kind of creativity that characterizes the style of tune-playing. For instance, it might be hypothesized that the more carefully a tune is composed and arranged, the less room there is left for improvisation and spontaneous "composition". Moreover, the idea of tradition as preservation is challenged by turning one's attention to the musical function of form and repetition. Taking this notion further potentially implies a revision of the concept in the sense that mastering a tradition is about understanding and creatively making use of "a living potential," rather than reproducing standardized forms.

Synthesis – the mutual interdependency of style and expressivity

Danielsen identifies genre as one of two poles between which this process of "exploring old material in a new way" or generating "something special within a stable framework" occurs in oral tradition. The other pole is individual style, and identifying this as a field of mutual presupposition implies recognizing that genre does not exist separate from individuals, and that no individual contribution is comprehensible without a collective framework through which musical production and reception are organized.[97] This resonates with the way in which I have described different levels of style as mutually interdependent. The central claim is that the individual-expressive level at which style is manifested empirically needs to be framed by the historically and socially negotiated stylistic reality within which different expressive manifestations occur. This sociological level of style means that we do not experience or perform music under random or unpredictable conditions. We sense that there are some basic rules in the

[96] Danielsen 2006: 60
[97] Danielsen 2006: 59

game, and we assume that the understanding of these conditions is shared by others. When we enter into meaningful interactions with and around music, we do so within a social, musical and interpretive setting organized by this presumed mutuality. The creative contribution of the individual performer, then, is a part of a dialogic interaction within which stylistic realities are consolidated.

Concluding remarks

The discussions in this chapter will serve as a backdrop and contextual framework for the analyses in the following chapters. As has been shown, the rhythmic-temporal domain of performance is particularly important for the understanding of stylistic differences and expressive qualities. A conceptualization of performance style therefore requires an in-depth study and sensitive interpretation of the principles by which rhythm and timing is structured. This investigation needs to be carried out on two levels. First, there is the question of how to interpret, understand and describe the peculiar (asymmetrical) meters within this tradition. Second, while not being separable from the former level, the flexible character of these grooves requires interpretations that can account for the complex configuration of variability and stylistic coherency. However, the data available to analyze and discuss these intriguing questions are very limited, as is the research literature in which similar broad interpretations are attempted. Thus, the strong focus on analysis and method is motivated by the need for a richer set of data, as well as a thorough discussion of how such analytical work might be carried out without violating the stylistic features it is supposed to illuminate. In this regard I would like to point out that the analytical work conducted has been preceded by comprehensive "fieldwork" in that for many years I have been a musician and audience member. In general, this means that I do not perform measurements to find out what is important in the music, but to build an empirical base upon which theoretical knowledge can be sought that reaches beyond intuitive insights.

The following chapter is devoted to a review of research literature dealing with the asymmetrical styles of pols/springar playing. Here, the assumptions and theoretical/methodical aspects which are found relevant to my research will be paid particular attention. Following this, a description of my own approach to analyzing rhythmic performance is presented, which also involves discussing more general methodological concerns associated with measurements of temporal aspects of music.

3 Earlier research – assumptions, methods and research findings

When literature dealing with the current problems is mentioned in this section, this does not imply that the investigations, theories and hypotheses therein have been carried out, applied or tested in the same way as in my work. The focus is on scientific or semi-scientific work which in one way or another deals with rhythm and timing in asymmetrical pols/springar tunes. The extent to which these studies aim to present a theory about rhythm and timing in this music varies greatly and the different approaches need to be treated separately. Moreover, when evaluating the methods used in the various studies to measure beat and measure durations, it is noticeable that the material is far from consistent. In fact, these methods are rarely discussed, and as will become evident, only a few researchers have performed any real measurements at all. Thus, this compilation of research findings has to be taken for what it is, i.e. the specific aims, underlying assumptions, and methods of investigation have to be considered from case to case, according to how these aspects are explicated and how they relate to the aims of my investigation. The assumptions and theoretical/methodical aspects which are found relevant to my research will be summed up at the end, thereby providing a comprehensible compilation for further investigation and discussion.

3.1 Einar Övergaard

The Swedish folk music collector Einar Övergaard (1871-1936) was one of the first scholars who provided written reflections on the nature of the asymmetrical rhythm of pols/springar tunes. He traveled extensively and left us with transcriptions of tunes from Valdres, Gudbrandsdalen and Østerdalen in Norway, and Västerdalarna, Värmland, Hälsingland, Härjedalen, Medelpad and Bohuslän in Sweden. Generally, Övergaard was interested in the characteristics of "genuine fiddle music" (*genuin spelmansmusik*), as opposed to "quasi-improved" (*kvasi-förbättrad*) folk music performed by classically trained violinists.[98] He refers to criteria such as:

1) Different scales
2) Peculiar tone production, through bowing as well as finger onset.

[98] Ramsten 1982: 21-23. cf. chapter 2.1 and the discussion of the ideological and scientific-theoretical premises on which the collection of folk music was based.

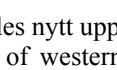
3) Heterogeneous rhythm. ”Quarter notes” with different durational value, i.e. not 1:1:1, but, for instance 1:1,5:1,25 etc. etc.  “the beat” [groove] moves in waves  . In this way we are provided with a completely new rhythmic arrangement.[99]

Several of Övergaard’s field notes touch on the variable durational relationship between beats, and in this respect the third point above is of special interest. He did not, however, present his material systematically in terms of how the heterogeneous rhythm phenomenon characterizes different local styles. The accounts made seem to be based on general impressions from observations he made when he met and listened to fiddlers: his notes thus have the characteristics of field-notes, rather than elaborate discussions. Second, the beat duration ratio data mentioned are based on aural estimations. However, Övergaard’s observations and comments are interesting in that they provide these issues with a historical perspective, as well as suggesting that features of rhythmic performance constitute important stylistic elements. Regarding V*ästerdals-springlek*[100], he emphasizes that the first beat is much shorter than the other two, and that the second beat is the longest, leaving a ratio of approximately 1/2:1:3/4 for the whole measure.[101] In another section, the same material is mentioned, now with slightly different data indicating the ratio between the three beats:

> The fact is that the three beats are not performed in even ¾ time. The second quarter note [beat] has a longer durational value compared to the remaining ones. And particularly striking is the shortness of the first quarter note [beat]. The ratio between the beats then is approximately 1:1½:1. This groove (“takt”) is emphasized in particular when playing for dancing, in that the dance steps require this.[102]

Although Övergaard’s descriptions of the beat duration ratio are somewhat ambiguous, it seems clear that he considers the first beat to be the shortest. Moreover, it is interesting that he mentions

---

[99] Övergaard’s own notes. Quoted from Ramsten 1982: 23. My translation. Original text:
1) Annan temperatur (”skala”?).
2) Säregen tonbildning, såväl genom stråkföringen som fingeranslaget.
3) Heterogen rytm. Oliklånga (till tidsvärdet) ”fjärdedelar”, alltså ej 1:1:1 utan t.ex. 1:1,5:1,25 osv.osv.  ”takten” går i vågor  . Härigenom ges ett alldeles nytt uppslag i rytmiskt avseende.

[100] *Springleik* is a local term for pols/springar tunes in some parts of western Sweden. Västerdalarna is the western part of the Swedish province of Dalecarlia.

[101] Paraphrased in English from Ramsten 1982: 24. These field notes are rather fragmentary pieces of text, not necessarily intended for publication. Original text: ”Men första fjärdedelen hos springlekarna mycket kortare än de övriga. Den mellersta *längst* ungefär 1/2:1:3/4.”

[102] Quoted from Ramsten 1982: 206. My translation. Original text: ”De utföras nämligen ej i jämn 3/4 takt utan den mellersta taktdelen, 2dra 4de-delen, har längre tidsvärde än de övriga. Och i synnerhet iögonfallande är den 1sta fjärdedelens korthet så att vi [får] ett förhållande mellan taktdelarna ungefär 1:1½:1 eller något dylikt. Den[na] takt markeras framför allt vid dansspel, då sjelfva dansstegen fordra detta.”

the relationship to dance movements, and that a correct rhythmic performance is a requirement if the interaction between music and dance is to function properly.

3.2 Eivind Groven

The fiddler, composer, music researcher and folk music collector Eivind Groven (1901-1977) is the first Norwegian scholar known to have measured the temporal relationship between the three beats in asymmetrical pols/springar tunes. Groven sees the uneven beat duration patterns as integrated parts of the tunes as they are learned and handed down, and as closely related to the structure of dance movements.[103] Thus, asymmetry was not a discovery made by virtue of his measurements. Rather, his investigations represent an effort to provide data about and a clearer picture of a phenomenon he is already highly familiar with as he was an active fiddler himself. Like many other scholars he refers to the inadequacy of the conventional system of notation when he wants to discuss his aims and methods:

> I mentioned that the three beats in the springar all have different durations, and that these differences can vary from village to village and are decisive for the playing dialect.
>
> If we look at a transcription of a tune, we cannot find out how large the durational differences between the beats are supposed to be. The score only indicates equal values for counting. If we are to learn a tune from a score only, we will not learn the melody correctly, as it was originally.
>
> The problem therefore is to come up with a clear picture which can provide us with a view of the wave movements of the rhythm. To record this I found (in the 1930s) a *Morse receiver* to be a useful device. […] The method was that I simply tapped the beat with my finger and got dots on a slip which was transported by the machine. The slip moved with a speed of 30 mm per second. If I then measured the distance between the dots in millimeter, I got a time measurement with a precision of 1/30 seconds. Then I could measure a larger number of measures, thus arriving at a kind of average rhythm.[104]

The measurements thus represent Groven's experience of beat durations as they unfold at a normal tempo without interruptions. Or, rather, what is measured is his rhythmic interpretation as

---

[103] Groven 1971

[104] Groven 1971: 99-100. My translation. Original text:
"Eg nemnde at dei tri taktdelar i springaren kvar for seg kan ha ulik tidsverdi, og at desse ulikskapar kan variere frå bygd til bygd og er avgjerande for speldialekten.

Ser me på ei noteuppskrift av ein slått, kan me ikkje finne ut kor stor skilnad det skal vera millom tidsverdiane i dei ulike taktdelar. Notebiletet gjev berre like lange teljeverdiar. Skal me lære ein slått berre etter notar, fær me ikkje lært melodien rett, slik som han var upphavleg.

Problemet er difor å finne fram til eit synleg bilete som kan gjeva oss ei meining om den rytmiske bylgjegang. Til å registrere dette fann eg (i 30-åri) eit brukbart apparat i ein *morsemottakar*. […]Framgangsmåten var enkelt den at eg slo takten med fingeren på ankeret slik at eg fekk prikkar på ei papirremse som urverket drog fram på ein spole. Papirremsa gjekk med ein fart på 30 mm i sekundet. Mælte eg so avstandi millom prikkane i mm fekk eg ei tidmæling med ein finleik på 1/30 sekund. Eg kunde då mæle upp eit større antal taktar og kom soleis fram til ei slags medelrytme."

expressed by his finger tapping. However, Groven does not discuss how he interprets the correspondence between his experience of beats and attack points in the music. In fact, any kind of correspondence or lack of such between the rhythm experienced and audible contrasts might have been decisive, since different alternatives are not discussed. Nor are we informed in detail about the amount of effort invested in the experiment, i.e. if it was performed several times, how well he had accustomed himself with the recording in question etc. Moreover, we do not know how strongly Groven's already established understanding of the beat duration pattern influenced his interpretation during the course of the experiment.

In terms of the aims and results of my analyses, it is very interesting that Groven presents data which can be the subject of comparison. It is also convenient that some of the recordings analyzed are still accessible, which means that analytical results can be evaluated through a supplementary examination. In the section quoted below, he reports data for recordings of the *Tele-springar Markensmondagen* as played by three different Hardanger fiddlers.

> I then started with "Markensmåndagen" played by Gunulf Borgen. The result was:
>
> The 1st beat uses 39 % of the whole measure
>
> The 2nd beat uses 33 % of the whole measure
>
> The 3rd beat uses 28 % of the whole measure
>
> The ratio between the beats then is 39–33–28
>
> The first beat is the heaviest, the second lighter, and the last lightest.
>
> Now one would believe that it should not be that easy for another fiddler to stick to such a rhythm if he learned the tune, as they often do – by ear. To test this, I measured the same tune performed by Kjetil Løndal. And now the strange thing was revealed that the data was exactly the same: 39–33–28.
>
> I also measured the same tune played by Ånund Roheim.[105] Here, the ratio was 38–33–29. This is only a 1/15 of a second deviation from G. Borgen. From this we see how accurately the tradition takes care of every detail, how confident one can be that the feeling for tonality and rhythm is maintained over time, and how sensitive we humans are to the smallest of nuances.
>
> Several measurements showed that the rhythm figure 38–33–29 generally accounts for all springar tunes in the lower and central parts of Telemark, where we have what is called the Bøhering style (*Bøhering-spelet*).
>
> But then it turns out that it is not necessarily the fiddler who has a particular rhythm. It turns out that it is the tune that holds the rhythm. For instance, when G. Borgen played "Gaute Navarsgard", the measurement showed another rhythm than "Markensmåndagen", even though the fiddler was the same. "Gaute Navarsgard" gave the result 41–30–29. This tune seems to be more typical of the Tinn style (*Tinn-spelet*), with tradition from Håvard Gibøen and Knut Dahle.[106]

[105] The fiddlers mentioned are among the very best and most acclaimed of their generation.
[106] Groven 1971:100. My translation. Original text:
"Eg tok då til med "Markensmåndagen" spela av Gunulf Borgen. Resultatet var:
1. taktdel brukar 39 % av heile takten

My interest in Groven's work is not only the data presented, but the implications of the aims and methods which constitute the foundation of his investigations. Initially, however, it should be pointed out that Groven's presentation of data derived from real measurements (rather than from general estimations) is historically interesting and potentially important to the way conceptions of rhythmic style develop in a particular milieu. Consequently, testing these results in some way is a task I feel obliged to do to some extent by analyzing the same recording of Gunnulf Borgen's version of *Markensmondagen* (see chapter 5). However, although this comparison may prove fruitful, the fundamentally different aims behind our investigations have to be considered. Groven's objective is apparently to present *average* beat duration patterns from the different recordings. Regarding *Markensmondagen*, next to identical data were obtained from the three versions of the tune, which is interpreted as though the rhythmic precision of these fiddlers were both striking and coincident. The alternative beat distribution patterns observed are claimed to be the result of which tune is being played and other dialectal differences. Thus, it is implied that these patterns are well established, stable, stylistic traits; the only thing Groven has done is to confirm that this is the case. Finally, it is worth noting that Groven does not present his raw data from which the average values were calculated. Theoretically, this means that the ratio between the three beats could have varied considerably throughout the performances and in different ways from case to case, while still generating the same averages. Moreover, the fact that neither measure length nor absolute beat length was analyzed leaves open the possibility for a range of different patterns of absolute durations. However, since Groven does not discuss this any further, we can only assume that if he had considered the variations significant, he would at least have commented upon them.

---

2. taktdel brukar 33 % av heile takten
3. taktdel brukar 28 % av heile takten
Forholdstali er då 39–33–28.

Den fyrste taktdel er tyngst, den andre lettare og den siste lettast.

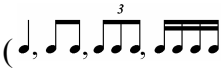
No skulde ein tru at det ikkje var so lett for ein annan spelmann å halde fast ved ei slik rytme om han lærer slåtten, slik som dei no til vanleg gjer – etter øyra. Til prøve på dette mælte eg same slåtten spela av Kjetil Løndal. Og no kom det merkelege fram at tali var plent dei same: 39–33–28.

Eg tok ogso mål av same slåtten etter Ånund Roheim. Her var tali 38–33–29. Dette er berre 1/15-dels sekund avvik frå G. Borgen. Me ser av dette kor nøgje tradisjonen tek vare på kvar minste ting, og kor sikkert ein kan lite på at tone- og rytmekjensle kan halde seg gjenom lang tid og kor varnem den menneskjelege kjensle er for dei minste nyanser.

Fleire mælingar synte at rytmefiguren 38–33–29 stort sett høver for alle springarar som soknar til nedre og midtre Telemark, det spelet som blir kalla Bøhering-spelet.

Men so syner det seg at det treng ikkje vera slik at spelmannen hev ein spesiell rytme. Det syner seg at det er slåtten som gøymer på rytmen. Når for eksempel G. Borgen spela "Gaute Navarsgard", gav mælingi ei onnor rytme enn "Markensmåndagen" endå spelmannen var den same. 'Gaute Navarsgard' gav resultatet 41–30–29. Denne ser ut til å vera meir typisk for Tinn-spelet, med tradisjon frå Håvard Gibøen og Knut Dahle."

As will subsequently become clear, my aims and underlying assumptions are diametrically opposed to his. Instead of looking for stable patterns and average data, I assume that the durational ratio between the three beats will vary from one measure to the next, and that these variations reflect processes that are crucial to the rhythmic character and flow of the performance. The main reason for presenting average data in the first place is to be able to compare aspects of my work with existing research results, and this by no means implies that I have found these data hold important musical information about the performances in question. Consequently, speaking of precision will according to my concepts not imply the kind of replicative accuracy which Groven claims to validate through his analyses.

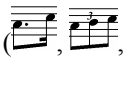
Further incompatibility between our approaches is revealed when considering that Groven does not discuss the relationship between beat duration and beat motif architecture.[107] In other words, he seems to take for granted that melodic rhythm is adjusted to a preconceived beat duration pattern. The possibility of things being the other way around; that the varying shape and density of beat motifs ( etc.) might affect the duration of beats (bottom-up process), is not considered. As will become evident, one general problem within this field of research is that the relationship between melodic rhythm and the framework by which it is supposed to be structured (meter or groove) is not discussed.

3.3 Jan-Petter Blom

The Norwegian anthropologist and ethnomusicologist Jan-Petter Blom has provided some interesting and theoretically well founded accounts of the rhythmic character of different pols/springar styles. His point of departure is the relationship between structures of body movements, and the production and perception of musical structures:

> My point of departure is the hypothesis that the perception and expression of musical rhythm is intimately linked to experiences of body movements, and that our concepts of rhythm are mirrored by the way in which we move our body in synchrony with music.[108]

Obviously, dance is highly important in Blom's theorizations and he believes that local or regional sub-cultures represent shared conceptions of musical rhythm through collective experience and knowledge of dance (see also chapter 4.1). In addition to the dancers needing to

[107] The term beat motif refers to the melodic and rhythmic structural design of the individual beat ( etc.)
[108] Blom 1981: 305

coordinate their movements with each other and with the music, the fiddler has to express the rhythmic quality of the dance to communicate efficiently. Thus, a shared dance culture provides the fundamental reference on which musical understanding and interaction is based. Moreover, the structure of dance constitutes a model through which one may scientifically interpret how the rhythmic organization (meter or groove) of a musical style is culturally constructed and maintained, a notion which Blom takes rather far:

> A conceptualization of such implicit understandings should preferably take the concrete rhythm of the dance as its point of departure (rather than the mere abstract and generalized musical expression) and use the models of such rhythms as the basis for musical interpretation. This procedure is analogous to what conductors do to music when performing their rhythmic gestures in front of the orchestra.[109]

"The concrete rhythm of the dance" is manifested through a "patterned *libration* of the body's center of gravity." Blom demonstrates how the shape of the movement over time can be visualized graphically as curves with straight lines between extremes (see fig. 3 below). Although such models are highly generalized, they illustrate structural or categorical stylistic differences, "i.e. a difference in *meter* constituting particular relationships between the units of movements in terms of extension, duration and speed/force (accent)."[110] The reason for using the vertical movement of the dancer's center of gravity for these descriptions is that this makes different manifestations of dance comparable. While steps and motifs vary within the same dance and between different dance forms, vertical movement remains a constant feature throughout, representing dance meter.

The down and up movement of dance corresponds to the concepts of action and repose, which in turn relates to the ancient terminology of *thesis* (T) and *arsis* (A), from the Greek words for 'lowering' and 'raising'.[111] The relationship between a falling movement, identified as a downbeat, and a raising movement (upbeat) constitutes a full libration (TA) equivalent to a dance beat, "i.e. the smallest unit of a patterned flow or rhythm."[112] Rhythm, then, is a continuous flow of down-up-down movements (TATA etc.) corresponding to dance meter. As will be evident from the model presented in the next section, Blom sees a direct correspondence

[109] Blom 1981: 305
[110] Blom 1981: 306
[111] We are reminded of the idea that a rhythmic unit consists of differentiated phases of movement is very old. As Dogantan-Dack (2006) points out, however, "the nature of these phases was empirically studied in detail for the first time during the 19th century. Thus, one of the important hypotheses of recent research concerning the similarity between the *temporal shape* of a musical phrase in performance and that of a motor activity has its root in 19th century theories of rhythm, which in turn were largely shaped by the physiological discoveries of the period." (Dogantan-Dack 2006:453)
[112] Blom 1981: 306

between the ordinal, temporal and spatial structure of dance movements and the structure of musical rhythm. As regards beat durations, Blom specifies a guiding norm according to which the differences between the main types of Norwegian asymmetrical pols/springar styles can be described. He defines this average value as a beat duration ratio of 5:7:6 (28:39:33 %), which as a preferred norm is claimed to function for most traditions.[113] Accordingly, the long-average-short types are assigned the ratio of 7:6:5 (39:33:28 %), which is equivalent to Groven's measurement of *Markensmondagen*. Moreover, as will be discussed below, the TA phases of a dance beat may also indicate a division below the level of beat durations, thus providing potential points of synchronization for the subdivision of the musical beats.

Musical meter and dance meter

From Blom's descriptions it follows that there is potentially a difference between musical meter and dance meter, in the dance beats and musical beats being differently organized. For instance, in a *Tele-springar*, there are two dance beats (TA movements) in a period (measure), while there are three musical beats. The model below is adopted from Blom (1993: 180) and illustrates librational patterns for six different varieties of pols/springar dances. Vertical lines specify musical beats, while the zigzag lines illustrate the motion of the center of gravity of the dancers along a time line, i.e. dance beats. The numbers (5, 7 and 6) indicate the durational ratio of the musical beats (i.e. 5:7:6) and the bold vertical lines (added by me) show the start of the period (measure) for each type. Thus, the model also provides an overview of the two main types of asymmetry (long-average-short and short-long-average). The durational relationship between dance beat phases (T:A), on the other hand, is accounted for by the varying horizontal distance between the upper and lower points on the zigzag lines.[114]

[113] Blom 1993: 178

[114] It should be noted that I have simplified Blom's model by not including dance steps (the use of the right and left foot).

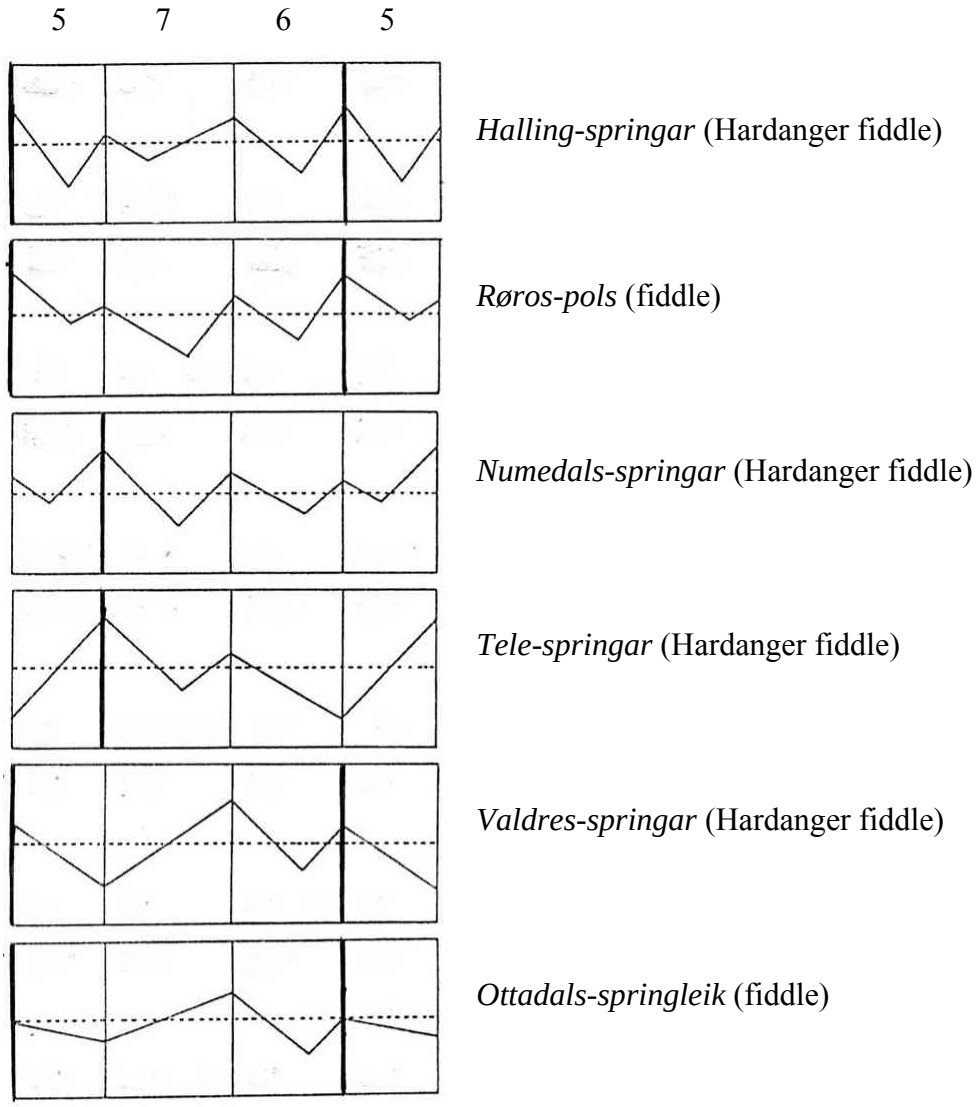
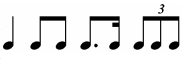
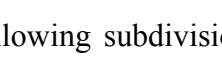


Figure 3. Blom's model of libration patterns in pols/springar dances. Adopted from Blom (1993: 180).

The different durational relationship between the dance beat phases (T:A) displayed adds an extra level of interpretive potential to the model, in that it suggests that not only relations between beats, but relations within beats, are important aspects of rhythmic performance. This is explicitly expressed by Blom when he writes that "rhythmic figures in the music have to be shaped in a way that they indicate the division of the beat in thesis and arsis movements." Moreover, "the music should express the durational relationship between the beat phases (T:A) so that dancer and musician experience a feeling of togetherness through a high degree of synchronization."[115] When interpreting the model with this aspect in mind, we notice that the

[115] Blom 1993: 183-184. My translation. Original text:
"Rytmefigurene i musikken må formes slik at de markerer taktslagets todeling i thesis- og arsis-bevegelser."

status of the musical beats and subdivisions varies. For instance, the beats may be undivided, forming a part of a T:A relationship on the level above, as in the 2nd and 3rd beat of the *Tele-springar* and the 1st and 2nd beat of the *Valdres-springar*, where the dance beat occupies two musical beats. In this case, the dance beat phases correspond to particular beat duration patterns, while it does not matter whether or how the individual musical beats are subdivided ( etc.). On the other hand, there may be two dance beat phases within each musical beat, as in the remaining beats displayed in the model. In this case, the beat motifs need in principle to be subdivided in accordance with this division. For instance, the durational ratio between beat phases in the 1st beat of a *Tele-springar* is estimated to be 4:3,[116] which would imply the following subdivision patterns:  etc. Accordingly, undivided beat motifs would have to be "divided" by some kind of accentuation through dynamic intensification with the bow. Here, yet another analyzable aspect of rhythmic performance is actualized. However, the predictions of Blom's idealized model immediately seem difficult to reconcile with empirical observations, as no clear tendency for any particular subdivision pattern on the 1st beat in *Tele-springar* performances can be seen. At the same time, Blom's claim that ideally there is a correspondence between the musical articulation of rhythmic movement and the bodily movements of the dancers resonates well with my experience of dancing and playing for dancers, as well as with what appears to be common conceptions among folk musicians and dancers in general. However, we need to investigate how these correspondences are experienced and specified, and solving this task cannot rely on durational data alone.

Beat duration patterns – guiding norms and principles

In addition to the tendency for a normal value in beat duration patterns (the 5:7:6 ratio), Blom mentions variation, and the potential musical and contextual aspects with reference to which this variation might be explained. He also suggests that variation in the degree of asymmetry follows a predictable pattern:

> The degree of difference varies from one local tradition to another, but is also dependent on the tune and fiddler, and on the social occasion. A fast tempo tends to make the rhythm more symmetrical compared to a slower tempo. A normative description of the asymmetry therefore will only serve as guidance […] On the other hand, the variation in the degree of asymmetry follows a certain system and is therefore predictable. All

---

"Musikken bør uttrykke varighetsforholdet mellom taktfasene (T:A) gjennom forløpet slik at danser og musiker føler samhørighet gjennom en høy grad av synkronisering."

[116] Blom 1981: 310

measurements of the asymmetry in the tunes (see Blom 1981) show namely that the lengths of the 1st and 2nd beats vary proportionally, and that the 3rd beat remains stable around 1/3 of the measure length.[117]

This is a generalized notion, accounting for all the main types of pols/springar styles. Thus, what is termed the 3rd beat here is the one which in the style in question is average (33%) in length (see fig. 3). This means that the proportional adjustment is supposed to take place between the longest and the shortest beat. This confident assumption certainly deserves further investigation, as does the notion that a faster tempo tends to make the rhythm more symmetrical. In any case, the variation in relative beat length observed by Blom is approximated to extend from 3:3:3 (symmetrical) to 3:5:4 (strongly asymmetrical). In between these extreme and infrequently occurring values, we find the 5:7:6 ratio, which is defined as a model close enough to reality to function as a norm for the different asymmetrical styles of pols/springar playing.[118] In other words, there is a variation within defined limits and a tendency for a normal value. Considering that music and dance are supposed to correspond by the durational relationship between the beats being the same, it is tempting to speculate whether variation in musical beat length can find its equivalence in a corresponding variation in dance beat length, although this particular aspect of music/dance interaction is not addressed by Blom.

Description vs. normative prescription

Even though Blom is cautious in his assertions and points out that his model represents rough differences and similarities, i.e. general distinctions between types (styles), his descriptions are potentially normative by: 1) implying that a generalized dance meter works as a norm for rhythmic performance; 2) suggesting a defined relationship between variable and non-variable rhythmic elements; and 3) specifying a standard value around which variations tend to be gathered (the 5:7:6 ratio). Furthermore, although he broaches variation by indicating a co-variation between the shortest and longest beat, the variations in themselves are not assigned any particular meaning, i.e. it is not discussed whether timing variations may be an important part of a good performance and not just an unavoidable consequence of other aspects. A related question which is not addressed is how the empirically demonstrated tolerance for temporal deviations

[117] Blom 1993: 177-178. My translation. Original text:
"Et annet fellestrekk er den såkalte asymmetrien i forholdet mellom de tre taktslagene, det vil si at taktslagene sjelden har lik eller tilnærmet lik varighet. Graden av ulikhet varierer fra én lokal tradisjon til en annen, men også avhengig av slått og spelmann og av sosial anledning. Et høyt tempo tenderer til å gjøre takten mer symmetrisk enn et lavere tempo. En normfesting av asymmetrien vil derfor bare være veiledende […] På den annen side følger variasjon i graden av asymmetri et bestemt system og er derfor forutsigbar. Alle målinger av asymmetrien i slåttene (se Blom 1981) viser nemlig at 1. og 2. taktslags lengder varierer omvendt proporsjonalt og at 3. taktslag forblir stabilt omkring 1/3 av taktens lengde."
[118] Blom 1993: 178

from the standard model might be understood in terms of a variational freedom which the fiddler takes advantage of in shaping his/her rhythmic performance. Moreover, while variables such as tempo, tune and fiddler are considered in connection with the issue of variation in asymmetry, we are left with no clues as to how the mechanisms of timing might work in relation to these and other variables. In other words, what is missing is a theoretical and empirical underpinning of the mechanisms through which timing within a certain rhythmic framework is achieved, i.e. according to which principles a rhythmic sequence may be temporally shaped given a particular musical/dance meter. Any attempt to account for such mechanisms would necessarily involve examining both how melodic rhythm is shaped in accordance with a certain pols/springar groove (which is independent of the particular realization in question), and how unique characteristics of melodic-rhythmic architecture affect and constrain this process. This latter aspect of performance timing is not discussed by Blom, and although he seems to imply that melodic-rhythmic patterns are in some way shaped to fit the rhythmic framework within which they occur, he does not attempt to explain *how* this is accomplished.

In conclusion, even though a normative description of the asymmetry is only supposed to serve as guidance, this description has to be concurrent with the stylistic constraints and affordances through which rhythmic patterns are produced and made sense of. To what extent such a description conforms to statements made by native knowledge holders is hardly decisive, as these may be affected by the theoretical formulations to which they are supposed to conform, while not at all being consistent with what the individuals actually do, or possibly can do, as performers. Furthermore, descriptions should ideally suggest something about the mechanisms of variation interrupting the coherency of the model, given that variations represent stylistically important features and not just random deviations from an intended rhythmic performance. This aspect of Blom's model is difficult to evaluate in that the status of the variations in asymmetry is not clarified.

Melodic rhythm and dance rhythm

Although Blom's descriptions and interpretations are convincing, I feel that the idiomatic logic of performing pols/springar rhythms on the fiddle/Hardanger fiddle needs to be considered on its own terms. In short, the temporal organization of melodic rhythm cannot be fully understood by referring to the principle that durational patterns are determined by the rhythmic structure of dance. At the least, several other mechanisms and principles need to be taken into account. For instance, the precision with which performers replicate temporal patterns of pols/springar rhythms that conform neither to any generalized dance meter nor to an average beat durational

pattern in the performance concerned suggests that one needs to expand the analytical scope in the search for explanations. First, very high precision in performance timing cannot possibly be achieved by synchronization with some external time-keeper as long as this reference is not stable and predictable. Second, given that temporal variations are systematic in some way without conforming to the (mathematical) model that predicts co-variation between the long and short beats, other structuring principles need to be considered if we are to understand the temporal shaping and organization of pols/springar rhythms.

Finally, although I acknowledge the importance of dance as a model through which people come to understand the basic structural features of musical rhythm, I think it is important to explore other ways of experiencing and interacting with rhythm as well, considering the form of expression that tune-playing represents as a whole. In general, this also concerns the complicated question of how collective and individual conceptions of rhythm might be maintained and changed, a question which in turn implies considering music and musicianship increasingly forming an aesthetic discourse and practice of their own, more or less freed from any formal imperative which might be associated with performing music for dancing. One only needs to observe the fact that most folk music performances today take place at concerts, without a dancing crowd interacting with the musicians. While I do not believe that this necessarily means that the basic conceptions of the rhythmic structure of pols/springar rhythms are changing significantly, I do believe that there are potentially ways to interact with and through the rhythmic subtleties of these grooves which are initialized primarily through "purely" musical interactions. This issue relates to the question of stylistic change, i.e. the gradual and potentially "invisible" process through which shared musical conceptions are redefined through performance practice.

Method of measurement

In his 1993 article, Blom writes that all measurements of the asymmetry in the tunes shows that the duration of the long and short beats varies proportionally, and that the beat of average length remains stable around 1/3 of the measure length (cf. the quote above). However, in his 1981 article, the measurements referred to are stated to be approximations and he provides no details regarding method in addition to this.[119] Thus, there is no actual method of measurement to evaluate, only the results of approximations made by a competent listener, dancer and fiddler (Blom himself). In sum, Blom's research provided a theoretically well-grounded model that can be tested with more reliable measurements at hand.

[119] See Blom 1981

3.4 Ingmar Bengtsson

The Swedish musicologist Ingmar Bengtsson has contributed significantly to the scientific study of micro-rhythmic relationships. He has also written specifically about the rhythmic characteristics of the Swedish *polska* style (equivalent to the pols/springar), and the problems associated with transcription and score representation.[120] Like the other researchers mentioned, Bengtsson observes that "polska playing characteristically contains rhythmic features which are not at all apparent in normal notation."[121] He also recognizes that these dialectal characteristics are features which may distinguish between local traditions, different players and even individual tunes. Thus, the importance of rhythmic performance at any stage in the history of these styles remains uncontradicted by all researchers dealing with these issues. In this connection, Bengtsson identifies two levels of the problem of describing the rhythmic styles of polska playing:

> …firstly, to try to establish *what* the rhythmical characteristics consist of (either observing how they are perceived, what acoustic correlates they have, or both), more precisely to establish which such factors are characteristic (not incidental) and describable, and secondly, to answer the question *how* the observations can be suitably described, either by means of normal notation together with a set of diacritic symbols, or in some other manner.[122]

In relation to my research aims, the first level of this double problem is the most relevant to discuss, the second primarily concerning graphical representation. However, the implications of Bengtsson's views of transcription are interesting also in connection with the conceptualization of these styles as performance practices. His main point in connection with this issue is that polska (pols/springar) tunes should be notated in triple time, rather than with time signatures which are alternative (5/8, 9/16 etc.) or variable (shifting between 3/4 and 5/8 for instance). The latter alternative he dismissed on the grounds that changes between different time signatures within the same tune give a false picture of the music, "for as a rule it is not at all a question of intentional changes of meter, but of deviations from the code's triple-time norm which are characteristic of so-called oral traditions."[123] Bengtsson choosing to insist on triple-time notation as preferable for polska tunes is then rationalized with reference to two interrelated premises. First, time-value symbols and time signatures should be used in the simplest way to symbolize

[120] See in particular the article "On notation of time, signature and rhythm in Swedish polskas" (Bengtsson 1974).
[121] Bengtsson 1974: 22
[122] Bengtsson 1974: 22
[123] Bengtsson 1974: 29

the rhythmical "triple-time grammar" of the style. Second, the finer nuances of timing should be described by using symbols different from the ones belonging to the traditional notation system.[124] Referring to Walter Wiora (1938), he argues that the interpretive flexibility of conventional time-value symbols should be seen as an advantage, rather than as a limitation that calls for alternative notation representing exact durations in the music:

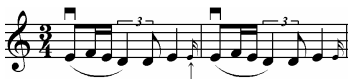
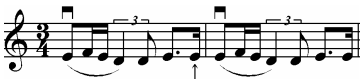
> What he [Wiora] has in mind is an essential feature of our notational code as it has for long been used. The symbols  etc. only appear to represent "exact" time-value relationships 2 : 1, 4 : 1 etc.; in reality they are more to be regarded as (relative) *time-value classes* related to particular musical codes. It is first in stylistic situations where many different time-value classes are used within the same musical structure (say from  to ) that the tolerance latitudes shrink […] The flexibility of the normal time-value symbols is an *advantage* that should be utilized, not eliminated![125]

Thus, simple notation does not imply simple rhythmic performance, but a variable, flexible/elastic rhythm which should not be tied to a norm by detailed transcriptions. The implications of such a view on notation thus extend beyond simple practical concerns related to working with transcriptions, in that they are also coincident with a particular conceptualization of these styles as performance practices. In this connection it should be mentioned that Bengtsson emphasizes variation in beat length to a greater extent than the other researchers discussed. He also mentions what he calls "expected fluctuations" in tempo conditioned by the melodic structure, although the only real observed tendency of this sort is the prolongation of the first and last measure of four-measure motifs.[126] This pattern has been observed in my investigations as well (see chapters 5 and 6), and seems to be a common feature of several different styles of playing.

Analysis and interpretation

Bengtsson's initial reflections are based on measurements performed on two versions of *Hurven,* a pols/springar tune recorded by the fiddler Johan Hollseter from Trysil.[127] In addition to the

[124] Bengtsson 1974: 30
[125] Bengtsson 1974: 29
[126] Such structurally conditioned variations are a well recognized phenomenon in other styles as well, as, for instance, in the "typical slowing down at the end of phrases in classical music from the Romantic period." (Honing 2001: 50)
[127] Trysil is a village near the Swedish border in the south-eastern part of Norway. The local term for the pols/springar style here is *runnom*. Johan Hollseter's rendering of *Hurven*, recorded in 1969, represents what later has been categorized as asymmetrical triple meter with a short first beat ("kort ener" (Norwegian), "kort etta" (Swedish)).

observation of an extension of the initial and final measures, he notices that the first beat is short almost throughout, but that it tends to be shorter within measures starting with a triplet. In average values, the beat duration pattern is short-long-long (29-35-36 %), but in several measures he also observes a short-long-average pattern, similar to the common conception of the *Valdres-springar* meter. Regarding the subdivision of beat motifs divided into two, he notices that the 2nd beat tends to be performed with something resembling a triplet division (), while the 3rd beat demonstrates a tendency to have a dotted rhythm (). This difference is significant and means that no average value can account for long-short subdivisions in general. Bengtsson does not proceed, however, to interpret how these patterns (beat division and subdivision) might be related to the structure and shape of melodic-rhythmic motifs. For instance, the different division of beat motifs discussed might be related to a different status being assigned to the two types of motifs respectively. To my ears, the last tone of the 3rd beat motifs (see the arrows) definitely appears more as a kind of "pick-up" to the following measure, than as a melody tone in the same sense as the last tone of the 2nd beat motifs. Visualizing these alternative conceptions, we see  etc. instead of  etc. To take this further one could, for instance, relate it to playing technique and bowing pattern, indicating that the short "pick-up" is necessary if the fiddler is to come out right, i.e. with a down stroke on the following note. Thus, as melodic-rhythmic events, these beat motifs are potentially very different, and cannot be compared in any musically meaningful way with reference to durational data only.

Another example Bengtsson refers to is two fiddlers' versions of a four-measure passage of the tune *Furubom's polska* (*Boda-polska*).[128] Again, there are some interesting data to consider, among them the extensive variation in the length of all three beats, especially the 2nd. In this respect, Bengtsson suggests a potential correspondence between the number of tones in a beat and beat length. When comparing the two versions he finds, for instance, that replacing a figure with a  figure tends to result in a prolongation of the beat. As will be readily apparent in the following chapters, the correspondence between beat length and the density and complexity of beat motifs forms a central point of orientation in my analytical work, which is supported in this case by Bengtsson's careful suggestions. In general, Bengtsson's brief investigations lend support to the idea that a basic feature of these styles is the freedom to shape

[128] *Boda-polska* is commonly described as having a short 1st beat with a heavy accent on the 2nd beat. The two fiddlers performing this tune are Hans-Jonas and Röjås-Erik. Bengtsson does not provide detailed information about these recordings except for noting that they are taken from *Svenskt Visarkiv* (The Centre for Swedish Folk Music and Jazz Research).

melodic motifs rhythmically in a variety of ways without violating a sense of identity and coherency.

Asymmetry or flexible triple meter?

Striking about Bengtsson's way of treating this topic is that he does not seem to share the assumption that the basic rhythmic structure (meter) of these styles is asymmetrical (with a short-long-average or long-average-short beat duration pattern). Instead, his reasoning is based on the premise that the variations observed, or "dialectal peculiarities", are to be considered to be "deviations from the [polska] code's triple-time norm", and belonging "to another 'code stratum'".[129] Thus, Bengtsson is not really discussing asymmetry, at least not on the same conditions as the other researchers mentioned. He is addressing variation, and although I find it necessary to examine critically his conception of a "triple-time norm" and the relationship between norm and performed music, the important question of choosing a relevant reference to measure variations against is actualized. Basically, there are two alternatives. First, in accordance with Blom's model, variation could be described as deviations from a normative, asymmetrical beat duration ratio. Second, all tendencies for asymmetry could be described as variations, as Bengtsson seems to prefer. The obvious problem with the latter model is that it is not consistent with the way performers and dancers seem to experience this music. One only needs to consider the fact that dance movements are also clearly structured in an asymmetrical way, leaving a symmetrical beat duration ratio as a purely theoretical reference. However, to what extent a specified, asymmetrical beat duration ratio is suitable as a reference with which to measure rhythmic variations is an open question. It may very well emerge that a model based on purely temporal values is not relevant at all as long as the aim is to understand the constraints and possibilities that guide rhythmic performance.

Another important question in this context is to what extent the differences found within the theoretical literature surveyed can be related to actual differences in the musical practices which it refers to. Is it, for instance, the case that the *Boda-polska* (cf. *Furubom's polska* analyzed by Bengtsson) is characterized by constant rhythmic variations and deviations, whatever the norm might be from which such deviations occur, while the *Tele-springar* is characterized by a stable asymmetrical beat pattern (long-average-short)? Or, is the difference to be found in the researchers (Groven, Blom and Bengtsson's) conceptions and descriptions of these styles? While I certainly would not take the former assumption for granted, I will look very closely at the latter, bearing in mind that the theory/praxis configuration may form a critical aspect of stylistic change

[129] Bengtsson 1974: 29

within our contemporary musical lives. To do this I need to distance myself from the self-explanatory, tacit aspects of everyday discourse surrounding and constituting a musical style, including confident so-called research-based assertions regarding the stability of the asymmetrical patterns. In practice, this means performing the kind of analysis which I will describe in the following chapter, i.e. a detailed reading of the course of melodic-rhythmic events from the perspective of a performer engaging in a musical, multi-parameter interpretation.

Method of measurement

Finally, to follow up the last point above, I shall now return to Bengtsson's method of measurement and provide a few comments. For the measurements discussed in this section he used the melody-writer MONA, and a device for registering complex sound events called POLLY.[130] These analogue registrations of sound sequences make it possible to calculate the relative duration of musical events from a visual graph. In taking a general, critical stance on this method, I am not referring to the ability of these devices to capture the finer nuances of a rhythmic performance as a decisive factor. The problem is that it seems to be taken for granted that the critical points in the graphs obtained represent musical onsets as they are experienced by the musician and/or a competent listener. As I will demonstrate through various examples, this is not necessarily the case given the ambiguity of the rhythmic-dynamic articulation in fiddle playing (see chapter 4). Interpretation with support from aural impressions is required if the measurements are to represent something more than rough approximations. Thus, these devices are not necessarily "improving our ability to make detailed analyses and descriptions"[131], as Bengtsson claims, unless we use them in combination with a musically competent reading of the rhythmic course of events.

3.5 Sven Ahlbäck

Sven Ahlbäck is a music researcher and teacher at the Royal College of Music in Stockholm. The importance of his contribution to rhythm research is in this context considered to be wide-ranging in that it forms a central part of the teaching of talented and potentially influential Swedish and Norwegian folk musicians. Ahlbäck presents a typology of polska rhythms (meter) based on accentuation pattern, tempo, characteristic subdivision structure, and the durational relationship between the beats.[132] Here, the aspect of beat duration ratio in asymmetrical styles

[130] See Bengtsson 1967 and Bengtsson et al. 1972 for detailed descriptions of these devices.
[131] Bengtsson 1974: 22
[132] In this section I am referring to Ahlbäck's (1995) text "Karaktäristiska egenskaper för låttyper i svensk folkmusiktradition. Ett försök till beskrivning." ("Characteristic features of tune types in Swedish folk music tradition. A

will be given most attention, and this parameter of Ahlbäck's typology is treated in a way which deserves to be critically examined.

Alternating meter – categorical variation in beat level timing

Basically, Ahlbäck is referring to the two main types of asymmetrical pols/springar/polska tunes, i.e. the short-long-average and long-average-short variants. However, instead of describing these meter types as stable patterns with small variations (cf. Blom), he sees them as alternating between symmetrical (3:3:3) and strongly asymmetrical (2:4:3/4:3:2 or 22:44:33/44:33:22 %).[133] These values are not to be understood as limits within which gradual variations occur during performance, as the music is considered to alternate between two different meters, for instance between a 3:3:3 and 2:4:3 beat duration ratio. Moreover, this alternation is not thought to be being approximate as the 2:4:3 ratio is stated to be performed with a 10 ms accuracy.[134]

The way Ahlbäck chooses to represent these rhythmic features in a score clearly reflects his basic conception of the asymmetry phenomenon and implies a constitutive relationship between the subdivision and beat level timing. By using 9/16 notation he is able to communicate both the asymmetry and the alternating meter through the way the notes are grouped within the measure (see fig. 4 below). Somewhat simplified, the notation is based on a set of beat motif figures which also indicates the shape of the asymmetry on the beat level. Moreover, this system demonstrates the correspondence between the placement of the different beat motif figures and variation in asymmetry. Beat motifs like ♪♬ represent a beat with 2/9 length, ♫♫ ♬♬ ♪. etc. = 3/9, and ♫ ♫♬ ♬♬ ♬♬♬ etc. = 4/9. The asymmetry on the beat level here becomes a direct equation of the architecture and placement of the beat motifs, i.e. something that resembles so-called Balkan rhythms or additive rhythm.[135] Thus, in its prototypical form this model suggests that completely different processes are at work compared to the model in which the measure is seen as simply divided into three beats of unequal length, regardless of the density and architecture of the beat motifs (see the discussion of Kvifte's article below). Fig. 4 below shows the second strain of an *Orsa-polska* (Sweden) played by Gössa Anders Andersson (1878-1963) and notated by Ahlbäck (1995) and should demonstrate the principle through which beat durations are constituted. To illustrate clearly the alternating meter I have added numbers indicating the shifting durational ratio between beats.

---

descriptive attempt."). It should be noted that this text seems to be aimed primarily for teaching purposes, although it contains some well-argued claims which are highly interesting to consider within the context of a scientific study.

[133] Ahlbäck has mainly researched Swedish pols/springar (polska) styles.

[134] Ahlbäck 1995: 8

[135] Kvifte 1999

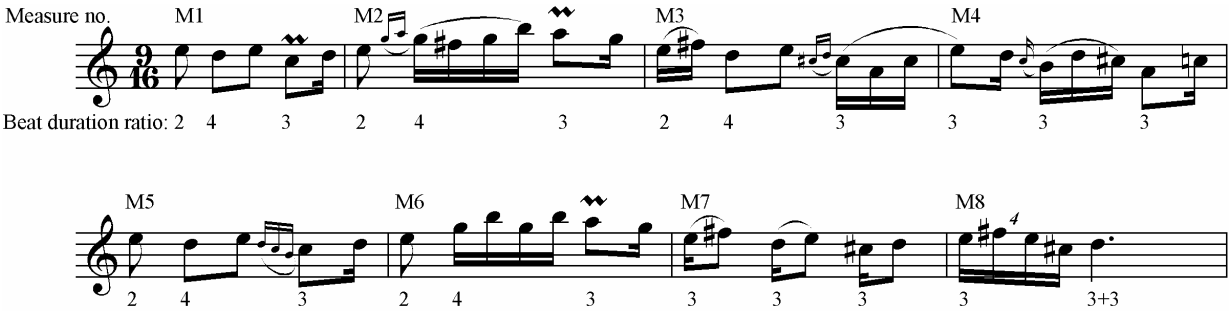
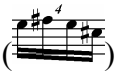


Figure 4. Excerpt from an *Orsa-polska* played by Gössa Anders Andersson. Adopted from Ahlbäck (1995). M1, M2 etc. indicate measure numbers. Audio sample 1a.

Compared to Bengtsson's thoughts about the notation/performance relationship, this represents a fundamentally different approach in that the "fine structure in the duration patterns" (Bengtsson) is in fact reproduced in the score. When considering alternative notation, Bengtsson concluded that: 1) changes between different time signatures give a false picture of an intentional change of meter; 2) a detailed notation of duration values might conceal the grammatical peculiarities of the basic code; and 3) with reference to its capacity of being potentially normative, notation should not attempt to represent the actual values of rhythmic performance. However, although I basically agree with Bengtsson, the usefulness of Ahlbäck's approach will be discussed further with the above transcription as reference.

As we can see, the only exception from a simple, additive subdivision model (cf. Balkan rhythms) is the quantized figure in the last measure. This figure () might possible be seen as accelerated, something which would resonate with the idea that the total duration of the beat motif may be adjusted, independent of its formal architecture. However, when listening to a recording of this tune with Gössa Anders and his daughter Gössa Anna, this does not appear to be a correct interpretation.[136] In fact, the 2nd beat of M6 seems to be far more "accelerated," thus suggesting the opposite of what the transcription reveals. Measurements confirm that this is the case: the 2nd beat of M6 is much shorter than the 1st beat of M8. It should be noted that this is not a vague tendency or random variation, as all four occurrences of the current beat motifs in this performance have been measured with unambiguous results. The average length of the 2nd beat in M6 is 453 ms with only 4 ms deviation between the shortest and longest version, while the average length of the 1st beat in M8 is 555 ms with 8 ms spread. Even when considering relative length, the 2nd beat in M6 is the shortest in spite of the fact that M8 is much longer due to an

[136] It is not known which one of three available recordings of this tune Ahlbäck transcribed. However, it has to be emphasized that these versions are very similar in terms of rhythmic articulation and timing.

extension of the final tone. Besides demonstrating the high temporal precision with which a performer may replicate a certain melodic-rhythmic sequence, this observation suggests that one take a closer look at the odd distribution of beat durations implied by Ahlbäck's transcription of this tune. The shift between the strongly asymmetrical M3, where a beat motif with duple subdivision is supposed to be played twice as short on the 2nd beat compared to the 1st beat, and the symmetrical M4, seems particularly unlikely. And as suspected, measurements indicate that this is not how this two-measure motif is performed. Figure 5 below shows beat duration data (%) from my measurements of the first occurrence of this motif (top line) compared to the predictions of Ahlbäck's model (bottom line), as manifested in his method of notation.[137]

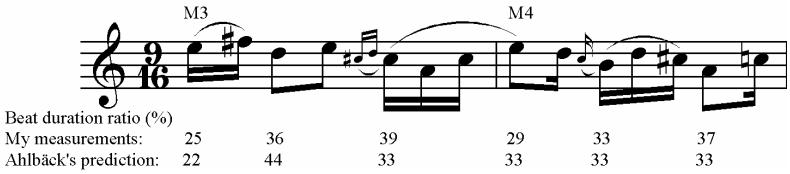
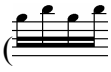
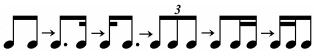


Figure 5. Two-measure motif from an *Orsa-polska* played by Gössa Anders Andersson (cf. fig. 4). Audio sample 1b.

In conclusion, although there certainly is variation in asymmetry in Gössa Anders' playing, it appears as if Ahlbäck's description of these variations is exaggerated. Moreover, although a performer might alternate between different beat duration patterns with a high degree of precision, there is no particular reason to believe that this is achieved through guidance from a durational or ratio-based model (2:4:3 and 3:3:3). In other terms, the ability of a performer to repeat a melody with exactly the same durational values should not be confused with the ability to adjust the duration of melodic-rhythmic events in accordance with some generalized model. Thus, the fact that a set of beat duration ratios retrospectively appears to fit rather well with performed rhythms does not necessarily imply at all that these ratios are conceptualized as guiding principles by the performer. This "problem" might possibly be solved by employing a simple subdivision model as an explanation for the accurateness of performance timing. However, beat motif durations are hardly explainable with reference to only their formal architecture. For instance, while complex beat motifs ( etc.) may be difficult to play fast enough to make them short, thus being "preset" by absolute constraints, it is certainly no problem to shorten or lengthen simpler or undivided ones ( ,  etc.). Moreover, rhythmic variation often equals some kind of restructuring of beat motif architecture

[137] As will be explained in detail in the following chapter, my measurements are performed manually with the aid of sound editing software.

() etc.), something which might affect beat duration as well. Thus, the explicit or implicit presumption that the temporal structure of pols/springar tunes is constrained by a particular set of non-flexible rhythmic building blocks does not appear to reflect the reality of rhythmic performance. In sum, the dynamic processes of performance timing cannot be accounted for either by a simple predictive beat duration ratio model or an additive subdivision model.

Notation and normative description

Though the predictions implicit to Ahlbäck's method of notation do not seem to be empirically supportable, it needs to be recognized that his transcription sounds, when played back by a computer, a lot more like an *Orsa-polska* than does a conventional transcription in 3/4 time. Considering this apparent correspondence with performed rhythms it might seem strange that 3/4 notation is preferred by most researchers, collectors and musicians. However, this might be due to several reasons. First, there is the aspect of habit: both musicians and researchers have got used to the 3/4 alternative as the usual way of writing down pols/springar tunes, regardless of actual durational values. Second, it is generally taken for granted that the score does not represent the real temporal relationships utilized in a performance, i.e. one has to know the style through listening, dancing or playing to be able to use a score to learn a tune. Third, as Bengtsson notes, the basic rhythmic code of these styles is defined through the organization in measures divided into *three*. However, I find the most important objection against the 2+4+3/16 alternative to be, somewhat paradoxically, the *apparent* concordance with the sounding music. In short, the possibility to express the variation in asymmetry might lead us to believe that these transcriptions actually represent beat durational and subdivision patterns as they are performed, and the mechanisms through which these rhythmic patterns are produced. Although in some cases they might, the 2:4:3 durational categories generally represent extreme values rarely encountered in traditional recordings.[138] The risk of cementing a constructed, unnatural rhythmic pattern is therefore obvious, and to the extent that transcriptions may be normative, this is an undesirable alternative. The observation that there are recordings in which the 2:4:3/4:3:2 pattern can be found is of course interesting and should not be ignored, even if this may turn out to be a modern phenomenon. At the same time, given the fact that some of the musicians performing pols/springar tunes in this way possess a theoretical knowledge explicitly grounded on this

[138] For instance, in the measurements that I have performed, these values have rarely been encountered.

conception of rhythm/asymmetry, it is interesting to speculate to what extent the appropriation of theoretical models of rhythm might influence stylistic change.

3.6 Tellef Kvifte

Kvifte holds a professorship at the department of musicology at the University of Oslo. In addition to general questions of rhythm and groove, he has dealt specifically with the asymmetrical styles of pols/springar playing. He is moreover the only researcher who has systematically and critically examined existing theories and assumptions about the subject.[139] In his article dealing with the asymmetry phenomenon, Kvifte summarizes the methods and main results of earlier research dealing with the subject. Moreover, he contributes in an interesting and potentially productive way by extracting four main hypotheses from the existing research within the field. These hypotheses concern *variation* in asymmetry and how this phenomenon might be explained. Below I will briefly summarize the main points of these alternative explanations.

Four hypotheses

The average value hypothesis (*middelverdihypotesen*) refers to Blom's work (see above), according to which the long beat is supposed to steal time from the short one, while the medium beat remains average (33 %) in length. Thus, the rhythmic flexibility is centered around the shifting relationship between the long and short beat.

The second hypothesis (*enerhypotesen*) relies on the One as a stable point, i.e. the distance from the onset of the first beat of a measure to the start of the subsequent measure is supposed to remain constant, while the relative length of the beats in between varies. Kvifte argues that since the beats are of unequal and varying length, the perception and control of tempo cannot rely on the beat level, as is the case in many other styles (cf. beats per minute (bpm) as a tempo indicator). Thus, the lowest level capable of defining tempo is hypothesized to be the measure level. This, however, turns out to be difficult to combine with the average value hypothesis. Given the short-long-average variant, the two principles will theoretically coincide, as the variable point is supposed to be the onset of the second beat. But with long-average-short meter, there is conflict in that the variable point between the short and long beat is supposed to be stable according to the second hypothesis.

The foot-tapping hypothesis (*trampehypotesen*) refers to the usual ways in which a performance is accompanied by a regular tapping of the beat. The possible correspondence suggested is that variation in asymmetry is concentrated on the beat position where the fiddler is

[139] See Kvifte 1999

not tapping his foot. This, however, presupposes that the fiddler only taps two beats, and although this might be considered the most usual way, the theory excludes instances when all three beats are tapped. Given the circumstance that one taps on the 1st and 3rd beat in short-long-average meter, there is a correspondence with the average value hypothesis.[140] But in a *Tele-springar* (long-average-short), where the fiddlers generally taps on 1 and 2, this is not the case. Here the rhythmic flexibility needs to be located in the relationship between the average and short beat to lend support to the foot-tapping hypothesis. These objections, however, do not necessarily mean that this hypothesis cannot tell us something about the asymmetry phenomenon. It is only if we are looking for a general principle, accounting for all asymmetrical styles of pols/springar playing, that we need to dismiss this alternative.[141] Although this style is not brought into Kvifte's discussion, *Vågå-springleik* seems to be a case that potentially supports the foot-tapping hypothesis. This will be discussed further during my analysis of Leif-Inge Schjølberg's rendition of a V*ågå-springleik* in chapter 6. In short, the 1st beat position is clearly the most variable, which potentially might be related to the fact that foot tapping coincides with the 1st and 3rd beat onset, creating a tolerance for the location of the 2nd beat onset. It could be added, however, that it cannot be assumed without any problematization that the potentially constitutive influence between foot tapping and melodic rhythm works in a particular direction, i.e. that the 1st beat is flexible because there (sometimes) is no foot tap on the 2nd beat, rather than the other way around.

The libration pattern hypothesis (*sviktkurvehypotesen*) refers to Blom's descriptions and illustrations of libration patterns in dancing. Kvifte suggests the possibility of a correspondence between rhythmic variability and certain aspects of these patterns of movement. Complete librations (T:A-patterns) are here suggested to be more stable than each of the phases (T or A) respectively. As Blom has shown, in some cases there is a difference between dance meter and musical meter. In a *Numedals-springar*, where this is not the case, all three musical beats correspond to a complete down-up movement (dance beat), which according to the libration pattern hypothesis would indicate a relative stability on all (musical) beat positions. A *Tele-springar*, in which there are only two dance beats, however, should demonstrate variability when there is a correspondence between the musical beat position and the transition between down and

[140] The Valdres fiddler Trygve Bolstad, to whom Kvifte refers when discussing the short-long-average meter, is supposed to tap on the 1st and 3rd beat. On the recordings which I have listened to of this fiddler, this is not the case; Bolstad taps on all three beats. The same is the case with the influential fiddler Torleiv Bolstad (1915-1979), who taps on all three beats, with a clear emphasis on the 1st and 2nd beat in addition. Thus, generalizing the *Valdres-springar* in the way Kvifte does in discussing the foot-tapping hypothesis is not valid.

[141] The fact that these tunes can be played perfectly well without accompanying foot-tapping certainly does not support this alternative as a general principle.

up movement, i.e. between the second and third beat (see fig. 3). In other words, the 3rd beat onset is determined to be the most variable position, while the sum of the 2nd and 3rd beats (a complete dance beat) should be stable. A *Valdres-springar* consequently will have the 2nd beat onset as the most variable position. In the case of a *Tele-springar*, this hypothesis coincides with the foot-tapping hypothesis.

Testing the hypotheses

As Kvifte points out, none of the earlier investigations specifically aims to test any of the hypotheses, and to do so would require a greater set of data than is available from the few measurements which exist. His own data is derived from measurements performed on two recordings of the *Valdres-springar Raklekjølken* (short-long-average) played by Trygve Bolstad, and a *Numedals-springar* called *Musehaugen* (long-average-short) recorded by Arne Olsen. However, Kvifte does not provide us with the data he is lacking from earlier investigations; only short sections containing a few measures from the recordings in question are analyzed. Consequently, Kvifte is not actually testing the hypotheses, but demonstrating how they *can be* tested.[142] This demonstration follows the path of three models of calculation, which will be briefly mentioned below:

First, by determining variation in period length measured from the 1st, 2nd and 3rd beat respectively, it is possible to evaluate and compare the different hypotheses. For instance, the hypothesis that the One remains a stable point would be confirmed by results showing that the period length measured from the 1st beat is less variable than the period length measured from the 2nd or 3rd beat.

Second, by measuring and calculating the relative extension of the beats within a measure, it is possible to determine where and how much the different units vary in relation to each other. By virtue of this perspective, evaluating the average value hypothesis is straightforward: one of the beats should occupy around 33 % of the measure, while the length of the remaining two beats should vary proportionally according to a "give-and-take principle".

Third, potential patterns of co-variation can be examined, i.e. to what extent two variables change simultaneously. For instance, if it is a fact that the long beat steals time from the short beat, then a prolongation of the long beat should make the short beat correspondingly shorter.[143]

Kvifte concludes that his measurements and calculations do not clearly support any of the hypotheses, and although he demonstrates some tendencies in favor of the average value

[142] See Kvifte 1999: 410
[143] See Kvifte 1999 for a more extensive discussion of these models of calculation.

hypothesis, there are too few data to make any solid claims. Without considering the implications of these hypotheses any further at this point, I want to support Kvifte's assertion that even though they do compete in some respects, they may all represent factors which to a varying degree are active in shaping the rhythmic patterns.[144]

Measurements – precision and relevance

Regarding the question of how and with what level of precision to measure musical rhythm, Kvifte has some interesting reflections. Comparing Groven and Bengtsson's measurements, he argues that although the latter might appear more exact by involving the automatic detection of the physical aspects of sound, this is not necessarily the case. It all depends on what one wishes to measure and the correspondence between the physical measurements and the experienced rhythm:

> If it is the experienced rhythm one wants to measure it is easy to argue that Groven's method is the most accurate. Groven knows that his registrations have a direct correspondence to the experience of rhythm, while Bengtsson has to interpret a graph made by a machine. Thus, he cannot know for sure which signs in the graph correspond to experienced beats. Furthermore, the relationship between the start of a tone (physically represented on a graph […]), when the tone is *perceived* to start, and when the beat is perceived to start, is not always obvious. This can be especially apparent when fast grace notes are performed: should they be interpreted as on or before the beat?[145]

I would first like to assert that reading a graph in a way that corresponds to musical conceptions of rhythm is not necessarily a problem. That is, if it is possible to play back and listen to the music while the movement of the marker across the graph is displayed (cf. modern computer software), I see no conflict between these alternatives (experienced beat and automatic detection of amplitude peaks).

Experienced and measured rhythm

I would like to emphasize that I find the concept of *experienced rhythm* problematic when discussing analytical methods. From the quote above it almost seems as if experienced rhythm,

---

[144] Kvifte 1999: 416

[145] Kvifte 1999: 418-419. My translation. Original text:
"Dersom det er den opplevde takten man er interessert i å finne tallmessige uttrykk for, er det lett å argumentere for at Grovens metode er mest nøyaktig. Groven vet at hans registreringer har direkte sammenheng med taktopplevelsen, mens Bengtsson er henvist til å tolke en graf laget av en maskin. Han kan dermed ikke uten videre vite hvilke tegn i grafen som tilsvarer opplevde taktslag. Videre: det er ikke alltid opplagt hvordan forholdet er mellom tonestart (fysisk representert på en graf[…]), *opplevd* tonestart, og opplevd taktslagstart. Spesielt tydelig kan dette være ved raske forsiringer: skal de tolkes på eller før taktslaget?"

as represented by Groven's measurements, could be seen by distinguishing between physical and rhythmically significant onsets as equivalent to an "interpreted graph." This impression is hard to avoid in that Kvifte discusses the relationship between signs in a graph and experienced beats while addressing the problem of physical vs. musical onsets. There are some possible implications of such a view which deserve to be commented on. The first alternative is that a detailed survey (using whichever technology available) taking into account the experience of rhythm will demonstrate the same results as did Groven's analysis. Second, there may be divergences between these results due to deviations between where Groven marked the beat positions and where he intended them to be located. Third, there may be deviations due to different conceptions of the relationship between perceived contrasts in sound and perceived beats. For instance, as Kvifte suggests, there can be different ways to interpret grace notes in relation to the start of the beat. Furthermore, given the possibility that results may diverge considerably more than what can be attributed to different interpretations of grace notes and other physical onset qualities, there are still some options left. There is the rather spectacular alternative that there is no direct relationship at all between melodic rhythm and experienced beats for which it is possible to account. A less spectacular alternative, however, is that there is a great *tolerance* for deviations between perceived onsets and the tapping of beats. In other words, although perceived as dissimilar, different beat onset patterns may account for the same experience of groove. This alternative does not seem improbable at all, but we need to add a very important factor, namely the researcher's preconceptions. Without these, the results from a Groven-type analysis could be expected to spread in all directions. Given the hypothesis that Groven possessed a what was at the time an already well-established understanding of the beat pattern of *Tele-springar*, and that deviations between this pattern and perceived onsets were not considered to be important enough, there may be many potential realizations which result in equivalent analytical data.[146] From this, the problem of referring to experienced rhythm without discussing this concept any further should be obvious. At the same time, Kvifte raises fundamentally important questions about the experiential qualities of onsets, questions which need to be thoroughly worked out to assess the validity of data presented. He also quite rightly calls for investigations which can demonstrate the degree of synchronization between fiddlers and dancers, and to what extent individuals share the same experiences of rhythm and timing.[147]

[146] An additional alternative would be that one does not really perceive the onsets as diverging from the pattern because of the strong preconception directing one's rhythmic experience.
[147] See Kvifte 1999: 421

Method of measurement

Kvifte's method of measurement is well described and combines a "Groven-approach" with a "Bengtsson-approach". The music is recorded into a sequencer program. When playing back the tune, Kvifte marks the beats by playing them on a MIDI keyboard. The sequencer records the MIDI data from his rhythmic performance and both audio streams are played back simultaneously to ensure there is synchronization. If deviations are perceived between experienced beats and his recorded markings, Kvifte can move the markings back and forth to synchronize them with the music. He also mentions the possibility of watching a sound graph, placing the marker where he believes the beat to be located, and playing back the sound from this point. As will become evident in the following chapter, Kvifte's method is rather similar to mine if we take into account the procedure for correction. From this perspective, the problem understanding his choice of method is related to the initial part of the analytical procedure. In short, what is the point of first playing the beats on a keyboard, thereby representing experienced rhythm, if these data are in any case going to be corrected afterwards? If measurements of experienced rhythm are taken to imply observations made from the position from which beats are normally experienced, then these measurements will naturally include the small "errors" (tolerance) which the final procedure is supposed to correct. From this perspective, a discussion is lacking about why precision should be increased beyond this level. If, on the other hand, the deviations are considered to be misinterpretations due to insufficient attention and precision, then the results from the initial part of the procedure will bear no significance as long as they do not correspond to the more detailed analysis.

A very important aspect concerning validity that Kvifte addresses is the potential source of error due to lack of relevant stylistic competence. For instance, he states that his own knowledge varies regarding the different styles in question, and that this might influence the measurements and observations made. He also points out the similarity between a situation in which people play together and the manner in which his measurements are performed, although the corrective from co-performers is missing in the latter case. As will be discussed further, addressing ensemble playing as a hypothetical interpretive framework relates to a general conception of what music analysis means that my work relies heavily on.

Durational categories and expressive variation

The relationship between durational categories and expressive aspects of performance in these styles was initially discussed by Bengtsson. Kvifte, however, questions the assumption that the rhythmic patterns of pols/springar tunes result from (more or less systematic) "deviations from

the code's triple-time norm".[148] Instead, he discusses the possibility that listeners and musicians perceive three different categories (long, average and short), i.e. that the basic norm in itself is asymmetrical. Seemingly there are fundamental differences between the different theoretical approaches in this respect. Bengtsson apparently does not conceptualize the polska rhythm in this way. Groven and Blom, on the other hand, seem to take for granted that the basic meter of the styles they discuss is asymmetrical with well-defined beat categories. Kvifte attempts to illuminate this by referring to the data obtained from measurements, from which the relative stability of the three beat positions can be calculated. He concludes that there are no unambiguous tendencies in favor of any of the three beats. Some of the measurements suggest that it is difficult to distinguish between the "long" and the "average" beat, while others seem to indicate that the "average" and the "short" beat are not clearly differentiated by duration. In spite of this ambiguity, Kvifte suggests that the short beat position could be seen as constituting a category of its own. He does this by referring to the relative stability of the short beat position and, not least, to the accounts of musicians.

Stylistic differences and conceptions of meter

Kvifte briefly addresses the question of the extent to which the beat durations measured and beat categories are related to fundamentally different conceptions of rhythm, i.e. how the basic premises for discussing asymmetry in the first place might vary from style to style. For instance, Kvifte mentions the potential difference in musical conceptions between musicians who learn the asymmetrical rhythm both as dancers and musicians, and those who learn the same rhythms without this connection to dance. He also suggests that the use of notation might have an important influence on the way musicians experience rhythmic structure. For instance, he observes a striking correspondence between Ahlbäck's 2:4:3-3:3:3 notation and the way in which some Swedish folk musicians do in fact perform the polska rhythm, i.e. with a "Balkan-type" asymmetry with isochronous subdivisions and alternating meter.[149] As Kvifte notes, this is a qualitatively different way of rhythmic organization compared to styles in which the asymmetry is experienced as constant, and in which this temporal organization of the beat level determines the timing structure of subdivisions, rather than the other way around. This leaves us with two fundamentally different theories which might account for the maintenance of an asymmetrical beat pattern. First, there is the possibility that consistent timing of the beats is achieved by counting and adding together isochronous subdivisions (
= 2:4:3 etc.). This theory

[148] Bengtsson 1974: 29
[149] See Kvifte 1999: 426-427

presupposes that there really is an isochronous subdivision level, at least in terms of categories. Second, more or less taking for granted that there is no such level, the theory of Blom relies on the directly or imaginatively perceived pattern of libration in dance as the central point of orientation. The temporal ratio between the parts of this pattern does not depend on an isochronous subdivision level but is a result of dividing the whole cycle (the measure). Finally, Kvifte briefly mentions an alternative strategy which is to capture whole measures as rhythmic *gestalts* with different forms of internal organization, for instance by using categories such as long, short and average.[150] Although the implications of this alternative are not discussed any further by Kvifte, this is certainly a compelling model which has some bearing on my analysis of the relationship between top-down and bottom-up processes of temporal organization in pols/springar playing (see chapters 5 and 6).

Another circumstance which Kvifte does not discuss is that within certain styles (especially the *Valdres-springar* and the *Tele-springar*), the asymmetrical formula is institutionalized through performance practices and native theorization as the basic rhythmic structure in relation to which rhythmic performance and aspects of dance movements are understood. This, however, is not the case with some other styles in spite of the fact that there are clear tendencies to have asymmetry. The reason why this difference is important to consider when one is aiming to acquire a theoretical explanation of the styles in question is that theorization, in whatever form, is believed to influence performance practice. Somewhat simplified, knowing that the beat duration pattern is supposed to be asymmetrical with a predefined ratio is very different to a conception which involves no beat duration ratio being specified but in which beats are allowed to stretch and compress within certain limits. In the latter case, one may imagine the active expressive parameters being phrasing, dynamics, ornamentation etc., and that the function of the beat duration tolerance is to leave room for such expressive variations. The opposite would be to look at beat durations as the active domain of performance timing, which would leave the continuous course of melodic-rhythmic events as something to be adjusted in accordance with this predefined rhythmic grid. These seemingly contradictory conceptions are what make this topic intriguing and I feel confident in my assertion that both perspectives are necessary if one is to understand the mechanisms of performance timing and be able to discuss important stylistic differences which might be related to different conceptions of rhythm and groove.

[150] Kvifte 1999: 428

3.7 Carl Haakon Waadeland

The Norwegian musicologist and jazz musician Carl Haakon Waadeland has contributed significantly to rhythm research thanks to his thesis *Rhythmic Movements and Moveable Rhythm – Synthesis of Expressive Timing by Means of Rhythmic Frequency Modulation*.[151] The main reason for including Waadeland in this review of research literature is that he, to my knowledge, is the only researcher who has taken a modeling approach to the study of pols/springar rhythms[152], the details of which will be described below. The overall goal of his project is "*to formulate a new description of musical rhythmic activity, through which gestural aspects of performed rhythm are taken crucially into account*."[153] This ambition is brought into focus by an attempt to model actual rhythmic behavior within different styles as processes of continuous transformations of rhythmic structure. Waadeland argues that conventional attack-point rhythm description, being based on information about discrete points on a one-dimensional axis, is not a valid representation of rhythmic performance. This argument is premised on the persuasive assumption that rhythmic performance is "created through an interaction between the musician and his instrument, expressed as continuous movements in time and space. The musical performance as such is thus basically a continuous, multi-dimensional phenomenon."[154] On this basis he presents a model which transforms structures of attack-point rhythm into structures of gestural rhythm represented by movement curves (see the illustrations in figs. 6 and 7 below). The modeling process is presented in two steps which represent two levels or separate models where the latter is dependent on the former. The first step is the construction of a model of metronomic performance of rhythm (MPR), in which a structure of discrete durations derived from note values (written representation) is transformed into a structure of movements. The second step is the construction of a model of live performance of rhythm (LPR) in which the model MPR is naturally embedded by acting as basis for the modulation. Expressive timing is represented through the model LPR by applying "a technique of *rhythmic frequency modulation* to the elements of MPR, creating movement curves which represent rhythmic performances characterized by various deviations from metronomic regularity."[155]

---

[151] Waadeland 2000

[152] Blom's model of libration patterns in pols/springar dances and its supposed correspondence with played beat durations and subdivisions is possibly an exception. However, this is not a generative model, i.e. it does not account for *how* beats of different lengths are produced.

[153] Waadeland 2000: ii

[154] Waadeland 2000: 115

[155] Waadeland 2000: 174. The technical and mathematical aspects of this modeling process are of course interesting in themselves, but are not considered important within the present discussion. For such details, see chapter 5 in Waadeland (2000).

Modelling pols/springar rhythms

The main theoretical prediction and functional implication of Waadeland's model is what I have termed the organizational influence of rhythmic style, i.e. the structuring mechanism that ensures that a range of performances are recognized as being the same groove. I would maintain this to be the case with reference to the declaration that the models MPR and LPR are supposed to make it possible to "describe representations of expressive timing as non-linear continuous transformations of rhythmic structure. Subject to this interpretation our models reflect processes by which conceptualized musical information, through an interaction of cognitive skills and motor skills, is transformed into live performances of music."[156] In other words, what is stated is that the model reflects how actual durations are affected by the expressive intention of a performer acquainted with a particular style of rhythmic performance. Especially noteworthy about Waadeland's model is that it is used to simulate various rhythmic styles characterized by *systematic* variations of beat durations (i.e. asymmetry). The *Tele-springar* and *Valdres-springar* are among the examples of such styles used as a means to illustrate the model. Waadeland has not measured beat durations in actual pols/springar performances, but uses Blom's (1993) idealized model as reference, i.e. the 7/18 (long) – 6/18 (average) – 5/18 (short) proportional ratio (see chapter 3.3). He first presents a "neutral", unmodulated melody in symmetrical triple meter; the well-known Norwegian melody *Kjerringa med staven* (fig. 6):[157]

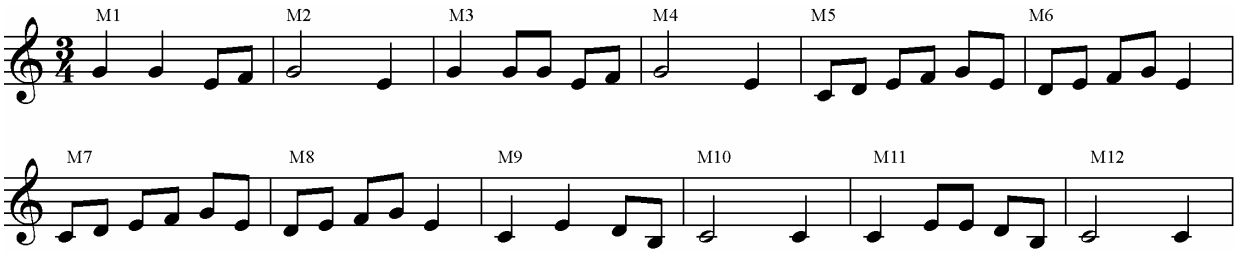


Figure 6. *Kjerringa med staven*. Adopted from Waadeland (2000: 213).

The graphical representation in fig. 7 below is taken from Waadeland and displays the movement curve associated with a metronomic performance of *Kjerringa med staven*.

[156] Waadeland 2000: 240

[157] *Kjerringa med staven* is not a *Tele-springar*. Instead, this "neutral" melody is used to illustrate the modeling process, i.e. the transformation from symmetrical to asymmetrical triple meter.

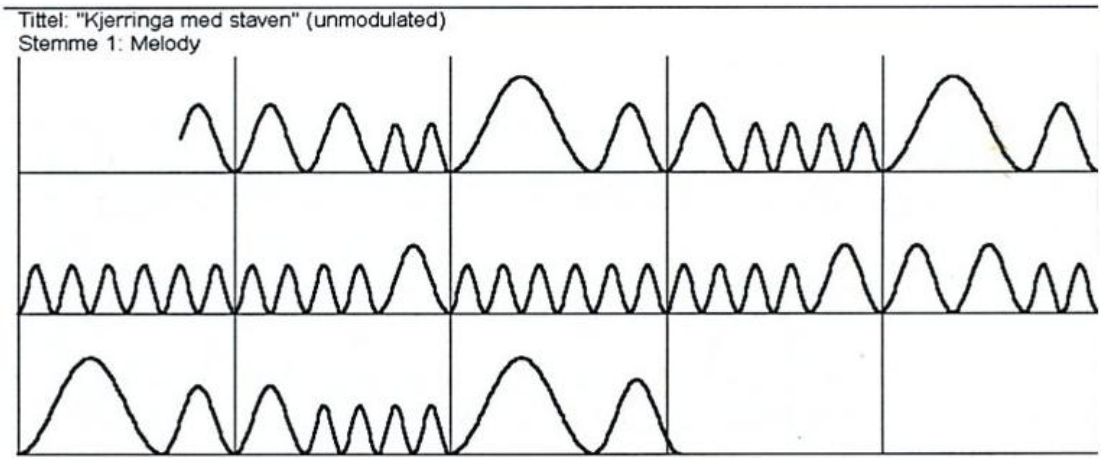


Figure 7. Movement curve for *Kjerringa med staven*, symmetrical (MPR) version. Waadeland 2000: 213

Waadeland then presents a simulation of a rhythmic performance according to the *Tele-springar* style (long-average-short). As evident from fig. 8, the long and short beats are now stretched and compressed respectively.

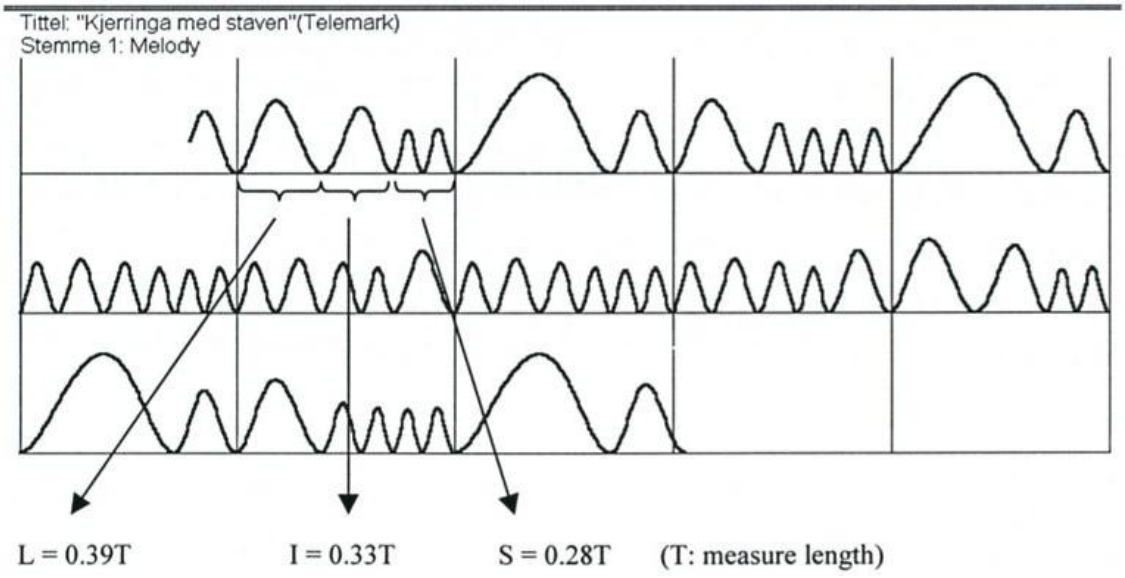


Figure 8. Movement curve for *Kjerringa med staven*, asymmetrical (LPR) version. Waadeland 2000: 214

On a surface level, the graphical and sounding[158] representation of a *Tele-springar* groove might seem sensible enough at first sight. However, some important questions remain regarding the validity of the model whose predictions are featured in the graphs and the sounds. The prime issue in this regard is whether the model provides an accurate portrayal of (or even an approximation of) a *Tele-springar* groove, including the "transformation" process through which

[158] The theoretical models are translated into sounding rhythm syntheses. These are represented on a CD which accompanies the book.

it is supposed to be generated. The first point to be noted is that the striking variability and flexibility of this groove in terms of beat level timing is not represented. In relation to this aspect it might be said, however, that Waadeland relies on conventional and well-established conceptions of the asymmetrical styles of pols/springar playing and that bringing in variation is not necessarily relevant to the modeling of the general features of groove that different versions have in common. Still, the model should ideally contain all factors and interactions that might affect the output (i.e. the movement curve). As mentioned previously in this chapter, examples of such factors may include local stylistic differences (Groven, Blom), overall tempo (Blom), covariation between long and short beats (Blom, Kvifte), relationships between subdivision architecture and beat duration (Bengtsson, Ahlbäck), and tempo fluctuations at structurally salient points (Bengtsson). In more general terms, it should be noted that Waadeland's approach in a sense is opposite to mine in that he posits that the duration of rhythmic events is controlled by an organizational framework which is independent of the (unique) melodic-rhythmic course of events that makes up a pols/springar performance. This conception is not easily made congruent with the notion that the melody (i.e. the melodic rhythm) constitutes the basic groove-forming element. More precisely, although I acknowledge the organizational influence of a generalized rhythmic framework, I insist on the importance of considering the interaction of this framework with melodic rhythm. In essence, Waadeland's model fails to recognize that the unique motivic and sectional structuring of a tune/performance exerts influence on rhythmic components and their relationships. In contrast, the analytical chapters of my thesis are primarily concerned with how this influence contributes to the shaping of rhythmic patterns, including their striking variability.

The second problem with the model concerns how beats of different lengths are generated. As evident from fig. 8 (including its sounding counterpart), Waadeland suggests that this is achieved by stretching/compressing the beats to longer and shorter (compared to the symmetrical version) durations without the proportional ratio between subdivisions within each beat motif being affected. There are two implications of this. 1) The relationship between rhythmic levels is one-directional: beat durations are adjusted to a predefined (5:7:6) ratio. The possibility that the varying architecture of beat motifs might affect their total duration (bottom-up process) is not accounted for by the model.[159] 2) Beat motifs in a pols/springar performance (*Tele-springar* in this case) are scaled according to local tempo shifts (long beat = slow, medium beat = normal, short beat = fast). As will become clear in my analysis of real pols/springar performances, none

[159] Cf. the critical remarks on Groven and Blom's predictions above.

of these predictions appear to account for the rhythmic behavior under scrutiny. First of all, an adequate analysis of formative mechanisms cannot ignore the mutual influence between organizational (rhythmic style/groove/meter), architectural (the actual shape of melodic-rhythmic segments) and contextual (the location of rhythmic elements within the melodic-rhythmic structure) factors. For instance, it is not sensible to assume that beat durations are controlled independently from the architecture of the beat motifs involved.[160] There are also question marks over the generative mechanisms that supposedly are at work in the production of unequal beat durations, i.e. continuous and rapid shifts between different local tempi (see fig. 9 below). Although it might seem logical to assume that a short beat equals a fast beat, there are some basic problems with such a conception. Most notably, the tempo shift version of *Kjerringa med staven* heard on the CD that accompanies Waadeland's book sounds very strange. Intuitively, it also seems very difficult to shift between slow and fast beats, i.e. to scale the beat motifs to different total durations without affecting their internal structure of relative durational values. An alternative would be to explain stretching and compressing in terms of prolonging/shortening certain individual tones, rather than slowing down/speeding up whole beats. This resonates with my own experience as a fiddler and fig. 10 below demonstrates how such an alternative version might look like in notated form.[161]

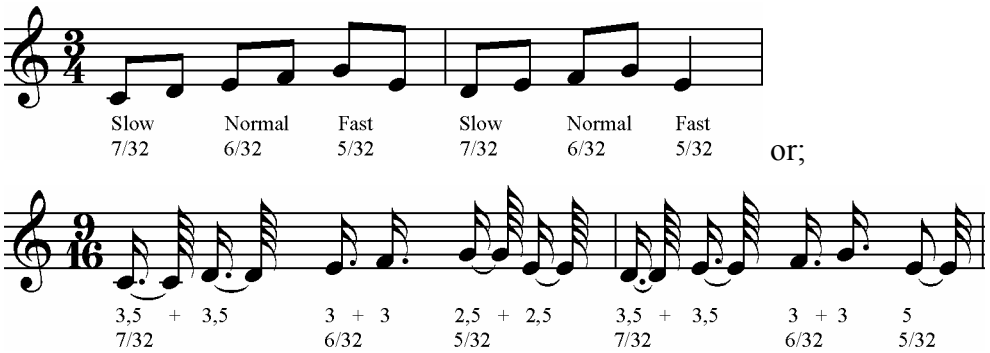


Figure 9. *Tele-springar* version of M5-6 of *Kjerringa med staven* according to a local tempo shift model. Audio sample 2a.

[160] There is often a correspondence between the number of tones in a beat and beat length. (See chapters 5 and 6. See also the sections on Bengtsson and Ahlbäck above).

[161] The 15/16 notation (6+5+4/16) is used in order to obtain an approximation of the idealized *Tele-springar* meter by means of standard notation symbols without quantization (triplet/quintuplet notation etc.). In this context, the temporal deviations from the 7+6+5/18 model are not considered to be important, as what I am attempting to illustrate are not exact durational relationships but principal distinctions between fundamentally different ways of understanding the translation from a symmetrical to an asymmetrical groove.

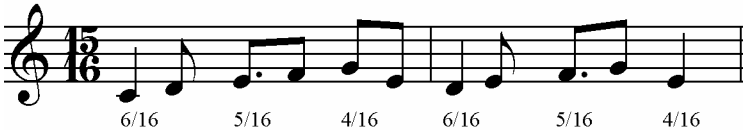


Figure 10. *Tele-springar* version of M5-6 of *Kjerringa med staven* according to a tone prolongation model. Audio sample 2b.

As seen when comparing fig. 9 and fig. 10, there are substantial differences between the two versions. In fig. 9, the reference for the transformations (stretching and compressing) is the average beat, which is of the same duration as in the symmetrical, unmodulated (MPR) version. In fig. 10, the reference is the symmetrically subdivided short beat. In this case, beat lengthening is achieved by prolonging the first tone of the long and average beats, while keeping the second tone short. This latter process, in which certain tones are prolonged, can hardly be described as a variation in tempo. Instead, the beat motifs are reshaped in ways that correspond to different beat durations.[162] Intuitively, and according to how fiddlers actually perform *Tele-springar* tunes, this is a more realistic representation than the tempo shift version. It needs to be emphasized, however, that my intention is not to predict exactly how the reshaping process might work (it can take infinite forms) but to illustrate the interdependence between rhythmic levels (beat and subdivision timing), which Waadeland's model fails to do.

Finally, there are reasons to question the fundamental premise on which Waaadeland's model is based, i.e. that "conceptualized musical information" equates to a hypothetical metronomical and symmetrical rhythm, meaning that asymmetry is the result of an expressive transformation rather than functioning as the basic rhythmic framework within which the expressive structure of temporal and intensive values are chiseled out.[163] As Blom (1981, 1993) notes, there is a correspondence between the ordinal, temporal and spatial structure of dance movements and the structure of musical rhythm, indicating that a directly or imaginatively perceived pattern of libration in dance functions as the basic point of orientation for rhythmic performance. Considering then that the *Tele-springar* dance is structured in an asymmetrical way, a symmetrical beat duration ratio appears to have little to do with the generative mechanisms behind performed rhythms (see also the sections on Groven and Kvifte above). In sum, there seems to be little justification for the assumption that the temporal structure of the asymmetrical grooves is derived from a symmetrical/metronomical (MPR) rhythmic model through time (durations of events) being added to and subtracted from this imagined reference structure.

[162] This phenomenon will later be referred to as *rhythmic reshaping*.
[163] This problem with the implicit and explicit assumptions behind Waadeland's theorizations will be revisited in the discussion of the interaction between rhythmic categories and expressive timing in chapter 7.5.

Instead, it might be convincingly argued that asymmetrical grooves such as the *Tele-springar* and *Valdres-springar* constitute autonomous frameworks with an idiomatic rhythmic logic of their own.

3.8 Summary

The research which I have been reviewing touches upon questions about methods of measurements and rhythm/groove theory, as well as more specific interpretations and explanations of the asymmetry phenomenon. Though there is a vast amount of literature which I might have consulted, I have chosen to structure my thesis according to the principle that research dealing with the style in question and which addresses the asymmetry phenomenon in particular should be presented separately. This choice is rationalized on the grounds that this research aims to understand specifically how rhythm works within the asymmetrical styles of pols/springar playing, and that solid claims and concrete results are presented which I intend to evaluate. Moreover, it is a matter of progression: since the results from my investigations are intended to form an empirical foundation for more general theoretical discussions, I shall allow the issue of the wider implications of my research to grow from my analytical work. The following summary does not purport to be complete, but provides a brief review of central claims, assumptions and results, some of which will be critically examined in my own analyses.

Eivind Groven:

- All three beats have different durations, although the ratio may be different from one style to the next. Given a specific style and tune, the average beat ratio remains constant when performances by different fiddlers are compared. This precision in beat duration replication is suggested to be an aspect of the accuracy with which performers within a tradition learn, apprehend and reproduce tunes of a certain rhythmic character.
- In the *Tele-springar Markensmondagen* played by Gunnulf Borgen, the average durational ratio between the beats is determined to be 39:33:28 %.
- The average beat ratio is calculated from measurements performed by tapping the beat to a played-back recording. Neither measure length, nor absolute beat length is analyzed, only the relative length of beats within the measure. Variation in beat length is not addressed.
- The relationship between rhythmic levels (subdivision timing and beat timing) is not discussed.

Jan-Petter Blom:

- In the main types of Norwegian asymmetrical pols/springar dances, all three beats have different durations. There are two categories of meter into which these styles fall. The first is a short-long-average meter found in the *Valdres-springar, Halling-springar, Røros-pols* and *Ottadals-springleik*. The second is a long-average-short meter found in the *Tele-springar* and *Numedals-springar*.
- The durational ratio between the beats is averaged to be 5:7:6 (28:39:33 %) / 7:6:5 (39:33:28 %), but may vary between 3:3:3 (33:33:33 %) and 3:5:4 (25:42:33 %). The degree of variation can be attributed to tempo, tune, the fiddler and style.
- The variation in asymmetry follows a predictable pattern, in which the beat of medium duration stays constant for around 33 % of the measure, while the remaining beats vary proportionally by the long beat ”stealing” time from the short one.
- There is a close correspondence between dance meter and musical meter in the sense that the durational relationship between the beat phases of dance (up-down movements) are equivalent to the musical beat phases. This means that in the cases in which one dance beat coincides with one musical beat, there should ideally be a subdivision of the beat which corresponds to the way in which the dance beat is divided into up and down phases.
- The relationship between subdivision timing and beat timing (musical beats) is not discussed.
- The method of measurement is evaluated to be estimations based on a thorough knowledge of music and dance. These estimations concern only the relative length of beats within the measure, i.e. variation in measure length (implying variation in absolute beat length) is not considered.

Ingmar Bengtsson:

- Rhythmic features concerning the temporal relationship between units (measures, beats and subdivisions) are seen as important characteristics of local styles.
- The polska style is fundamentally constituted by a “triple-time grammar”. Occurrences of asymmetrical relationships between beats are considered to be deviations from the polska code’s triple-time norm, and as belonging to another code stratum. These variations and finer nuances are considered to be an important part of this style of performance, but should not be described in detail in a manner which ties them to a norm.
- The relationship between subdivision timing and beat timing is considered to some extent. For instance, subdivision architecture is suggested to affect beat length.

- Measurement: The absolute and relative duration of musical events is calculated from a visual graph obtained from a melody writer.

Sven Ahlbäck:

- The asymmetrical styles belong to two categories: the short-long-average and long-average-short variant.
- Rhythmic performances demonstrate a categorical alternation between symmetrical (3:3:3) and strongly asymmetrical rhythms. Expressed in percentage values, the beat duration ratio for the asymmetrical measures (2:4:3/4:3:2) is 22:44:33/44:33:22 %.
- The manner of notation (2+4+3/16 or 4+3+2/16) aims at capturing both the asymmetry and the alternating meter, mainly in the way the notes are grouped within the measure (
= 2:4:3 etc.). This gives the impression of a constitutive relationship between the subdivision and beat level through a principle of additive rhythm. When one considers the occurrence and temporal integration of quantized (
) or "accelerated" beat motifs, Ahlbäck's description of the asymmetry phenomenon might also be seen as a combination of a predictive beat duration ratio model and an additive subdivision model.

Tellef Kvifte:

- The asymmetrical styles belong to two categories: the short-long-average and long-average-short variant.
- There are theoretically two fundamentally different ways of organizing the rhythm and the rhythmic performance in these styles, although the first is dismissed by Kvifte. The hypothetical alternative is to make the asymmetry at the beat level match specific number of subdivisions, i.e. by counting an isochronous pulse which through addition constitutes different beat lengths (
= 2:4:3 etc.). The other is by dividing the whole period (measure) into three unequal parts in a way which corresponds to a more or less imaginary dance meter. The same process accounts for the next level of division, i.e. the beats are divided into equal or unequal parts without relying on the smallest units being isochronous pulses.
- The asymmetry phenomenon might be explained by the following hypotheses: the average value hypothesis, the hypothesis relying on the One as a stable point, the foot-tapping hypothesis and the libration pattern hypothesis. By measuring period length, beat ratio and co-variation between beat positions, the different hypotheses can be tested.

None of the hypotheses is clearly supported by the data available and it is suggested that additional investigation be performed.

- According to the preferred model, the lowest rhythmic level capable of defining tempo is the measure level.
- Measurements are performed by synchronizing a MIDI sequence representing experienced beat onsets with the recorded musical performance. Stylistic competence is considered to be highly important in performing this procedure correctly.
- There are potentially important distinctions between the physical onset measured, the onset perceived and perceived start of the current rhythmic unit. In this respect to what extent measurements represent experienced rhythm may vary.
- In spite of the existence of culturally defined models (long-average-short etc.), it remains an open question to what extent the different beat positions are to be regarded as categorically different. The short beat, however, seems to be relatively stable, which is also supported by Övergaard's impression that the most striking feature was the shortness of the first beat (which would have been the third beat in a *Tele-springar* etc.).

Carl Haakon Waadeland:

- The only researcher who has attempted to model the asymmetrical pols/springar rhythms, i.e. to account for the generative mechanisms through which beats of different lengths are produced.
- The asymmetrical styles are described with reference to Blom's (1993) idealized model, i.e. the 7/18 (long) – 6/18 (average) – 5/18 (short) beat duration ratio.
- Rhythmic performance is not considered to be well accounted for by a conventional attack-point rhythm description. Instead, a valid model should portray the continuity and multi-dimensionality of the musician's interaction with his instrument by means of movement curves.
- Expressive rhythmic behavior is modeled as a process of continuous transformations of a conceptualized rhythmic structure. This is achieved by applying a technique of *rhythmic frequency modulation* to a metronomic performance of rhythm (symmetrical beat duration ratio in the case of the pols/springar rhythms), thereby creating movement curves which represent rhythmic performances characterized by various deviations from metronomic regularity (asymmetrical beat duration ratio in the case of the pols/springar rhythms).

- In accordance with the above principles, the temporal structure of the asymmetrical grooves is derived from a symmetrical/metronomical rhythmic model through time (durations of events) being added to and subtracted from this imagined reference structure.
- The generative mechanism through which different beat durations are produced is portrayed as an alternating stretching (long) and compressing (short) of the beats. This process does not affect the subdivision architecture of the beats (♫ vs. ♫ etc.). Thus, the beat motifs are scaled according to local tempo shifts (long beat = slow, medium beat = normal, short beat = fast).
- Variation in beat timing (within the same performance or between different performances) is not represented. Accordingly, the possibility that beat motif architecture might affect beat duration (bottom-up process) is not accounted for by the model.

Description vs. explanation

This summary of the accounts of the asymmetrical styles of pols/springar playing provides a background for the following analysis and discussion, although these points will not be examined one by one. Some aspects are particularly important. First, it needs to be reiterated that all writers (with the exception of Waadeland who does not discuss this aspect) observe durational variation at one rhythmic level or more, while the meaning assigned to these variations is fundamentally different. This is an important point of focus in my analysis in that the study of the mechanisms of variation and the potentially constitutive relationship between variations on different rhythmic levels is found to be of great significance. Second, when Kvifte, who has provided a summary of the research conducted into the subject, states that these researchers, with the exception of Blom, are primarily "concerned with *description*, and not with *explanation*"[164], he seems to be taking explanation to mean a theory which in some way can predict how a rhythmic performance within a certain style will manifest itself as beat duration data. Blom's theory about the ideal correspondence between libration patterns in dance (dance beats) and musical beats is such an explanation. Kvifte's attempt to synthesize the different hypotheses investigated might be considered another one. I am not wholly convinced, however, and would ask to what extent these theories are in fact to be considered explanations. It all depends on what one means by an explanation. For instance, none of the studies attempts to explain how beats of different lengths are produced. Waadeland's thesis, which was published after Kvifte's article, is an exception.

[164] Kvifte 1999: 401

The problem, however, is that Waadeland's model relies on the dubious assumption that an alternation between short and long beats equals an alternation between fast and slow beats. As already indicated, this does not seem to be a proper representation of the asymmetry phenomenon and other explanations need to be sought. As discussed earlier, there are also reasons to question the fundamental premise on which Waadeland's model is based, i.e. that asymmetry is the result of a transformation of a conceptualized symmetrical beat ratio.

In general, the main problem with all studies published to date is that time (in this case the duration of formal rhythmic units) is treated as an autonomous structural and expressive parameter with a system of its own. More precisely, there is a lack of clarification of the difference between the retrospective matching of the "predictive" models of purely temporal values with performed rhythms, and the explanation of the mechanisms through which such rhythmic patterns are produced. This implies that observing and describing a pattern of beat durations is the same as explaining the pattern. For instance, a performance in which beat durations fluctuate around a certain average ratio (2:4:3 or 5:7:6) can be comfortably interpreted as if the average ratio represents an intended rhythmic behavior, while the unintentional aspects of this behavior are represented by the deviations from the average value. Or, the observed variations/deviations may be taken to mean that the performer intends to vary the duration of the beats. Thus, it almost appears to be taken for granted that performance timing is directly controlled through a matching with a preconceived framework of beat durations, even though there is no simple way to make deductions of this sort. Finally, although the assumptions concerning performance intentions are often not made explicit, there certainly is a concession to the premise that musical time is organized according to an autonomous (i.e. monoparametric) system of its own. On this basis, some hypotheses have surfaced that require very complex operations on the part of the performer. For instance, it needs to be considered whether it really seems realistic that tempo is defined and controlled at the measure level (Kvifte), given the rather large time-span (around 1.5 seconds) and the fact that measure length varies continuously. Or, even more spectacularly: is it likely that a performer is capable of keeping one of the beats constant in relative length (33 %) (Blom), given the fact that absolute length varies from measure to measure, and that the remaining two beats vary in relative proportion to each other? The complexity of such a mathematical operation seems overwhelming to say the least.

The (more or less explicit) assumption that performance timing can be explained in terms of the constraints of musical time itself runs counter to the intuitive notion that musical parameters are interconnected and thus mutually influential, experientially as well as somatically. Accordingly, it remains an open question whether normative or explanatory rhythmic models

should be based purely on durational values. Although I do not aim to present a complete alternative theory of my own, my analyses and interpretations will I hope shed more light on the subject, while providing a critical perspective on the hypotheses presented so far. In short, by taking into account some aspects of rhythm, performance and timing not considered by the other authors discussed, I hope to be able to close in on some alternative "explanations". In particular, I shall refer to a sensitivity for the different features of *melodic rhythm* as it is structured in motivic sections. I also perceive it as an important task to balance the discussion of rhythm and timing in performance by considering matters from the production side, i.e. from the performer's perspective.

The following chapter outlines the methods used in my measurements and analyses of performance timing. Of particular concern will be the distinction and relation between measured rhythmic elements (measures, beats and subdivisions) and the ways in which the melodic-rhythmic material is segmented by and within motivic elements. Other key themes include measurement procedure and representativity in the selection of material. Finally, the issue of comparability is discussed, with a focus on the relationship between what is termed formal rhythmic units and motivic units.

4 Method and observation – practical and theoretical considerations

The aim of the empirical part of this thesis is to provide data which can complement and underscore discussions about and reflections on the rhythmic performance of dance tunes in triple meter played on the fiddle and Hardanger fiddle. The analysis is carried out by measuring the duration of measures and beats in selected performances of pols/springar tunes and the interpretation of these data involves two steps. The first is a statistical examination of the distribution of measure and beat (1st, 2nd and 3rd beat) durations, including median and/or mean values and measures of dispersion. The second is a consideration of the relationship between beat timing patterns and the unique ways in which the melodic-rhythmic material is architecturally shaped and contextualized in the performances analyzed. Here the practical, methodological foundation for the results presented will be introduced, which naturally also involves discussing challenges related to the selection and segmentation of analytical units. This concerns the validity and musical significance of the formal units chosen for measurement and comparison, as well as the resolution and precision with which it is necessary to operate to capture in a relevant and rewarding way the events unfolding. Finally, the relationship between the interpretive potentials and constraints constituted by my background knowledge and the nature and testability of analytical tools needs to be considered. I myself am a fiddler and my own experience of performing Norwegian and Swedish pols/springar tunes is of course an important factor to consider when evaluating the validity of my research findings. In general, to explore the current issues in a rewarding way it has been vital to be able to draw on my own experience as a fiddler and participant in relevant musical discourses. Thus, although the conclusions presented are drawn from empirical findings and theoretical arguments, my insider knowledge has helped to guide my research efforts and to ensure stylistically valid interpretations.

4.1 Analytical units – a hierarchical division into rhythmic levels

The main analytical units used when measuring musical rhythm and performance timing are measures (M), beats (B) and subdivisions (SD), i.e. the basic rhythmic components of the triple meter. These units are termed *formal rhythmic units* due to the fact that they are independent of the actual realization of a pols/springar groove. The hierarchical division of rhythmic levels

implied is consistent with both academic and pedagogical accounts of the current style.[165] The standard Western notation system is perhaps the easiest way to illustrate how this basic division of rhythmic units is conceptualized within different contexts in which a hierarchical representation is required:

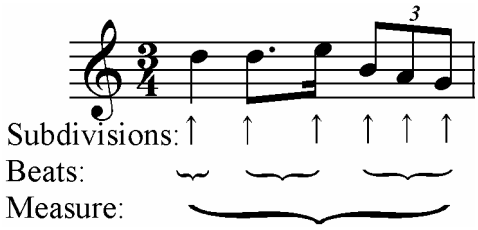


Figure 11. Hierarchical division of rhythmic levels.

The reasons for choosing to work with standardized categories (M, B, SD) are mainly practical, and this imposed consistency might seem to violate the nature of the rhythmic flow in certain instances. As will be shown subsequently, these formal rhythmic units may be more or less compatible or coincident with the way different portions of the melodic-rhythmic flow are discriminated between gesturally (referring to the bodily effort of the performer) and conceptually. In simple terms, fiddlers are not considered to be performing measures, beats and subdivisions, but motifs, phrases, gestures, "sentences" and formulas, i.e. musical segments. In a way then, the analysis involves translating these melodic-rhythmic *wholes* into patterns of beat and measure durations which in some way need to be translated back into the domain of musical segmentation to be explainable. In more detail, initial investigations have indicated that the melodic-rhythmic contexts within which beats and measures are embedded need to be considered when attempting to uncover patterns and tendencies in the distribution of measured temporal values. As will be expanded upon in the following chapters, the motivic organization of the melodic-rhythmic material is an important factor in this respect. At the same time, measures, beats and subdivisions (the measured units) may be seen as musically/stylistically significant categories independently of how the melodic-rhythmic material is manifested as motivic segments. The reasons for this will be discussed in the three main sections below (Measure, Beat and Subdivision). As will be made clear, however, the status of the formal rhythmic units with regard to how rhythm is produced and experienced is ambiguous and dependent on the particular aspect of rhythmic behavior being invoked.

[165] See Sæta & Sevåg 1992; Blom 1993; Kvifte 1999

Measure

Within the pols/springar style, the measure stands out as a musically meaningful entity with reference to the fact that it represents *periodicity*, or, as Jan-Petter Blom (1993) puts it, that it constitutes "*…a fixed period which forms a cycle within a rhythmic course of events*."[166] Blom continues:

> The measure always has to have a regular structure and constitute a pattern of which we try to create a model or representation, and which we assign the term *measure pattern (meter)*. The measure pattern is in other words a description of *the structure in the rhythm*. [167]

As discussed in chapter 3, in the pols/springar genre there is a symbiotic relationship with local dance traditions that may lead us to consider dance movements as clues by way of which we may come to understand the basic, cyclical properties of the rhythmic flow, and how this recurrence organizes musical interaction. Blom writes:

> Within the particular tradition we can assume that the tunes both are expressed and interpreted with a shared dance culture as reference. The dancers have to coordinate their movements with the music, and they experience the same correspondence between music and the use of the body in dance. At the same time, the fiddler has to express the rhythmic life of the dance through the music if his playing is to be functional and appreciated. In other words, dancer and fiddler build their interaction on shared conceptions of an ordering of movement which has particular rhythmical qualities.[168]

The style in question as a historical construction cannot be understood as a set of melodic-rhythmic manifestations without considering the organizational capacity of dance, and this presumed conceptual intervention between music and movement is the most important empirical foundation for identifying units in a rhythmic course of events. Moreover, the institutionalized structural interpretation manifested in cyclical movement patterns is not necessarily challenged by the music not being played for dancing. The connection with dance, thus, is to be regarded as

---

[166] Blom 1993: 163. My translation. Original text: "…*et fast tidsavsnitt som danner en syklus eller periode i et rytmisk forløp*."

[167] Blom 1993: 163. My translation. Original text: "Takten må alltid ha en form for regelmessig oppbygging og danne et mønster som vi prøver å lage en modell eller representasjon av, og som vi gir betegnelsen *taktmønster* (*metrum*). Taktmønsteret er med andre ord en beskrivelse av *strukturen i rytmen*."

[168] Blom 1993: 161. My translation. Original text: "Innenfor det enkelte tradisjonsområde kan vi regne med at slåttene både formidles og fortolkes på bakgrunn av en felles dansekultur. Danserne må samordne sine bevegelser til musikken, og de opplever og lærer den samme forbindelse mellom musikk og kroppsbruk i dans. Omvendt må spelmannen formidle dansens rytmiske liv gjennom musikken om hans spill skal fungere og bli satt pris på. Dansere og spelemenn bygger med andre ord sin samhandling på felles forestillinger om en ordning av bevegelser som har særlige rytmiske kvaliteter."

a historical foundation for the construction of models for musical interaction, rather than as a necessary condition for prevailing consensus.

I have chosen to work with pols/springar tunes in triple meter. Consequently, measures are made up of three beats of varying relative length and weight. Indeed, the fact that one imagines the music being metrically organized in recurrent periods of three beats is evident not only in dance, but in the musicians' interpretation of beat organization through periodic foot tapping. How performers actually execute this gesture varies greatly. For example, it may vary within the same style, e.g. whether one taps two or three beats, which beats one marks, and in what ways one expresses weight/stress/accent through the movements of the foot and leg. The point is simply that the pattern repeats every third beat and that one through this cycle of movements expresses an understanding of the rhythmic structure of the music. Finer nuances and possible correspondences between foot tapping and music are far more problematic to confirm and interpret and demand a close scrutiny of their own.

Measure, meter and motivic structure

Another crucial aspect concerning the musical relevance of the measure as an analytical unit is motivic structure. For instance, terms like two-measure motif and four-measure motif suggest some form of correspondence between the organization of rhythmic units measured in measures, and the organization of melodic units measured by motifs and motivic grouping. David Epstein writes the following about this correspondence on a more general level:

> *Motive*, the second level of rhythmic hierarchy, is complementary to the metric domain of measure. Motive constitutes the minimal grouping of pitches whose contours and rhythmic shape mark them as perceptually memorable. Of its two components, rhythm, rather than pitch (and pitch contour), seems the more powerful in terms of perceptual impact.[169]

The claim that rhythm seems to be the most influential parameter in motivic perception certainly calls for further examination. However, the important point to emphasize in this connection is that motivic structure and meter represent different but in some ways interconnected domains of musical structure. Epstein does not state that motifs and periods over one, two, four etc. measures necessarily correspond, but that they usually do so in the music he has been studying,[170] and that the accentual patterns of the motifs generally seem to be determined by the

[169] Epstein 1995: 31
[170] Epstein uses empirical material from the Western art music tradition and primarily the Classical-Romantic period.

metrical framework in which they appear.[171] For my purposes, the important point is that the melodic-rhythmic material is organized in recurring durational and accentual cycles (meter) represented by the measure, and in unique combinations of durational and intensive values represented by motifs. Moreover, in what ways and to what extent the temporal and intensive structure of the performed melodic-rhythmic material is determined by the meter is an open question and in my view not to be taken for granted. That is, although a generalized durational and accentual matrix (meter) helps people to organize and coordinate their experiential response to pols/springar rhythms, it does not necessarily account for the *precise* ways in which rhythmic elements are *produced*, or how the elements interact to constitute a well-formed groove. To further illuminate this issue, the sounding manifestation of meter/groove (including the motivic organization of the melodic-rhythmic material) needs to be delineated.

In analyzing tunes within the pols/springar genre, mapping out motifs is often problematic to explain without referring to a method explicitly based upon an insider perspective and stylistic knowledge acquired through one's experiences as a performer. In other words, motivic structure is axiomatic and cannot be adequately explained by means of abstract categories and neutral analytical tools.[172] Although some scholars in the field agree more or less with this principle, others insist on the absolute, non-coded properties of the musical sound as a sufficient foundation for determining form elements. Morten Levy is one of the more prominent representatives of this school by virtue of his massive work, *The World of the Gorrlaus Slåtts*.[173] Levy argues for maintaining "a certain sensitive attention towards the musical text under analysis, an attention which as far as possible lets the music segregate its own categories, i.e. which was able to detect the formal categories that the music itself is pointing at through similarities and differences in its processes, through repetition and emphasis."[174] Although I do not share Levy's conviction about the music itself being able to segregate its own categories, I support the notion that there are correspondences between culturally defined and agreed upon categories of form, and the way the music is structured and performed with this more or less shared knowledge as a basic condition. In other words, with significant stylistic knowledge, I believe it to be possible not only to recognize the same basic structure of form elements as other "insiders," but to point out how certain aspects of the sounding course of events discriminate between these elements. Without this knowledge, however, one does not know where and how to look for clues in the musical sound, and since these clues are often far from obvious, one will not necessarily emerge

[171] Epstein 1995: 31
[172] Kvifte 1994; Omholt 2000
[173] Levy 1989
[174] Levy 1989: 9. Underlining in original.

with results conforming to cultural classifications. This is due to a supposed incapability to discriminate between *possible* and *relevant* demarcations and connections. In short, the perceptual fusing of events into conceptual (musical) categories of events (motifs) is not measurable within the sound itself, even if starts, endings, cycles etc. potentially can be observed or measured when this structure of event categories is already known.

In my analyses, motifs are identified according to two principles. First, there is repetition, which is usually a fairly unambiguous criterion, except for the fact that repetition often involves variation, which requires a categorical boundary be determined beyond which the repeated sequence is defined as another motif.[175] In tunes with an AABB form, which is common in the repertoire for the ordinary fiddle, such a melodic unit is usually a four-measure motif (see fig. 12 below). Within the *Tele-springar* style (Hardanger fiddle), which is well represented in this thesis, however, repeated melodic units usually consist of two-measure motifs (see fig. 13). Second, a smallest coherent melodic unit is determined, without necessarily relying on repetition marking a boundary for the motif. For instance, in fig. 12 this motivic unit is determined to be a two-measure section below the level of the repeated four-measure motif. This identification is guided by stylistic intuition and my experiences from performing and teaching this music. In short, the crucial factor is a sense of a complete melodic phrase which cannot be divided any further in any musically meaningful way. Such entities are rarely shorter than two measures, except if a one-measure phrase is repeated. The lowest level, then, is what some researchers label part-motifs.[176] The use of this term is not consistent, but I will use it when referring to *parts of motifs* which do not constitute coherent melodic units.[177]

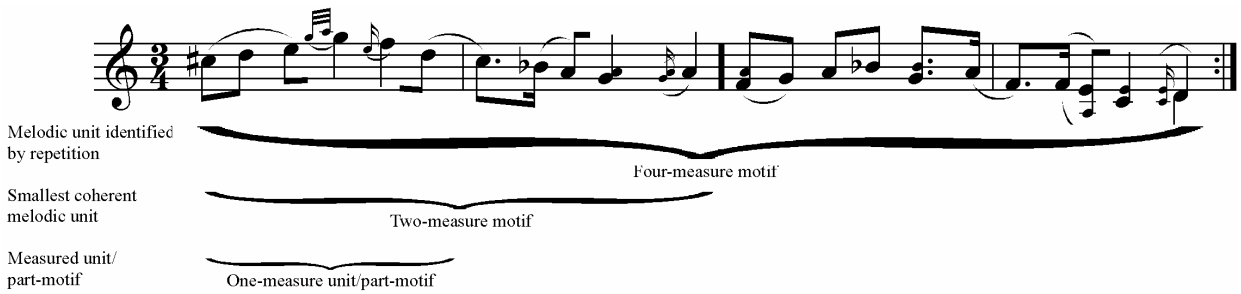
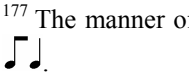


Figure 12. *Springleik* after Hans W. Brimi, Lom. Taken from the tune collection *Slåtter for the Normal Fiddle* Vol. 1 No 2:110 (Sæta & Sevåg 1992).

[175] Cf. the discussion of comparability in chapter 4.4.
[176] Kvifte 1994; Omholt 2000
[177] The manner of notation is adopted from Sæta & Sevåg (1992). Instead of writing  , they write  .

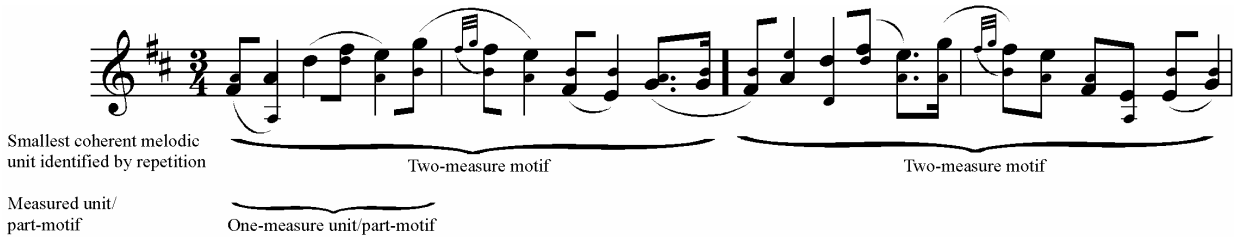


Figure 13. The *Tele-springar Igletveiten* as performed by Bjarne Herrefoss (Hardanger fiddle). My transcription.

What is clear from this discussion is that the status of the individual beats and measures varies if motivic structure is taken into account. For instance, the 2nd beat of the 2nd measure in fig. 13 might be described as the 5th beat of this particular motif, suggesting it ought to be compared with the 5th beat of other versions of the same motif rather than with the 2nd beat of neighboring measures. On the other hand, with reference to the notion that the measure represents the periodic structure of the accentuation and beat duration pattern (meter) of a rhythmic style, different measures should be regarded as rhythmically equivalent units, regardless of their position within a motivic structure. However, as has already been noted, the question of performance timing is not solved simply by measuring performed rhythms against a predefined temporal grid. More precisely, to figure out how a pols/springar performance is temporally structured, the motivic contexts within which beats and measures are embedded need to be considered. From this perspective, the predefined rhythmic categories (measures, beats and subdivisions) do not constitute a self-contained system in which rhythmic events are distributed according to some contextually independent logic (the arrangement of long, average and short beats etc.). Instead, the use of measures and beats as units to measure serves the analytical purpose of identifying interconnections between motivic structure and timing patterns.

Beat

The empirical foundation for identifying beats as musically relevant rhythmic units is the fact that musicians, listeners and dancers interpret and express these as basic points of orientation in musical performance and interaction. Moreover, the beat level is often termed *the referent level* within the field of rhythm research, something which would indicate that it has a privileged position in rhythm production and perception in general.[178] The most obvious instances of externalization indicating this conception are perhaps the foot tapping of the fiddlers and the steps and movement patterns of the dancers. In the introduction to the extensive tune collection *Slåtter for the Normal Fiddle*, Olav Sæta and Reidar Sevåg write that "the beat is the rhythmic

[178] See London 2005; Kvifte 2007; Clayton et al. 2004

cornerstone of the tune."[179] Here the tunes are consistently written down in a way that corresponds to the central role ascribed to the beat. All individual notes or groups of notes represent one beat, and this basic principle is applied even in cases when the length of a tone extends over more than one beat, as in the examples in fig. 14:

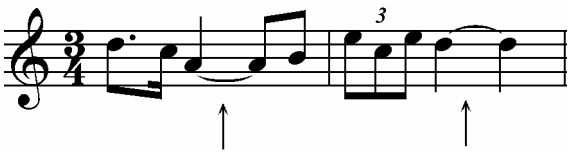


Figure 14. Notation illustrating the importance of the beat as a rhythmic element.

The notation system reflects the idea of the beat being a tacitly understood rhythmic reference on which musical interaction and communication are built. The basis for counting is here, as are the points where rhythmic synchronization between melody and accompaniment generally is evaluated. However, as the interaction between performers playing the same melody is oriented by the totality of melodic-rhythmic events, i.e. the continuous unfolding of melodic rhythm, we cannot state with authority that the beat level necessarily constitutes the primary rhythmic level in musical interaction. Related to this is the fact that it may sometimes be impossible to perceive an audible representation of beat onsets, as fig. 14 indicates. Moreover, even if there is a density of events which theoretically allows for such a discrimination, melodic-rhythmic phrases may possess the qualities of complete, irreducible events while nevertheless extending over several formal rhythmic units (beats, or even measures). Fig. 15 below shows a one-measure ornamental phrase from a recording of the *Tele-springar Livius Smiths Minne* played by Bjarne Herrefoss (Hardanger fiddle), which clearly illustrates this phenomenon.[180] It should be noted that the actual distribution of temporal values is closely replicated in the notation.

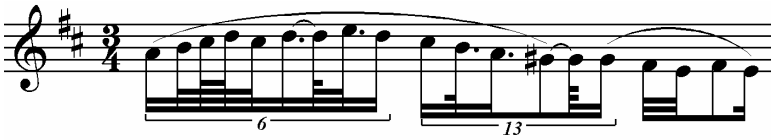
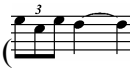


Figure 15. Ornamental phrase from *Livius Smiths Minne*. Audio sample 3a.

[179] Sæta & Sevåg 1992: 48. Some researchers might generalize this notion even further: "It is very difficult to understand Western music without perceiving beats, since a beat is a fundamental unit of the temporal structure of music." (Miguel et al. 2004: 1)

[180] The recording is taken from a radio broadcast (NRK) and features a performance from the 1967 *Landskappleiken*, the Norwegian Traditional Music and Dance Competition.

In this case, the beaming (i.e. beat division) is forced upon a pattern which resists this kind of segregation. In other words, the gesturally (referring to the bodily effort of the performer) and conceptually irreducible event is reified into a structure of sub-events (beats) which in turn are supposed to be subdivided. Expressed differently, a skilled performer may "easily" replicate this phrase as a complete event, while being incapable of dividing it into beats and the beats into subdivisions. In fact, it seems almost impossible even theoretically to make a distinction between the first two beat-motifs; my attempt here should not be regarded as anything more than but one of the hypothetical alternatives at hand.

This example highlights two important points. First, "the totality of melodic-rhythmic events" cannot easily be equated with the subdivision level, as this analytical term refers to the internal temporal structure of the beat. Rather, speaking of subdivisions should ideally imply the distribution of temporal values within the complete phrase (the measure in this case). Second, the relative autonomy of beats varies along a continuum in accordance with a range of architectural and contextual factors. More generally, formal units (measures and beats) may be more or less compatible or coincident with the way different portions of the melodic-rhythmic flow are discriminated between conceptually. Finally, a very important point concerning rhythm perception needs to be made. That is, although it might be impossible to define specific points in the flow where the transition between beats is supposed to take place, this does not mean that a beat division cannot be experienced: the mental construction of an accent on an estimated point within a tone or series of tones needs no support from a physical attack or accentuation.[181] This is reflected in the manner of notation previously referred to, in which rhythmic accents may be specified independently of the way the sounding course of events is physically divided (

etc.). Moreover, an ambiguous physical representation of a beat onset may increase the tolerance range within which a beat is estimated to start. In other words, an experienced beat onset does not need to correspond to a specific point in time, even when there are such points to choose between (cf. fig. 15). Instead, the onset may be perceived as having a certain *extension*, an issue that will be more fully discussed in chapter 7.4.

Subdivision

Subdivision refers to the temporal architecture of beat motifs and the smallest rhythmic units forming a part of the hierarchical organization. In the pols/springar style, the beat is usually either non-divided, or divided into two or three. Other divisions also occur, and it is often far

[181] See the section on the relationship between physical onset, measurements and experienced beat below for a further discussion of this issue.

from unproblematic to categorize on this level. Basically, this problem concerns analytical decisions on two levels. First, distinctions between structural and ornamental details need to be identified. Second, the question of notation and representation introduces a choice with respect to the number of categories to apply to be able to represent a relevant amount of categorical sublevels for each type of beat motif. For instance, there is the issue of even vs. uneven subdivision within beat motifs divided in two ( vs.), where traditional symbols might need to be complemented to account for actual categorical distinctions ( and respectively). A similar choice has to be made in relation to the representation of categorically different renditions of triplets (vs. vs. etc.). The criteria for making these decisions and for determining categorical boundaries between available alternatives are far from invariant and depend greatly upon context. For instance, a performance in which beat motif architecture is constantly transformed as a function of the structural complexity of the tune and the expressive behavior of the performer may require more categories than a simpler and more static performance. Consequently, no general principles will be presented that would account for all instances when such determination is required. Instead, these choices are seen as a part of the analytical interpretation of the specific cases under consideration, and/or the particular theoretical discussions where such distinctions are important. However, the question of distinguishing between structural and ornamental details deserves some further attention due to reasons which I hope will become evident from the examples presented below.

Identifying structural and ornamental details in rhythmic performance

The manner in which tunes are regularly written down allows for a representation in which all notes printed with normal noteheads correspond to the subdivision level, as long as ornamental details are represented with another (usually smaller) font. But here interpretation is required, a process through which details are defined as belonging to either structural or ornamental levels of rhythmic performance. The following example from Leif-Inge Schjølberg's rendition of a *Vågå-springleik*[182] (later referred to as *Hans Holen*) could serve as an illustration of the problem (fig. 16):

[182] See also the analysis of this performance in chapter 6. *Springleik* is a local term for pols/springar-tunes in some parts of Norway. *Vågå-springleik* is thus a *springleik* (pols/springar type) from the village of Vågå.

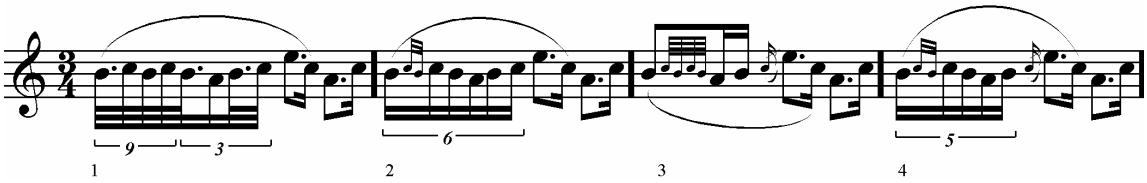
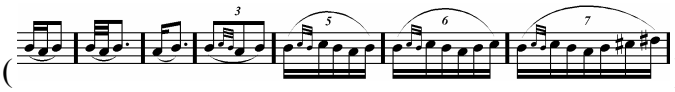


Figure 16. Alternative interpretations of melodic ornament.

A beat motif which according to the actual distribution of temporal values looks like variant 1, may be notationally represented as in one of the remaining illustrations (2-4), thereby indicating different relations between structural and ornamental details. The main point here is not to provide arguments in favor of any of the alternatives above (2-4) in terms of preferable notation. However, I want to illustrate and emphasize a kind of translation problem which does not only concern analytical operations and theoretical speculation. I am referring here to the fundamental difference between, on the one hand, experiencing a beat motif as a clearly identifiable figure with some sort of decoration (trill or grace note) attached to it, and, on the other hand, experiencing all rhythmic-tonal events within the beat motif as melodic tones, i.e. as parts of the melodic-rhythmic structure. The example above actualizes choosing between three alternatives, i.e. a subdivision into three, five or six. According to my interpretation, the most valid alternative would be the septuplet (alt. 2), and this choice is made with reference to the fact that the fiddler clearly alternates between distinguishable variants within one and the same performance () and that different versions of the same variant are performed in a very similar way. Thus, this example illustrates two important points. First, that the interpretation of the boundary between structural and ornamental levels is context dependent. In short, if the fiddler did not repeatedly alternate between different versions of this figure, the task of determining this boundary would be even more ambiguous. Second, it is a demonstration of the expressive resource afforded by the ambivalence between structural categories at beat motif level, in this case by the beat motif being constantly transformed back and forth from a more triplet-like rendition, with and without embellishments, to more quintuplet-like "melodic" ornamentations which clearly change the impression of subdivision (see the analysis in chapter 6). This undoubtedly is a common feature of tune-playing, although simpler alternatives are generally involved ( vs.  etc.). In other words, to claim that this issue is of an abstract-theoretical character only is an erroneous conclusion. The ambiguity in the borderland between sound events whose interaction defines structure, and details that decorate and possibly intensify without redefining the basic structure (impression of grouping and

subdivision), is undoubtedly a potential expressive resource in a musical context. Finally, it is important to consider the difference between rhythm perception and production when evaluating the validity of the assertions made. In short, distinctions between structural and ornamental details may not be perceivable from the perspective of a listener, while nevertheless being unambiguously identified by the performer through bodily sensations and expressive intentions.

The influence of tempo

Tempo is a crucial factor to consider when exploring the processes through which sounding events are grouped together and sorted into categories (main tones, grace notes etc.). Related to this is the notion that tempo affects the way in which proportional values are distributed in performance. This is treated to some extent within the academic study of musical rhythm. Friberg & Sundström (2002), for instance, have demonstrated that swing ratios in jazz drummers' performances show substantial and gradual variation with tempo, i.e. the commonly observed way in which consecutive eighth notes are performed as long-short patterns does not change proportionally when tempo is increased.[183] Desain & Honing (1993) demonstrate rather playfully how we cannot assume that temporal relations are proportionally adjusted when the overall tempo is changed in live performances. Here a Beethoven piano piece performed at different tempi is analyzed and compared to versions produced by a sequencer which keeps temporal values proportionally equivalent. The differences are found to be significant, and the authors' explanation from a performer's perspective is worth quoting at some length, even though these are the words of a fictitious person (referred to as "our friend"):

> What had happened? The sequencer had speeded everything up by the same amount (which we all agreed sounded awkward), while in the performance the expressive timing appears not to scale up everywhere by the same factor. Our friend adapted his rubato according to the tempo, which he explained to us as: "My timing is very much linked to the musical structure and what I want to communicate of it in an artistic manner to the listener. If I play the piece at another tempo, other structural levels become more important; for instance, at a lower tempo the tactus will shift to a lower level, the subdivisions of the beat will get more 'in focus', so to say, and my phrasing will have much more detail."[184]

The fact that musical events scaled up by different factors is certainly worth some extra attention. Desain & Honing interpret the variance with reference to the more elaborate short-span phrasing

[183] Friberg & Sundström 2002. In more detail they report the following: "At slow tempi, the swing ratio was as high as 3.5:1, whereas at fast tempi it reached 1:1. The often-mentioned "triple-feel," i.e., a ratio of 2:1, was present only at a certain tempo." (Friberg & Sundström 2002: 333).
[184] Desain & Honing 1993: 125

at the slower tempo. They also found that some events did not scale at all when tempo was increased, and these were all notated as grace notes. But not all grace notes behaved like this; some were played more in a metrical way, i.e. like the rest of the melody they were scaled with tempo to some extent.[185] These aspects of the tempo-timing configuration will be shown to be relevant to the discussion of discrimination of structural vs. ornamental levels, as well as to the examination of the different constraints which appear to govern such levels of performance timing. One of several interesting questions is to what extent trills and ornaments are temporally structured independently of global tempo. This would potentially indicate an influence of motor automatization, something which in turn might lead the investigation in a direction where gestural aspects of rhythm form the central point of focus.

4.2 Measuring rhythm – methods and challenges

As an introduction, I want to call attention to the fact that much of the work conducted within this area is made possible by technological developments throughout recent history. The most important step has perhaps been the possibility to record and repeatedly play back performances. With a recorded version at hand, rhythmic features of a particular performance can be studied in detail with a number of different methods and approaches. Moreover, given the possibility of speed reduction, which has been around at least since the disc phonographs of the early 20th century, it is in principle possible to perform analyses of very high resolution. Recently, software features like visualization (waveforms, spectrograms etc.), sound processing, zooming and easy editing (cutting and pasting etc.) have eased the manual investigation of micro-rhythmic events and increased precision and resolution even further. In addition, much analytical work on musical rhythm and timing has been conducted by means of devices which facilitate the automatic detection of onsets. In particular, we need to consider the possibility of analogue registration of sound sequences facilitated by devices such as "the Seeger melograph."[186] Further developments include modern digital software with so-called beat tracking features. Finally, a range of methods involving some kind of translation between digital formats are facilitated by software capable of producing a loudness graph. For instance, as explained by Clayton et al. (2004), audio files can be re-sampled and loaded into an editor program where relevant events can be labeled. The reason I do not feel obliged to go any deeper into the subtleties of these approaches, or the continuously improved technological devices facilitating them, is that I do not

[185] More empirical findings and theories about this are discussed in the section on ornament and triplet timing in chapter 6.4, where automatized vs. controlled aspects of performance timing are demonstrated to interact in complex ways.
[186] See Moore 1974

find them suitable for my aims and problems. As will be evident from the description of the analytical procedure, although my measurements are performed with the aid of sound editing software, I cannot really trust anything but my ears when it comes to deciding between several *possible* temporal positions of rhythmic events.

The way in which analytical problems and challenges are identified, presented and dealt with here is thought to coincide to some degree with challenges facing musicians in certain practical musical situations. In short, I am attempting to have a "musical approach", or at least an approach which finds some equivalence in real musical interactions, in which performance decisions may parallel the processes of defining analytical units and choosing between possible interpretations of attack points. This is done by imagining myself in the position of a co-performer, thereby addressing ensemble-playing as a hypothetical interpretive framework. In addition, there is an introspective element to the analytical procedure in that I consult my own experiences of learning and performing pols/springar tunes. I am not suggesting, however, that the process of analyzing and presenting the rhythmic performances under consideration is equivalent to actually performing music. The statistical data represent information of inter-onset intervals (IOIs) only, and without style-sensitive interpretations this information may tell us little or nothing about the constraints and potentials of this performance tradition. First of all, IOIs are certainly not the only important rhythmic information in a performance.[187] For instance, what happens in between onsets is particularly relevant in fiddle music, since the bow allows for a wide repertoire of expressive means in addition to the feature of changing direction. Furthermore, *how* the onset is articulated may be at least as important to our experience of rhythm and timing as exactly *where* it is considered to be located. Finally, and most importantly, the ever-present interaction of musical parameters (time, melody, timbre, intensity) and levels (local events – longer motifs and phrases) makes it highly doubtful to draw general conclusions concerning style, expressivity and temporality in musical performance on the basis of attack-point timing data alone. However, measurements are performed to facilitate the identification of *patterns of possibilities* where different parameters are shown to interact, rather than statistical predictions concerning the behavior of individual parameters.

I mainly use the program Cool Edit Pro 2.0 as a working tool, which is an advanced sound-editing and processing software with a number of functions and features, of which some are

[187] This is convincingly argued by Waadeland (2000): "…a description of rhythmic performances which only takes the attack points and durations into account, is fundamentally based on information of *discrete points on a one-dimensional axis*. The very phenomenon under consideration – the rhythmic performance of music – is, however, created through an interaction between the musician and his instrument, expressed as *continuous* movements in time and space. The musical performance as such is thus basically a *continuous, multi-dimensional phenomenon*." (Waadeland 2000: 115)

particularly suited to the present analyses. Music from CDs is ripped directly into the program independently of the sound card. Music from other sources, like LPs, cassette tapes, MiniDiscs and DAT tapes, is recorded onto the computer via a sound card. As a compromise between a desired high sound resolution and manageable file sizes, wav-format with sample rate 44100, stereo sound and 16-bits resolution are used in recording, editing and storing.[188] The sound is displayed as a waveform or a spectrogram, which in addition to a number of software features, makes the editing easy to handle. It is easy to zoom in on a preferred resolution in the visual representation of the sound, and it is possible to filter and resample sounds, features which have proven valuable in certain situations.

A musically and analytically relevant degree of measurement precision

A question often actualized is whether the possibilities for scrutinizing musical sound using technology have any musical significance in terms of the level of detail facilitated. To begin with, an analytically relevant, or obtainable, degree of resolution and precision needs to be determined, since this issue concerns the practical work of manually analyzing music by interpreting sounding and visual clues, rather than the hypothetical precision offered by the software program used. Moreover, the significance of the position from which the succession of rhythmic events is experienced becomes evident. As stated earlier, there should ideally be a correspondence between how rhythm is produced and experienced within a context of music-making (including normal, attentive listening) and how rhythm is measured within a context of scientific analysis. However, a sufficient degree of precision is difficult to determine, as it does not remain constant between different contexts and positions of observation. Moreover, as will be argued below, a reasonable degree of precision accounting for the relationship between noticeable (in the sense of identifiable) and musically significant differences cannot be generalized.

First, there is the analyst position aided by different software facilities, where the time discrimination task may be, for instance, to identify whether a playback starting point is too early in relation to a perceived attack point in the sound.[189] A related analytical task would be to compare simultaneously occurring rhythmic sequences and thereby determine whether there are temporal discrepancies between the events unfolding. A normal music-making situation in which a related process of discrimination might be relevant is when two performers play a melody in unison. Here, the experience of a co-performer might be similar to the listener's in the experimental situation in terms of making comparative judgments on the basis of experienced

[188] The sound quality here is equivalent to what is currently known as CD-quality.
[189] Cf. Kvifte's (1999) method of measurement described in chapter 3.6.

synchrony/asynchrony. However, when it comes to the order of perceived onsets, cognitive constraints affect the conditions for such an operation, conditions within which musicians may take action to improve synchrony. Pöppel (1997) writes:

> If the temporal order of two stimuli has to be indicated, independent of sensory modality, a threshold of 30 ms is observed. Data picked up within 30 ms are treated as co-temporal, that is, a relationship between separate stimuli with respect to the before-after dimension cannot be established.[190]

This does not mean that a 30 ms deviation between players is not perceived as asynchrony, but we cannot hear which one of the two attacks comes first. However, the limit at which we can no longer perceive any kind of distortion in the sound which might be caused by timing deviations, i.e. the limit between perfect synchrony and not completely perfect synchrony, is probably impossible to determine in acoustic musical performance. Furthermore, the 30 ms threshold does not mean that synchronization cannot be improved beyond this limit. Anticipatory action might play a significant role here, as it operates on a pattern recognition level rather then by comparing and adjusting attack points in real time.[191] Thus, analytical precision should not be decreased with reference to this generalized temporal order tolerance.

Second, compared to the situations discussed above, perceiving the difference between two succeeding versions of a rhythmic pattern where one contains a small extension of a certain sound event (a more realistic listener position) is a completely different matter. Of particular interest is the finding that the possibility of detecting such timing discrepancies is highly dependent on the basic temporal organization of the sequences compared. In this connection, Clarke (1989) has presented an observation study in which the ability of listeners to detect small-scale timing changes in various kinds of musical sequences is investigated. The experiments were carried out by first presenting neutral melodies to the subjects (eight music students) and then altering them by introducing an additional lengthening of one of the tones. In the first experiment, metronomic melodies with a constant note duration of 400 ms were used as references and subjects were told to indicate for each version presented whether the melody was metronomic or altered. The results show that the subjects were able to perceive as little as 20 ms lengthening in this context. The results of a slightly differently designed experiment, however, did not demonstrate such a low tolerance for temporal deviations. Here, a rubato pattern was added to the neutral melodies "in order to make them sound more or less as they would if played

[190] Pöppel 1997: 57
[191] See Clayton et al. (2004: 40-41) who discuss this in relation to the concept of entrainment.

by a pianist, whilst the altered sequences contained further timing changes in addition to the timing curve of the neutral sequences."[192] In this case, the amount of alteration needed to be 50 ms to approach the test values obtained with only a 20 ms alteration in the metronomic context. The observation that timing changes seem more difficult to pick up on in a rubato context is highly important for understanding the mechanisms by which temporal relationships in performed (i.e. non-metronomic) music are made sense of, and Clarke's own interpretation is worth quoting at length:

> This is probably the result of two factors: first, the intrinsic difficulty of picking up a small timing change in a sequence that is already temporally shaped by note-to-note durational variations of the same order of magnitude as the target changes; and second, the different quality of the neutral sequences in this experiment compared with the metronomic sequences of the first. Metronomic sequences have a perceptual quality (uninterrupted isochrony) that sets them apart from detectably altered sequences in something like a categorical fashion, whilst the neutral sequences in this second experiment are not distinguished from their altered counterparts in any similar categorical fashion.[193]

Using metronomic melodies as references thus allows for a categorical determination of whether expressive timing is present or not, while the rubato melodies, already added expressive deviations, instead specify references for the identification of the degree of alteration. Given that the criterion that the rubato sequences should sound "more or less as they would if played by a pianist" is not precisely defined in terms of exact temporal values, these are completely different operations. The reason for this is that a variety of temporal patterns could meet such a "sounding natural" criterion, while this is not the case with the metronomic (artificial) versions. There is, quite simply, no variety of different metronomic rhythms, although there is a tolerance in terms of the detectability of small deviations.

Within the context of the asymmetrical styles of pols/springar playing, the categorical distinction between metronomic and non-metronomic rhythms seems experientially irrelevant, as performed rhythms generally deviate from metronomic regularity far more than the limit for detectability (20 ms).[194] At the same time, timing differences are important and presumably so is their detectability. However, temporal values might form patterns which are intuitively

[192] Clarke 1989: 6
[193] Clarke 1989: 7
[194] It should also be added that the metronomic/rubato distinction may have a completely different meaning within the context of pols/springar grooves than within a stylistic context in which rubato (in the sense of gradual tempo changes) forms a part of the musician's expressive repertoire (cf. the Classical/Romantic piano tradition). A pols/springar performance is, although certainly non-metronomic, characterized by a constant, danceable tempo.

recognized as more or less correct or preferable when different versions are compared, while the manipulation range (tolerance) of single values cannot be exactly pinpointed. Moreover, one might not even be able to determine which one of several units has been shortened or lengthened, while still being able to detect important differences between the versions compared. This concerns the general fact that differences might be perceived as musically significant without the test subject (or anyone else) being able to determine exactly *what* the differences are. Clarke (1987) is aware of this problem in his discussion of categorical rhythm perception, where expressive information is defined as the durational information left over following categorization:

> It is perceived by listeners as qualitatively different from the temporal information that specifies rhythmic structure, and is easily confused with other parameters of expression, such as dynamic intensity. Similarly it is usually very hard for listeners to specify precisely *how* expressive timing has been used in a performance (whether particular durations have been lengthened or shortened)…[195]

Moreover, the explicit or implicit assumption that listeners detect timing differences between alternative, slightly altered sequences by estimating the *duration* of individual events might be questionable. As Clarke (1989) writes in connection with the observation study previously referred to, a number of the subjects who were to determine a distinction between metronomic and non-metronomic melodies reported that the latter were identified as having a discontinuity in the temporal flow of the music:

> They were perceived, in other words, as being *qualitatively* distinct from the metronomic melodies and as being differentiated from them by the property of temporal flow. This suggests that while experimental materials and performance-data measurements may be expressed in terms of duration, it may be more perceptually realistic to think in terms of temporal flow or of rate detection.[196]

To this methodological commentary I would like to add the empirical claim that evaluating temporal aspects of performed music is about getting a feeling of whether the music flows in the right way, rather than judging whether single note durations are too short or too long. Regarding the pols/springar style it should also be added that the references that might be used to evaluate temporal relationships seem to be very hard to define, as patterns of durations are constantly changing. This would seem to indicate that the reference in relation to which tone lengthening or shortening is perceived changes from one local melodic-rhythmic context to the next. Moreover,

[195] Clarke 1987: 30-31
[196] Clarke 1989: 8

a lengthening of a particular tone in a motif might actually transform the very reference through which its durational quality is evaluated by affecting the contour of the rhythmic pattern as a whole. In such a case, tones other than the altered one might as well be perceived as too long or too short according to the new context established.

In addition to the problems related to identifying temporal deviations associated with the continuously varying duration of events (tones, beats and measures), it should be noted that the acoustic reality of fiddle and Hardanger fiddle music is enormously complex compared to the "neutral" sounds with very short attack times used in controlled time discrimination experiments: the timbre of the sound produced changes continuously by the instrument resonating differently on every tone (finger); glissandos, grace notes and the legato vs. staccato variation in articulation make up a heterogeneous range of physical onsets with highly varying attack times; the attack of the two tones in double stops are often asynchronous etc. Accordingly, determining the precise point in time when a rhythmic event "actually" starts is far from straightforward, even with the aid of sophisticated analytical tools.[197]

In sum, both these aspects of performance style (event duration diversity and onset ambiguity) would indicate a very high tolerance for detectable temporal variations between succeeding sequences. Thus, the results (20 ms tolerance) experimentally obtained under ideal circumstances (metronomic vs. non-metronomic simple melodies) cannot possibly be acquired within the context of the asymmetrical styles of pols/springar playing. This obviously calls into question my choice of presenting and discussing measured differences below the 20 ms limit. However, high measurement precision and resolution are not to be confused with the precision with which listeners and performers estimate and adjust the duration of individual events. On the other hand, very small temporal nuances are considered important to the quality of melodic-rhythmic flow, without necessarily being detectable as durational variations. Furthermore, as discussed above, perception precision may vary greatly according to rhythmic context, event density, onset quality etc. It is also believed that an improved skill and greater attentiveness among musicians, listeners and dancers may imply an increase in temporal resolution and precision, and that the limit for such an improvement cannot be determined according to some general principle. In attempting to rationalize the accurateness of my analytical method, here I shall refer to the possibility of the area representing the distance between potential experienced beat positions (given a certain physical onset) being narrowed in accordance with a higher degree of attention and knowledge.

[197] See the section on idiomatic features of style and instrument below.

Related to this is also the issue of production precision vs. perception precision. That is, analytical precision should ideally not only account for a kind of imaginary listening position (the listener, dancer or co-performer), but also for the precision with which a skilled performer operates to produce and replicate rhythmic patterns. For several reasons, this issue will be a central part of the interpretations made of the analyses conducted. The most obvious aspect of this problem is that performance precision appears to vary according to factors such as melodic-rhythmic density ( vs. etc.) and beat motif architecture ( vs. etc.). This also appears to concern the relation between stable and flexible levels of rhythmic performance, in which the distinctive durational properties of different types of events (more stable or less stable) may not be detectable from the position of an observer, but may still be important for the performer's controlling of tempo and timing. To explore these intriguing micro-rhythmic relationships, highly detailed measurements are required. All in all, this suggests that measurement precision needs to be greater than any experimentally determined or generalized perceptual precision. In other terms, precision needs to be as high as possible, given the limitations of my manual approach.

Measuring procedure

The measurements are performed to provide a set of manageable data in the form of measure and beat durations that merit further analysis and interpretation. The measuring procedure normally occurs first by dividing the tune into measures, then the measures into beats, and lastly (in some cases) the beats into subdivisions. This is achieved by estimating and marking the points in the sound-graph where the unit concerned starts and ends. The estimation process is supported by both audible and visual clues, and often a distinct change in the shape of the amplitude graph guides the initial attempt to place the marker correctly. However, distinct changes in amplitude may be absent and should in any case not be trusted to correspond to what will be interpreted as the start of the unit.[198] In other words, the measurements are in principle performed aurally.

Idiomatic features of style and instrument

To perform the measurements I try to hear where the current unit seems to end and where the following seems to begin by moving the marker back and forth and starting the playback from different positions. Here, idiomatic features of the instruments and playing style often make it difficult to determine whether the start of a playback is too early, correct or too late. The relative

[198] The fact that there is often no simple correspondence between experienced onset and visualized amplitude changes in fiddle-based pols/springar performances has also been observed by Kvifte (2004: 65).

distinctiveness of a physical onset is conditioned by factors such as rhythmic density, legato vs. staccato articulation, the type of onset/attack, bow pressure, single notes vs. double stops, instrument (fiddle vs. Hardanger fiddle), reverberation on the tone in question, echoing in the room where the recording was made, artificial reverb effects etc. These factors help blur the borders between adjacent rhythmic events and greatly affect the precision of measurements possible to obtain. To illustrate the relativeness of this problem, some concrete examples are discussed below.

The first example is a one-measure sequence from the *springar* tune *Slidringen* performed by Håkon Høgemo (Hardanger fiddle). In this case, the transition between beats stands out as distinct and unambiguous. Determining the start of the 2nd beat (B2) (the placement of the arrow) therefore is straightforward.

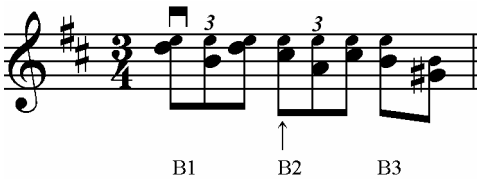


Figure 17. *Slidringen*, 2nd beat onset. Audio sample 4a.

A waveform graph of the area around the attack of B2 is displayed in fig. 18 below. The vertical, broken line in the middle shows the preferred location of the onset of B2, while the (white) selection displays the area within which alternative interpretations might be chosen. Here I have chosen a tolerance range of 40 ms (20 ms early or late respectively), which has been determined to be a realistic value considering how measuring operations have actually progressed by moving the marker slightly back and forth. The sound examples associated with the graph feature three alternative placements and two listening perspectives. First, there is the "correct" location, played back from the start of B2. Second, the playback from B2 is started 20 ms earlier. This alternative seems out of the question, as the attack is not anticipated in the way suggested here. Third, the playback from B2 is started 20 ms late. This alternative seems very difficult to evaluate, as it sounds almost identical to the preferred placement due to the "false" attack produced when starting a playback abruptly from a position immediately after a performed onset. Fourth, the playback is started from B1 and is stopped on the preferred location of B2. Fifth, the playback is again started from B1, but is stopped 20 ms later than the preferred point, which leaves another impression compared to the situation in which the playback started where it now ends. Now the start of the following unit (B2) can be heard and the 20 ms late alternative can be

dismissed. It should be added, though, that the "noise" heard right after the second beat attack cannot be interpreted correctly (i.e. as the actual start of B3) when isolated like this. Acoustic phenomena which do not coincide temporally with the position of the actual onset are often present, and the analytical method therefore presupposes both listening perspectives, i.e. *from* and *up to* the current onset position, as well as a recurrent "musical" control performed by playing back a longer sequence (the whole measure in this case).

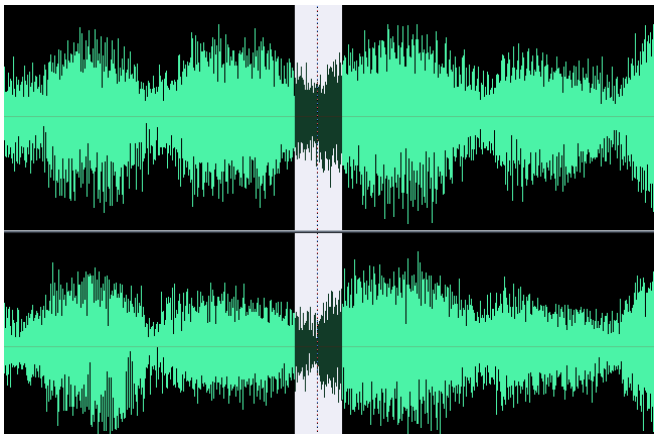


Figure 18. *Slidringen*, 2nd beat onset (the vertical, broken line). Audio samples 4b-f.

As an illustration of the relativeness of the problem of precision and resolution, and detectable vs. non-detectable measurement discrepancies, another example is introduced in fig. 19 below. This is a one-measure sequence from the *Røros-pols Finnleken i Brekken* played by Tron Steffen Westberg (fiddle).

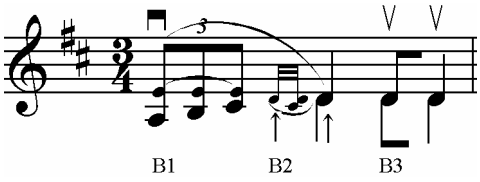


Figure 19. *Finnleken i Brekken*, 2nd beat onset. Audio sample 5a.

In contrast, this sequence demonstrates what might be called a reduced resolution in the transition between units, as judging what is too late or too early is far more difficult if we adhere to the 20 ms interval. In particular, the legato articulation and the onset of the glissando-like grace note make it hard to tell exactly where the 2nd beat starts. The chosen placement is questionable, but the point here is to demonstrate only that the distinction between alternative placements within the 40 ms span is hardly detectable. The waveform display in fig. 20 of the

area around the attack of B2 illustrates this clearly in that there are no sharp peaks in the amplitude graph that correspond to the preferred location.

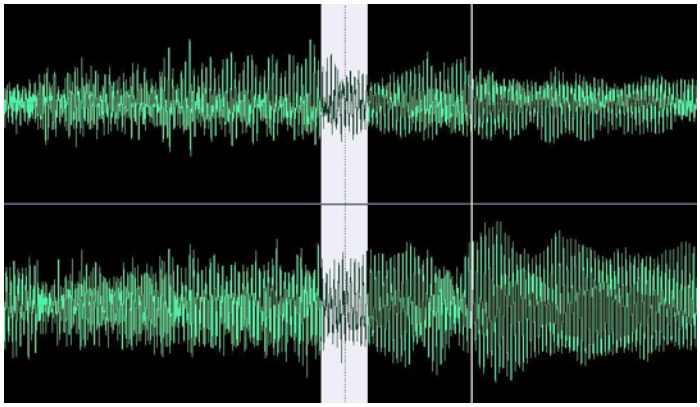
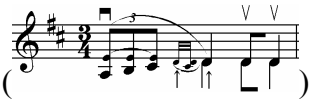


Figure 20. *Finnleken i Brekken*, 2nd beat onset (the vertical, broken line). Audio samples 5b-f.

In this case, it is very difficult to perceive a difference between the "correct" and 20 ms early start of B2. Even when this distance is doubled (40 ms early), the alternatives seem almost identical. The difference between the playback *ending* at the "correct" B2 location and the one ending 20 ms later, however, is easily detectable, which again demonstrates the necessity of listening both *from* and *up to* the estimated starting point. Here it needs to be pointed out that the latter (20 ms late) alternative does not represent a feasible option in this melodic-rhythmic context, and there is more to this than the impression that the start of B2 is possible to hear. That is, in this example there is actually an alternative, which demonstrates another problem to be dealt with. First of all, the marker needs to be moved a lot further than 20 ms to represent this alternative start/ending point for B2. The choice, quite simply, is whether to interpret the two first short grace note onsets as belonging to B2 or B1, i.e. between the positions indicated by the left and right arrows in the notated representation ().[199] This entails the starting point for B2 having to be moved as much as 115 ms for a real alternative to become apparent (the white marker furthest right in the waveform display in fig. 20).[200] In short, as long as one insists on choosing a position which is detectable by ear as being distinguished by the presence of an onset, there are no alternatives in between these rather distant points. However, these concerns are related to the measuring procedure and are not to be confused with the

[199] The issue of whether such grace notes belong to B1 or B2 cannot be solved by studying only their immediate context (the onset of B2) or the temporal and spectral values of the ornament. A musical interpretation is needed, which relies on a "normal" listening to the longer sequence (one or two measures) surrounding the current position.
[200] Audio sample 5g-h.

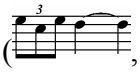
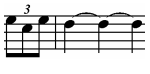
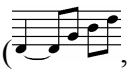
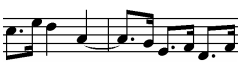
realities of experiencing rhythm in musical interaction. Accordingly, the smooth transition between rhythmic events and the sneaking onset which impairs the resolution in the borderland between B1 and B2 is to be regarded as a quality of its own rather than as a problem. In interpreting such ambiguities in relation to stylistic constraints and affordances, then, this "problem" concerns the relative quality and extension of *musical* onsets. When it comes to measurements, however, the examples reviewed above should demonstrate that the degree of resolution and precision possible to obtain will necessarily vary from case to case. In short, different forms and degrees of ambiguity in the borderland between units are and will remain an interpretive challenge, regardless of method. Thus, difficult cases in which the relationship between different kinds of anticipatory events, glissandos and potential starting points for rhythmic units are unclear, need to be given a musical reading which cannot be accounted for by a set of predefined criteria.

The relationship between physical onset, measurements and experienced beat

Except for the ambiguity discussed above in the area between rhythmic events, there are other factors that are problematic in connection with attempting to be consistent in the performance of analytical operations, and which therefore concern questions about validity and testability. The previous discussion might lead to the incorrect conclusion that it is the occasional lack of clear onsets, and nothing else, that makes this material challenging. This would be to ignore a more fundamental problem, namely the question of whether an onset (clear or not) really represents the start of the rhythmic unit as it is experienced by the musician, listener and/or dancer. Kvifte (2004) addresses this problem with reference to Bengtsson's (1973) distinction between a tone as an acoustic phenomenon, as a notated one and as one experienced.[201] He argues against some of the empirical rhythm research stemming from Charles Keil's concept of participatory discrepancies (PDs)[202]. Kvifte spots a fundamental problem in the lack of distinction between the physical and experienced beat. The fact that one cannot take for granted that these coincide is implicit in the subject as such, which seems to concern how one might measure and interpret the way played onsets deviate from beats.

> In fact, as attack points may be placed before or after the experienced beatsφ, one has to find evidence of the timing of beat that is independent of the very attack points one wants to compare the beats to![203]

[201] Bengtsson 1973: 17
[202] See Keil & Feld 1994
[203] Kvifte 2004: 61

I will not enter into the deeper levels of this discussion, but only assert that there is not necessarily an intended correspondence between physical attack and experienced beat. The most obvious example is when the length of a tone extends over more than one beat, for instance when a long tone ends a strain or the whole performance ( ,  etc.). In these cases, the duration of the individual beats is impossible to measure as there are usually no perceivable contrasts in the sound representing the tied beats. It needs to be pointed out, however, that a tie in itself does not imply a lack of accentuation corresponding to a starting point of a second or third beat. As already indicated, the transition between beats is by definition accentuated, as metrical accents can be seen as axiomatic, and not dependent on intensification in sound.[204] Moreover, it varies greatly to what extent a dynamic intensification marks the transition from one unit to the next. Fiddlers might occasionally mark a structural division of a tone covering two beats by dramatically increasing the pressure of the bow, creating a clearly identifiable, although hardly measurable, division between the rhythmic units. This appears to be more common when beat motifs within a motif are tied together ( ,  etc.) compared to long tones occurring at the very end of main sections and/or strains, which may be performed and perceived as something nothing less than a single event, suggesting a completely coherent, undivided unit. It is hard to avoid questions of intentionality in connection with this issue, as judging relative accentuation relies on general sensations of weight and stress, rather than on measurements. The relationship between what is intended from the perspective of the performer and what is possible to detect by ear, however, seems rather irrelevant to discuss, as from both perspectives one might perfectly well experience an accentuation without really finding one in the sound.

The second category of ”problematic” rhythmic behavior is early onsets, which means that the physical onset is located slightly before the point at which the performer would identify the beat to occur ( ,  etc.). This phenomenon seems to be an idiosyncrasy of individual style and here I shall primarily refer to experiences from playing with fiddlers who insist that certain tones (generally the first tone of a strain) should be started before an agreed beat position. In such cases, there is perfect agreement that our synchronized onset (the bow attack) does not represent the experienced beat. However, even if this deviation from a mutually agreed reference point is intended and controlled, rather than being due to the poor timing of an inexperienced fiddler, it cannot be measured, and we have still not achieved what Kvifte calls “evidence of the

[204] Cooper & Meyer 1960

timing of beat that is independent of the very attack points one wants to compare the beats to".[205] But what we do have is the possibility to identify these exceptions thanks to a thorough knowledge of the style, fiddler and melodic-rhythmic context in question. This, of course, is far from being an exact science and relies greatly on my interpretations being stylistically valid.

It needs to be restated that my data collection presupposes a generally occurring correspondence between contrasts in sound caused by onsets, and the start of rhythmic units. Having stated this, broaching the more fundamental implications of some underlying assumptions seems unavoidable. For instance, implied here is a critical perspective of meter as a static framework in relation to which the placing of rhythmic events is evaluated and described. This becomes evident when considering that I have chosen to treat the actual placements of onsets as *the beats*, rather than as positions more or less deviating from an imagined reference (beat positions according to a predefined metric grid). In other words, only in the cases that are here termed exceptions (early onsets) is it relevant to speak of deviations, before/after the beat etc. This approach is consistent with the aim of examining the temporal organization of *melodic rhythm* from the perspective of rhythm *production*. Melodic rhythm, then, is defined as the pattern of physical onsets as it is interpreted according to the considerations discussed in this chapter. As already indicated, I do not claim that there is an exact or intended correspondence between the measured onset and a musical onset (meaning the "point" in time that corresponds to the rhythmic experience of a performer, dancer or listener), even though this could be the case. Accordingly, instead of offering predictions concerning the precise nature of synchronization (between co-performers or between dancer and musician), I shall point out the multitude of interpretive possibilities afforded by the material analyzed. Moreover, investigating how the melodic rhythm actually is performed allows for some generalizations to be formulated, which may assist the prediction of how temporal values are distributed without constantly including the very complex issue of experienced rhythm and intentionality.

Tempo as a potential source of error

Tempo is a major issue of its own, both as a theoretical concept and as a potentially problematic feature in relation to what timing data at local levels represent. This should be obvious when considering potentially misleading results showing variations in beat and measure durations that are in fact caused by unstable tempo. At the same time, this argument relies on a particular definition of tempo, i.e. a definition that implies that variation in measure and beat length is not treated as variation in tempo as long as the overall tempo remains unchanged. For an overall

[205] Kvifte 2004: 61

tempo change to be confirmed, it must be possible to demonstrate that different parts of the tune are played relatively faster or slower, and that temporary "accelerations" or "retardations" that are compensated for by corresponding "retardations" or "accelerations" in a following sequence can be excluded. The use of quotation marks here is directly related to the definition of tempo referred to above. The argument is that this is a groove-based style in the sense of being able to keep a constant, danceable tempo is a tacitly agreed-upon requirement which is rarely pointed out or discussed as long as it is fulfilled. At the same time, rhythmic variation, observable as continuous fluctuations in beat and measure durations, is a striking feature of this style of performance. Thus, the experience of tempo does not rely on formal rhythmic units at any level being equal in length, while the rate of activity with which melodic-rhythmic motifs are performed is perceived as constant. This implies that temporal asynchronies observed at local levels are to be understood in terms of *shorter* and *longer* rather than faster and slower, at least as long as variation in event density between equivalent rhythmic sequences cannot be established.

The theoretical aspects of these seemingly paradoxical statements will be discussed in more depth throughout the thesis. In the current context, however, it needs to be pointed out that in spite of the rather complex theoretical justification of the particular conception of tempo employed here, it is a straightforward procedure to determine whether global tempo is constant. This determination is achieved simply by measuring and comparing structurally equivalent parts of the tunes. Such parts may be the whole tune, in cases when it is repeated, or shorter fractions such as strains, four-measure motifs etc., and the tolerance for deviations are considered with reference to the particular material at hand.

4.3 Selection of material - representativity and validity

Selecting material for analysis and interpretation concerns the very conception of style, as well as the evaluation of quality, creativity and the skills of potential performers and performances between which one at some point has to choose. Thus, this is far from being a straightforward operation, and the matter needs to be discussed further and put into perspective with regard to the interpretive concerns actualized.

The performances selected for analysis in this thesis are intended to illuminate how organizational, contextual and architectural factors interact to produce patterns of beat and measure durations. To explore different manifestations of this interaction, rhythmic variability, defined as differences in the distribution of beat and measure durations between succeeding

referential frames (measures), is in itself an important component.[206] At the same time, to ensure the validity of my interpretations, the performances chosen for analysis need to conform to stylistic constraints in the sense of being clearly recognizable as particular types of pols/springar grooves (*Tele-springar*, *Vågå-springleik* etc.). This entails the highlighting of the co-existence of temporal variability and stylistic coherence constituting the crucial point of reference in my endeavor to select relevant examples.

Regarding the selection of case material it has to be emphasized that the underlying aim is not representativity in the sense that the cases (musicians, tunes and recordings) studied should in some way account statistically for the style. Accordingly, I do not claim that the individual (unique) manifestations of rhythmic behavior analyzed are representative in the sense that a particular durational pattern is supposed to be typical for a certain rhythmic style. It is more or less taken for granted that any other performance (even of the same tune) will demonstrate different unique characteristics, considering that temporal variability is inherent to these styles of performance. Moreover, it is not one of my aims, methodologically, to arrive at a complete picture of the rhythmic-temporal characteristics of one or several rhythmic genres, a task which would require a completely different approach to accomplish. That is, to demonstrate empirically the range of stylistically appropriate realizations of a groove type, i.e. general tendencies rather than unique manifestations, a much larger material would need to be consulted. Instead, generalization concerns the theoretical argument that there is interaction between different organizational, contextual and architectural factors in the shaping of rhythmic patterns.

Here it should be noted that one inevitably would fail to come up with an ideal example supposedly representing central aspects of a certain style with which everyone concerned with the style would agree. Instead, the representative appears to be incorporated and hidden within the total body of tunes, musicians and performances that together define the style. At the same time, individual contributions, represented by the performances interpreted and described, are treated as expressions of and expressions within a wider cultural framework within which musicians, dancers, listeners, critics and other participants operate (i.e. style). This resonates with the dynamic conception of style employed in this explorative investigation, with a focus on the potential for expression rather than on the material features that would facilitate classification and discrimination of the style in question from alternative styles. This means that every particular instance of material and performative manifestation represents one of several

[206] This does not mean that organizational, contextual and architectural factors are not assumed to interact when beat and measure durations are stable (a hypothetical case). But the temporal instability of the pols/springar grooves helps to illustrate the workings of this interaction, and not least how it is interrelated to the observed temporal variability.

possibilities, and this applies to all levels within a generic, hierarchical division (one local style, one performer's individual style, one tune, one particular performance, one particular variation of a motif etc.). Moreover, since the aim is to exemplify different ways in which style as a potential for expression is explored, performances that stand out as exceptional in this respect are prioritized. These decisions, in turn, rely on the idea that the expressive activity of the performer does not only reflect stylistic rules and common conceptions, but functions at the same time as a vehicle through which expressive rules are defined and redefined. Exploring the exceptional thus seems promising with reference to how it might inform us about the multitude of "solutions" available to the imaginative musician.

Mastering time in performance

Timing is an aspect of musical performance that is without doubt acknowledged as highly important within the style concerned. For instance, the strong association between beat level timing (different styles of asymmetry) and the way different local styles are distinguished constitute a well-established understanding (cf. chapter 3). Moreover, on a more fine-tuned level, aspects of phrasing, accentuation etc. are explicitly recognized as distinctive features of individual style, skill and control. In this respect, I find support in Epstein's (1995) notion that time is *the* critical element in performance, which may be the aspect that singles out the truly exceptional performer and/or performance from all the good ones.

> Certainly time is *the* critical element in performance, in many cases the factor that separates the merely capable from the distinguished reading. By its elusiveness, time is also the most difficult element to control, let alone delineate. By contrast, for example, musicians in our age have relatively little trouble dealing with intonation, with tone and "good sound," with form (in its textbook sense), with harmonic progression, contrapuntal structure – all elements that affect the shaping of music. Nor is technique a barrier to performance, as once it was. Proficiency seems ubiquitous. Youth orchestras handle the masterworks with aplomb; professional musicians maintain performance standards that a century ago were the property of virtuosi.
>
> Yet the bell-shaped curve of normal distribution still seems to describe our musical lives. Only that small proportion of performances, that 1 or 2 percent lying under the righthand end of the curve, seems outstanding.
>
> […] More often than not, in one musician's experience, performance shortcomings seem connected with the domain of time. Tempos may not be quite right; the music does not flow as it should; accents seem excessive, distorting if not impeding that flow; rhythms appear misconstrued; rubati do not work....[207]

Although Epstein is studying Western art music performances from the Classical-Romantic period, there are striking similarities with the historical development and aesthetical evaluation

[207] Epstein 1995: 4

of pols/springar playing. First, without claiming any kind of truth about different performers, I want to refer to a general conception among folk music audiences that a fiddler may be highly technically skilled, as many young educated musicians certainly are, while not really being considered to be a good performer at all with reference to a supposed lack of ability within domains directly or indirectly concerning time (groove, swing, flow, phrasing etc.). Second, referring to Epstein's notion of the special status of the domain of time, it could seem as if this aspect of musical performance resists institutionalization in terms of instruction and learning. In other words, masterful timing cannot be taught in the same way as can other aspects of treating the instrument and different musical parameters (pitch control, tone etc.). Partly, this seems to be related to the difficulty in pinpointing exactly what to improve, even in the cases when something to do with timing is obviously missing. What remains is a general judgment about the way the music flows, a judgment which relies on information that is not accessible by measuring or estimating mere temporal relationships. Consequently, I would most certainly not suggest that a particular performance can be measured to determine whether the timing is good or less good. As already suggested, it is always the other way around, i.e. intuitive judgment precedes any attempt to investigate timing with the aid of measurements. This is related to the argument that no criteria can be given in advance, as it is not at all a matter of who is able to reproduce a certain pattern, or perform a groove so that it remains recognizable or acceptable to listeners and dancers. It is a matter of who is capable of exploring this groove in a way that stands out as elusive and intriguing without violating the basic norm by which it is recognized. For this process of selection there are no absolute criteria, only the intuitive sense of things fitting together while challenging expectations and inviting participation from the spectator in the evolution of the pattern. Performances of this kind are thus treated as the potentially most information-rich empirical material at hand in terms of the exemplification of the expressive recourses inherent to the style.

4.4 The issue of comparability

Analyzing performance timing with measured durational values as a point of departure relies on the comparability of units at different levels with reference to their similarity or dissimilarity. The analytical units used when measuring and discussing musical rhythm and performance timing are divided into two primary classes: formal rhythmic units (measures, beats and subdivisions) and motivic units (motifs and part-motifs). As discussed previously in this chapter, there is no simple mapping between these sets of units in the analysis and this complicates the issue of comparability. If the perspective is that of a formalized meter, timing data for formal

rhythmic units (all 1st beats, all 2nd beats etc.) may be treated as equivalent in a statistical sense. The same notion of equivalence and comparability applies when comparing two or more tunes/performances belonging to the same rhythmic style. This is because the reference structure is seen as independent of the rhythmic performance analyzed and it does not matter to which melodic-rhythmic context or tune/performance the compared units belong. In this scenario, temporal structure and variation may be defined in a variety of ways dependent on what is considered appropriate for the analytical task at hand: as differences in timing data from one referential frame (measure) to the next, or between several tunes/performances; in terms of how the data conforms to or deviates from some averaged or idealized rhythmic model (long-average-short etc.); as local tempo variations identified by measuring and comparing the density of rhythmic events (at measure, beat or subdivision level) in different sections etc. Moreover, the durational properties of formal rhythmic units may be treated in terms of both absolute and relative temporal values. It is also possible to look for patterns and correlations in the data, i.e. if the variations observed from the perspective of a measure-by-measure frame are systematic in any sense.[208]

If, on the other hand, the perspective is that of motivic units, beats and measures in principle cannot be treated as comparable since, materially and conceptually speaking, the units compared are not the same as long as they do not belong to equivalent motifs. Above all, treating motifs as complete melodic-rhythmic events in principle means that individual rhythmic components at lower levels (measures, beats and subdivisions) need to be analyzed in accordance with their location within the motivic context in question. Moreover, a comparative statistical account of the durational properties of formal rhythmic units (all 1st beats, beat duration ratios for all measures etc.) implies ignoring that the melodic-rhythmic material that make up these units often is very different from one measure to the next. For instance, in terms of rhythmic material, a measure with beat motifs of high density ( etc.) differs greatly from one in which rhythmic density is low ( etc.). The same considerations apply when it comes to comparing two or more tunes/performances belonging to the same rhythmic style, i.e. they should be studied in their own right by focusing on the unique ways in which they are structured. Accordingly, measured differences in durational values between the two performances should not be analyzed with the underlying assumption that they are supposed to be the same. Rather, they may be seen as comparable in the sense of being *different* manifestations of the same groove. Determining the extent to which these performances conform to a common definitional framework (a particular

[208] Cf. Kvifte's (1999) hypotheses referred to in chapter 3.6.

rhythmic style/groove), then, requires the examination of cultural classifications. In other words, from this perspective, sameness concerns culturally negotiated (i.e. shifting) boundaries and sensitivities, and thus cannot be determined by measurements.

These considerations are difficult to reconcile with an analysis of durational values within a generalized measure-by-measure frame. However, the reason for ignoring these points at certain stages in the analysis is to be found in the widespread notion that certain aspects of rhythmic performance (beat duration ratios in particular) are supposed to be independent of the (unique) melodic-rhythmic course of events through which they are manifested.[209] Accordingly, my investigations will fall into two categories. The first is concerned with the statistical treatment of beat and measure duration data viewed from a measure-by-measure perspective. The second main avenue of investigation involves taking a more interpretive approach to explore the relationships between the distribution of durational values and the unique ways in which the melodic-rhythmic material is architecturally shaped and contextualized in the performances analyzed. In this context, the question is whether architectural and contextual similarity between *motivic* segments correlates with similarity in beat duration profile. As will be discussed in the following section, this approach involves making some critical interpretive decisions.

Determining motivic similarity

Given an analytical framework of formal rhythmic units the statistical treatment of durational data is relatively straightforward since comparability is defined simply on the basis of the formal position of the unit within the hierarchical division of rhythmic levels (measure, 1st beat, 2nd beat, 3rd beat, subdivision of 1st beat etc.). When it comes to comparing motivic units the situation is more complicated due to the fact that the determination of motivic similarity relies on interpretation rather than mere observation. Comparison concerns equivalent and similar motivic units, and obviously there has to be at least two sets of timing data to compare, i.e. measurements of two or more motivic units that are considered to be comparable. As will be evident, there are several melodic-rhythmic segments occurring only once in the performances analyzed and which thus cannot be compared to other segments. The fact that the size of each group of comparable (i.e. equivalent or similar) motivic units is small means that the amount of statistically analyzable data is limited to a degree that impairs the ability to draw strong conclusions about a correspondence between timing patterns and motivic structure. As will be demonstrated in the example in fig. 21, when it comes to the notion of similarity things are also complicated by the

[209] See the review of previous research in chapter 3.

fact that differences between performed versions are difficult to capture by means of a notational representation.

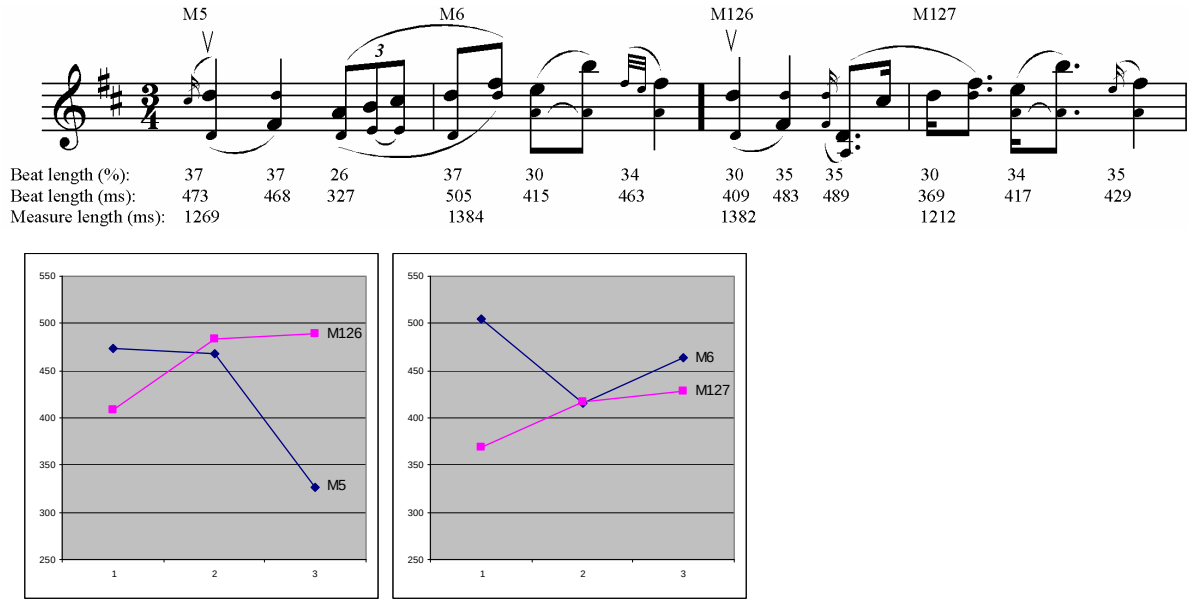


Figure 21. Detailed transcription with beat and measure duration data in milliseconds. Line charts representing the timing profiles (beat durations) of the two versions of each contextually equivalent part-motif. Audio sample 6a.

Fig. 21 shows two structurally and contextually similar versions of a two-measure motif taken from Gunnulf Borgen's performance of the *Tele-springar Markensmondagen*, which will be thoroughly analyzed in the following chapter. Here, comparability is measured by similarity in melodic contour and number of subdivisions per beat as represented in the notated score. When comparing these segments to determine whether there is a correspondence of temporal values an interpretive problem arises. Clearly, there is no such correspondence and it is striking that the M126-127 motif demonstrates beat and measure durational values that are almost inverted compared to M5-6. Although this mismatch is not a problem in itself, a closer inspection of the *performed* versions (i.e. listening) is necessary to conceptualize what sameness and difference entail in this context.[210] From a listening perspective, the overall rhythmic contour of the two realizations of the motif is very different. On a more detailed level, the following characteristics can be noted: In M126, the first two beats are undivided as in M5, but the attack on the second beat is very early and accompanied by a distinct bow lift. On B3 of 126 the fiddler drops down

[210] The differences heard when listening to the two versions are very difficult to represent by the standardized attributes offered by the notation system. Moreover, it seems highly questionable to assume that these experiential differences are well represented by the timing data accompanying the transcription. Assimilating numbers and percentages is at best vaguely related to experiencing a performed rhythmic pattern.

and dwells somewhat on the low strings, thus extending the beat motif considerably compared to B3 of M6. M127 starts with a very rapid, grace note-like movement and again an early attack on B2. In addition, the subdivision pattern is different in the M126-127 motif. Regarding measure length, it is noticeable that the measures here are long-short, while in the M5-6 motif they are short-long, which counterbalances the temporal values at the motivic level.

This example introduces some of the problematic features of this performance style, in which aspects of timing, phrasing, bowing, rhythmic shaping and reshaping, instrumental and technical constraints etc. overlap and interact in a variety of ways. One problem immediately becomes apparent: given a complex relation between structural and expressive/ornamental dimensions, it is far from obvious how to determine categorical structure, thus facilitating comparison between different realizations of the same melodic-rhythmic category. For instance, should the differences in beat durations between the two versions in fig. 21 be interpreted as variations in timing with reference to the notion that the two motifs are categorically equivalent? Or, are the two versions of the motif two different, internally coherent and well-ordered wholes in relation to which the durational properties of their individual parts are to be understood? In that case, the two sets of durational data are not really comparable and it is problematic to assert that the distinguishing features are differences in timing of the individual beats. The problem is that it is very difficult to distinguish between instances of categorical variation and those which involve intra-categorical variation. Even in seemingly straightforward cases, such as when the duration of contextually equivalent undivided beat motifs is varied (see M5 vs. M126 in fig. 21), this is a fairly tricky operation. This is partly due to the fact that a temporal manipulation may exceed the categorical limit by redefining the experiential function of all events within the rhythmic figure, thus making the relationship between categorical and expressive levels of rhythmic performance very complex.[211]

In this context we are reminded that we need to be sensitive to the fact that terms like “timing profile” or “timing pattern” may be confusing to the extent that the very pattern may work as the primary parameter identifying categorical sameness between motifs. In other words, “timing pattern” does not only apply as a slightly varying characteristic of different identifiable basic structural entities, but functions as a constitutive element of its own. At the same time, references are needed if variations in timing are to be identified. In the worst case we would be dealing with a tautology in the sense that what is stated is that two timing patterns have the same timing, something which surely would not add much to our understanding of the relationship

[211] See also the discussion of measurement precision in chapter 4.2.

between musical structure and expressive timing. As confusing as this may be, these complementary perspectives on the concept of timing are necessary if we are to grasp some of the complexities of time structuring in this music. In conclusion, the question whether motivic segments are similar and thus comparable is fairly complicated since what are at issue are not necessarily the categorical boundaries of form elements (cf. the notated versions in fig. 21 and the overviews of motivic entities in fig. 22 in chapter 5) but the experience of sameness with regard to overall melodic-rhythmic contour. Again, it needs to be repeated that this issue belongs to the domain of interpretation and that there are no independent criteria to be consulted in the process of categorizing the material.

Motivic structure and performance timing – analytical approach

It should be noted that the principal problems addressed above are of a general nature and concern the formulaic (i.e. flexible/adaptable) quality of the pols/springar style as a whole. In the performances analyzed in this thesis the problem illustrated in fig. 21 is limited to a few instances, which will be thoroughly examined in their own right (see figs. 91-94 in chapter 6). In most cases, similarity between motivic segments corresponds with similarity in easily observable features. More precisely, the previously introduced term architectural similarity means that the compared segments have approximately the same melodic-rhythmic contour and subdivision pattern. Contextual similarity, then, means that the compared segments are located within similar melodic-rhythmic contexts. In practice, this means that the analysis is performed by comparing the timing profiles of complete motifs (two-measure periods as a rule) occurring more than once in the performance. This makes it possible to examine both temporal consistency between the contextually equivalent part-motifs and to what extent the timing profiles of the different parts (the first and the second) of the complete motif differ. In short, this procedure is used to determine whether each motif has a unique timing profile of its own, which might indicate that the duration of the individual components (tones, beats, measures) in some way is intrinsic to the articulation of the complete melodic-rhythmic gesture (the motif) of which they form a part. The next step of the analysis involves comparing motivic segments that are architecturally similar but differ when it comes to certain aspects of how they are performed and contextualized. These differences may concern the use of ornamentation, bowing patterns and double stops, as well as the way the motivic segments are framed by preceding and succeeding events. In this context, the motivic segments are seen as comparable in the sense of being *different* manifestations of the same material and the key issue becomes how micro-architectural and contextual differences correspond to variations in the measured durational values. Thus, in both stages of the analysis,

the motif is treated as the reference against which correlations and fluctuations are measured. In other words, given the framework in which the motif functions as a rhythmic reference, what is of relevance is 1) whether motivic similarity entails rhythmic-temporal coherency, and 2) how small reformulations of the melodic-rhythmic "sentences" potentially affect the temporal values of the measured units (measures and beats).

The following chapter is devoted to an analysis of the tune *Markensmondagen* played by Gunnulf Borgen. Although this work aspires to provide a complete description of the rhythmic features of this tune, the real challenge will be to evaluate and select the most promising features from the available data. Underlying this interpretive effort is the aim of advancing an alternative conception of groove and meter by investigating the *variation* in asymmetry and the possible principles and mechanisms behind observed patterns and tendencies.

5 Markensmondagen – analysis and interpretations

5.1 Introduction

This chapter is in three parts. The first part (5.1) provides a brief historical and generic contextualization of the tune *Markensmondagen* and outlines the motivic and sectional division of the tune. The second part (5.2) presents a statistical treatment of beat and measure duration data viewed from a measure-by-measure perspective. This will also involve determining the extent to which the overall tempo of the performance is consistent. The third part (5.3-5.5) is more interpretive in nature and explores in different ways the relationship between timing data and the melodic-rhythmic structure of the performance. This constitutes the main part of the analysis and involves comparing various motivic segments to examine how different architectural characteristics and contextual factors are interconnected with measured durational data. In this way, the emphasis is placed on how the melodic-rhythmic context is constantly changing and how this needs to be taken into consideration when attempting to interpret the distribution of beat duration values. Related to this is the relationship between subdivision timing and beat level timing, which will be studied with particular focus on the performance of ornaments and triplets.

Markensmondagen, a *Tele-springar,* is associated with the famous Hardanger fiddler, Lars Fykerud (1860-1902), from Sauherad, Telemark. The version that Eivind Groven analyzed (see chapter 3.2) was performed and recorded in 1935 by Gunnulf Borgen (1881-1953) from Bø in Telemark. In order to compare my results with Groven's, I have analyzed the same performance.[212] Gunnulf Borgen learned the tune from his father, Halvor Borgen, who in turned learned it from Lars Fykerud. As with most other springar tunes, it is not composed by any particular fiddler, at least not in a form that is kept unchanged. Instead, it is considered to be a product of tradition, a process where tunes are continuously revised and reshaped, and where particularly prominent musicians who have contributed to this shaping in a significant way may get their name associated with the particular tune in question. Often, the process progresses by a simple tune or song being built out into a larger entity (see chapter 2.2). In the case of *Markensmondagen*, the result has been an immensely long tune, one round consisting of

[212] Groven did not provide details about the recording he analyzed. However, there seems to be only one recording of *Markensmondagen* by Gunnulf Borgen available in the archives, making it probable that we have dealt with the same version.

approximately 120 measures.[213] Considered an excellent yet challenging tune to perform, it is often heard at competitions and is associated with the playing of the most renowned and influential fiddlers of the 20th century. It should also be noted that Gunnulf Borgen´s version bears the hallmarks of the virtuosic concert style represented by late 19th and early 20th century master fiddlers, who embraced the spectacular in form and expression, while not necessarily focusing on dance rhythm.[214]

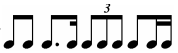
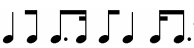
The rather extravagant features of this tune and performance might raise critical questions about representativity. However, my choice of material can be rationalized by making some additional comments. First, as observed by several researchers, rhythmic features vary between local sub-styles, as well as between different tunes, fiddlers and individual performances (see chapter 3). Thus, it cannot be established that a particular tune or performance is representative in the sense of accounting for the possibilities and confines of the rhythmic style to which it belongs. Instead, the relevant criterion is whether the performance conforms to culturally situated conceptions of how pols/springar tunes *can* be performed in a stylistically appropriate way. Although the extent to which a performance meets this criterion is difficult to determine, Gunnulf Borgen's performance of *Markensmondagen*, while exceptional in some respects, clearly is a *Tele-springar* groove. Second, although a less complex case could have made things easier in terms of bringing out clear patterns and tendencies, the current case is found to be highly information rich by virtue of showcasing a fiddler in dazzling form and a tune containing a variety of stylistically typical melodic-rhythmic phrases augmented by ornamentation and other variation techniques. Finally, the main reason why I have chosen to analyze Gunnulf Borgen's performance of *Markensmondagen* is that I want to compare my analysis with Eivind Groven's, which is one of the very few complete measurements of a pols/springar performance ever carried out.

Before outlining the motivic and sectional division of *Markensmondagen* and introducing the analytical results obtained, I would like to encourage readers to use the attached CD and listen to the audio samples associated with some of the figures in the text. I also recommend viewing appendix 1 which contains a complete and detailed transcription of the whole performance, including data about measure lengths, and absolute and relative beat lengths. Associated with this transcription are audio files of every single measure (1-147), which are found in a separate folder on the CD. The abbreviations used are explained below, and some

[213] Compare this to tunes played on the ordinary fiddle, which commonly contains 16 measures.
[214] For an overview of the concert tradition in Norwegian folk music, see Asheim (1995).

comments are made regarding the use of terminology, notation and representation of durational data.

MM = this specific recording of *Markensmondagen*.
M = measure, M112 = measure no. 112 from the start of the performance.
B = beat, B1/B2/B3 = 1st/2nd/3rd beat

- Absolute length is in milliseconds. The relative lengths of beats are displayed as percentages of the whole measure.
- Triplets are frequently discussed and here refers to all beat motifs subdivided into three.
- Beat motif notation ( etc.) represents approximations of internal temporal architecture. The manner of notation is adopted from Sæta & Sevåg (1992). This means beat motifs with duple subdivision fall into five categories in terms of their proportional temporal values (). Note that the versions with 2:1/1:2 ratio () are notated .
- Unless otherwise specified, notes that are written in a smaller font represent drone tones/double stops.
- Grace note/ornament notation is simplified by not including drone tones/double stops ( instead of ). It should be noted that ornaments never are performed on one string and that the notes excluded in the notation always are the same as the drone tone of the main tone unless otherwise specified.
- The tuning of the Hardanger fiddle in this performance is ADAE (standard Hardanger fiddle tuning), i.e. the same as on the standard violin tuning except for the G string which is raised to an A. This means that low A () is played on the open A string, while the standard 1st position finger placement (1st to 4th finger) is aligned to a register starting a major second higher than the corresponding register on GDAE tuning.

The formal motivic architecture of MM can basically be described as a series of repeated or non-repeated two-measure motifs forming larger sections that are sometimes linked together by a bridge or a kind of transition motif. It should be noted that the subtleties and ambiguities of musical form will not be discussed in this thesis. The reason for this becomes particularly apparent when it is considered that MM does not have a strict form, i.e. there is no identifiable

original form of the tune and it may be structured (planned or spontaneously) in a variety of ways by different fiddlers and on different occasions. In other words, to explain the form of this tune would need a lengthy discussion of the principles of form *variation*, i.e. the "raw material," variation techniques and combinatory principles on which this particular rendition is constructed. This is a vast topic of its own, which simply cannot be covered within the limits of this thesis.[215] Instead, my focus will be on the actual progression of distinguishable melodic entities within the performed version in question, and not on the intricate ways in which these entities are combined.

Fig. 22 below shows an overview of motivic entities by means of a highly simplified, skeleton transcription where double stops, ornaments and bowings are excluded and subdivisions normalized. This representation is intended to serve as a map wherein to locate the structural sections and fragments that are subsequently analyzed. It needs to be pointed out, however, that to get a more accurate picture of these segments as they actually are performed in different sectional contexts, the detailed transcription in appendix 1, including the associated audio samples, needs to be consulted. The same is the case for the relationship between timing data and different aspects of performance style, such as ornamentation, bowing, dynamics and variation in subdivision, where detailed information is necessary to comprehend these potential interconnections.

[215] See Levy (1989) and Kvifte (1994) for analyses and discussions of form in Norwegian *bygdedans* tunes.

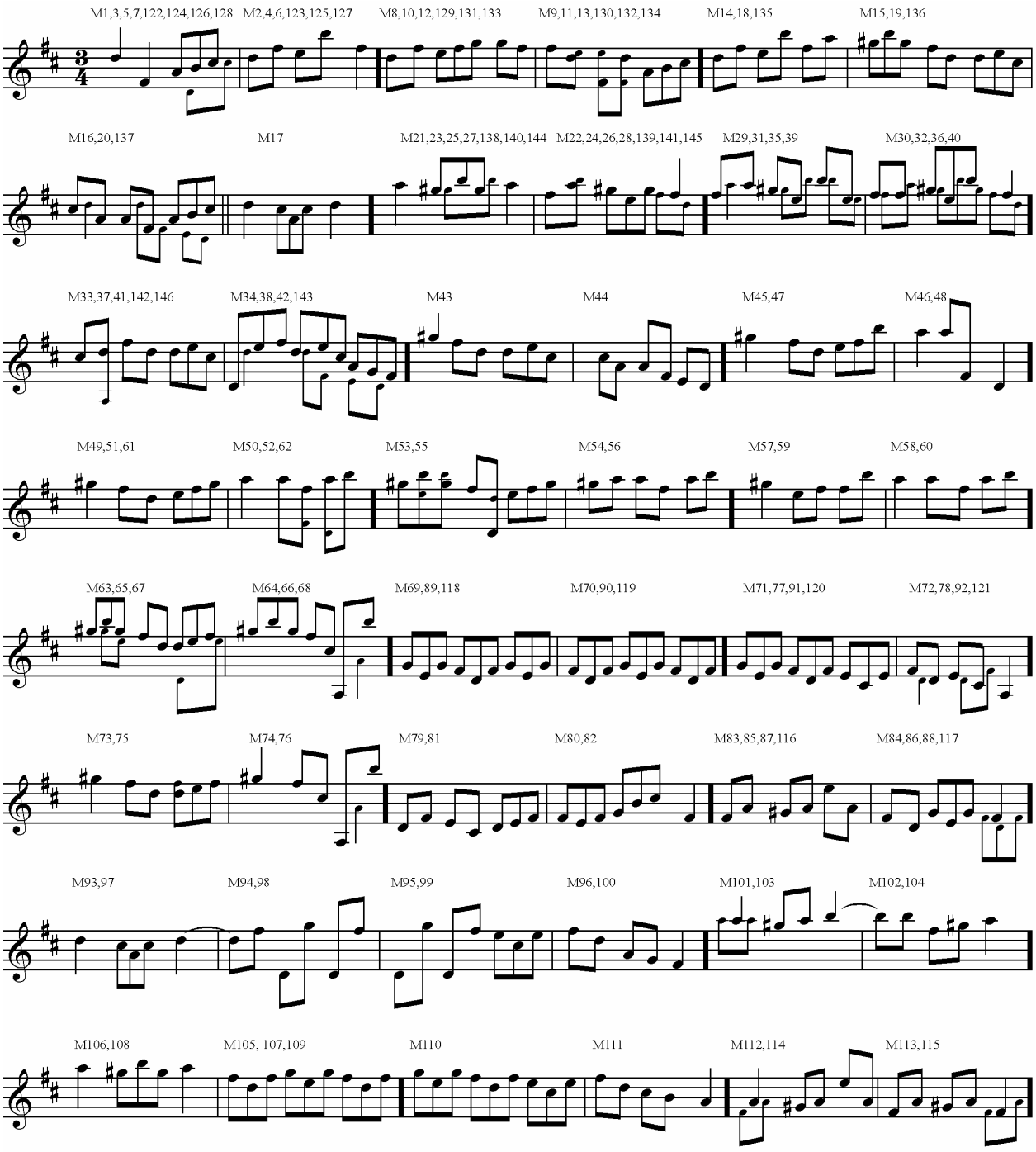


Figure 22. Schematic outline of motivic units in MM. M1, 3, 5 etc. indicate measure numbers that correspond to the detailed transcription in appendix 1. Thick barlines refer to the division of complete motifs. Notes that are written in a smaller font represent alternative versions.

To determine a sectional division of MM is clearly a matter of interpretation, as it is dependent upon how the different segments and the transitions between them are performed, as much as the formal structure of the tune. Or, more preferably, the determination of a formal structure is in itself partly dependent on how it is dramatized in performance. This is not meant to suggest that divisions between formal elements necessarily are intentionally marked, but that the presence of

expressive characteristics guides the analytical determination of these divisions. For instance, as will be further discussed below, the fiddler seems to dwell on (prolong) certain tones which may be associated with a transition between larger sections, thereby potentially reinforcing an impression of a sectional division by means of expressive timing. However, this tendency is not consistent and it seems difficult to establish an independent formal structure (including sectional transitions), as this structure is reliant on whether temporal extensions are present or not. In simple terms, the impression of sectional divisions may be partly governed by the fact that these divisions are accompanied by certain expressive characteristics, while a different performance may downplay such structural points, or suggest others. Nevertheless, although these considerations and reservations are taken seriously, a formal representation of the *interpreted* sectional division of MM (as performed) is presented in table 1 below to provide a reference from which to understand the subsequent analyses and discussions.

Table 1. Schematic outline of the sectional division of MM. Sections are divided by thick barlines in the detailed transcription in appendix 1.

Section	1	2	3	4	5	6	7	8	9	10
Measure	1-20	21-42	43-78	79-92	93-100	101-111	112-121	122-137	138-143	144-147

5.2. Statistical analysis of beat and measure duration data

This section starts with a statistical description of timing data for formal rhythmic units viewed from a measure-by-measure perspective. Table 2 below shows mean and median values for measure and beat duration data, including measures of dispersion.[216]

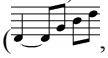
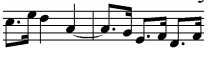
[216] The statistic is based on measured (as opposed to estimated) durational values only. This means that beats and measures that are tied together with a neighboring unit ( ,  etc.) are not represented in the statistical presentation, which is evident from the fact that the number of observations (N) varies between the different measured units. It should also be noted that M1 is excluded due to its introductory character.

Table 2. Descriptive statistical data for measure and beat duration in MM. Total number of measures = 146.

Measured unit	Measure (ms)	B1 (ms)	B2 (ms)	B3 (ms)	B1 (%)	B2 (%)	B3 (%)
Average length/ mean	1185 (N=134)	410 (N=138)	411 (N=145)	368 (N=139)	34,5 (N=133)	34,4 (N=133)	31,0 (N=133)
Standard deviation	143	53	73	63	3,1	3,7	3,4
Median	1173	404	403	355	34,9	34,0	31,2
Interquartile range	143	60	73	72	3,4	4,8	4,5
Minimum value	907 (M90)	283 (M70)	284 (M120)	274 (M119)	23,5 (M121)	25,2 (M74)	23,0 (M122)
Maximum value	1993 (M121)	561 (M122)	815 (M121)	710 (M121)	45,2 (M74)	46,1 (M7)	40,6 (M120)
Range	1086	278	531	436	21,7	20,9	17,6
Difference between 5th and 95th percentiles	440	177	224	196	10,2	11,9	11,2
Average difference between the 10 smallest and the 10 largest values	564	207	285	237	12,5	14,1	12,5

The average beat duration ratio is 34,5:34,4:31 %, which clearly differs from Groven's measurements (39:33:28). Thus, the averaged pattern is *long-long-short* rather than long-average-short. Moreover, the 2nd ("average") beat is the least stable, completely contradicting the average value hypothesis, which presumes that rhythmic flexibility is centered around a co-variational relationship between the long and short beat, while the medium (2nd in this case) beat remains average (33 %) in length (see chapter 3). As indicated by the large standard deviations, there are vast variations in beat and measure length in this performance. It should be noted, however, that there are some extreme values in the data set, which is evident from the observation that the mean and the median differ (the median is not affected by outliers). The boxplots in figs. 23-26 below represent statistical measures of central tendency and spread for beat durational values. For the sake of completeness, both medians and means are reported for absolute and relative values respectively.

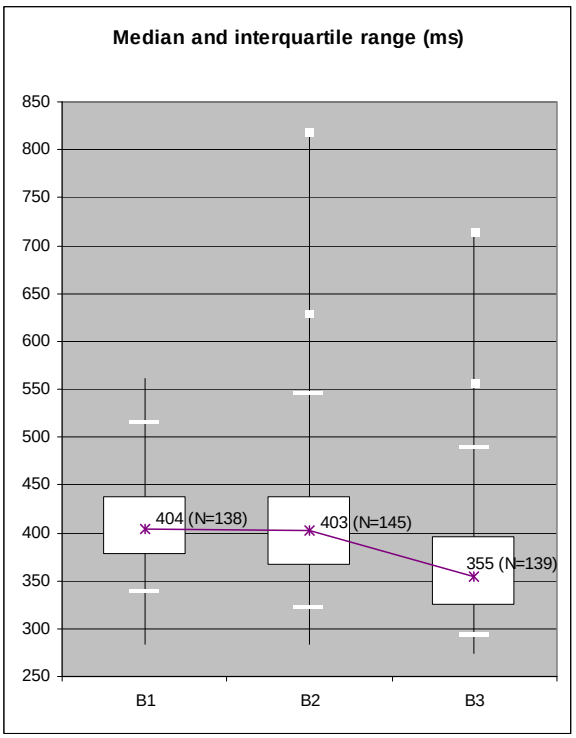


Figure 23.

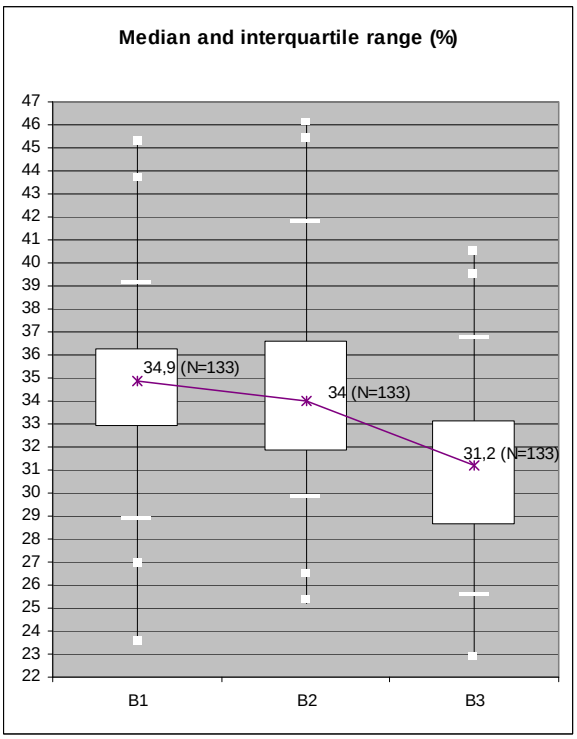


Figure 24.

Beat duration data (median) for MM. The *-marks and the lines between them represent the median, the white boxes the interquartile range (25–75 percentile), and the vertical lines extend to the minimum and maximum values. The whiskers indicate the 5th and 95th percentiles and the small squares represent outliers.

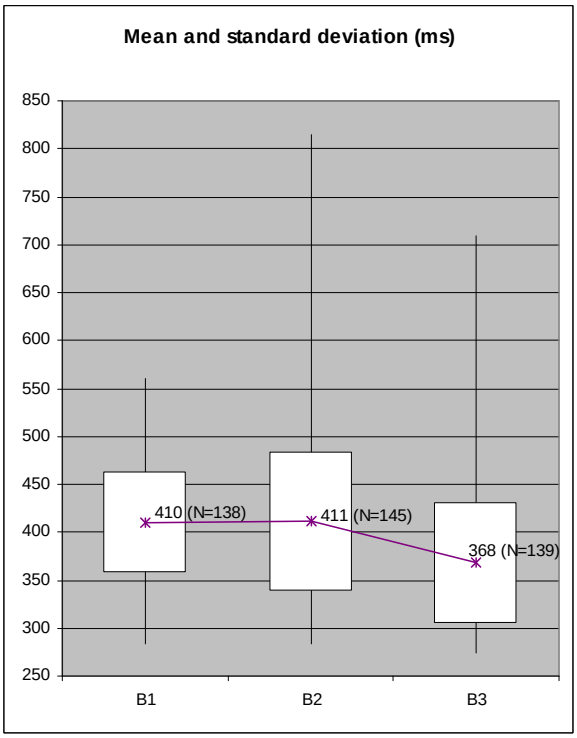


Figure 25.

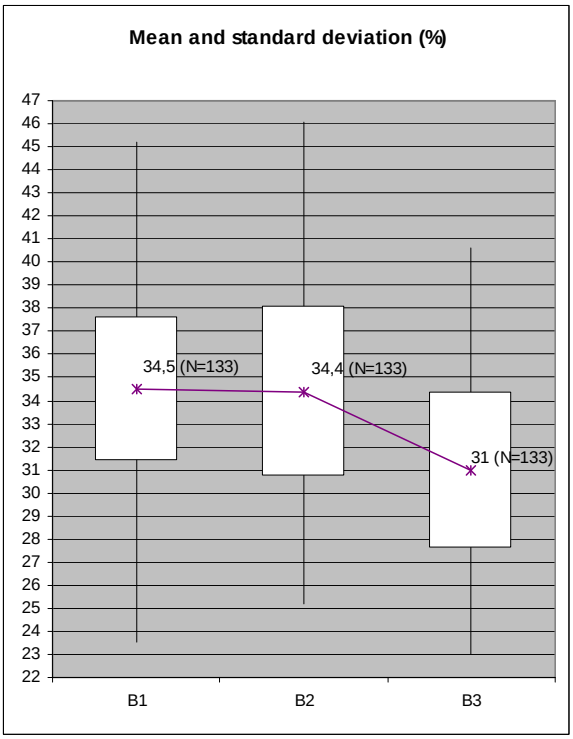


Figure 26.

Beat duration data (mean) for MM. The *-marks and the lines between them represent the mean, the white boxes the two-sided standard deviation, and the range is indicated by the vertical lines.

The boxplots provide a graphic summary of the measurements of absolute and relative beat durations. Except for the varying, but overall large spread, it is noticeable that the 3rd beat is notably shorter than the remaining beats. However, several critical problems are left unsolved. First, taking the vast variations in beat and measure length into account, the relevance of the average and median values needs to be seriously questioned. For instance, although my observations seem to coincide with Kvifte's (1999) notion that the short beat position can be seen as constituting a durational category of its own, distinct from the two long beats (cf. chapter 3.6), the spread of the data for the 3rd beat is wide (SD = 63 ms/3,4 %) and the mean cannot be taken to indicate an ideal or desired value in any straightforward sense. The argument behind this assertion is as follows: if the mean represents an intended rhythmic behavior we are left with the counterintuitive explanation that the temporal precision with which the fiddler operates is very low. Clearly, there is no evidence to dismiss this idea completely, but it seems difficult to reconcile with the observation that comparable melodic-rhythmic segments are replicated with very high precision when motifs or larger phrases are repeated (see below).

In more general terms, the question how to explain the average beat duration ratio in MM, i.e. to illuminate the possible mechanisms through which this ratio is produced and maintained, goes beyond what the statistical analysis can sensibly provide. As far as the data are concerned, the mean values may be the result of mathematical, averaging logic, rather than of an intentional matching with a preconceived beat duration ratio model. In general, none of the existing hypotheses involving purely durational relationships viewed from a measure-by-measure perspective (see chapter 3) are supported by the data. The main reasons for this are the following: 1) None of the beats are stable in absolute or relative length. On the contrary, all three beats are highly flexible in duration. 2) There are no clear patterns of covariation to be found, i.e. a "prolongation" of one beat is not accompanied by a "shortening" of a neighboring beat (cf. the next point).[217] 3) Beat duration fluctuations do not seem to be temporally compensated for within the measure. Instead, the whole measure stretches out or contracts as a result of the "addition" or "subtraction" of rhythmic-temporal material.

In sum, the statistical timing data for formal rhythmic units viewed from a measure-by-measure perspective show that there is substantial variation. However, the data set gives a rather chaotic impression and the information provided is not sufficient to explain the possible mechanisms behind the observed variations. Thus, rearranging the data in some way seems

[217] This conclusion is drawn from observing beat duration values measure by measure in appendix 1.

necessary and this is what is attempted in the following sections. First, the issue of tempo is addressed to evaluate the status of the vast variations in absolute durational values (ms). Second, a comparative analysis of motivic units is performed to determine whether some of the variations in asymmetry are related to the melodic-rhythmic architecture of the tune/performance.

General timing level – tempo throughout the tune

Before treating and interpreting the data any further, I shall try to determine to what extent temporal fluctuations at local levels might be attributed to the overall tempo being inconsistent. For this, it seems necessary to rely on measurement data, as detecting small, gradual tempo changes by ear is very difficult.[218] When one considers the possibility of a continuous variation of event durations within *the same* overall tempo, it becomes even clearer that measurements are needed.

The tempo in MM may be defined as stable or variable depending on how the concept is interpreted. If the duration of formal rhythmic units is the determining aspect the tempo is inconsistent as long as the temporal fluctuations are not continuously compensated for within the local referential frames (the measures). In MM, the average difference between the 10 smallest and the 10 largest measure durational values is 564 ms (the average measure duration is 1185 ms) and according to this observation it seems reasonable to conclude that the tempo is unstable. An alternative approach is to examine whether short/long measures imply an overall increase/decrease in rhythmic density at the subdivision level, as would be the case if a slow rendition of a tune is compared to a fast one. In general, this is very difficult to determine, since the rhythmic material often is not directly comparable between different measures. For instance, even if the beat motifs compared have the same number of subdivisions, comparison is complicated by the fact that the internal structure of relative durational values varies ( vs.  etc.) without necessarily implying that one of the beat motifs compared is played faster or slower (the first tones in  and  may be of equal duration while the other tone is shortened/lengthened). The only obvious choice for comparison seems to be the symmetrical triplet, since there are no other types of beat motif architecture frequently occurring in MM in which rhythmic density can be unambiguously determined. In simple terms then, if the tempo is faster the symmetrical triplet should be shorter (higher density) than if the tempo is slower. More precisely, if measure duration is used as a tempo indicator there should be a correspondence between measure length and the total duration of the symmetrical triplet occurring within the

[218] Wang 1983

measure. Table 3 below shows selected timing data for all measures in MM containing one or more symmetrical triplet.[219]

Table 3. Measure and beat duration comparison (only data for measures and symmetrical triplet beat motifs are shown).

Measure no	Measure (ms)	B1 (ms)	B2 (ms)	B3 (ms)
90	907	287		294
119	935	312		274
70	938	294		301
89	954		299	
118	980		303	
71	992		297	
33	998			291
109	1008		323	325
69	1004		308	
88	1019		329	316
91	1019		310	
117	1025		322	320
37	1036			314
67	1036	339		
77	1068		322	
36	1074		321	
120	1075		284	
40	1078		324	
107	1128		323	
43	1129			309
75	1160			312
79	1230			302
81	1234			301
7	1259			327
5	1269			327
124	1315			325
3	1411			368
Mean (the whole performance)	1185	410	411	368

The first observation is that all symmetrical triplets are relatively short (cf. the mean values) and that there is no apparent correspondence between beat position and beat duration. Thus, the (small) variation in beat duration cannot be explained by referring to the notion that the *Tele-springar* meter implies a long-average-short durational pattern which is independent of the

[219] It should be noted that none of the triplets in MM are symmetrical in a mathematical sense. Rather, the 33 "symmetrical" triplets in table 3 are interpreted as being categorically different from the asymmetrical triplets with reference to which they are relationally defined.

architecture of the beat motifs involved. Second, the correspondence between measure length and the length of the beat containing a symmetrical triplet seems to be too weak to lend support to the notion that tempo can be inferred from the configuration of measure duration and beat motif density. The possible exceptions are the smallest and largest values, which indicate that there actually might be acceleration/retardation going on in MM. For instance, M3 belongs to an introductory sequence (M1-6, reoccurring in M122-127) which clearly sounds accelerating (compare M3 to M5 later in the sequence where both the measure and the symmetrical triplet are shorter). At the other end of the scale we find a cluster of particularly short measures (M90, 70, 119, 89, 118 and 71), which all belong to equivalent versions of a three-measure triplet sequence occurring at three instances in the performance (cf. fig. 62). In this case, my intuitive sense that the tempo is higher than in the "slow" introductory sequences (M1-6 and M122-127) is supported by the observation that both measures and symmetrical triplets are very short. Still, the difference in length between the symmetrical triplet beat motifs is too small to account for the differences in measure length shown in table 3, with the possible exception of the smallest and largest values.

In general, although the tempo in MM may be defined as variable, the concept of tempo variation has a limited explanatory value in the analysis of performance timing in this performance. To illustrate this point from a different perspective, in fig. 27 I compare architecturally similar one-measure motivic segments that differ considerably in terms of measure duration, suggesting a possible variation in tempo.

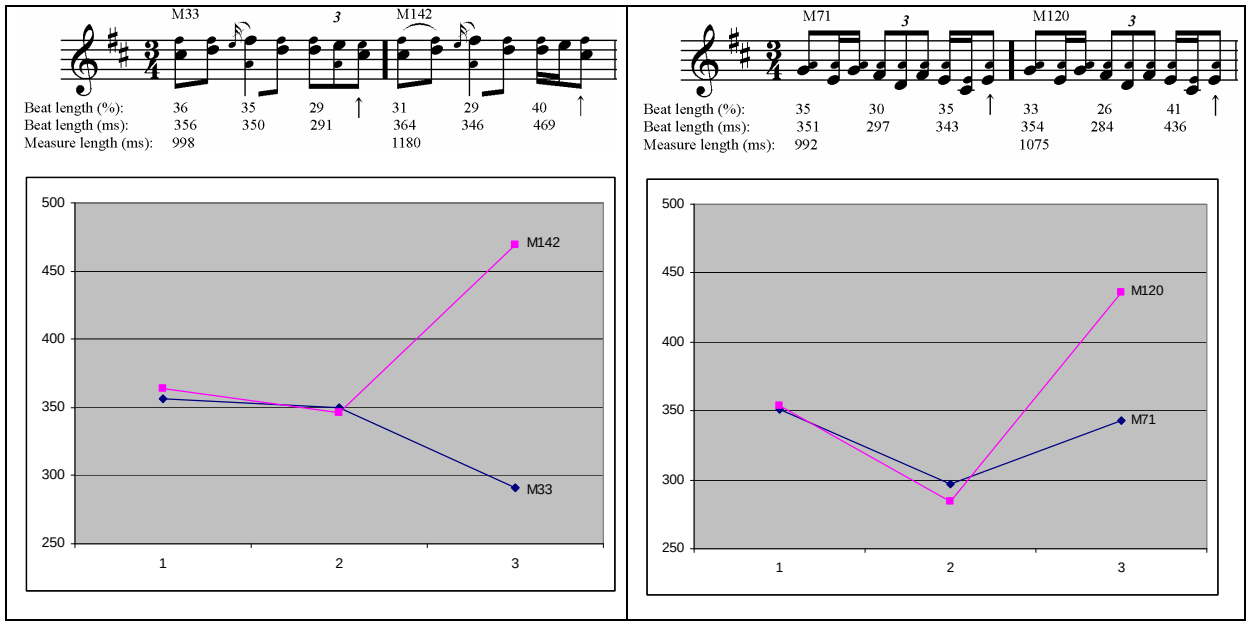


Figure 27. Two comparisons between architecturally similar motivic segments. The line charts illustrate the beat timing profile of each version of the two part-motifs. Audio samples 6b and 6c.

In these cases, the differences in measure duration and beat ratio profile are attributable almost exclusively to the relative extension of the 3rd beat, and of one tone in particular (see the arrows in fig. 27) in the measures compared (M33 vs. M142 and M71 vs. M120).[220] In other words, all rhythmic events in the motivic units compared are timed in almost exactly the same way with the exception of the very last tone. This also includes the first two tones in the triplets on the 3rd beat, which are of very similar duration.[221] Thus, M120 (M142) is not played slower than M71 (M33): the overall density of the rhythmic material is the same in these two versions. Moreover, although the 3rd beat of M120 (M142) is much longer than the 3rd beat of M71 (M33) one should hesitate to conclude that these beats are played slower and faster respectively. If this was the case, the first two tones in the triplets would not be of the same duration in the versions compared.

The examples reviewed (including the case with the symmetrical triplets) cast doubt on the explanatory potential of tempo metaphors (slow and fast) in connection with the analysis of durational variations. The analysis is by no means an exhaustive, covering all possible perspectives from which the issue of tempo may be explored. However, the point is to show that the term tempo is ambiguous, which makes it unsuitable as an analytical concept in this particular stylistic context. In short, it cannot be inferred that there is a correspondence between the duration of formal rhythmic units and tempo. Accordingly, the conclusion from this battle with terminology is that temporal variations are best described by the terms *short* and *long*, as opposed to fast and slow indicating that the observed variations are the results of tempo fluctuations. This does not mean that tempo is an irrelevant concept in the study of rhythmic variation in pols/springar grooves, only that it fails to specify between the different phenomena involved (fast and short, slow and long). In a sense, it does not matter what term is used as long as it is clearly defined (i.e. unambiguous). What matters is whether there is some form of temporal consistency (as opposed to a random distribution of temporal values) which may provide a relevant perspective from which to consider the different forms of inconsistencies (variations) observed. One method to evaluate such temporal consistency is to compare longer sections that are repeated in different parts of the performance. This is a way of determining whether temporal fluctuations are compensated for within referential frames larger than the measure. Ideally, the duration of a reoccurring section should be equal to that of its previously occurring counterpart. Table 4 below shows timing data for the few repeated longish sections in

[220] Note that beat motif notation represents *relative* durational values. Thus, the tones in the asymmetrical triplets notated as 16ths are not necessarily shorter than the individual tones of the symmetrical triplets.
[221] The following data were obtained for the total duration of the first two tones in the triplets on the 3rd beat: M33: 199 ms, M142: 205 ms, M71: 184 ms, M120: 182 ms.

MM. These segments are architecturally similar with only small variations and the comparison should give a fairly good indication of the temporal precision with which they are replicated.

Table 4. Comparison between repeated sections in MM.

Sections compared	Duration (ms)	Difference (ms)	Difference in percent (the difference divided by the smallest value)
M1-15 M122-136	19 654 19 118	536	2,8
M21-24 M138-141	4 979 5 058	79	1,6
M69-72 M89-92	4 149 4 098	51	1,2
M93-96 M97-100	4 922 4 834	88	1,8

It could be reasonably argued that the differences in total duration of these sections should be regarded as almost non-existent, considering that the general difference between short and long measures could be said to be concentrated around 500 ms (see table 2), i.e. a "lengthening" of approximately 50 %. In short, if the tempo was unstable in the sense of varying randomly as a result of performance inaccuracy it would not be realistic to get data of this kind. Thus, it may be concluded that temporal variations are not caused by inconsistent tempo, as might have been expected from a more inexperienced fiddler. This interpretation is in fact strengthened by the observation that the sections of long and short measures are timed in a very consistent way across occurrences. The question whether tempo fluctuations is an adequate term to describe these variations in measure duration may seem unsolvable given the various terminological uncertainties referred to above. However, the important point is that there is consistency, as opposed to random fluctuations. These observations may serve as a useful introduction to the following section, where consistency in beat timing patterns is analyzed by comparing motivic units that reoccur in different parts of the performance.

5.3 Comparison between architecturally and contextually similar motifs

In the following analysis, two-measure motifs that are repeated in different parts of the performance are compared. The criteria used for selecting these motifs are that the different versions are architecturally and contextually similar (cf. chapter 4.4). In other words, the compared motifs have the same melodic-rhythmic contour and are performed in a similar way,

i.e. without substantial variation in subdivision pattern, bowing and/or ornamentation. Essentially, this means that motifs and versions of motifs occurring only once in MM are excluded.

The aim of this approach is to determine whether some of the variations observed when the beat duration data are viewed from a measure-by-measure perspective are related to the motivic organization of the melodic-rhythmic material. The analysis involves two steps: 1) comparing the beat duration values of motifs that reoccur in different parts of the performance, and 2) comparing the timing profiles of the individual one-measure parts (part-motifs) of the motifs. The latter primarily involves comparing the two individual parts (the first and the second) of each motif, thus focusing on the difference between neighboring units (the individual measures) forming a part of the same melodic-rhythmic event. These relationships between different distributions of temporal values are best illustrated graphically and the figures below contain a combination of detailed transcriptions with beat timing data in milliseconds and line charts illustrating the timing profiles of each part-motif. Figs. 28-40 show beat timing data for all reoccurring complete motifs in MM and are followed by brief comments. The same scale is used for all timing plots, allowing for comparison both within and across different groups of motifs.

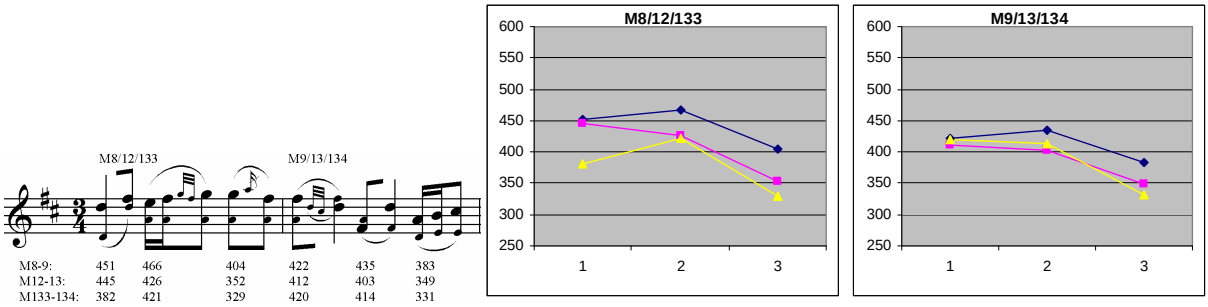


Figure 28. Audio sample 6d.

Fig. 28 shows the first motif in MM that is repeated in its entirety in different parts of the performance. In this case the spread within each motivic segment seems to be too large and the difference between the different parts too small to allow for further interpretations of the potential correspondence between motivic structure and timing profiles.

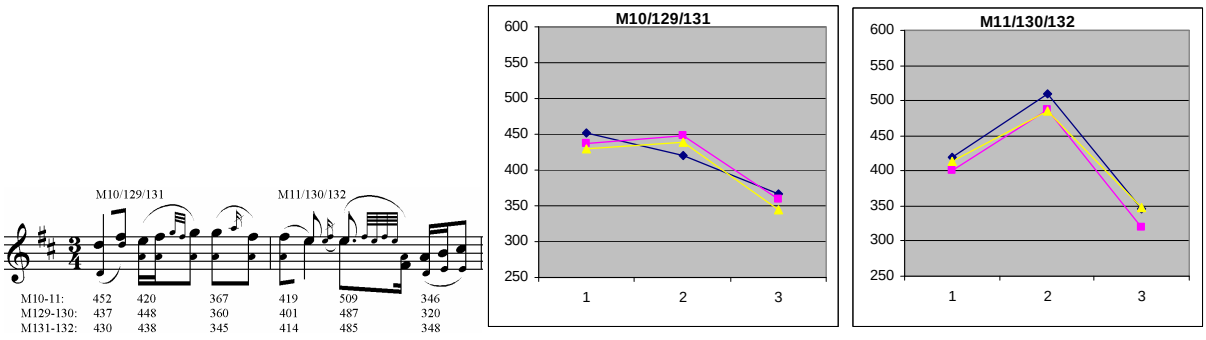


Figure 29. Audio sample 6e.

In contrast to fig. 28, each part-motif (measure) of the motif in fig. 29 has a beat duration profile of its own, which is replicated in all three occurrences (see figs. 30, 31, 33, 24, 36, 37, 38 and 39 for similar examples). It is also noticeable that the long duration of B2 of the second measure can be related to the trill occupying time for its realization (see also figs. 30 and 33).

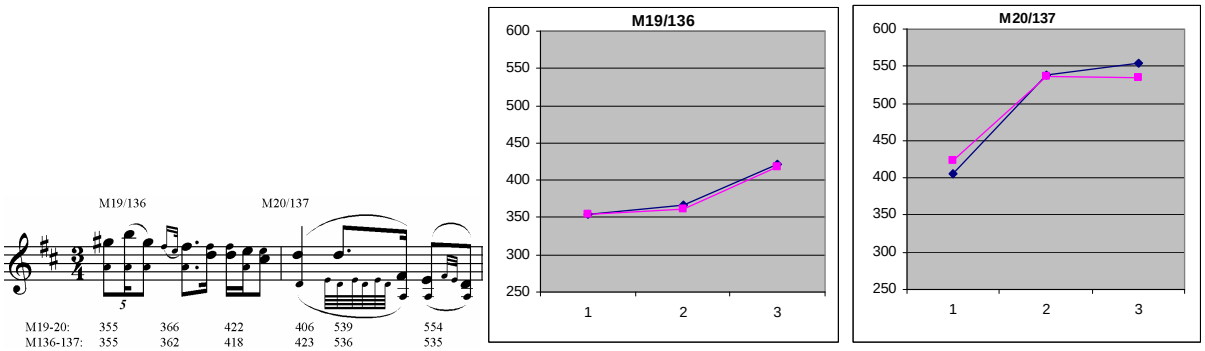


Figure 30. Audio sample 6f.

Fig. 30 shows the ending formula of the first/eighth section of the tune, which is performed in the same way both times it occurs. Although there is nothing strange about the same phrase being performed in the same way twice, the high degree of temporal precision with which this replication occurs is worth noticing. In this case, the notion that the timing profile in some way is intrinsic to the melodic-rhythmic architecture of the complete motif is supported by 1) the vast difference in relative and absolute beat durational values between the two part-motifs, 2) the tight congregation of these values within each part-motif, and 3) the fact that the beat duration ratios are rather "unusual," with short 1st beats and long 3rd beats. Finally, it might be argued that the observed pattern is stylistically coherent (as opposed to being random) in the sense that it represents the rhythmic logic of an ending formula where the fiddler "rests" a bit on the last tone of the triplet in M19/136 before "landing" on the final D. Moreover, instead of letting the final D fill up the whole measure he breaks it up by a rhythmically distinct ornament and a descending

stepwise motion to the lower D, which contribute to the sensation of a bell-shaped intensity curve.[222]

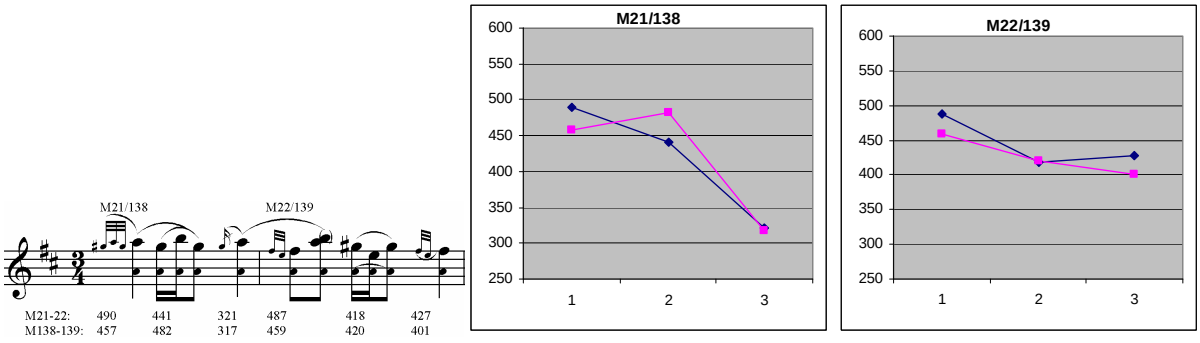


Figure 31. Audio sample 6g.

In fig. 31 we see the first motif of the second/ninth section of MM in which the main difference between the two measures is the length of the 3rd beat. In M21/138 there is an immediate rhythmic continuation from B3 to the following part-motif, while (the longer) B3 of M22/139 stands out as the only pronounced rhythmic landing point of the motif (cf. the discussion of contextual influence below). Here it is noticeable that the "lengthening" of B3 in M22/139 is not compensated for by a corresponding shortening of B1 and B2, which means that the whole measure is longer than M21/138.

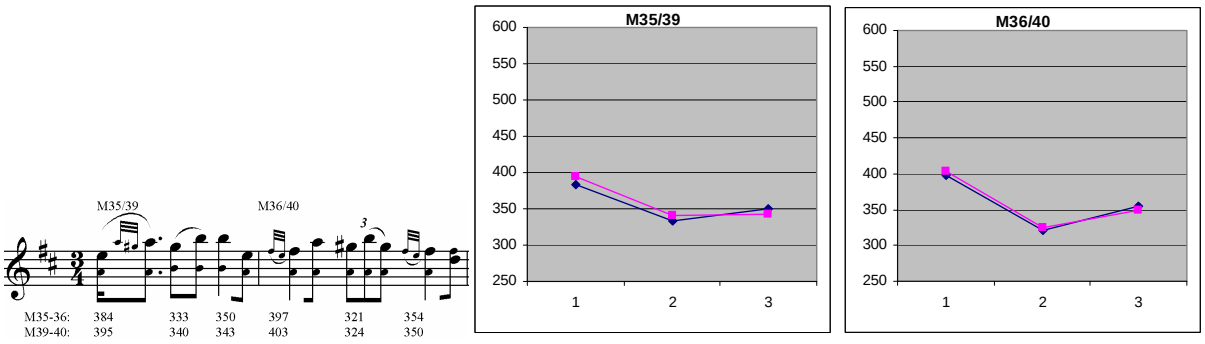


Figure 32. Audio sample 6h.

The motif in fig. 32 is another example of the difference in timing between the two measures being rather small (see figs. 28 and 35 for similar examples). However, in this case the beat duration values of the two versions of the complete motif are closely matched. Moreover, when

[222] This extra twist at the end of larger sections is emblematic of the Fykerud style of *Tele-springar* playing. Listen, for instance, to the album *Fykerud'n* (a tribute to the fiddler Lars Fykerud, who is associated with the tune *Markensmondagen*) by Hauk and Knut Buen (Buen Kulturverkstad 1992), where all springar tunes (9 in number) contain this type of ending formula.

compared to the other motifs discussed in this section, the whole motif in fig. 32 stands out with a timing profile of its own.

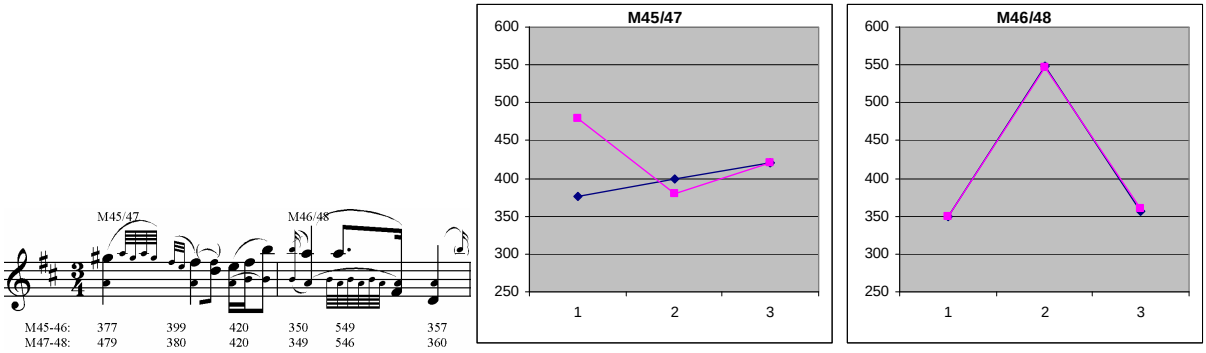


Figure 33. Audio sample 6i.

The technically very complex motif in fig. 33 is interesting for several reasons. First, the different profiles of M45 vs. 47 may be interpreted to indicate that the variation in the timing of B1 is not compensated for within the measure. Second, a closer look at the micro-rhythmic architecture that manifests in different beat duration values reveals that the only difference is that the first and last tones of the ornamented B1 are longer in M47 than in M45 (approximately  vs. ). Thus, the three tones in the middle are of the same duration in both cases. This observation might guide further examination of ornament timing and a comparative analysis of all ornamented beat motifs will be pursued at a later stage. Third, the second part-motif is a striking example of a correspondence between melodic-rhythmic architecture and beat duration patterns. The timing profiles of the two versions are next to identical and there is a vast asymmetry in beat duration values, B2 being approximately 200 milliseconds longer than B1 and B3.

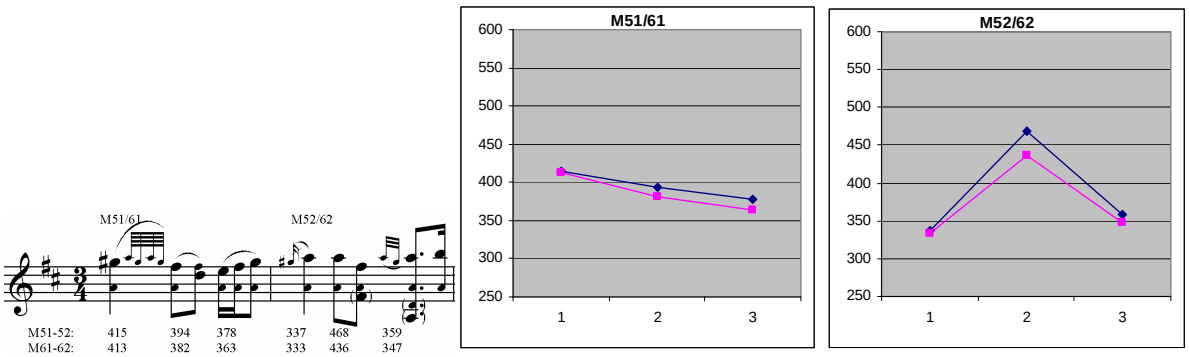


Figure 34. Audio sample 6j.

Fig. 34 shows another example in which the most notable observation is that the motif contains two one-measure segments with different beat duration profiles. One additional detail should be noted: the two versions of the motif are not performed identically (see the bracketed notes, which represent melodic variation), but this difference is not clearly reflected in beat duration values.

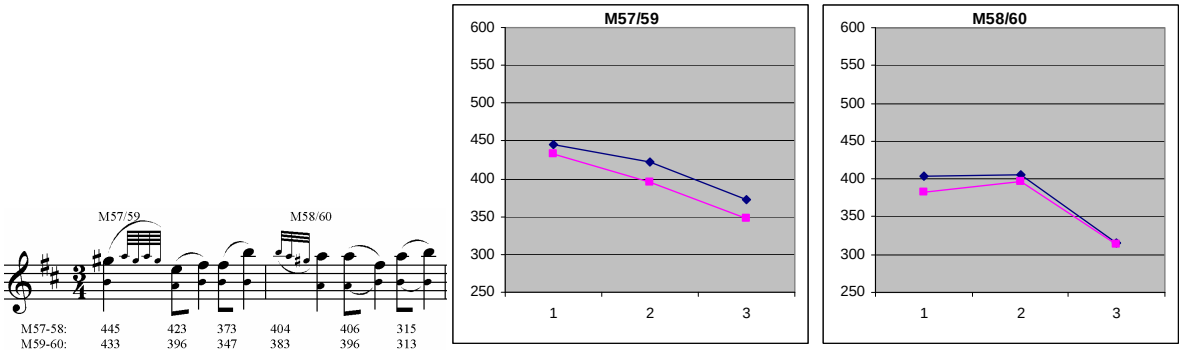


Figure 35. Audio sample 6k.

In the motif showed in fig. 35 the difference between the two measures is rather small (see figs. 28 and 32 for similar examples) and both profiles conform roughly to conventional descriptions of the *Tele-springar* meter, i.e. long-average-short or long-long-short (see also fig. 28).

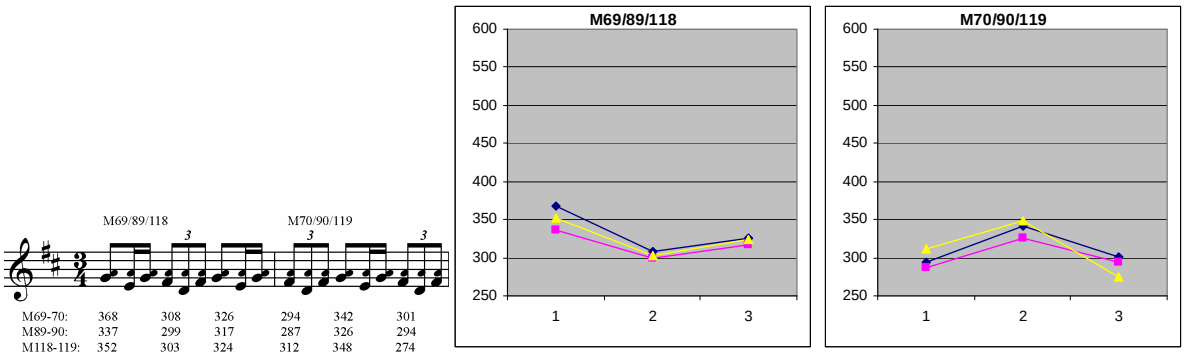


Figure 36. Audio sample 6l.

The motif in fig. 36 contains the shortest beats in MM and although the difference between the two timing profiles does not appear to be that striking there are some interesting observations to consider. In the first part-motif there is a consistent longer-shorter-longer pattern, while the second part is characterized by an inverted pattern (shorter-longer-shorter). Moreover, there is a correspondence between beat motif architecture and beat duration in the sense that the symmetrical triplets are shorter while the asymmetrical triplets are longer. These observations require further consideration and a separate analysis of triplet formulas will be presented below.

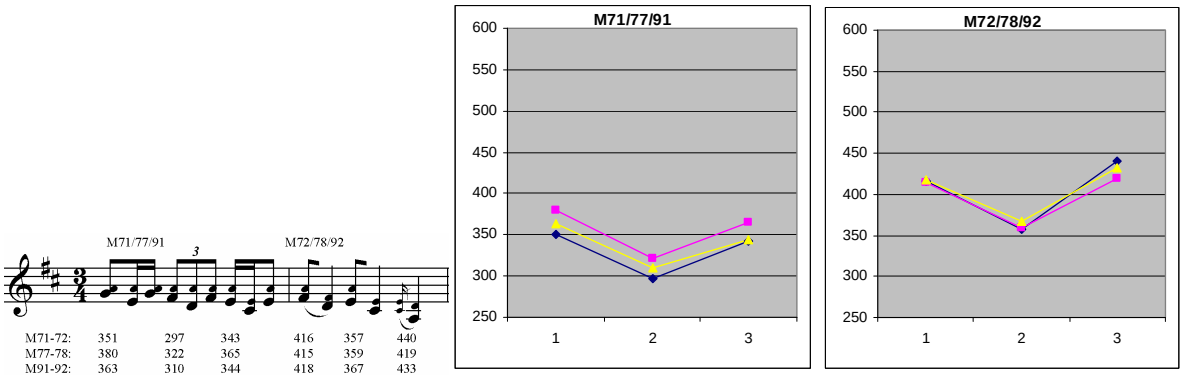


Figure 37. Audio sample 6m.

The motif in fig. 37 is interesting in that the two parts have roughly the same relative distribution of beat duration values (long-short-long) while the absolute durations differ quite substantively. Obviously, this implies that the total duration of the measure varies: in, M72/78/92 the first measure is averagely 183 ms longer than in M71/77/91. Again, the "deviant" pattern with long 3rd beats is stylistically consistent: the three succeeding triplets in M71/77/91 seem to be architecturally and temporally structured according to a rhythmic logic of their own (see the section on triplet formulas below), while the long B3 of M72/78/92 functions as a rhythmic landing point of a longer motivic section (see figs. 30 and 40 for similar examples).

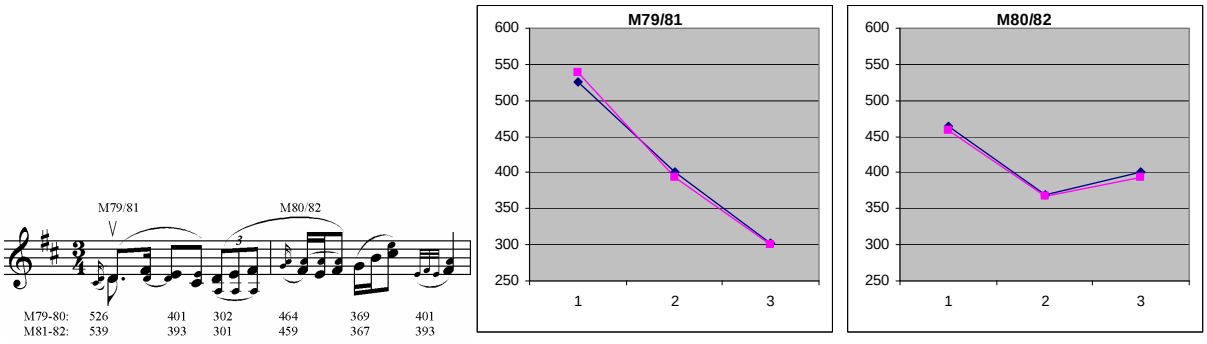


Figure 38. Audio sample 6n.

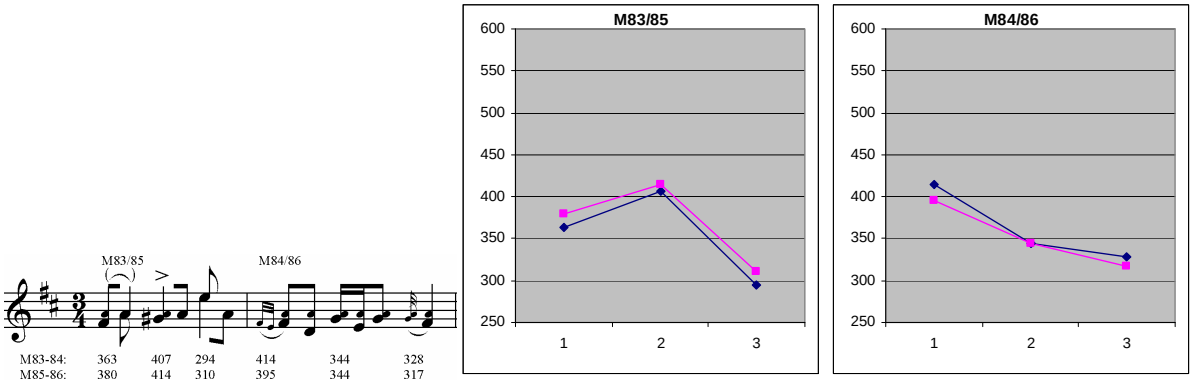


Figure 39. Audio sample 6o.

The two adjacent motifs in figs. 38 and 39 represent the first part of the fourth section of the tune. The following observations are of particular interest: 1) the timing profiles of the two complete motifs differ considerably, 2) the timing profiles of the individual measures of each motif differ considerably, and 3) the two versions of each motif are replicated with high temporal precision.

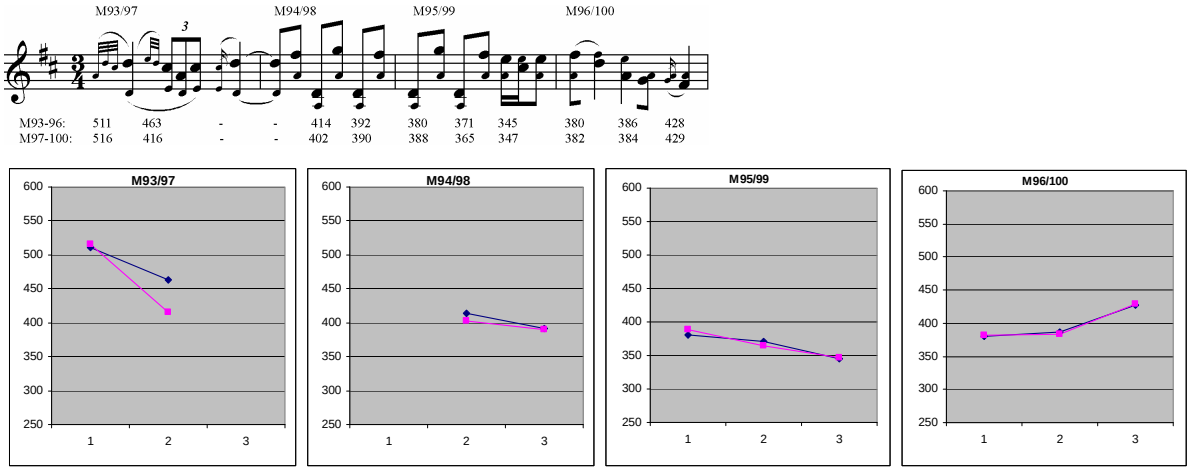


Figure 40. Audio sample 6p. Note that B3 of M93/97 and B1 of M94/98 are tied together and thus cannot be measured.

Fig. 40 shows the fifth section of MM, consisting of a repeated four-measure motif. Except for B2 of the first measure, each part has a consistent timing profile, i.e. the two versions of each part are timed in the same way both times they occur. It is also noticeable that the last tone (B3) of the motif/section is long, indicating rhythmic closure (see figs. 30 and 37 for similar examples).

Having presented the complete set of repeated/reoccurring motifs in MM, some general trends stand out. First, different versions of the same motif have timing profiles that are very

similar, especially considering the overall variability in beat duration patterns between neighboring measures. Second, most motifs consist of individual part-motifs (two as a rule) with distinctly different beat duration patterns. Third, when comparing the beat duration values of the complete motifs (figs. 28-40), each motif appears to have a timing profile of its own. When considered together, these observations are consistent with the notion that the motif is a suitable reference for the analysis of variation in timing measured as differences in durational values from one measure to the next. That is, some of the inconsistencies observed when the timing data are viewed from a measure-by-measure perspective may be explained by the temporal consistency with which motivic segments are performed. The analysis now proceeds to examine how contextual and architectural differences between similar motivic segments are related to variations in timing profile.

5.4 Contextual and architectural variation between comparable motivic segments

In this part of the analysis, the motif (as opposed to an average or idealized beat ratio model) is used as the reference against which temporal fluctuations are measured and described. This implies that timing variation is defined as differences in measured durational values between two or more versions of the same motivic segment. Moreover, instead of referring to metric position (1^{st}, 2^{nd} or 3^{rd} beat) when attempting to explain the (varying) duration of individual beats, the rhythmic architecture (including density) of the beat motifs and the melodic-rhythmic context in which they are embedded are considered as potentially influential factors.

Contextual influence

The influence of structural context seems crucial to consider when attempting to account for some of the observed differences in beat level timing between comparable motivic segments. One striking case of contextual influence on beat duration is demonstrated in fig. 41 below. Here, the ending formula of the first/eighth section of the tune (M19/136-20/137) is contrasted with a similar two-measure motif (M15-16):

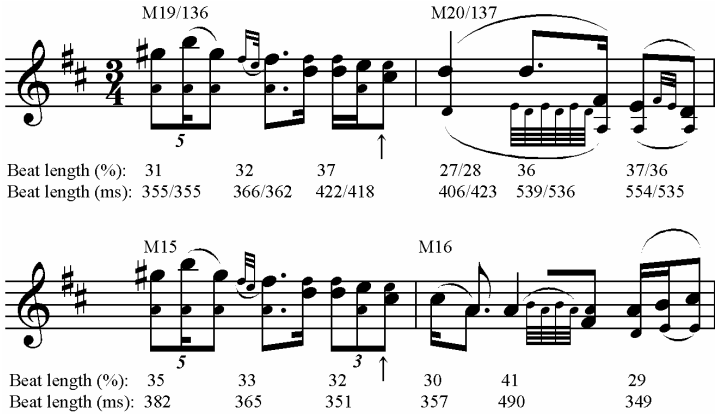


Figure 41. Comparison between contextually different motivic segments (M19/136 vs. M15). Audio sample 6q.

As evident from fig. 41, M15 is architecturally identical to M19/136, but the relative temporal distribution of beats is different. The main reason for this is that the last tone of the triplet of B3 (see the arrows) is considerably shorter in M15 (symmetrical triplet) than in M19/136 (asymmetrical triplet). In this case, continuation seems to be the crucial contextual factor. As was noted in fig. 30, in M19/136 the extension of the final tone of the triplet may be interpreted as a kind of ”preparation” where the fiddler brings the rhythmic flow to a microscopic halt before the final part of a longer section (M20/137). B3 of M15, on the other hand, seems more like a part of an uninterrupted rhythmic sequence continuing into M16.

A similar example is illustrated in fig. 42 below, where timing data for three comparable two-measure motifs are shown. All three versions start with the same part-motif but the second parts differ, M143 and 147 being endings of larger sections while M34 represents the continuation of an uninterrupted rhythmic pattern (cf. M16 in fig. 41 above). This means that M33 is contextually different from M142 and 146, and that the triplets on B3 are the points of transition where contextual influence is a crucial factor.

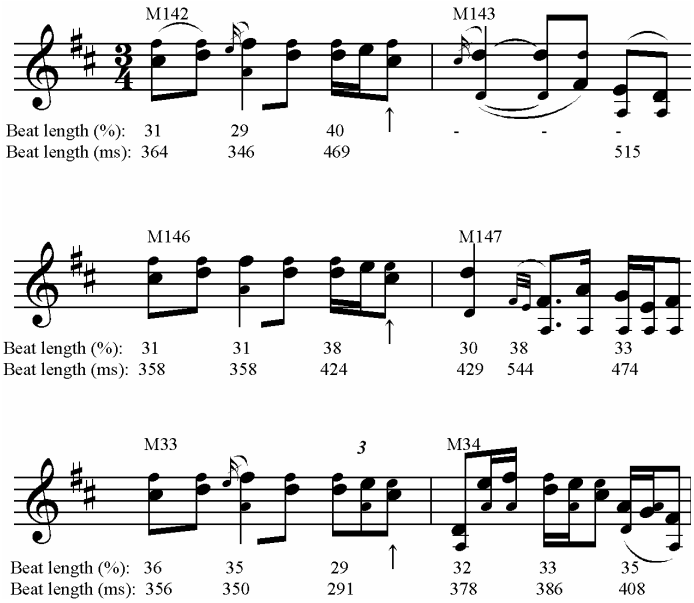


Figure 42. Comparison between contextually different motivic segments (M142/146 vs. M33). Audio sample 6r.

It is noticeable that the beat timing data (absolute durations) of M142, 146 and 33 are next to identical except for the 3rd beats. Again the difference in beat timing is related to the relative extension of the last tone of the triplet: the first two tones are of equal duration in all three versions (205, 209 and 199 ms respectively). As with the example in fig. 41 this variation in the rhythmic shaping of the triplet seems to be correlated with contextual position, i.e. continuation.

These examples are by no means exhaustive, as contextual influence is a relevant perspective in all instances and at all levels of rhythmic analysis. For instance, the influence of context, understood in terms of anticipation and continuation, does not only concern the transition and crossover behavior between motivic segments, but the relation between all succeeding events in a performance. However, the comparative case studies performed in this section are only intended to demonstrate one of several observable features that seem to affect absolute and relative beat durations within more or less equivalent melodic-rhythmic motifs. Below, another aspect of structural context, that of sectional division, is considered in the analysis of performance timing.

Sectional division and performance timing

The larger sections in MM comprise a varying number of measures and are composites of the fundamental structural building blocks (i.e. the motifs) that make up the tune. It is noticeable that the points of transition between these sections are correlated with certain rhythmic-temporal characteristics: all initial measures of motivic sections contain a long 1st beat and seven out of nine final measures contain a long 3rd beat (see table 5 below).

Table 5. Timing data for initial and final measures of motivic sections in MM. The numbers in bold show the duration of the beats that represent the points of transition between the sections.

		Start of section						End of section					
M	Section	B1(%)	B2(%)	B3(%)	B1(ms)	B2(ms)	B3(ms)	B1(%)	B2(%)	B3(%)	B1(ms)	B2(ms)	B3(ms)
M1	1	**48,8**	26,2	24,9	**763**	409	389						
M20	1							27,1	35,9	**36,9**	406	539	**554**
M21	2	**39,1**	35,2	25,6	**490**	441	321						
M42	2							33,6	34,7	**31,7**	403	416	**380**
M43	3	**37,4**	35,2	27,4	**422**	397	309						
M78	3							34,8	30,1	**35,1**	415	359	**419**
M79	4	**42,8**	32,6	24,6	**526**	401	302						
M92	4							34,3	30,1	**35,6**	418	367	**433**
M93	5	-	-	-	**511**	463	-						
M100	5							31,9	32,1	**35,9**	382	384	**429**
M101	6	-	-	-	**454**	416	-						
M111	6							29,7	41,9	**28,2**	339	478	**322**
M112	7	**39,8**	34,3	25,9	**496**	427	322						
M121	7							23,5	40,9	**35,6**	468	815	**710**
M122	8	**36,3**	40,6	23	**561**	627	356						
M137	8							28,3	35,8	**35,8**	423	536	**535**
M138	9	**36,4**	38,3	25,2	**457**	482	317						
M143	9							-	-	-	-	-	**515**
M144	10	**40,7**	33,8	25,4	**469**	390	293						
Mean		34,5	34,4	31	410	411	368	34,5	34,4	31	410	411	368

In chapter 3.4 I referred to what Bengtsson's (1974) observation of prolongations of the first and last measures of motivic sections, which he called "expected fluctuations" in tempo conditioned by the melodic structure. This description needs to be modified to be consistent with the measured data for beats and measures in MM. Generally, since a long measure is not necessarily a slow measure it cannot be firmly asserted that the measure prolongations in MM are the result of tempo fluctuations. As discussed earlier, one way of avoiding this conceptual problem is to replace the tempo metaphors with simple durational categories, i.e. short and long. Moreover, when it comes to MM the notion that initial and final measures are prolonged is somewhat misleading, since there are only two measures in table 5 where all three beats are longer than average. Instead, the significant observation is that one or two of the beats are longer than average and that these temporal fluctuations are not compensated for within the measure. Thus,

the rhythmic unit that is potentially the focus of expressive treatment is the beat rather than the measure.

Of particular interest in this context are the few measures with which comparison is possible, i.e. the part-motifs that have a counterpart located in a different (not introduction/ending) context. Figs. 43 and 44 below show two examples in which an initial measure is contrasted with an architecturally equivalent part-motif occurring a few measures later. It is unfortunate that these are the only examples of this kind in MM. However, they may still help to identify a type of expressive behavior that can be the subject of further empirical investigation.

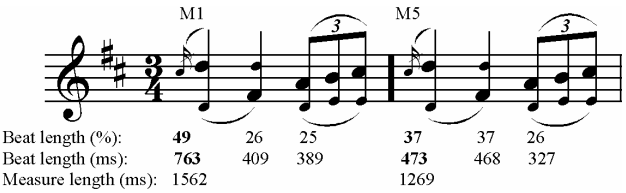


Figure 43. Comparison between architecturally equivalent measures illustrating the influence of sectional context (M1 is an initial measure). Audio sample 6s.

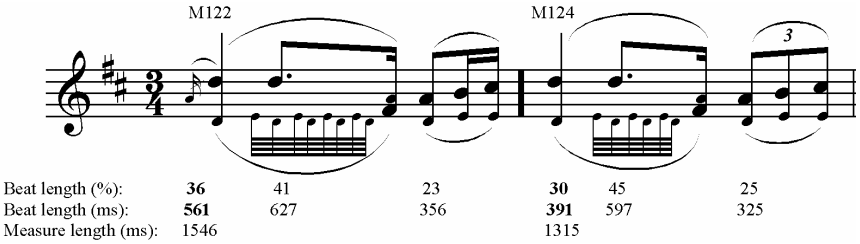
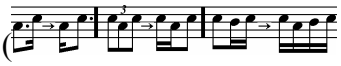


Figure 44. Comparison between architecturally equivalent measures illustrating the influence of sectional context (M122 is an initial measure). Audio sample 6t.

In both these examples, there is a large difference in the timing of B1 between the two versions (see the values in bold), the first tones being considerably prolonged in the initial measures (M1 and 122). Here, the variations in beat duration do not seem to be related to the architectural design of the motivic segments, a notion that deserves further explanation. First, it cannot be inferred that a particular rhythmic-temporal contour is aligned to the part-motif in question, as apparently is the case with several other motivic segments in MM (see figs. 28-40). Second, beats consisting of single tones are temporally flexible and controllable in the sense that they may effortlessly be adjusted within reasonable limits to any preferred length. Thus, durational variation needs to be attributed to factors other than performance constraints. These observations helps frame the question of variation in timing, understood as manipulation of beat/tone durations, as an active domain of performance action. With regard to the examples in figs. 43

and 44 one might reasonable conceive of these as instances of expressive timing variation closely related to sectional structure. More precisely, the prolongation of the first tone in M1 and 122 may be interpreted as one of the ways in which structurally important elements are accentuated and assigned salience in performance.

Melodic-rhythmic variation

In this section I shall focus on stylistically idiomatic instances of rhythmic and/or melodic variation which demonstrate the freedom to shape and reshape the motivic material. Moreover, the analysis concerns how this architectural restructuring may affect timing on different levels and how motif, beat and subdivision timing patterns are mutually interconnected. As with the previous examples (figs. 41-44), differences (transformations/modifications) are identified by comparing reoccurring motivic segments. The first set of examples illustrates what I have termed *rhythmic reshaping*, which refers to small-scale transformations of rhythmic structure which are observable as modifications of beat motif architecture ( etc.). In some cases rhythmic reshaping is correlated with beat level timing, in other cases it is not. The architecturally and contextually similar part-motifs in M72 and 92 (fig. 45) when compared are an example of the latter: beat and measure level timing data are identical, while the varying internal shaping of the beat motifs gives these versions a rather different character in terms of rhythmic contour.

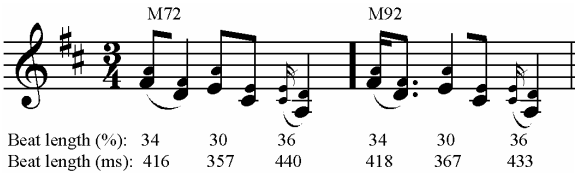


Figure 45. Rhythmic reshaping. Audio sample 6u.

M72 sounds symmetrical with an even flow of temporal and intensive values, leaving no clear, accentual points. In M92, B2 is "modified" (long-short instead of even) in a way that makes the first tone sound more pronounced and the whole beat more extended. This appears to contribute to my impression that the beat duration ratio differs between these two versions, an interpretation that does not agree with the measured beat duration ratio. Furthermore, the accentual points stand out as more pronounced in M92, although there is no dynamic intensification to support this interpretation. Instead, this seems to be related to the shift in temporal values at the subdivision level. Thus, potentially we are witnessing a case of temporal reshaping at one level affecting the

temporal and intensive contour of the whole pattern to which this level is structurally subordinate. This could lead us to ask whether there is an experiential relationship between prolongation and intensity which extends beyond this example. Although it is a well-established notion within rhythm research that temporal and intensive features of rhythmic performance are easily blended and thus become undistinguishable[223], this is far too complex to be generalizable, as it depends on melodic-rhythmic context, the density of sound events, the timbral qualities of sound etc. Thus, although the wide range of experiential possibilities of temporal and intensive features of a performed rhythmic phrase are certainly interesting, this issue will not be systematically investigated. The important point is that there is an interference relationship between expressive parameters (timing and intensity) that makes it easy to mistake the one for the other.

Another example of rhythmic reshaping, which also includes variation in bowing patterns, is displayed in fig. 46 below. M29 and 31 are melodically and rhythmically equivalent apart from in subdivision timing and bowing. But when listening to these two versions, it is evident that the different renditions give a clear impression of a rhythmic variation, although this does not correspond to a variation in beat durations.

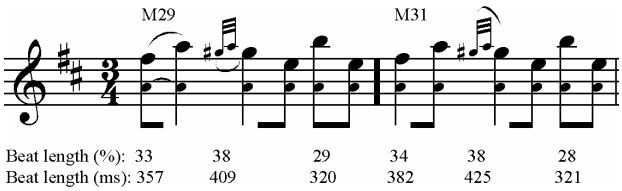


Figure 46. Rhythmic reshaping. Audio sample 6v.

An example of rhythmic reshaping where beat durations are actually affected can be demonstrated by comparing M50 and 52 (fig. 47). These measures contain the same melodic lines with the same number of subdivisions on the beat level, but the rhythmic contour and beat duration pattern differs considerably.

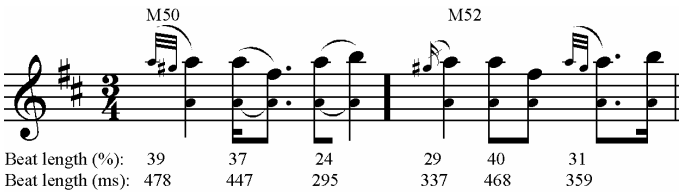


Figure 47. Rhythmic reshaping. Audio sample 6w.

[223] See Gérard et al. 1993

The interesting and somewhat frustrating aspect here is that it seems impossible to tell whether the example in fig. 47 is experientially and intentionally different from instances where variations in bowing, subdivision, dynamics etc. do not affect the temporal distribution of beats (cf. figs. 45 and 46). In short, there is no obvious reason to assume that the parameter of time in the sense of beats being "longer than" or "shorter than" is actively involved in the conception of the musical flow as long as durational values fluctuate within certain limits. For instance, evaluating whether measures with the same beat durations sound equal in terms of beat distribution, and whether two measures which actually differ in this respect sound different, may seem constructed, having little to do with actual musical performance and interaction. All that can be stated with some confidence is that there is rhythmic/articulative variation between the two compared segments (M72 vs. 92, M29 vs. 31 and M50 vs. 52) and it cannot be inferred from the observation of varying beat durations that this form of rhythmic behavior concerns variation in duration.

The next set of examples illustrates instances where the compared motivic segments are contextually similar but rhythmically *and melodically* different. In fig. 48, M65 contrasts with M63/67 and represents a complete melodic and rhythmic restructuring. In this case, the variation in beat durations is possibly best explained by considering the overall architectural difference between these measures.

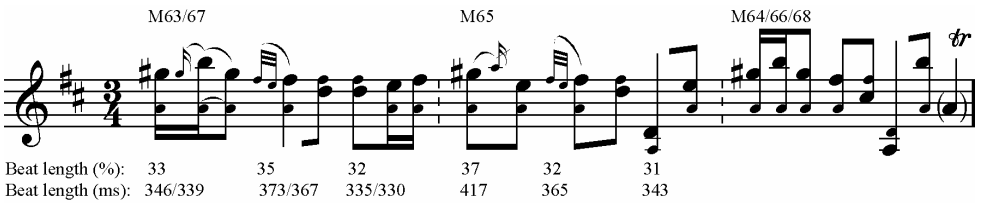


Figure 48. Comparison between architecturally different motivic segments (M63/67 vs. M65). Audio sample 6x.

The next example features melodic and rhythmic variations on a smaller scale between two contextually equivalent motivic segments (see fig. 49). It is noticeable that B1 and B3 are of the same duration in both versions while B2 is much shorter in M55. In M53 it appears the fiddler almost stops up for a moment on B2 by digging down on the low strings. When compared with M55 this seems to be the decisive aspect affecting beat duration.

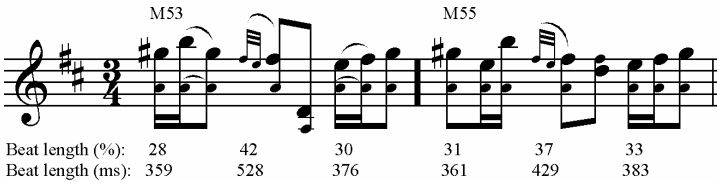


Figure 49. Comparison between architecturally different motivic segments (M53 vs. M55). Audio sample 6y.

The final examples of melodic-rhythmic variation illustrate how ornamentation may affect the beat duration profile of a motivic segment. In fig. 50, B3 of M68 seems considerably prolonged as a result of a long trill replacing the simpler beat motif in M64/66, while the remaining beats are of approximately the same duration in all three versions. The same tendency can be observed in fig. 51, in which the ornamented B1 of M112 is much longer than the corresponding beats in M83/85/87.

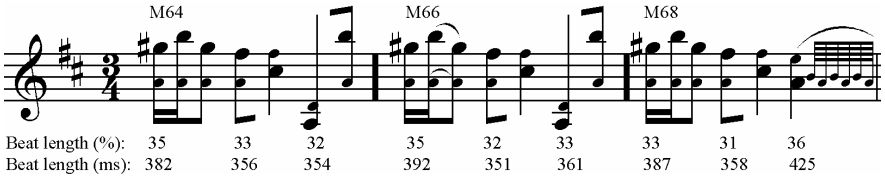


Figure 50. Comparison between architecturally different motivic segments (M64/66 vs. M68) illustrating the relationship between ornamentation and beat duration. Audio sample 6z.

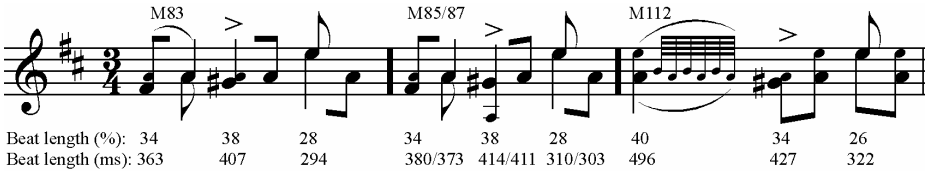


Figure 51. Comparison between architecturally different motivic segments (M83/85/87 vs. M112) illustrating the relationship between ornamentation and beat duration. Audio sample 6za.

In figs. 50 and 51, there is a relationship between beat motif architecture and beat duration in the sense that the long trills with numerous subdivisions in M68 and 112 occupy more time than the corresponding beat motifs with only duple subdivision. In general, the relationship between subdivision timing and beat level timing is an important aspect of the formative process of performance timing that will be explored further below.

5.5 Ornament and triplet timing

Ornament timing

Examining ornament timing basically concerns three more or less interrelated interpretive topics. First, there is the relationship between beat motif density (number of subdivisions) and beat duration (cf. figs. 50 and 51 above). Second, the internal temporal structure of ornaments is scrutinized with the aim of finding patterns and tendencies. Here, the influence of context in terms of anticipation and continuation seems crucial to consider. Third, the interpretive ambiguity in connection with determining onsets associated with ornamentation needs to be discussed. The latter is particularly relevant to the interpretation of neighboring beats which are tied together and where the beat onset is defined by the start of an ornament. In these cases the rhythmic information provided by the ornament clearly may be interpreted in different ways as far as where the second beat actually starts is concerned (see fig. 52 below).

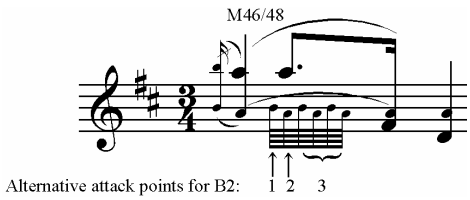


Figure 52. Alternative onset locations. Audio sample zb.

In M46/48, the main alternatives seem to be that B2 starts 1) on the very first attack after the long tone representing B1, 2) on the second attack, the first one acting as a "pick-up" belonging to B1, or 3) somewhere inside the long trill. In most cases resembling M46/48, alternative 2 is preferred, although no absolute criterion for this determination can be defined. The important point here is that as long as the analysis of beat level timing relies on a correspondence between contrasts in sound and rhythmic units, one has to decide between these alternatives. In normal music-making, however, one does not necessarily have to make such choices. For instance, as will be discussed in the section on *rhythmic tolerance* in chapter 7.4, a rhythmic realization like this may extend the temporal space within which an onset is experienced, making it superfluous to evaluate between the specific points in time represented by one of these six attacks. The reason for choosing a model that relies on a correspondence between sound event and beat position, then, is that I want to guarantee there is a consistent analytical procedure. Furthermore, in this way the analysis reflects the greater attention and resolution required for some passages compared to others. This is not of course to suggest that the fiddler is experiencing the situation

as this complex. In fact, I do not want to suggest anything concerning performance intentions except that there is apparently room for performing such a complex, time-consuming ornament within the current melodic-rhythmic context, and that this realization affords a variety of interpretations from the perspective of a performer, co-performer, dancer or listener.

Internal temporal structure and relative extension of ornamented beat motifs

In this context ornamented beat motifs are defined as beats containing trills subdivided into four or more units. These beat motifs are 27 in number and are located within 26 measures. It could be noted that all these beats, with one exception, are longer than average. However, although this observation seems to suggest that extensive ornamentation is associated with long beat durations, ornamented beat motifs vary greatly in length and there are more subtle observations to be examined.

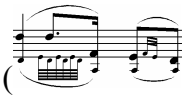
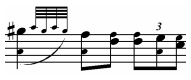
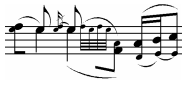
The ornamented beat motifs in MM may be broadly classified in two categories: the ones where the beat onset is defined by the start of the ornament ( etc.) and the ones where the trill starts after the beat onset ( ,  etc.). Further categorization may then be made based on the number of subdivisions and the tones (finger combinations) used. In the analyses below all reoccurring ornaments of the same type are compared.

Figure 53. The first two beats of measures containing an ornamented 2nd beat. The vertical columns show durational values (ms) for the different occurrences of the same version. The numbers in bold show the total duration of the five/seven ornamental tones (the first "pick-up" tones belonging to B1 are excluded). Audio sample 6zc.

A striking feature in fig. 53 is the fixed rate of succession within each pair of rapid ornamental movements. It is also worth noting that the trills with seven subdivisions (M3 and 122) are of longer total duration than the ones with five subdivisions. However, the three versions with five subdivisions are of different duration, suggesting that subdivision density is variable. This observation requires further examination by increasing the level of resolution and focusing on

the trills as isolated rhythmic events. In fig. 54 below, the first "pick-up" tones belonging to B1 are included and the totality of ornamental movements is viewed as certain patterns of subdivisions.

M7:	323	128
M124:	322	119
M20:	316	54
M137:	315	56
M46:	314	78
M48:	312	67

Figure 54. Internal temporal structure in the six trills located on the 2nd beat. Durational values (ms) for the first five tones and the last tone (note that the first tone belongs to B1).

It is noticeable that the total durations of the first five tones are very similar in each version while the lengths of the last tones vary. Thus, it cannot be established that the trills are performed with varying density (tempo), only that their total durations are affected by the relative extension of their last tones.

At this point, it is relevant to bring in the aspect of performance effort, as these complex ornaments appear to be time-consuming precisely because they are difficult or impossible to play fast enough to be completed within a shorter time span, which is not the case with the undivided beat motifs that precedes them. Other instances when performance effort may be considered a decisive element in the analysis of beat level timing potentially include a variety of technically demanding passages (large distances between adjacent tones, difficult combinations of string-crossings and bowing patterns etc.). However, it needs to be emphasized that the influence of performance effort is very difficult to distinguish from idiomatic features of style and performance which are not directly related to technical limitations. Moreover, the "logic" of performance effort predicting that complex beat motifs may be temporally stretched certainly cannot be reversed, i.e. it is meaningless to speculate how a simple beat motif architecture results in a short beat, as it may be shaped effortlessly in a variety of ways depending on style, tempo, local melodic-rhythmic context and expressive intentions.

Fig. 55 shows another set of ornamented beat motifs and their immediate contexts. It is worth noting that compared to the beat motifs displayed in fig. 53 the beat onsets are more unambiguous by being independent of the performance of the ornament as such. This is because the trills are located after the main tone to which they are attached, thus eliminating the problem of evaluating the status of the individual ornamental onsets.

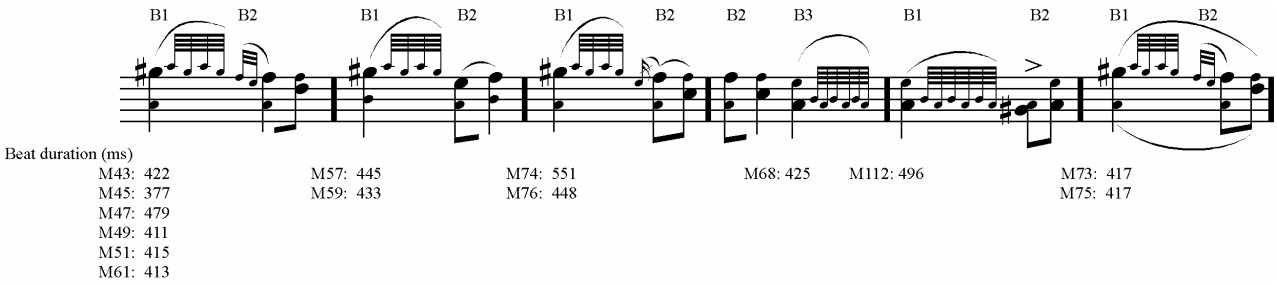
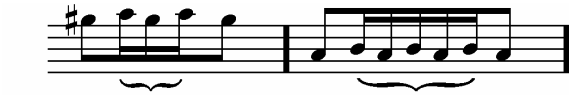


Figure 55. Overview of ornaments starting after the beat onset (note that all trills, with the exception of the one in M68 are located on B1). The vertical columns show beat durational values for the different occurrences of the same version. Audio sample 6zd.

As with the previously reviewed set of ornamented beat motifs the total duration of the ornamental figure (in this case the whole beats) varies, even within the groups containing the same number of subdivisions. Thus, these ornaments seem to be temporally flexible as apparently is the case with beat motifs with fewer tones. However, when looking more closely at the internal temporal architecture of the trills as such, another tendency is observed. That is, the short tones in the middle of the trill are timed in the same way in all versions, while the lengths of the initial and final tones vary. This is more clearly illustrated by viewing these trills as beat motifs subdivided into five/seven, rather than as undivided beat motifs with embellishments (see fig. 56 below).



M43:	149	169 (56)	103	M68: 99	285 (57)	39
M45:	127	170 (57)	79	M112: 89	283 (57)	104
M47:	163	173 (58)	143			
M49:	135	172 (57)	102			
M51:	136	170 (57)	108			
M61:	135	168 (56)	108			
M57:	134	173 (58)	137			
M59:	146	169 (56)	116			
M74:	144	173 (58)	232			
M76:	136	167 (56)	144			
M73:	148	173 (58)	96			
M75:	187	169 (56)	61			

Figure 56. Beat motifs with trills starting after the beat onset (cf. fig. 55). Durational values (ms) for first tone, middle tones and last tone. The numbers in brackets indicate the average duration of the three/five middle tones.

As is clear from fig. 56, the average duration of the tones constituting the fast, oscillating finger movements (the bracketed values) is almost exactly the same in all cases. It is also worth noting that there is no simple correlation between the number of subdivisions and beat length. For instance, M47 (subdivided into five) is 92 ms longer than M68 (subdivided into seven) which is explained by the fact that the first and last tones are much longer in M47 than in M68. This means that the relationship between the formal architecture of trills and beat duration is not one

of simple determinism. Instead, the crucial observation regarding the internal structure of ornaments is that there seem to be an interaction between temporally fixed (the tones in the middle) and flexible (the first and last tones) events.

The temporal stability of the rapidly alternating finger movement "inside" the ornamental figures suggests that trills might be performed according to a timing mechanism of their own. This notion helps frame the issues of performance effort and relative temporal flexibility. First, ornamented beat motifs with numerous subdivisions (M68 and 112 for instance) are difficult to play fast enough to be significantly shortened, especially if the current overall tempo of the performance is considered. Second, speaking in terms of "fast enough" might be misleading, as the precision with which a series of ornamental events is performed and replicated suggests that motor automatization is involved. In other words, the performance effort is potentially best described in terms of a locked mechanism of performing a trill, rather than by tempo metaphors, i.e. on a fast-slow continuum. This means that there is a correspondence between the number of subdivisions and temporal flexibility: a trill with numerous subdivisions leaves a proportionally larger part of the ornament temporally fixed compared to a trill with fewer subdivisions.

When attention is turned back on the seemingly flexible parts of the ornaments, i.e. the initial and final tones, other interpretive perspectives are necessary to further illuminate the mechanisms behind the observed variations. This is not meant to suggest that all these variations can be explained by some form of rhythmic logic, only that there seem to be certain influential factors that affect the shaping of the ornamental figures. The influence of context, understood in terms of the larger rhythmic gestures of which the ornament form a part, may be particularly relevant to consider. The example in fig. 57 below is chosen to illustrate that small contextual differences between seemingly identical beat motifs can be a decisive factor.

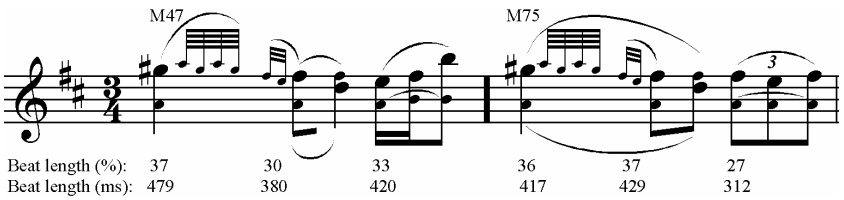


Figure 57. Comparison between contextually different ornamented beat motifs. Audio sample 6ze.

In this case there is a considerable difference in durational values between the two versions of the 1st beat: the final tone of the trill in M47 is 143 ms, while in M75 it is only 61 ms (see fig. 56). This means that the last tone of the trill in M75 is not extended, as in the other versions, but of the same length as the average tone within the high density part of the trill. Moreover, the

duration of this tone is identical to the first and second tone of the following beat motif, thus forming a part of an uninterrupted succession of rhythmic events, rather than marking a clear distinction between B1 and B2 of the measure. This contributes to a sense that the first two beats are fused together to produce a continuous joint between them, an impression which is reinforced by the legato bowing in M75 that ties the beats together, leaving one of the uniformly spaced ornamental onsets to define the beat onset of B2. This in contrast to M47, in which the staccato bowing and "delayed" onset of B2 mark a clear distinction between B1 and B2. In an attempt to emphasize this potential categorical difference an alternative transcription is provided in fig. 58, where the arrow indicates the point at which B2 of M75 is judged to start.

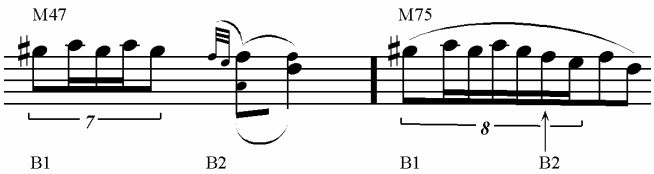


Figure 58. The first two beats of M47 and M75.

This figure highlights the differences in rhythmic articulation under consideration, and although the distinction might seem exaggerated, this illustration calls attention to the relative autonomy of beat motifs. As discussed in chapter 4, at one end of the scale we might find beats tied together, articulated and contextualized in a way so that their total extension is perceived as nothing less than a single, irreducible rhythmic event, even though this event represents two or several formal rhythmic units ( etc.). At the other end of the scale there are successive beat motifs that cannot possibly be interpreted as anything other than distinctly separated rhythmic events. My interpretation is that M75, with its flowing quality and the beat motifs melting into one other to form larger gestures, is closer to the former category, while M47 is closer to the latter, with a very clear division (autonomy) of beat motifs. In other words, although the first two beats of M75 obviously represent two structural units (B1 and B2), the total extension of these units might be considered to form a single unit in terms of how it is produced and grasped as a complete gesture of its own. Regarding the influence of context, then, it might be misleading to suggest that the trill in M75 is differently articulated because it is located in this context. Rather, the whole phrase (M75 as opposed to M47) represents a different melodic-rhythmic gesture in which durations of individual events are subordinate features resulting from a complex interaction between intentional, controlled and automatized dimensions of performance timing.

In other words, the variation of the trill on B1 should not be understood in terms of an autonomous gesture, but as one of several interrelated aspects of a formulaic variation.

Ornament timing – concluding remarks

A preliminary conclusion that emerges from these brief case studies is that the timing of ornaments is influenced by what might be termed absolute and contextual constraints. Absolute constraints concern technical limitations and aspects of performance timing that involve motor automatization. For instance, fiddlers may not be able to perform trills in the same way with all fingers. In addition, fast ornamental movements may be temporally locked by some mechanism of motor automatization that makes it impossible to intentionally control the durations of the individual components. Contextual constraints, then, concern the ways in which the surrounding melodic-rhythmic context influence the shaping of the ornamental figure. Absolute and contextual constraints cannot be sharply separated since the context within which an ornament is placed obviously imposes limitations on how it can be executed. For instance, large distances between adjacent tones and "unusual" combinations of string-crossings and bowing patterns surrounding the ornament may be crucial in this respect. Nor can these types of constraints be clearly distinguished from idiomatic features of performance style, i.e. the ways in which bodily gestures are woven through habituation into an inseparable whole.

The arguments put forward here are meant to be intuitive rather than precise, i.e. they only indicate that the precise timing of rhythmic events is not just a matter of choice and intentions. In other words, what is uncovered is not a predictable system but a set of constraining principles whose interaction can produce a wealth of different micro-rhythmic patterns. Moreover, the analysis of patterns and tendencies does not imply that the small differences in measured durational values are important or even detectable to culturally informed listeners. Nevertheless, these micro-rhythmic patterns are *produced* and *reproduced* with knife-edged precision and certain irregularities (that similar ornaments have different total durations etc.) are consistently associated with certain contextual positions within the rhythmic segments. These observations support the notion that rhythmic performance may be conceptualized as a continuous and dynamic interaction between stable and flexible levels.

Finally, it is important to underline that these performance constraints are not to be confused with stylistic constraints. For instance, the temporal flexibility of ornamented beat motifs is limited only to the extent that they are performed with numerous subdivisions. The fiddler is of course free to play these beat motifs with less complex trills or without ornamentation at all. Stylistic constraints, then, concern this freedom for variation and the tolerance within which beat

durations may reside, while the absolute constraints concern the limitations of performance timing actualized when certain stylistically acceptable choices are made. In sum, this brief investigation of timing and ornamentation illustrates one of the ways in which the interplay between freedom and constraints operates in pols/springar performance.

Triplet architecture and beat duration

The triplet is an important rhythmic "building block" in many styles of pols/springar playing[224] and it seems relevant to examine how it is temporally shaped in relation to metric position and melodic-rhythmic context.[225] For instance, for a series of triplets covering one or several measures to conform to a stable asymmetrical beat duration pattern (long-average-short, long-long-short etc.), each triplet would have to be temporally shaped in accordance with the durational value assigned to the particular beat position where it occurs. Given that triplets are defined as beat motifs consisting of three equally spaced tones (), this could only be achieved by acceleration or retardation. However, two general observations make it necessary to modify this model. First, the beat duration pattern in MM is far from stable and it seems rather speculative to assume that beat motifs in general (including triplets) are shaped to fit a constantly changing temporal framework. Second, triplets within the pols/springar style are rarely, if ever, perfectly symmetrical and there is great freedom to shape the internal temporal structure in accordance with whichsoever contextual influence. In MM, triplets are constantly performed differently and this variation is also reflected in beat durations. For instance, all symmetrical triplets (33 in number) are short and mutually very similar in length (see table 3), while asymmetrical triplets () (109 in number) vary greatly in length (see appendix 1). Finally, these differences and correspondences in triplet architecture and beat duration appear to be related to motivic position rather than metrical position (1st, 2nd or 3rd beat position). In other words, there is no alignment between beat position and the duration of triplet beat motifs that could be explained with reference to a generalized *Tele-springar* meter (long-average-short/long-long-short). Rather, the variation in temporal architecture and total duration of triplets may be interpreted with reference to the melodic-rhythmic/motivic contexts in which they appear. In the following, a few case studies are presented that demonstrate in different ways some interesting features warranting further discussion. Of particular concern is the potentially constitutive

[224] See Sæta & Sevåg 1992
[225] In MM, 132 out of 441 beat motifs (30 %) are triplets (defined as beat motifs subdivided into three).

relationship between subdivision timing and beat level timing, and how the ever-changing melodic-rhythmic context frames this aspect of performance timing.

Triplet formulas

This section is devoted to a close reading of some selected passages in which the internal temporal architecture and total duration of triplets seem closely aligned to the formulaic nature of the melodic-rhythmic sequence of which they form a part. Fig. 59 below shows four versions of a cadential triplet sequence forming a part of an ending formula where they are followed by the last measure of a longer motivic section. When one takes this contextualization into account, these triplet sequences represent highly recognizable and stylistically typical formulaic patterns, the implications of which will be discussed below.

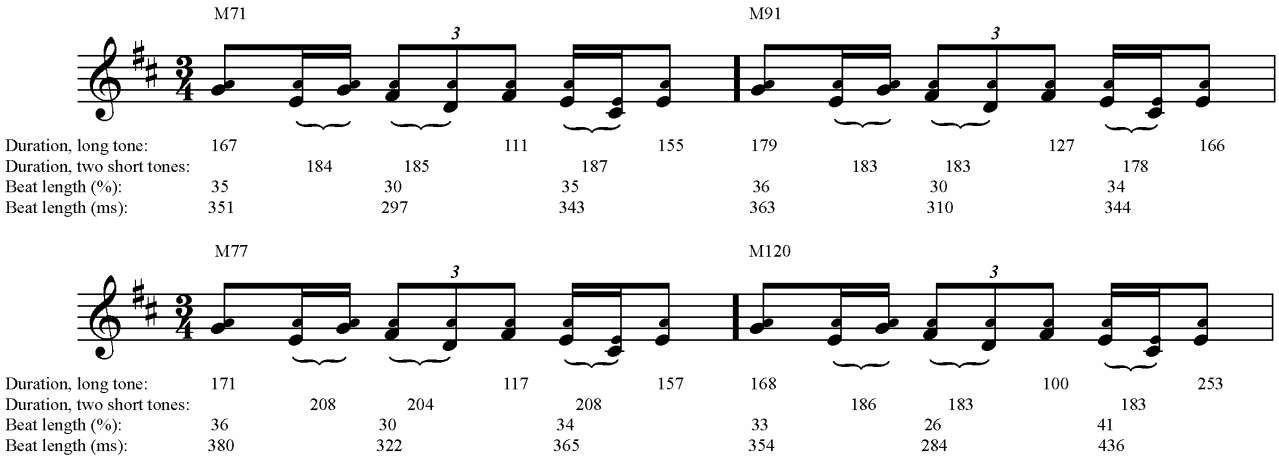


Figure 59. Four versions of a cadential triplet sequence. Audio sample 6zf.

Several prominent features of triplet timing are demonstrated in this example. Above all, there is a striking correspondence between triplet architecture (subdivision pattern) and beat duration. First, the symmetrical triplets (defined in accordance with a certain tolerance) are very short, while the total duration of the asymmetrical triplets is "extended" by the long first/last long tone. Second, within each version the two short tones of all three triplets have approximately the same duration. This entails beat length being determined solely by the relative extension of the long first/last tone of the triplet.[226] In other words, the variation in beat duration is not a result of

[226] It is worth noting that the coherency of the short subunits across examples, and the correspondence between beat duration and an extension of the first and/or last tone somewhat parallels the observation and discussion of extended ornaments.

alternating accelerations and retardations.[227] Rather, what is demonstrated is what earlier was termed *rhythmic reshaping*. Again we see an example of the interaction and balance between stability (invariant elements) and flexibility (variable elements) which in different ways seem to characterize this style of rhythmic performance. In this case, some kind of mechanism related to stylistic constraints and/or the motor capacities of the performer tend to produce a temporal pattern in which the two shortest elements of the triplets remain constant in duration, while the remaining tone (the first or the last) fluctuates extensively.

The next analytical perspective concerns the contextual influence in relation to which it appears to be relevant to interpret the shaping and duration of these triplet beat motifs. One way of contextualizing the triplets is to consider the formulaic and idiomatic character of the complete part-motifs (the whole measures) as irreducible rhythmic events. Starting with the beat duration patterns in fig. 59 (long-short-long), it is noticeable that this version of asymmetry conforms neither to the usual descriptions of the *Tele-springar* meter (long-average-short), nor to the averaged pattern in the current performance (long-long-short). However, this pattern may conform perfectly to other principles behind the apparent musical and rhythmic coherence of the performance. From the perspective of a fiddler familiar with this style of playing, this is simply a completely natural way to perform a sequence of triplets; one "pulls" somewhat on the first tone and "hangs on" a bit to the last one. In the fiddler Hauk Buen's much more recently recorded version of *Markensmondagen* we find this stylistic logic manifested in the same way (see fig. 60 below). In this performance the tempo is slower but the architectural and durational patterns and correspondences in the triplet formula are the same as in MM.

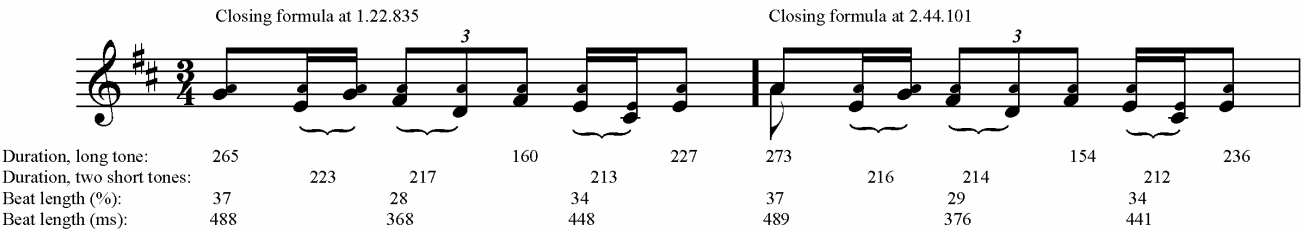


Figure 60. Two versions of a closing formula taken from Hauk Buen's rendition of *Markensmondagen* (Buen Kulturverkstad 2000). Audio sample 7a.

To speak somewhat pointedly, what is performed here (including Hauk Buen's versions) is not a particular beat duration pattern, but a complete musical sentence which cannot be reduced to

[227] It should be noted that the longer duration of the two shortest elements in M77 may be attributable to a real variation in tempo, i.e. an overall decrease in rhythmic density compared to the other versions (see the discussion of tempo in chapter 5.2).

separate, decontextualized units in any musically meaningful way. Thus, in this case beat level timing appears to be conditioned as much by the rhythmic logic of this cadential formula as by some ideal model of beat durations. Moreover, the rhythmic shaping of the individual triplets (asymmetrical-symmetrical-asymmetrical architecture) may be seen as an intrinsic aspect of this rhythmic logic. This entails that contextuality should be understood in terms of the mutual influence and interdependence between the succeeding beat motifs. From this perspective the individual triplets are not autonomous gestures but closely interrelated parts of a rhythmic whole (i.e. the complete cadential triplet formula) in relation to which the durational and architectural properties of these parts are to be understood.

It is important to note that these triplet sequences do not represent rhythmic closure since they are the first parts of two-measure motifs. Thus, continuation needs to be taken into account to fully consider the contextual influence on triplet architecture and beat duration. In this case, all four versions (M71, 91, 77 and 120) are followed by the last measures of larger sections and this fact is essential to the analysis of contextual influence. As indicated earlier with reference to figs. 41 and 42, the rhythmic architecture of the triplet on the 3rd beat (short-short-long) conforms to its structural position, i.e. as the last beat motif of a sequence ”preparing” for the final measure of a longer section. In other words, the extension of the final tone of the triplet may be interpreted as if the fiddler brings the rhythmic flow to a microscopic halt before closing the rhythmic phrase. This correspondence between structural position and timing of the triplet is particularly striking in the transition from M120 to the expressively articulated closure of the seventh section of the tune in M121, when the fiddler almost stops up on the last tone of M120 (see fig. 61 below).

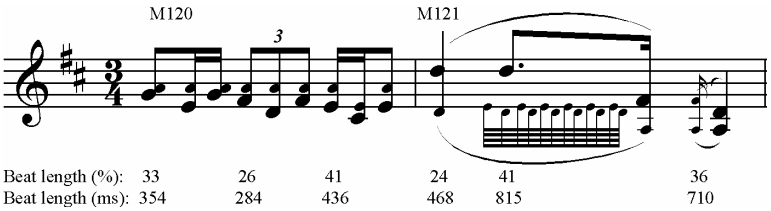
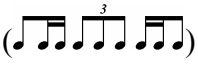


Figure 61. Closing formula. Audio sample 6zg.

In M120, B3 is by far the longest beat and the difference in total duration compared to B1 and B2 corresponds exactly to the greatly varying length of the longest tone in the triplets (168 ms in B1, 100 ms in B2 and 253 ms in B3). In this case it seems counterintuitive to assume that these triplet architectures are mutually interchangeable, since replacing B3 by a long-short-short or symmetrical triplet would violate the idiomatic logic of playing technique and performance timing.

Extended triplet sequences

A striking feature of MM is the very long series of triplets occurring three times in the performance (see fig. 62 below). The sequences end with the previously analyzed triplet part-motif (M71, 91 and 120) and the first six triplets may be profitably interpreted as extensions of this cadential formula. This interpretation is supported by the observation that it apparently is a matter of choice and preference whether one extends the typical cadential sequence of triplets at sectional endings. For instance, in the earlier mentioned version of *Markensmondagen* played by Hauk Buen there are no additional triplets in the closing formulas, only the "usual" three triplets () before the final measure of the motivic section. Thus, the additional six triplets (the first two measures in fig. 62) can be "taken out" without disturbing stylistic coherency. Moreover, although relatively unusual, this type of extended triplet formula also occurs in performances of other Tele-springar tunes,[228] which contributes to its recognizability as a stylistically idiomatic element. In studying the architectural and durational properties of the three versions of this pattern in MM, then, their strong internal coherency needs to be considered.

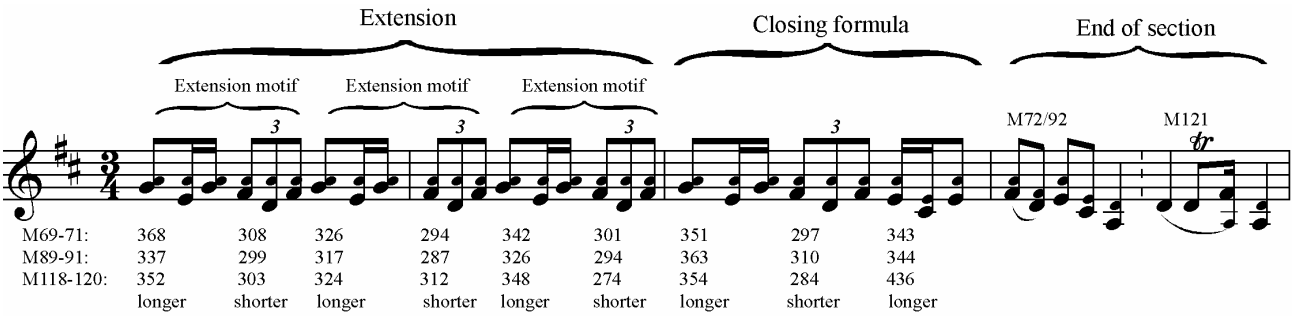


Figure 62. Beat duration pattern (ms) in extended catential triplet formula (the notation of the last measure is simplified). Audio sample 6zh.

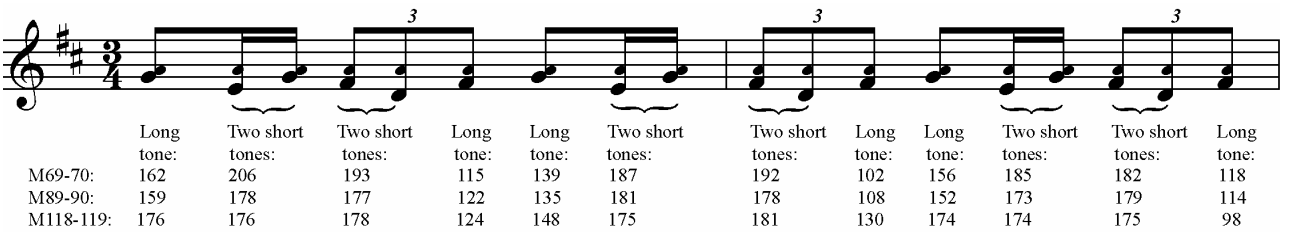
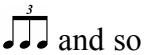
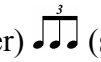
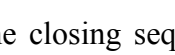


Figure 63. Subdivision timing (ms) in the extension part.

[228] For example, Anund Roheim's performance of the tune *Siklebekken* on the album *Meisterspel* (Heilo 1997) and Knut Buen's performance of the tune *Nordfjorden* on the album *Spel til dans* (Buen Kulturverkstad 1995).

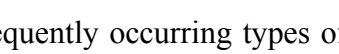
It is noticeable that the extension of the triplet formula is achieved by inserting a kind of repeated two-beat triplet motif with alternating asymmetrical and symmetrical triplets ( →  and so on). Moreover, as with the closing formulas (M71, 91 and 120) triplet architecture in the extension part is aligned with beat duration ( = short,  = long) and the difference in total duration between adjacent beats is mainly attributable to the relative extension of the longest tone in the triplets (see fig. 63). This entails the extension motif in M69-70, M89-90 and M118-119 having roughly the following temporal structure:  (longer) (shorter) → (longer)  (shorter) etc. In a way, then, the pattern of subdivisions () is turned around and restarted at different metric positions (B1, B2 and B3 in that order), which affects the beat duration pattern as well. It also seems reasonable to assume that the two-beat sequence needs to be performed enough rounds to "come out right" at the end, i.e. in a way that the fiddler may start the closing sequence, with its characteristic subdivision () and beat division (long-short-long) pattern, on the 1st beat.

In short, there is almost a mathematical logic to the way in which the beat duration pattern changes, since the reference for observing this pattern is a three-beat period (a measure), while the extension motif with the long-short structure contains only two beats. This is a striking example of the fallacy of limiting the analytical scope to a measure-by-measure perspective, since the individual measures clearly do not provide relevant contexts with reference to which events at lower levels can be interpreted. First, the two-beat triplet motifs in the extension part "ignore" the barlines and seem to represent a contra-rhythmic or arrhythmic element as long as their wider melodic-rhythmic context is not considered. Second, the example illustrates how complete rhythmic gestures typically extend beyond the limits set by the formal rhythmic units. In this case the complete rhythmic event (from start to closure) comprises four measures. Moreover, within this four-measure phrase there are different forms of contextual dependencies. For instance, the cadential closing formula (the third measure in fig. 62) has an autonomous status in that it may be located in a variety of contexts, i.e. it may be preceded and followed by different motifs and endings while still being recognizable as the same rhythmic element. This is not the case with the first two measures, which are closely aligned with the closing formula of which they are an extension. Thus, the threshold below which reduction seems inadequate varies depending on where attention is focused. In any case, the reference against which to interpret the rhythmic shape and duration of an individual beat needs to be the complete rhythmic gesture of which this beat forms a part, rather than some contextually independent formal rhythmic

framework. More generally, the seemingly chaotic pattern of irregular beat durations may be reinterpreted as an internally coherent and well-ordered whole. Thus, the important conclusion of this case study is that the triplet formula seems to have a rhythmic logic of its own which cannot be overlooked if research conclusions are to be meaningful. This means that when the measured units (beats and subdivisions) are contextualized by being analytically treated in accordance with their position within the complete rhythmic event, their shape and duration are both explicable and stylistically logical.

5.6 Summary

The analysis of MM reveals that there is both stability and flexibility in the temporal organization of this performance. Accordingly, the bulleted paragraphs below summarize the salient features of this interaction between stable and flexible rhythmic elements at different hierarchical levels:

- There is great stability in the timing of longer motivic sections, supporting the notion that the overall tempo of the performance is consistent in spite of local variations in beat and measure length.
- When viewed from a measure-by-measure perspective, relative and absolute measure and beat durations vary continuously throughout the performance and average values do not appear to be relevant references for interpreting patterns and tendencies.
- Architecturally and contextually comparable melodic-rhythmic motifs generally have similar timing profiles. This entails melodic-rhythmic phrases having a rhythmic-temporal logic of their own and beat and measure durations being very similar if equivalent motivic segments are compared. In several cases, the temporal precision with which reoccurring segments are replicated is very high.
- On the beat motif level, the duration of symmetrical triplets is remarkably stable across metric and motivic positions, which might suggest that their internal rate in some way is aligned to the overall tempo of the performance. This in contrast to the other frequently occurring types of beat motif architecture (), which vary greatly in duration.
- Ornamented beat motifs (trills subdivided into four or more units) are stable in the sense that their duration resides above a certain limit (i.e. they are never short) regardless of metric and motivic position.

As regards architectural and contextual characteristics associated with variation in timing, the following observations apply:

- When viewed from a measure-by-measure perspective, variation in beat and measure level timing is mainly related to the architectural difference between motivic segments. In other words, since timing patterns are aligned to motivic structure (two-measure periods) the beat duration profile consequently will vary between adjacent measures.
- When analyzing variation in beat level timing between similar motivic segments, contextual influence is often decisive in that preceding and subsequent events tend to affect the shaping and timing of the current event.
- When architecturally and contextually similar motivic segments are compared, variation in beat level timing can be attributed to ornamentation, rhythmic reshaping, bowing and the use of double stops. These expressive means may be related to instrumental/technical constraints in a way that makes it relevant to consider the performance effort a decisive factor in some cases.
- The points of transition between larger sections are correlated with certain temporal variations that appear to be of an expressive nature. Of particular salience is the tendency for a prolongation of the first beat/tone of a new section.

On the beat motif level it is noticeable that beat motif architecture is correlated with beat duration in a way that makes it reasonable to assume a constitutive (although not fixed) interrelationship between beat level timing and subdivision timing. The following observations pertain to this issue:

- Beat motifs with a high density (subdivided into four or more units) are more closely aligned to a particular beat duration, while undivided beat motifs are the most flexible (see also figs. 95 and 96 in chapter 6).
- Extended ornaments tend to stretch the beat that they are a part of regardless of the metric or motivic position.
- There is a correspondence between triplet architecture and beat duration in the sense that symmetrical triplets are short, while asymmetrical triplets vary greatly in length. In the cases where comparison between structurally similar motivic segments is possible,

the total duration of asymmetrical triplets varies according to the relative extension of the longest tone, as the duration of the two short tones tends to be more or less constant.

- Ornamented beat motifs (trills subdivided into four or more units) appear to have a temporal structure of their own regardless of metric or motivic context. More precisely, while the duration of the first and last tones of the trills varies, the remaining tones in the middle have a fixed rate of succession. This points to the timing of ornaments being constrained by motor automatization, although investigating this aspect of performance timing further would require a more experimental approach. Moreover, it is noticeable that the stability of the short tones and the flexibility of the first and/or last tone parallel the observations of triplet timing (see the previous paragraph).
- The relative autonomy of beat motifs varies according to a variety of factors, which problematizes the very term subdivision. In some cases beats are chunked together in a way that suggests that subdivision should refer to the internal temporal architecture of the complete rhythmic gesture rather than of the formal rhythmic units.

An important aspect that this summary fails to capture is that although some explanatory criteria have been successfully employed, far from all rhythmic-temporal characteristics in MM are explicable by referring to a simple set of principles. For instance, while it has been demonstrated that there often is a correspondence between motivic structure and beat duration patterns, there are instances of mismatch that seem difficult to explain in other ways than by referring to a notion of variational freedom. In other words, there is no reason to assume that a close correspondence between motivic structure and timing patterns represents a successful rhythmic behavior, while mismatches are to be considered random deviations from intended rhythmic realizations due to performance inaccuracy. On the contrary, all different versions of a motif may be interpreted as the results of formulaic variation, according to which there are an infinite number of equally correct realizations. Moreover, it cannot be inferred that a particular version of a motif functions as a reference for the shaping and articulation of alternative versions. Rather, all manifestations of a motif, as soon as they are realized, are potential references for new versions, which may or may not be similar to previous versions in terms of measured durational values. In a sense, then, the motivic segments that do not conform to the prediction of a motif/timing correspondence are at least as interesting as the ones that do.

Another important point missing from the summary is that all aspects of performance timing are interrelated to some extent: 1) The overall tempo of the performance affects and constrains the shaping of rhythmic patterns and relationships. 2) The analysis of the relationship between

beat motif architecture and beat duration needs to take into account the motivic and sectional contexts in which the beat motifs in question occur. 3) Motifs are temporally shaped in accordance with certain performance constraints associated with the density and complexity of the melodic-rhythmic material. 4) The rhythmic performance needs to be temporally shaped and accentually articulated in a certain way to conform to the rhythmic style (*Tele-springar*). At the same time, this stylistic framework needs to be flexible to allow for the realization of the various and different rhythmic patterns that make up the performance. Similarly, on the one hand it might be said that the rhythmic style, groove or meter, understood as a particular durational and accentual matrix, shapes and constrains the pattern of performed rhythms, while on the other hand it is the actual progression of rhythmic events that forms the groove. This opens up for a complex understanding of the *Tele-springar* as an organizing framework for performance timing. As already hinted at, the idiomatic design and coherency of melodic-rhythmic motifs or formulas on different levels problematizes the idea of the *Tele-springar* groove as a meter understood as a rigid framework for rhythmic performance. The independent temporal logic of melodic-rhythmic structure is demonstrated at two interrelated levels: the alignment between motivic structure and beat/measure duration patterns, and the alignment between beat motif architecture and beat duration regardless of metric position. Thus, the asymmetrical beat duration pattern might be explained as the result of an interaction between the rhythmic structure of motifs (top-down process) and the idiomatic temporal structure of individual beat motifs (bottom-up process), rather than as imposed by a predefined beat duration structure. The imperative of such a model, then, is interpretation through a close reading of the relational unfolding of events to be able to conceptualize the context-specific interactions between rhythmic levels, as opposed to an analysis of how beat durations conform to or deviate from an idealized beat ratio model (long-average-short).

The complexity of this modeling paradigm increases even more when taking into account the assumption that the melodic-rhythmic motifs are in fact shaped and articulated in accordance with the general *Tele-springar* groove. There is not the slightest doubt that this is a *Tele-springar*, and if it were another groove, it most certainly would not have been rhythmically shaped in the same way. This indicates that two basic principles are simultaneously at work. First, there is the rhythmic articulation of the motivically structured melodic-rhythmic material, to which certain durational patterns seem to be intrinsic. Second, there is the overall groove functioning as a framework within which the melodic-rhythmic course of events is chiseled out. To investigate further the interaction between these apparently competing principles, and in this way attempting to conceptualize the doubleness of the constraints and affordances of rhythmic performance

within the pols/springar style, in the following chapters I shall discuss additional smaller case studies as well as relevant research literature.

6 Broadening the empirical scope – complementary analysis and synthesis

In this chapter I shall broaden the perspective to include additional recorded performances that may provide valuable information for a more comprehensive understanding of rhythm and timing in the pols/springar genre. The general picture that emerged from the analysis of *Markensmondagen* was that, in order for patterns and tendencies to appear, the measurement data needed to be arranged in accordance with the unique melodic-rhythmic structure of the tune/performance. In a way then, the method consisted in examining different perspectives from which rhythmic patterns may be viewed (measure-by-measure, motivic context, beat motif architecture) and in analyzing how different influential factors interact. The overall aim in the present chapter, then, is to assess whether the general findings from the previous chapter, and the analytical approach suggested by these findings, is relevant to the analysis of other pols/springar performances. This involves uncovering both the consistencies and inconsistencies in the durational data obtained, and to examine how these observations might be explainable in terms of the interaction between rhythmic levels and the influence of organizational, architectural and contextual factors. This entails the relationship between stable and flexible rhythmic elements observed in *Markensmondagen* being a focus point of the supplementary case studies presented in this chapter. The presentation is organized according to the different structural levels at which consistencies appeared in *Markensmondagen*: 1) Global tempo and the timing of larger sections. 2) Motivic structure and performance timing, with additional focus on the modes of variation that are associated with fluctuations in measured durational values between comparable motivic segments. This part also contains examples of similar-but-different motifs illustrating how categorical ambivalence may complicate the issue of comparability. 3) The relationship between subdivision timing and beat level timing, with special attention to ornament and triplet timing.

6.1 Case studies presentation

The following brief investigations will be conducted with the aid of two recordings in particular. The first is the *Tele-springar Igletveiten* performed by the Hardanger fiddler Bjarne Herrefoss (1931-2002). The second is a *Vågå-springleik* after Hans Holen performed by the fiddler Leif-Inge Schjølberg (1966-). These performances, as well as the particular styles to which they belong, are rather different, and cannot be compared straightforwardly without making certain reservations. Nor are they assumed to be similar to *Markensmondagen* in terms of measured

durational data. However, when all these performances are used in parallel in the discussions, the underlying aim is not to compare the durational patterns as such, but to uncover the possible consistent ways in which variation is generated and patterned. Thus, thematic and analytical generalization is thought to turn focus toward the features that the different performances used potentially have in common, with special attention paid to the interaction between stable and flexible rhythmic levels, while leaving room for observations of the unique ways in which these performance principles manifest themselves in the cases discussed. These considerations are also reflected in the overall outline of the analytical chapters of this thesis: rather than aggregating the timing data from several performances, each performance is examined in its own right. The structure of the texts thus necessarily implies a degree of repetition in the sense that the analysis is organized as recurring interpretive procedures.

Bjarne Herrefoss (Hardanger fiddle) – *Igletveiten* (*Tele-springar*: long-average-short asymmetry)[229]

What is striking about Bjarne Herrefoss' rendition of *Igletveiten* is the improvising style of performance. In addition to expressive variations at a local level (ornamentation, phrasing/bowing, dynamics etc.) there are constant transformations of the very basic structure of the tune. In short, these transformations can be described as playful manipulations and relocations of motivic elements. As a consequence, the three rounds the tune is performed are very different, almost as if it were three different versions of the tune (cf. the discussion of *variants* in chapter 2). However, the motivic segments that are used in this improvisational performance are still to a large extent recognizable as such. Fig. 64 shows an overview of these motivic entities by means of a simplified, skeleton transcription.

[229] Audio sample 8. Live recording from a concert at Gol Campingsenter 08-03-1991. Archive recording from *Folkemusikksenteret i Buskerud*.

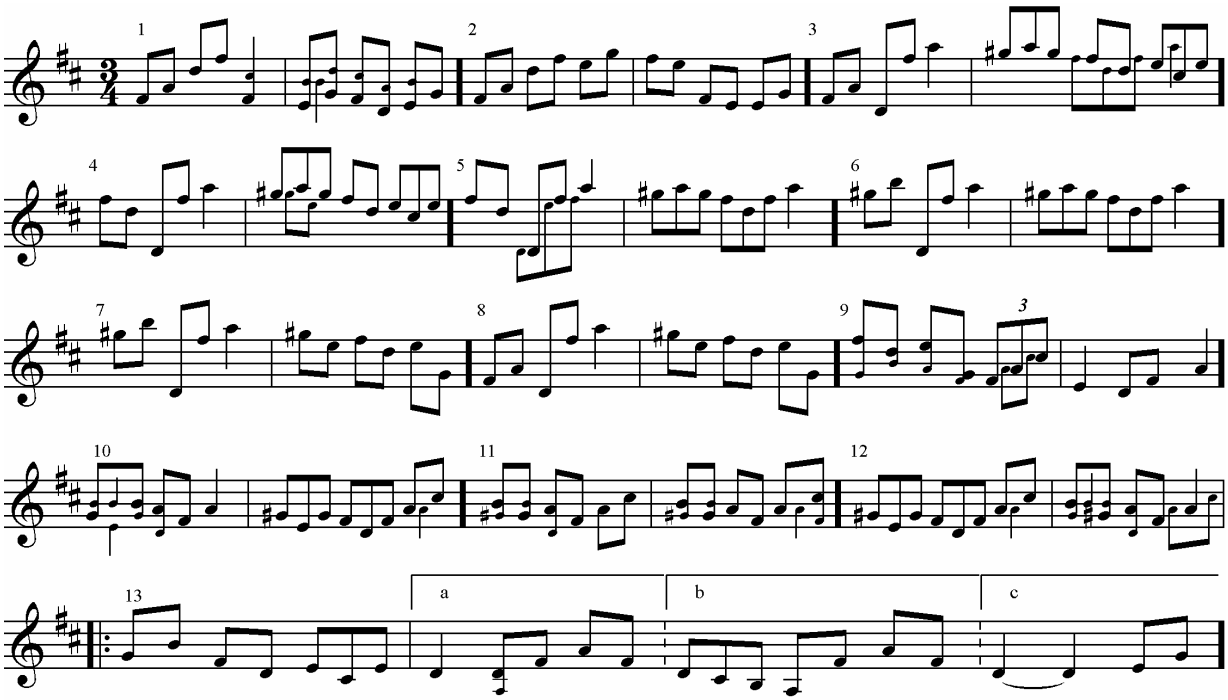


Figure 64. Schematic outline of motifs in *Igletveiten* (1-13). Notes that are written in a smaller font represent alternative versions.

One general observation regarding rhythmic performance is that the beat duration pattern in *Igletveiten* is more stable than in *Markensmondagen* (cf. figs. 23-26). Also, *Igletveiten* is characterized by a fairly consistent long-average-short beat ratio, which was not the case with *Markensmondagen*. The boxplots in figs. 65 and 66 represent statistical measures of central tendency and spread for absolute and relative beat durational values in *Igletveiten*. The data are taken from the first round the tune is performed, which amounts to 52 measures. The mean measure length is 1578 ms, with a standard deviation of 85 ms. As is evident from the absolute values (ms), the tempo is considerably slower than in *Markensmondagen* (average beat durations in *Markensmondagen*: 410, 411 and 368 ms).

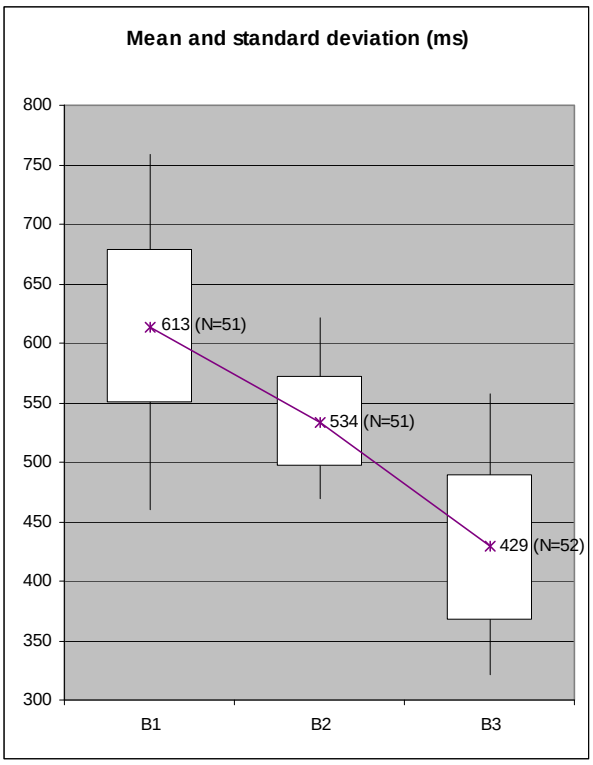


Figure 65.

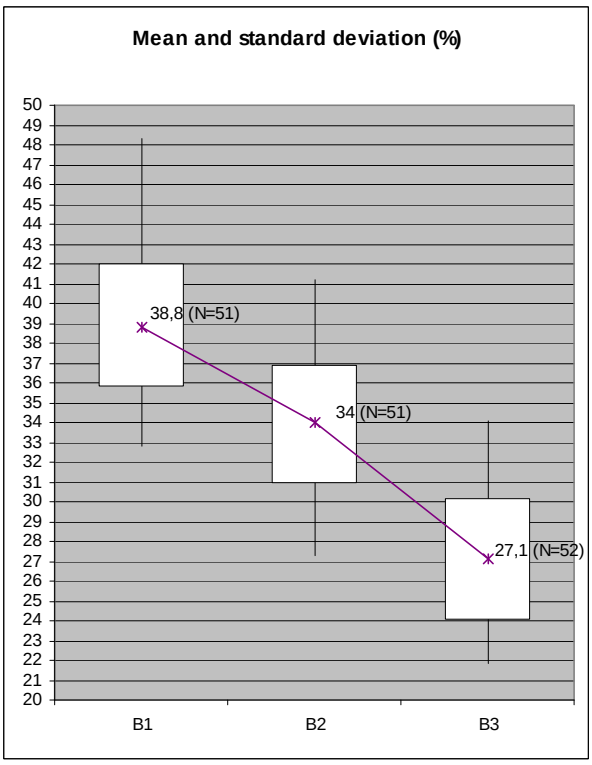


Figure 66.

Beat duration data for *Igletveiten*. The *-marks and the lines between them represent the mean, the white boxes the two-sided standard deviation, and the range is indicated by the vertical lines.

It should be noted that in 40 out of 51 measures B1 is the longest, B2 is of medium (although not necessarily average) length and B3 is the shortest. Thus, with the exception of 11 measures the beat duration ratio conforms roughly to conventional descriptions of the *Tele-springar* meter (see chapter 3). However, again, what is of particular interest within the context of this thesis is the observed variation in asymmetry and the structural and expressive features associated with such variation. Accordingly, the subsequent analysis will concentrate on the relationship between these features and temporal variability, measured as differences in beat durations from one measure to the next.

Leif-Inge Schjølberg (fiddle) – *springleik* after Hans Holen (*Vågå-springleik*: short-long-average asymmetry)[230]

This *springleik* (hereafter referred to as *Hans Holen*) is structurally organized in two repeated strains and is played twice with exactly the same motivic progression both times. Fig. 67 shows the outline of motifs and the repeated strains that make up the tune. It should be noted that motifs no. 1 and 2 together form what would be more correctly described as a four-measure motif. The

[230] Audio sample 9. Schjølberg 2001.

reason for dividing this motif into two separate parts is that it makes it easier to organize and label the motivic segments in the subsequent analysis.

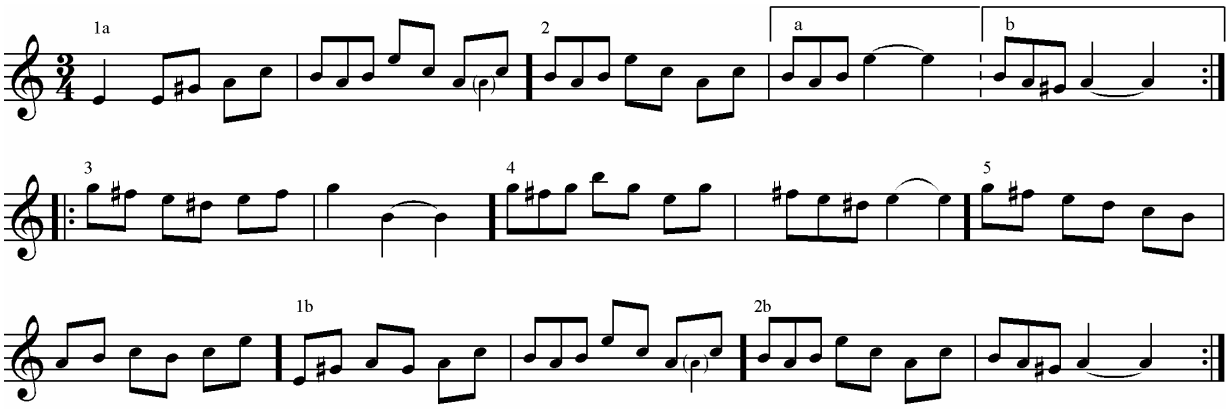


Figure 67. Simplified transcription of two-measure motifs (1-5) and the two repeated strains of *Hans Holen*.

As with Herrefoss' rendition of *Igletveiten*, Schjølberg's performance seems improvised and varies considerably between comparable parts. However, Schjølberg's variations are of a different sort than those of Herrefoss: in *Hans Holen* the variation does not concern the formal structure of the tune. Instead, there are constant transformations of the melodic-rhythmic material at beat motif and phrase levels, chiefly by means of rhythmic reshaping, ornamentation and bowing. The most striking example is the "triplets" in the first motifs (1 and 2) of the tune (see fig. 67), which are rendered very differently throughout the performance, as shown in fig. 68 below.

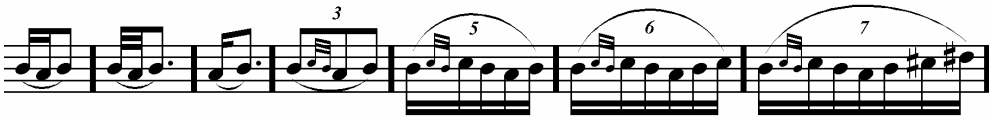
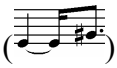


Figure 68. Transformations of triplet beat motif in *Hans Holen* (located in motifs 1a/b and 2a/b).

Another characteristic of Schjølberg's performance is the variation in intonation, particularly on the third, i.e. the tone notated as a C in fig. 67, which may be categorized into five different micro-pitch classes. Considering that Schjølberg is a technically accomplished performer, this variation is clearly to be considered intentional.[231] In sum, as also is the case with *Igletveiten*, *Hans Holen* is a very illustrative example of how the potential for musical expression afforded by the open architecture of traditional tunes is explored by musically imaginative fiddlers.

[231] It should be noted that the use of micro-tonal intervals and the modal ambiguity often arising as a consequence are common features in Norwegian and Swedish traditional fiddling, although Schjølberg's creative use of this expressive parameter is rather exceptional for a fiddler of the younger generation.

The beat duration ratio in *Hans Holen* varies considerably and the spread of the data is similar to that of Markensmondagen (cf. figs. 25 and 26). The data from which the boxplots in figs. 69 and 70 are produced are absolute and relative beat durational values from the performance in its entirety, which amounts to 72 measures. It should be noted that only 46 measures contain a complete set of beat durations. The reason for this is that many beats are tied together with a neighboring beat () and thus cannot be measured. The mean measure length is 1476 ms, with a standard deviation of 108 ms, which indicates that the measure may stretch out or contract in accordance with beats being lengthened or shortened, as opposed to the alternative that beat duration fluctuations are continuously compensated for within the measure.

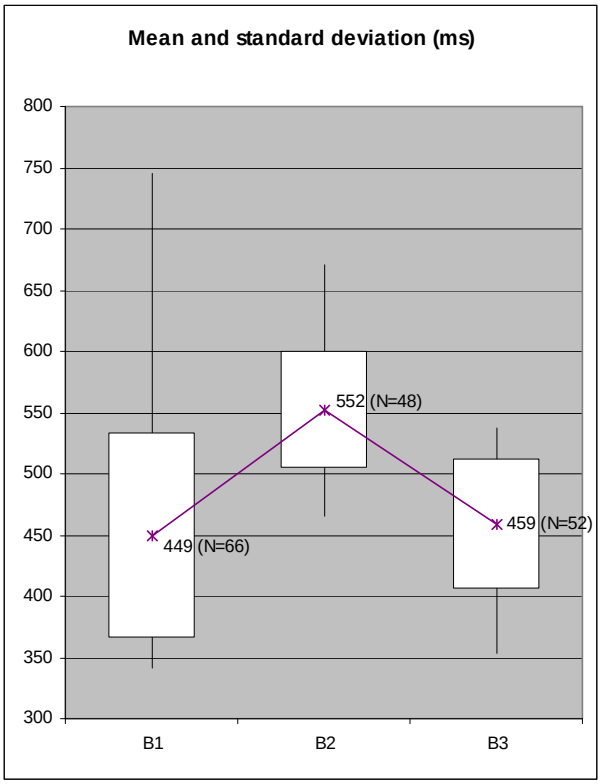


Figure 69.

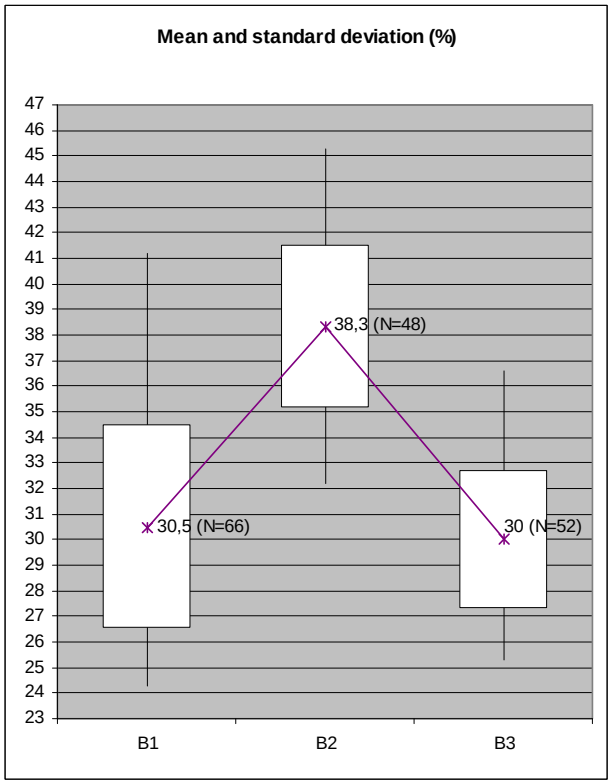


Figure 70.

Beat duration data for *Hans Holen*. The *-marks and the lines between them represent the mean, the white boxes the two-sided standard deviation, and the range is indicated by the vertical lines.

In *Hans Holen*, the short-long-average asymmetry is not consistent at all: there are only 16 out of 46 measures in which B1 is the shortest, B2 the longest and B3 of medium length. It is also noticeable that the 1st beat position is by far the most variable, something which potentially might be related to the fact that foot tapping and dance steps coincide with the 1st and 3rd beat onset, thus making the predictability of the 2nd beat onset relatively unimportant (cf. the so called

"foot tapping hypothesis" discussed by Kvifte (1999) which I presented in chapter 3.6). At the same time, although this factor may increase the tolerance range for stylistically acceptable beat duration patterns, it should not be confused with the constitutive mechanisms through which these patterns are generated. In other words, the organization of foot tapping/dance steps does not necessarily explain why the beat duration pattern varies the way it does. Thus, other explanations are required to uncover some of the mechanisms behind the observations of temporal variability.

6.2 Global tempo and the timing of larger sections

In *Markensmondagen* it was observed that the global tempo was kept more or less constant in spite of major timing variations at local levels. Determining this was done by identifying and comparing equivalent sections from different parts of the performance. Given that the compared sections are equal in length, one may cautiously conclude that local level timing variations (beat and measure level) are temporally flexible only to the extent that they are evened out at a higher level. Tables 6 and 7 show comparisons between structurally similar sections which are repeated in different parts of *Igletveiten* and *Hans Holen* respectively. It should be noted that this operation has been more straightforward in the case of *Hans Holen*, in which the two complete rounds the tune is played are structurally identical. In *Igletveiten*, few longish sections are repeated, leaving smaller clusters of repeated motifs as the basis of comparison.

Table 6. *Igletveiten*. Comparison between repeated sections.

Sections compared		Number of measures	Duration (ms)	Difference (ms)	Difference in percent (the difference divided by the smallest value)
Motif no.: (cf. fig. 64)	Location:				
1 1	First round Second round	4 4	6673 6661	12	0,2 %
1 1	First round Second round	6 6	9265 9219	46	0,5 %
3-7 3-6	First round Third round	10 10	15426 15673	247	1,6 %
13 13	First round Second round	6 6	9394 9055	339	3,7 %

The comparison between repeated sections in *Igletveiten* reveals a high level of temporal consistency, with the possible exception of motif no. 13, and it seems that global tempo change can be dismissed as an explanation of the variation found between individual measures.

Table 7. *Hans Holen*. Comparison between repeated sections.

Sections compared		Number of measures	Duration (ms)	Largest difference (ms)	Largest difference in percent (the difference divided by the smallest value)
Motif no.: (cf. fig. 67)	Location:				
All[232]	First round	34	49895		
All	Second round	34	50430	535	1,1 %
1a	First round	4	6079		
1a	First round	4	5764		
1a	Second round	4	5998		
1a	Second round	4	5750	329	5,7 %
1b	First round	4	5781		
1b	First round	4	5880		
1b	Second round	4	5886		
1b	Second round	4	6022	241	4,2 %
1c	First round	4	5728		
1c	First round	4	5760		
1c	Second round	4	5701	59	1,0 %
2-4	First round	6	8730		
2-4	First round	6	9139		
2-4	Second round	6	9126		
2-4	Second round	6	9147	417	4,8 %

In the case of *Hans Holen* it is noticeable that the difference in total duration between the two complete rounds of the tune is very small, while the relative variation between shorter sections is larger. Thus, the durational fluctuations observed between different versions of the individual motifs are in some way evened out throughout the performance as a whole. In sum, the tempo in both these performances is consistent, in spite of local level variations. The interesting aspect to investigate further is how this control over musical time is achieved.

Tempo control – a preliminary hypothesis

Theoretical speculations about tempo control in pols/springar playing need to take into consideration some basic empirical facts. First of all, tempo is perceived by performers and dancers as constant (unless it is a bad performance), which makes tempo variation an inadequate term for addressing temporal variations. Second, beat durations often vary continuously within and between measures, which means that the perception and control of tempo cannot rely on the beat level, as is the case in many other styles (cf. beats per minute (bpm) as a tempo

[232] The two last measures of each round are ignored, as they are subjected to a retardation in the two last measures of the performance.

indicator).[233] Third, in the performances analyzed in this thesis beat duration fluctuations are not temporally compensated for within the measure. Instead, there is a tolerance allowing the measure to stretch out or contract. Thus, the measure level can hardly function as a temporal anchor by which tempo is controlled. Finally, neither does there appear to be an isochronous subdivision level.[234] How then is it possible to maintain a constant tempo without relying on rhythmic units at any level being equal in length? Moreover, how is it possible to perceive the tempo as constant when there are no stable audible points of reference? One can of course attempt to explain this phenomenon with reference to some internal clock mechanism which works independently of the melodic-rhythmic course of events. As Palmer (1997) writes, an internal clock "constructs beats at an abstract level that provide temporal reference points for future movements."[235] Clarke (2004), on the other hand, seriously questions the notion that rhythmic skills are based on clocks:

> …it seems to me increasingly implausible to explain the continuously produced and finely judged sequences of events that typically characterize musical performance in terms of clock-like mechanisms that judge the inter-onset intervals between events by counting numbers of time quanta. Researchers may choose to *measure* and *represent* rhythmic sequences in this way – and for perfectly good analytical reasons. But what the clock inside a computer does in the service of measurement is not necessarily any realistic reflection of the internal process within the human that has produced the behaviour. An alternative might be that we make use of 'rate detectors' rather than timers – that we may be very sensitive to the rate at which events (both our own self-initiated events, and external events) unfold without having any direct or immediate sense of the durations that these events demarcate or occupy.[236]

Although this subject certainly deserves more thorough treatment, I want to advance to a preliminary hypothesis based on Clarke's notion of rate detection. The point of departure is the assumption that the experience and control of tempo do not rely on rhythmic units at any level being equal in length, while the rate of activity at which melodic-rhythmic motifs are performed is perceived as constant. It is hypothesized, then, that tempo control relies as much on the gestural representation of a set of stylistically idiomatic melodic-rhythmic formulas, as on the ability to relate a played sequence to an external reference by, for example, counting or foot tapping. This assumption is based, in turn, on the presumption that formulaic variation not only

[233] Cf. Kvifte 1999
[234] A complete analysis of subdivision timing in *Igletveiten* and *Hans Holen* has not been performed. However, isochronous time intervals between onsets are absent in these performances, leaving hypothetical referential onsets as the only possible location of isochronous pulsations. See also Kvifte (2007) for a demonstration of the non-isochronous patterns of onsets in pols/springar performances.
[235] Palmer 1997: 128
[236] Clarke 2004: 50

implies temporal flexibility but temporal stability. In short, local level variations (beat and measure durations) within a stylistically acceptable tolerance range are believed to be evened out at higher levels precisely because they occur continuously and within certain limits. In other words, the idiomatic gestural design of melodic-rhythmic phrases makes them self-adjustable, by higher level stability being intrinsic to the combination of local level variations. This idea presupposes the high density and continuity of rhythmic events which are characteristic of pols/springar playing, since a rhythm containing a series of long, "dead" tones could hardly be temporally controlled without relying on some kind of counting behavior.

A further investigation is required to understand more fully the psychological and sensory-motoric mechanisms behind surface observations, although this cannot be done within the limits of my thesis. However, the observation that tempo is kept constant is important for the further study of performance timing in the following sections, as it suggests that a tempo variation model is insufficient in explaining temporal fluctuations at beat and measure level.

6.3 Motivic structure and performance timing

The analysis of *Markensmondagen* revealed a correspondence between beat level timing and motivic structure, a potentially generalizable tendency which I shall now proceed to elucidate. Identifying such a motif/timing correspondence is directly related to *variation* in beat level timing between different motivic segments (measures). If there were no such variations, the notion that timing patterns are aligned to motivic structure would be redundant. A correspondence between motivic structure and timing patterns, then, would ideally manifest itself in equivalent motivic units demonstrating equivalent beat and measure duration patterns. Moreover, a lack of this kind of matching should be explainable by some identifiable principles through which temporal consistency might be "disturbed." Accordingly, the second part of the analyses is concerned with temporal variation between comparable motivic units. In this connection, one central concern is how different articulative and ornamental techniques are used and how these expressive means influence the temporal shape of their immediate context. Related to this is the criterion of performance effort, which concerns the physical actions of the body involved in producing a certain combination of fingering and bowing.

Analysis of *Igletveiten* (*Tele-springar*: long-average-short asymmetry)

Igletveiten can be described as a combination of a set of rather similar two-measure motifs (see fig. 64). As already indicated, this rhythmic performance is characterized by a fairly consistent long-average-short beat duration ratio. At the same time, there is a substantial amount of

variation in both absolute and relative beat durational values which seems to be related to the progression of different motivic elements. Below, the timing profiles of a set of complete two-measure motifs are displayed to illustrate the difference between neighboring units (the two individual measures of each motif) as well as the temporal consistency between the different versions of the same motifs. The only criteria used for selecting these six motifs are that the compared versions are performed in a similar way (i.e. without variation in subdivision pattern, ornamentation etc.), and that there is substantial variation between the beat duration profiles of their individual parts (the part-motifs), which is not the case for the remaining nine motifs that are repeated in their entirety in different parts of the performance. Figs. 71-76 contain a combination of detailed transcriptions with beat timing data in milliseconds and line charts illustrating the timing profiles of each part-motif. The same scale is used for all timing plots, allowing for comparison both within and across different groups of motifs.

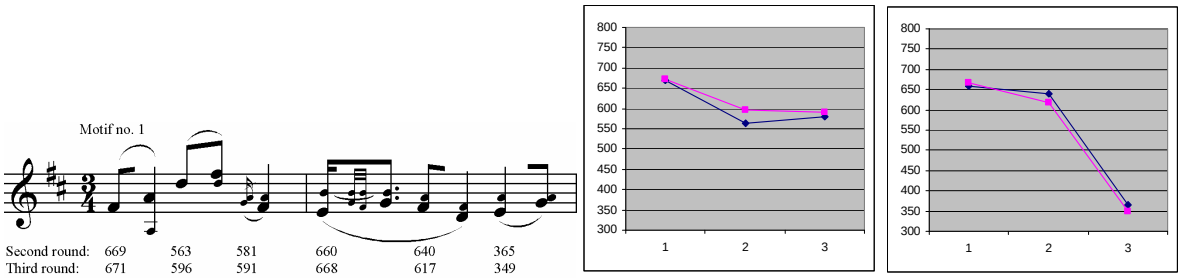


Figure 71. Motif no. 1, second and third round. Audio sample 8a.

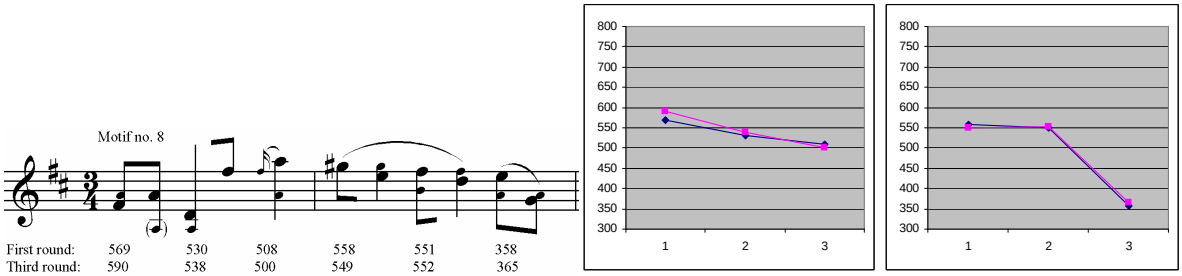


Figure 72. Motif no. 8, first and third round. Audio sample 8b.

The two motifs in figs. 71 and 72 are, although different in melody, very similar in rhythmic contour. They also have similar beat duration profiles and the two versions of each motif are closely matched. Moreover, the length of B3 varies greatly between the part-motifs, while the lengths of the other beats remain relatively unchanged. Logically, this means that the total duration of the measure varies: in fig. 71, the first measure is averagely 186 ms longer than the second, while in fig. 72 the difference is 151 ms. Thus, the timing profile of the motifs implies an

alternation between long and short measures as well as between two different beat duration patterns.

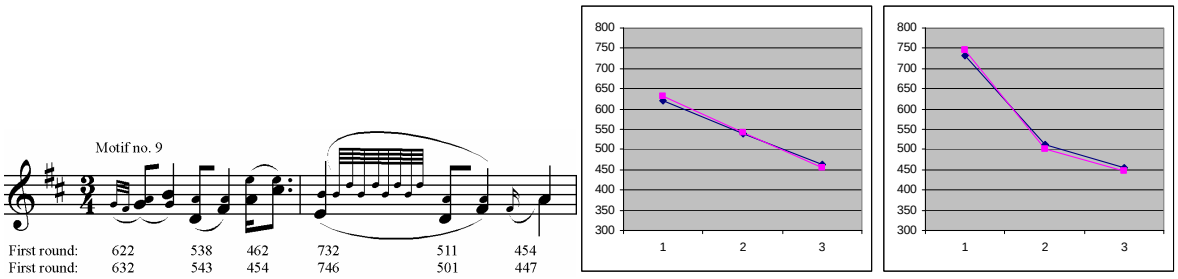


Figure 73. Motif no. 9, repeated in first round. Audio sample 8c.

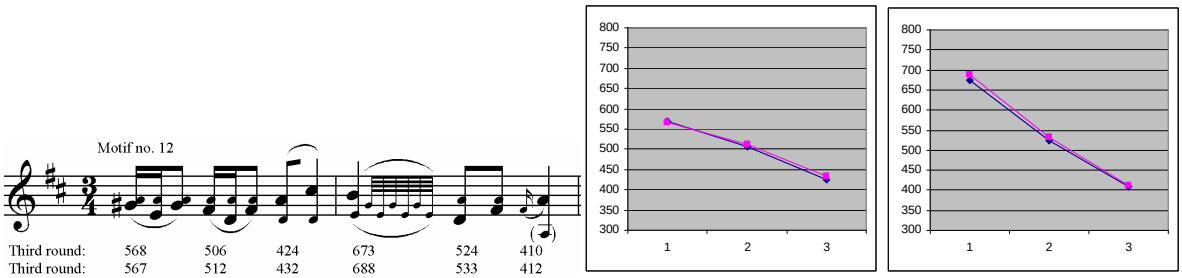


Figure 74. Motif no. 12, repeated in third round. Audio sample 8d.

In figs. 73 and 74 there is a very close match between the timing profiles of the two versions of each motif (no. 9 and 12). In these cases, the very long duration of B1 of the second measures seems to be related to the long trills occupying time for their realization.

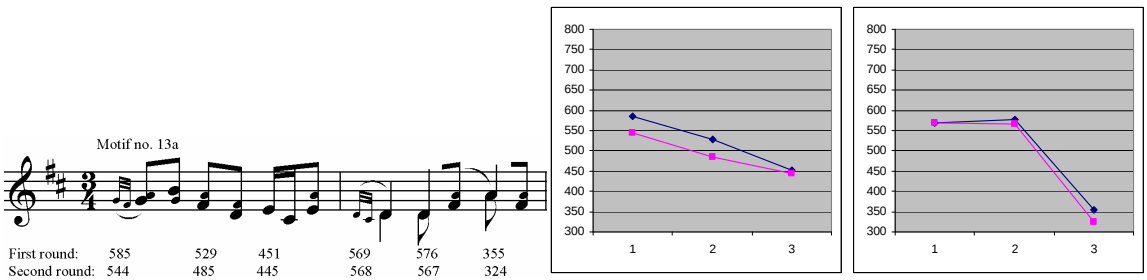


Figure 75. Motif no. 13a, first and second round. Audio sample 8e.

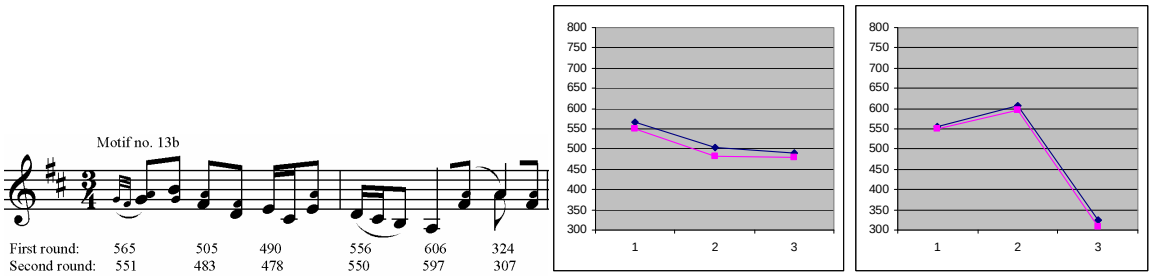


Figure 76. Motif no. 13b, first and second round. Audio sample 8f.

The motifs in figs. 75 and 76 are closely related and form a part of an ending formula in which 13b immediately follows 13a. The structural similarity is mirrored in the beat duration profiles and it is noticeable that it is the length of B3 that accounts for the beat timing variation between the two part-motifs.

Variation between comparable motivic segments

The first aspect to be considered in the analysis of variation in beat level timing between similar motivic segments is the influence of structural context. In fig. 77 particular notice should be taken of the difference in duration between the triplet beat motifs in the first measures, which seems to be related to the different context within which the beats are located. In 13c, the final tone of the triplet (see the arrow) is extended in a way that anticipates closure, i.e. the final D in the subsequent measure. This rhythmic behavior is reminiscent of that which was observed in similar segments in *Markensmondagen* (see figs. 41 and 42).

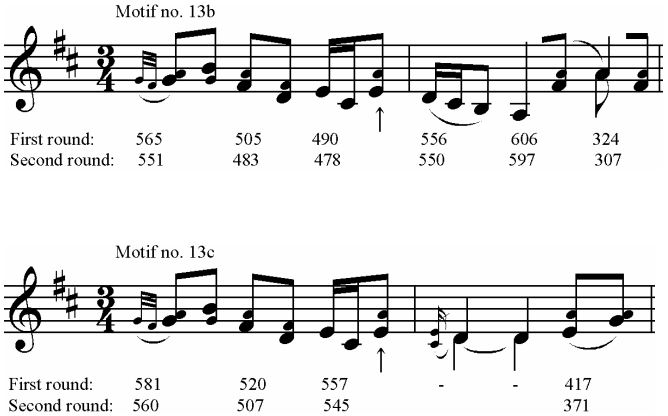


Figure 77. Comparison between contextually different motivic segments. Audio sample 8g.

The second potential source of beat timing variation examined is ornamentation. *Igletveiten* is a good case for illustrating this aspect of performance timing, since there are several versions of

the closely related motivic segments performed alternately with and without ornamentation. Fig. 78 shows examples of how increased complexity in ornamental layout may correspond with beat lengthening (see the values in bold).

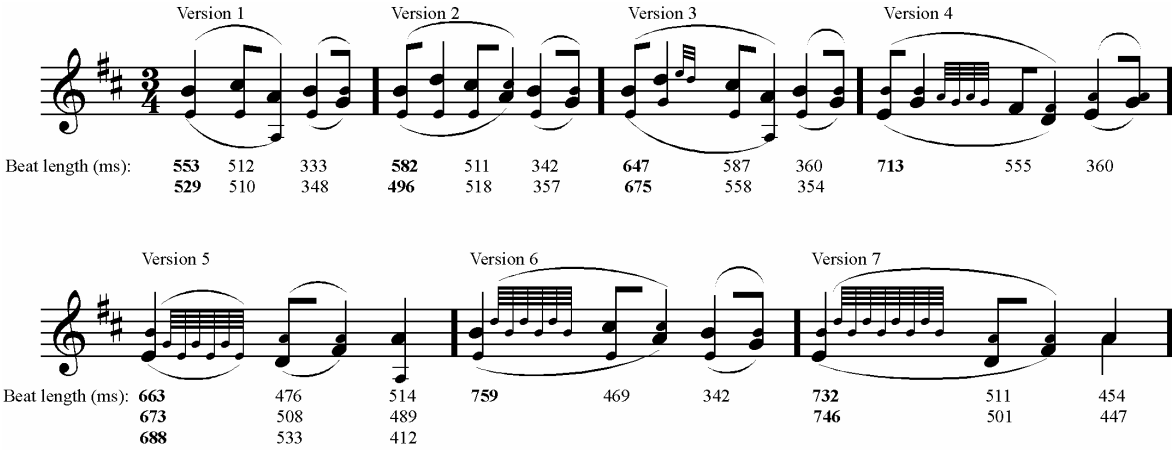


Figure 78. Seven versions of contextually similar part-motifs illustrating the relationship between ornamentation and beat duration. The vertical columns show beat durational values for different occurrences of the same version. Audio sample 8h (the sample features all thirteen occurrences starting at the upper left and proceeding down to the lower right).

It is important to note that it is only in the cases of motorically difficult beat motifs (version 4, in which the trill is played with the little finger) and/or ornaments with numerous subdivisions (versions 4-7) that one may infer that there is some kind of rhythmic logic behind the observed correspondence between beat motif architecture and beat duration. In short, the simple outline of the 1st beats of version 1 and 2 makes them temporally flexible, while the architecture of the ornamented beat motifs seems to be aligned to relatively long beat durations. However, as was argued in the analysis of *Markensmondagen*, the significant issue here is not whether it is technically possible to play a complex beat motif fast enough to make it short, but that there is a tolerance allowing the ornament (as it is executed naturally by the performer) to occupy a certain amount of temporal space without violating rhythmic consistency.

Analysis of *springleik* after Hans Holen (Vågå-springleik: short-long-average asymmetry)

This springleik (*Hans Holen*) can be structurally divided into five motifs (see fig. 67). Thus, the basic melodic-rhythmic material is more limited than in *Igletveiten*. In addition, there is no variation in form; the formal architecture of the tune remains unchanged throughout the two rounds it is played. However, as already indicated the way the four motifs of this tune are

performed varies continuously. This complicates comparison between contextually equivalent motivic segments. Moreover, many beats are tied together, making it impossible to measure their duration. Among the beats that are measured, however, there are no stable durational values in any of the three beat positions (see figs. 69 and 70), thus making it an important task to search for possible explanatory factors for this variation. The chosen approach is similar to the analysis of *Igletveiten*, i.e. the compared segments are contextually identical parts of motifs performed in the same way. Figs. 79-85 show beat timing data for all reoccurring complete motifs in *Hans Holen* (versions with different bowing, subdivision patterns and/or ornamentation are excluded).

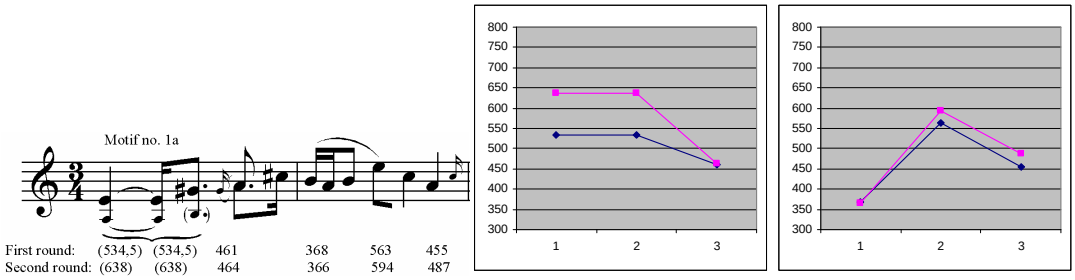


Figure 79. Motif no. 1a, first and second round. Audio sample 9a. Note that the durations of B1 and B2 in the first measure do not represent measured values (beats tied together cannot be measured) but simply the total durations of B1 and B2 divided by two.

The two part-motifs of the motif in fig. 79 are difficult to compare since B1 and B2 are tied together in the first part (the bracketed values are the total duration of B1 and B2 divided by two). However, it is noticeable that B3 have approximately the same duration in both parts and that the total duration of B1 and B2 is much longer in the first part. The difference between the two versions of the motif, then, is mainly that the first tone is held much longer in the second version. This variation is potentially a function of a type of timing behavior related to the expressive articulation of sectional structure which will be more fully discussed below.

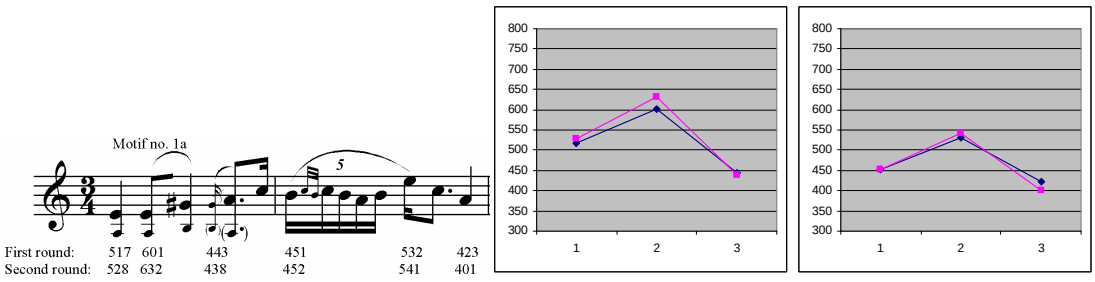


Figure 80. Motif no. 1a, first and second round. Audio sample 9b.

In fig. 80 there is a fairly close match between the beat duration profiles of the two versions of the motif, and it is striking that the two part-motifs have roughly the same beat duration ratio (relative values as displayed in the line charts), while absolute durations vary, the first measure being averagely 180 ms longer than the second. It is also worth noting that the ornamented beat motif in the second measure is longer than the corresponding 1st beat in fig. 79, which is architecturally less complex (a "triplet").

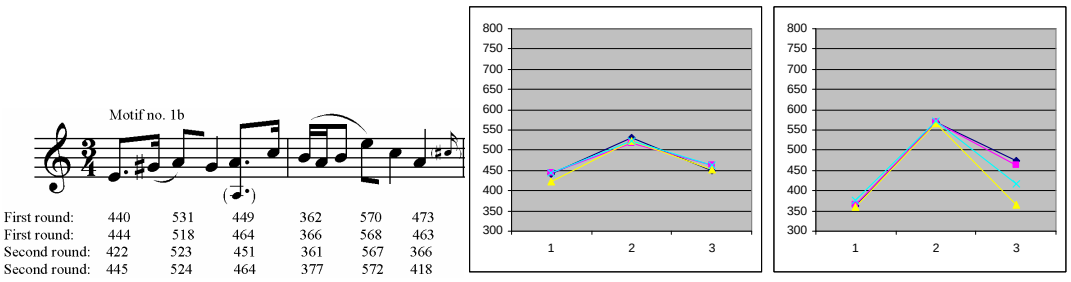


Figure 81. Motif no. 1b, four versions from the first and second round. Audio sample 9c.

The timing profiles of the four versions of the motif in fig. 81 are very similar with the exception of B3 beat of the second measure, where beat durations fluctuate between 366 and 473 ms (a spread of 107 ms). This observation is in accord with a previously identified tendency of undivided beats being more temporally flexible than subdivided beats.

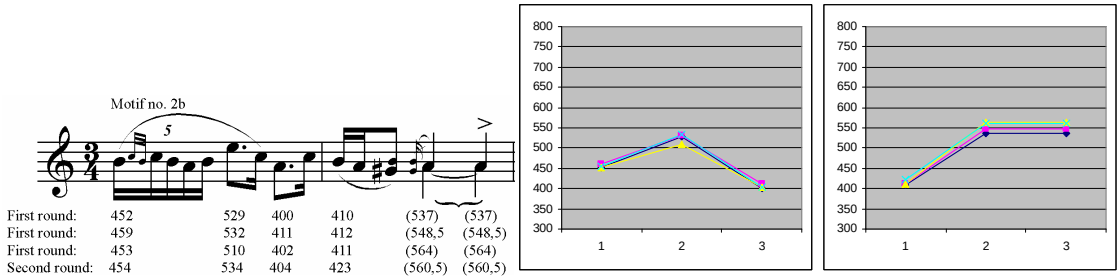


Figure 82. Motif no. 2b, four versions from the first and second round. Audio sample 9d. Note that the durations of B2 and B3 in the second measure do not represent measured values (beats tied together cannot be measured) but simply the total durations of B2 and B3 divided by two.

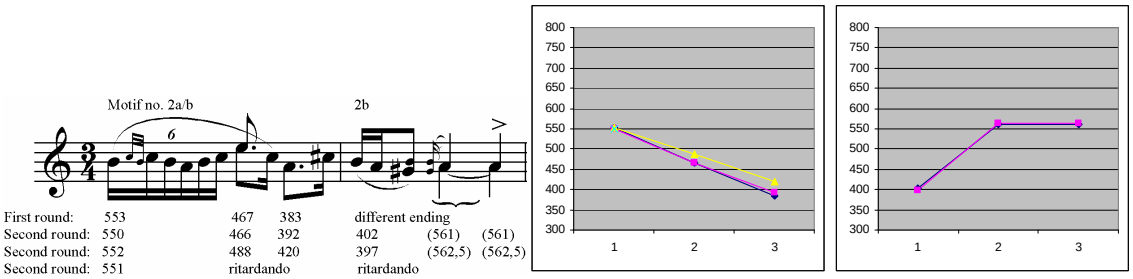


Figure 83. Motif no. 2a/b, four versions from the first and second round. Audio sample 9e. Note that the durations of B2 and B3 in the second measure do not represent measured values (beats tied together cannot be measured) but simply the total durations of B2 and B3 divided by two.

The two variants of motif no. 2b in figs. 82 and 83 are architecturally identical except for the initial ornamented beat motifs. This difference is also reflected in the beat duration profiles, which are very similar with the exception of B1 in the first measure where the septuplet ornament in fig. 83 appears to be more time consuming than the quintuplet ornament in fig. 82. The very high temporal precision with which these ornamented beat motifs are replicated when they reoccur in different parts of the performance also should be noted for further examination. Finally, it is noticeable that the final tone covering the last two beats occupies a proportionally large amount of temporal space. This "resting" on the final tone of the motif seems to be related to sectional structure, as was the case with the long first tone in motif 1a in fig. 79. In sum, as opposed to being the results of random deviations from a nominal beat duration pattern, the timing profiles in figs. 82 and 83 are concurrent with a rhythmic logic requiring the consideration of the interplay of performance constraints (cf. the observation that complex ornaments "steal" time) and stylistic constraints (cf. the observation that tones are prolonged at sectional endings).

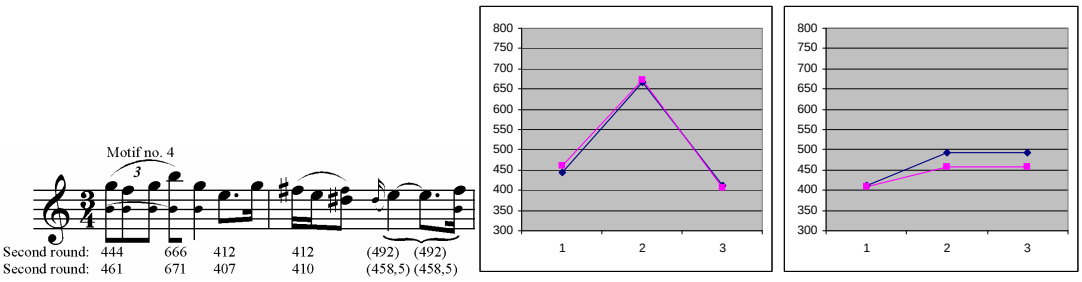


Figure 84. Motif no. 4, two versions from the second round. Audio sample 9f. Note that the durations of B2 and B3 in the second measure do not represent measured values (beats tied together cannot be measured) but simply the total durations of B2 and B3 divided by two.

In fig. 84, the highly asymmetrical but consistently replicated beat duration pattern in the first measure is yet another example of timing patterns being aligned with motivic structure. Moreover, again it is seen that the most temporally variable rhythmic element is the long tone at the end of the motif (cf. figs. 79 and 81).

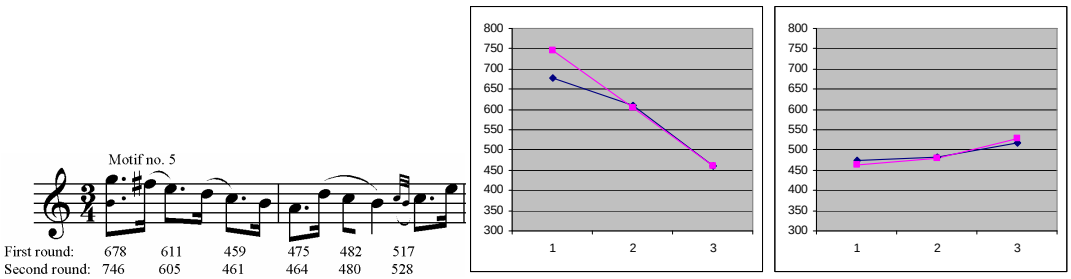


Figure 85. Motif no. 5, first and second round. Audio sample 9g.

In fig. 85 there is a vast difference between the beat duration profiles of the two part-motifs, the first being highly asymmetrical with a very long B1, the second being almost symmetrical with B3 as the longest beat. As a result of the long B1 not being compensated for by a shortening of B2 and B3, the total duration of the first measure naturally is considerably longer than that of the second measure. In this case, the average difference in measure length between the two part-motifs is as much as 307 ms.

Variation between comparable motivic segments

Since architectural and contextual similarity between motivic segments seems to imply similarity in beat duration profile, comparison between segments that are performed differently may prove to be a fruitful approach to further delineate how durational values are aligned to architectural and expressive features. In *Hans Holen*, variation in beat level timing between similar motivic segments is mainly related to melodic-rhythmic architecture at the subdivision level. It is observed that there is a correspondence between increased rhythmic density and architectural complexity and beat duration extension (see figs. 86-88). As will be further elaborated on below, performance effort seems relevant to consider as a decisive factor, especially since several passages are rather unconventional and technically demanding.

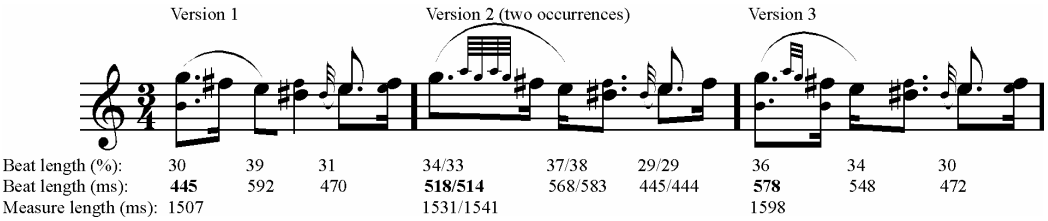


Figure 86. Three versions of the first measure of motif no. 3 illustrating the relationship between architectural complexity and beat duration. Audio sample 9h.

In fig. 86, the duration of B1 in the three versions (see the values in bold) relate to the degree of complexity in the technical effort required of the performer. It should be noted that the term ”degree of complexity” is not analytically precise, but refers to my own experience as a fiddler.

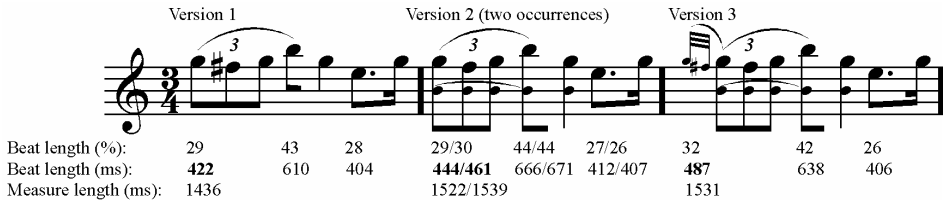


Figure 87. Three versions of the first measure of motif no. 4 illustrating the relationship between architectural complexity and beat duration. Audio sample 9i.

Fig. 87 shows another example in which the difference in beat duration between contextually equivalent beats (see the values in bold) may be related to the use of double stops and ornaments. In this case, the difference in beat duration is rather small, at least between version 1 and version 2, and one should refrain from drawing strong conclusions with respect to causalities.

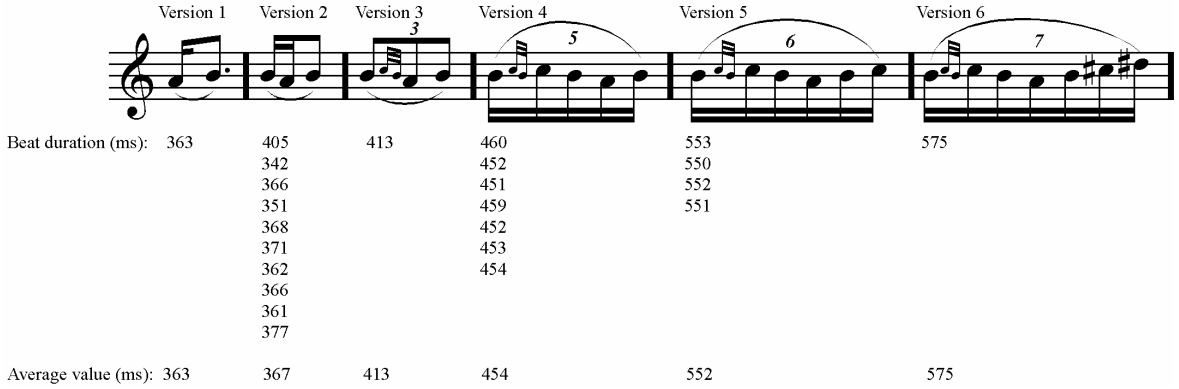


Figure 88. Six versions of B1 taken from the second measure of motif no. 1 and the first measure of motif no. 2 illustrating the relationship between ornamentation and beat duration. The vertical columns show beat durational values for the different occurrences of the same version. Audio sample 9j (note that the whole measures are included in the sound clip and that there is only one sample of each of the six versions).

Fig. 88 shows six versions of the beat motif notated as a triplet in motifs no. 1 and 2 in the simplified transcription of *Hans Holen* in fig. 67.[237] This is a striking example of a correspondence between increased density and complexity in rhythmic architecture and beat duration extension. Again, performance effort is considered to be a decisive factor: the complex melodic ornaments in versions 4, 5 and 6 simply seem to require a certain amount of time for their realization. In these cases, performance effort might be an influential factor in more than one sense. First, the numerous subdivisions of these beat motifs make them time-consuming almost by necessity. Second, the high degree of precision with which these ornaments are performed suggests that motor automatization is involved.[238]

Sectional structure and performance timing

In *Hans Holen*, there is a rather clear sectional division (see fig. 89 below). In the first strain, the repeated four-measure motif (1a and 2a/b) with alternating half and whole endings constitutes an unambiguous sectional element. The second strain may be interpreted as being made up of two sections. The first consists of motifs no. 3 and 4, while the second consists of motifs no 5, 1b and 2b. This interpretation is partly based on the notated structure of the tune. For instance, all sections end with a long tone covering two beats, which functions as a rhythmic and melodic landing point at which the flow of events comes to a brief halt before the start of a new section.

[237] The reason for not including the entire measures is the variation in bowing and subdivision on B2 and B3, which, if included, would make the figure very complex and spacious. The important observation in this context, however, is that the beat motifs in fig. 88 all are contextually similar and interchangeable.
[238] See chapter 6.4, where this aspect of ornament timing is discussed.

Moreover, the division into larger motivic sections is supported by the ways in which the transition between these sections is articulated by the fiddler. First, there is a dynamic intensification (by means of increased bow pressure) at the end of many of the long tones which starts and ends the sections. Second, and of particular interest in this context, as was the case with *Markensmondagen*, the points of transition between the larger sections of *Hans Holen* are correlated with certain features of performance timing. Fig. 89, in which average beat and measure duration values for all parts of the three sections are shown, may help to illustrate some of these features. In particular, the expressive behavior related to sectional structure seems to be reflected in the duration of the initial and final beats and measures of each section (see the values in bold in fig. 89).

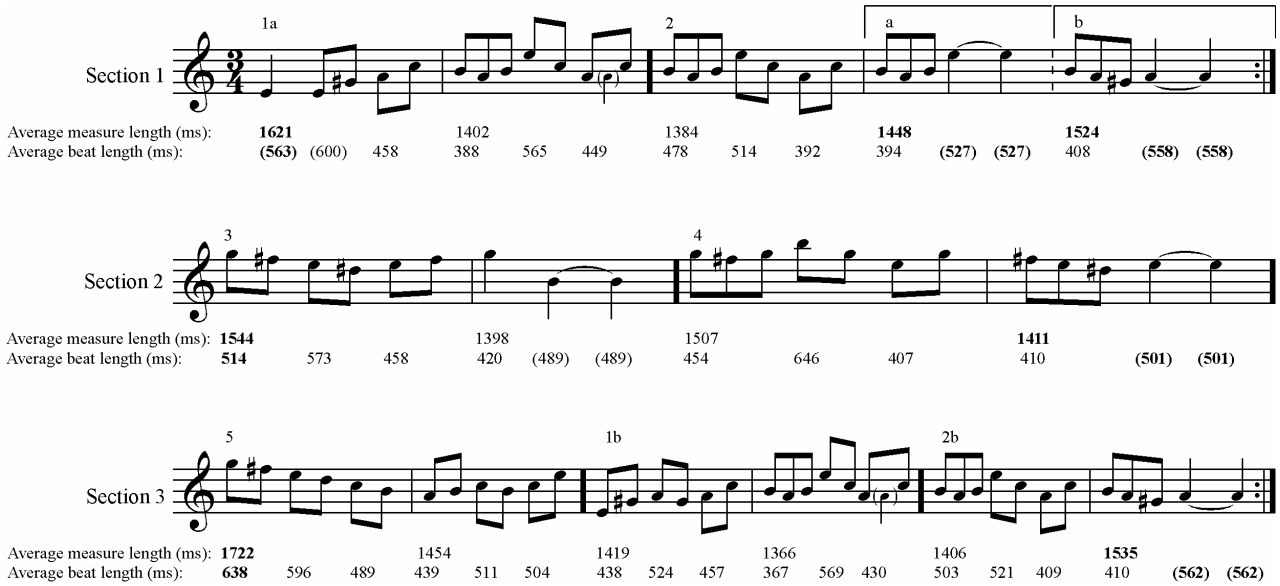


Figure 89. Schematic outline (i.e. simplified transcription) of the three motivic sections in *Hans Holen* with average values for beat and measure durations. Note that the bracketed numbers do not represent measured values, but simply the total durations of the beats tied together divided by two. The exception is motif no. 1a, in which the first two beats are sometimes not tied together.

The following remarks arise from fig. 89:

- In all three sections, the initial measure is the longest.
- With the exception of section 2, all final measures (including half and whole endings) are longer than those in the middle.
- The measures representing whole endings (motif no. 2b) are longer than those representing half endings (motif no. 2a). This is mainly the result of the final tone covering two beats being longer in the whole ending versions.

- In all three sections, B1 of the initial measure is considerably longer than B1 of the remaining measures.
- In the final measures, B2 and B3 (which are tied together) occupy a proportionally large fraction of the total measure, B1 being average or short in length.
- Measure lengthening mainly results from one of the beats (or sometimes two of the beats) within the measure being considerably longer than average. Thus, measure lengthening may be seen as a consequence of the expressive treatment of individual beats/tones rather than as an intentional component of performance timing.

With respect to these observations it is noticeable that potentially constraining features such as beat motif architecture, performance effort etc. can be ruled out as explanations for the observed temporal variations (the beats/tones in question may effortlessly be shortened or lengthened). Moreover, beat duration patterns within the prolonged initial and final measures partly contradict average or "prescribed" (short-long-average etc.) ratios. Thus, variations seem to be of an expressive nature, possibly involving aspects of time, dynamics and accentuation. It should be added, though, that melodic-rhythmic architecture might be relevant to consider in the sense that the simple design of the initial and final beat motifs in *Hans Holen* (undivided or with duplet subdivision) makes them temporally flexible and adjustable in accordance with expressive intentions. This leads on to the second point to be made: in the same way as in *Markensmondagen* it is problematic to conclude that the variation illustrated in fig. 89 is best described as the result of tempo fluctuations. Accordingly, to avoid confusion, beats and measures should be described as longer and shorter respectively, rather than slower and faster. This conceptual quandary is directly related to the choice of reference. If the measure is defined as the lowest rhythmic level capable of defining tempo, as suggested by Kvifte (1999) with reference to the instability of the beat level, then vast variation in measure length obviously may be interpreted as a tempo variation, as the rate of succession with which measures unfold is not constant. Moreover, the variations observed in *Hans Holen* might very well be experienced as tempo fluctuations by listeners. Still, it is important not to confuse this with the notion that the measure is performed slower, in the way an average measure would have been if the whole tune had been performed at a slower tempo. In such a case one would expect an overall decrease in event density at the subdivision level. In a hypothetical case, where all beat motifs are symmetrically subdivided (♫ instead of ♫. etc.), variation in event density between different

segments is easy to determine. However, such a case would probably be very difficult to find within the pols/springar repertoire and *Hans Holen* is no exception. Fig. 90, which shows three (differently timed) versions of an initial measure, hopefully helps to clarify the problem.

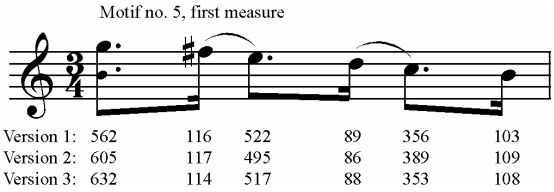


Figure 90. Subdivision timing (ms) in three versions of the first measure of motif no. 5. Audio sample 9k.

In fig. 90, the whole measure in version 3 is 64 ms longer than in version 1. This is a rather small difference, but one may still ask: is version 3 played slower than version 1? Analyzing the internal temporal structure (subdivision timing in this case) of these measures reveals that the only substantial difference is the duration of the first tone. Thus, it certainly cannot be argued that the *measure* is played slower and faster respectively. Nor does it seem reasonable to contend that the tempo of the 1st beat varies between the three versions in fig. 90, since it cannot be determined that there is a change in event density at the subdivision level. Finally, it seems a stretch to conclude that the first tone, to which the difference in measure and beat duration can be attributed, is subjected to tempo variation. Rather, what is occurring in this example is perhaps best described as variation in timing, i.e. an expressive quality measured in relation to a local melodic-rhythmic context rather than in relation to a global tempo reference. In this case, the local reference could be the alternative versions of the melodic-rhythmic phrase to which the differently timed note belongs.

What I conclude from this brief analysis is that some temporal variations in *Hans Holen* appear to be coherent with conceptions of musical structure, thus representing a musically consistent and to some extent predictable pattern. Simply put, the fiddler emphasizes salient points by means of rhythmic-temporal articulation. This argument, however, is not derived directly from the observational data. Rather, it is an interpretation based on my own experience as a fiddler. Moreover, although this interpretation might seem convincing, it fails to account for the ways in which the conception of duration is involved in the expressive behavior analyzed. In short, aspects of musical structure (i.e. the above mentioned salient points) may indeed be intentionally communicated in a way that *affects* the duration of beats and measures, without timing per se being an active domain of the rhythmic behavior in question. This resonates with a

corresponding uncertainty concerning the academic conception of the durational vs. accentual properties of rhythm, as pointed out by Clarke (1987):

> Continuing uncertainty as to whether rhythm is most fruitfully analysed in terms of its accent properties or durational properties means that a generally accepted method for classifying rhythmic structures and their relations does not exist.[239]

Thus, it remains an open question whether the observed patterns of durational fluctuations are best described as patterns of accentuation or as timing patterns. Again, separating timing from other forms of musical intensification may seem irrelevant from the performer's perspective, and we are reminded of the difficulty of determining the function of the purely temporal domain within the set of expressive resources available to a musician.

Categories and timing

In the performances analyzed in this thesis, there are few examples where timing may potentially be singled out as an expressive parameter of its own. The reason for this is that it seems unreasonable to assume that that the rhythmic-temporal coherency of a melodic-rhythmic motif is achieved by the fiddler attending to and adjusting the duration of every single event within this pattern. Moreover, there is the above mentioned interference relationship between expressive parameters (timing, accentuation etc.). At the same time, there is nothing unusual at all about attending to the temporal extension of a particular tone during performance. For instance, a tone might be deliberately extended to highlight a particular passage or as a means of variation in itself. Figs. 43 and 44 (*Markensmondagen*), and figs. 79, 82, 83 and 90 (*Hans Holen*) may be examples of this. Still, it is generally very difficult to determine when this autonomization takes place, i.e. when one comfortably may speak of variation in timing understood as active manipulation of the duration of individual events, as opposed to when the timing of these events are subordinate to the rhythmic articulation (timing) of the whole motif.[240]

The more general theoretical issue that arises in this context concerns the relationship between unique manifestations of rhythmic behavior and the structural categories (motivic units in this case) serving as references against which expressive information may be identified. It is well-established within the field of rhythm research that the production and perception of expressive timing in music rely on rhythmic categorization taking place: as Desain and Honing

[239] Clarke 1987: 23

[240] In addition, as noted on several occasions, measured temporal variations may simply be a "side effect" of the expressive treatment of other aspects of the musical material.

(2003) write, ”expressive timing is only perceivable *because* there is categorization, the categorization functioning as a reference relative to which timing deviations are perceived.”[241] This implies the presence of boundaries, i.e. limits beyond which one rhythmic category is replaced by another. Thus, when expressive timing goes beyond the categorical boundary, a new reference for detecting expressive information is created. Given that the rhythmic-temporal contour of a motivic unit constitutes a rhythmic category of this kind, some intriguing questions arise. For instance, is there an identifiable limit to a timing pattern being altered enough to constitute another rhythmic category? Is it sensible to assume that a rhythmic motif may be performed so differently from its referential counterpart that it is meaningless to compare the two versions as expressive variations of *the same* rhythmic structure? Although impossible to generalize, considering that the conditions to make such determinations will vary from case to case, these are undoubtedly problems that appear in the analysis of pols/springar performances. Two instances of such categorical ambiguity being actualized are M5-6 vs. M126-127 and M49-50 vs. M51-52 in *Markensmondagen* (see figs. 91 and 92 below).

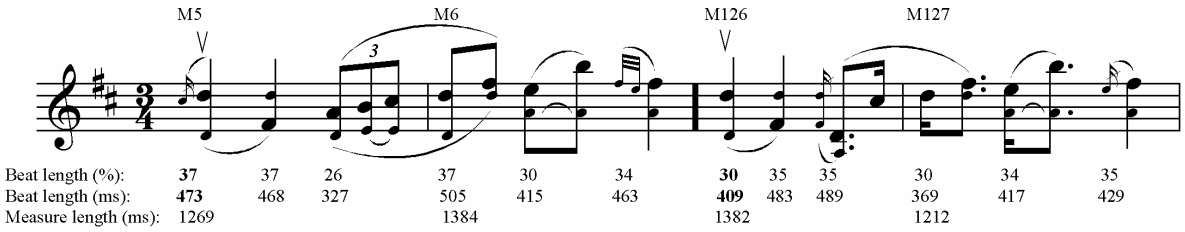


Figure 91. *Markensmondagen*. Comparison between two versions of the same motif illustrating categorical ambiguity. Audio sample 6a.

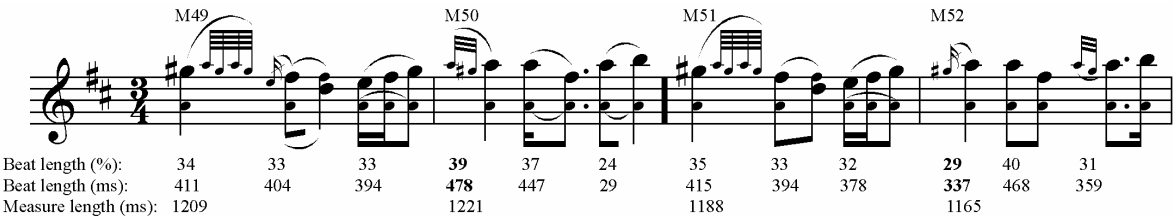


Figure 92. *Markensmondagen*. Comparison between two versions of the same motif illustrating categorical ambiguity. Audio sample 6zi.

Are these versions (M5-6 vs. M126-127 and M49-50 vs. M51-52) to be considered equivalent motifs distinguished by their different timing patterns? If this is the case, the relative extension of the undivided 1st beats (see the values in bold) can be interpreted as true variations in timing. Or, are the compared versions somehow categorically different? This would imply the possibility

[241] Desain & Honing 2003: 343

that the different timing of their individual rhythmic elements (including the 1st beats) should be seen as intrinsic components of the idiomatic structure of categorically different versions. A slightly different interpretation would be that one of the beats is temporally manipulated to such an extent that it alters the structure in relation to which its quality as an individually timed event is experienced. In other words, the expressive behavior under discussion may very well involve an intentional shortening of an individual beat/tone (see B1 of M126 and M52), while this results in the whole measure (or the whole motif) appearing in retrospect as a novel rhythmic gesture, rather than as a slightly altered version of a previously occurring motivic segment.

In the cases referred to in figs. 91 and 92, the different suggested lines of interpretation regarding the active vs. passive timing of B1 may be treated as equally plausible or defensible. The task would have been easier, however, if there were several occurrences of one of the versions of the motivic segments in question, since a repetition of the version would make it identifiable as a distinctive rhythmic gesture of its own. The four occurrences of motif no. 5 from *Hans Holen* shown in fig. 93 below are illustrative in this respect. It is noticeable (from listening) that the three occurrences of version 1 represent a relationship of sameness, while version 2 is rhythmically shaped in a completely different way.

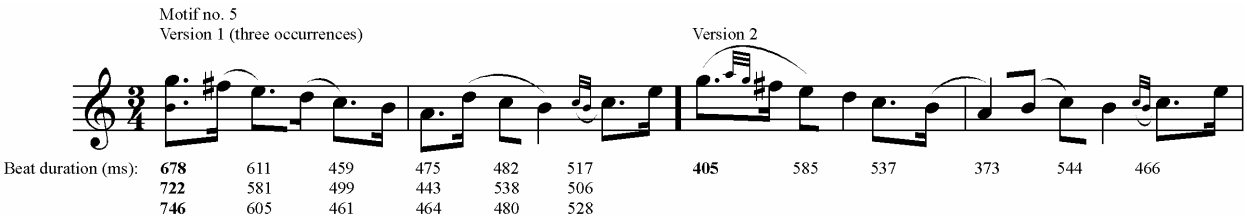


Figure 93. *Hans Holen*. Comparison between two versions of motif no. 5, and between three occurrences of the same version Audio sample 9l.

In version 2, B1 of the first measure is very short compared to version 1 in which the fiddler dwells considerable on the first tone, and this demonstrates the fact that prolongation of the initial beat/tone of a section is no imperative but represents one of the *possibilities* at hand when making performance decisions.[242] Moreover, in version 2 the rhythmic articulation and bowing create a very different impression of temporal and intensive values. In version 1, there are five clear accentual points, while the rhythmic flow in version 2 seems considerable less clearly divided with only two (weak) accentual points (see the illustration in fig. 94).

[242] Cf. fig. 89 and the discussion of sectional structure and performance timing above.

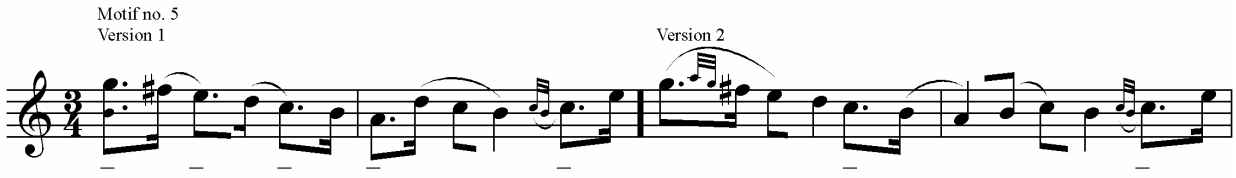


Figure 94. *Hans Holen*. Accentual points in the two versions of motif no. 5.

Again, the question is whether these versions of the same two-measure motif are comparable in the sense that differences in timing can be pinpointed as the distinguishing feature. Obviously, the different sets of temporal values contribute to the impression of a variation. But can a categorical reference be identified in relation to which the expressive variation can be measured? In the case of the different occurrences of version 1, which are very similar in overall rhythmic contour, it seems sensible to interpret the differences between them as a result of differences in timing. The reason for this is that these occurrences are clearly categorically equivalent and that they differ by the very first tone being timed in different ways.[243] This is more clearly evident in fig. 90, where a more detailed description of the first measures of the three occurrences of version 1 is given. From this perspective, the difference between version 1 and version 2 is not a difference in timing, at least not in the same sense. But are version 1 and 2 categorically different? Considering the extent to which they may function as references for the identification of variation in timing, the answer appears to be affirmative. At the same time, since these versions are melodically identical and have the same basic structure of subdivisions, they obviously are distinguished by differences in timing, in addition, of course, to variation in bowing and dynamics. Moreover, this kind of alternation between different versions of the same motif (version 1 vs. version 2) is as much expressive variation as is the small-scale variation between more similar versions (the different renditions of version 1), and the alternation is not to be confused with a formal restructuring of the tune by inserting another motif (which is also one of the possibilities). A possible solution to this paradox is to attend to the fact that version 2 as a whole is articulated (timed) in a thoroughly different way, thus suggesting the complete motif as the smallest unit used for comparison. From this perspective it makes little sense to compare the duration of individual events from the two versions in order to discuss how the performer varies his timing. In other words, when analytically comparing these variants (version 1 vs. version 2), event timing may be regarded as a passive parameter, meaning that tone durations are seen as subordinate to the rhythmic articulation (timing) of the whole motif.

[243] Note that the reservations made in the previous section about the identification of timing as an expressive parameter of its own need to be taken into account in this interpretation.

The problems raised here concern the very definition of "rhythmic category" (cf. the reference to Desain and Honing (2003) above), which appears to be particularly complicated within this style of performance, considering the freedom to alternate between different versions of motifs that are considered to be equivalent in a musical sense. In other words, the fact that a variety of alternative realizations are mutually interchangeable according to stylistic constraints complicates the problem of determining a categorical reference for comparison and analysis. Accordingly, no definite answers to the questions posed above may be offered, only that the kind of ambiguity demonstrated represents an analytical challenge, as well as an experiential potential. What remains a key finding, however, is the difficulty of identifying instances when timing, understood as a purely temporal manipulation of a certain event, stands out as an important feature of performance action. Accordingly, the extent to which it is at all relevant to speak of timing variations is determined by unique characteristics which need to be framed within the context of the particular performance in question.

Motivic structure and performance timing - preliminary summary

The examples of motif-related timing patterns in *Markensmondagen*, *Igletveiten* and *Hans Holen* demonstrate some aspects of temporal structuring that need to be taken into account to reach a comprehensive understanding of the process of performance timing in pols/springar playing. First, several observations indicate that architectural and contextual similarity between motivic segments implies similarity in beat duration profile. Thus, there appears to be support for the notion that measured timing variations are aligned to motivic structure. Second, beat durational variation between measures within equivalent motivic contexts can be attributed to the numerous and intricate modes of formulaic variation involving rhythmic and melodic reshaping, and the use of different embellishments, bowing patterns and double stops. This is not meant to suggest that such variations by design result in variations in measure and beat level timing, or that there is an original form with reference to which the different versions may be best described (cf. the discussion of categories and timing above). Rather, what is implied is that timing is closely interconnected with other domains of performance action in the sense that any kind of expressive treatment of the musical material may produce a novel pattern of durations, without this necessarily being intended as a variation in timing. Third, contextual influence seems to operate independently of metrical context. For instance, sectional starts and endings have been shown to be correlated with certain features of performance timing which contradicts the beat ratio profile considered to be characteristic of the rhythmic style in question.

It is important to note that the analysis is based on relatively few observations, thus preventing any statistical conclusions to be drawn. Instead, the observations of correspondences between motivic structure and timing patterns offer a reference point for exploring the plausibility and the implications of alternative explanations. Essentially, what can be concluded from these observations is that a model based on a formalized meter which is independent of the actual unfolding of melodic-rhythmic events (a specified beat duration ratio) in relation to which rhythmic events are supposed to be timed and controlled does not provide a sufficient explanatory framework. Rather, the precise timing of rhythmic events seems to be closely related to the specific melodic-rhythmic context within which these events (beats/tones) are embedded. If this was not the case, it would be very difficult to account for the configuration between vast variability (beat duration patterns viewed from a measure-by-measure perspective) and consistency (beat duration patterns of architecturally and contextually similar motivic segments). In short, the instances of replication of temporal patterns when motivic segments reoccur can hardly be considered accidental, which suggests that there is some kind of constitutive relationship. This assumption is further supported by the observation that "altered" versions of motifs (versions in which ornamentation, double stops etc. have been "added") also seem to have timing profiles of their own (in the cases where comparison between two or more versions is possible). From this perspective, the most important finding from the analyses is that modifications of the melodic-rhythmic "sentences" that make up a tune seem to imply (in some way corresponding) modifications of the temporal values of the measured units (measures and beats). This conclusion potentially goes far beyond what can be supported by the available data in the sense that any kind of change in melodic-rhythmic architecture may imply the emergence of ever new patterns of durations. In a sense, this parallels the phonetic notion of *intrinsic timing*, according to which timing is an integral part of the specification of an articulatory gesture, as opposed to being controlled by an external timekeeper.[244] In simple terms, every time a new word/sequence of words is spoken, a uniquely timed pattern of onsets emerges, which cannot be explained as the result of the speaker adjusting the timing of every acoustic component that makes up the pattern. It would certainly be interesting to explore this parallel with timing in spoken language further, although this has to be left for future studies.

The observation that many motivic segments have a unique timing profile of their own which is replicated with precision when the same segments reoccur in another part of the performance demonstrate what might be termed a top-down process. Essentially, this means that

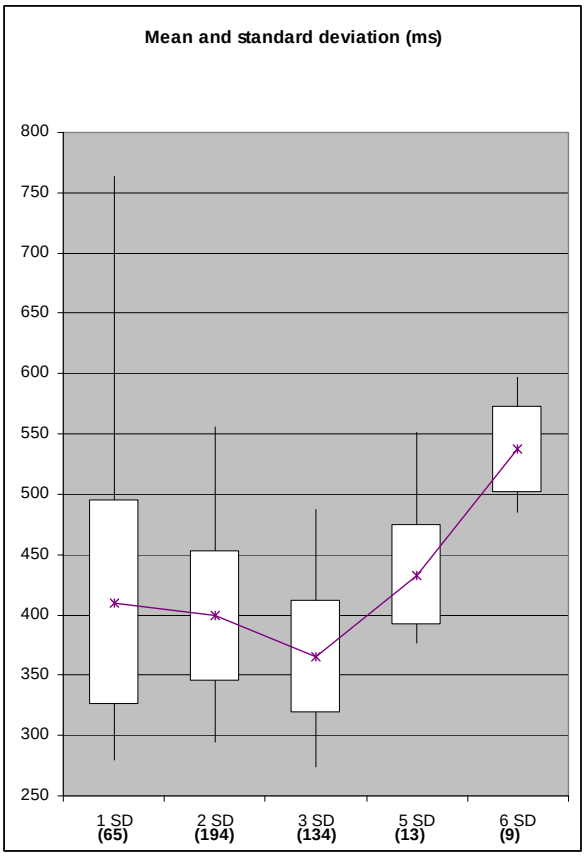
[244] Fowler 1980

the duration of single events is subordinate to the shaping of the complete motif, understood as a particular bundle of closely interrelated temporal, melodic and intensive values. As is apparent from the analyses, however, this aspect cannot be separated from the way in which the temporal architecture of single beat motifs affects the shape of the pattern which functions as a context for their realization (bottom-up process). Nor can it be separated from the organizational influence of the general groove understood as a recurrent pattern of longer and shorter beats. Thus, performance timing needs to be conceptualized as a combination of top-down and bottom-up processes. Or, rather, *the process* of performance timing comprises both these constitutive influences.

The interpretations made so far suggest there is a multi-leveled focus through which different organizational, contextual and architectural factors can be shown to interact in different ways. At the same time, it seems beneficial to explore aspects of performance timing from one perspective at a time, i.e. from a top-down and bottom-up perspective respectively. In accordance with this view, the investigative focus in the following sections is on subdivision timing and the mechanisms and constraints according to which the relative flexibility and stability of beat motifs appear to be determined. This also implies a bottom-up perspective in the sense of the way beat motif architecture affects absolute and relative beat and measure durations. Ornaments and triplets will be given special attention when looking more closely at subdivision timing with reference to the discoveries made in analyzing *Markensmondagen*.

6.4 Subdivision timing

The observations so far presented indicate that there is an ongoing interaction between more or less temporally stable and more or less flexible rhythmic events. On the subdivision level, some striking tendencies have been observed that specifically concern the temporal architecture of ornaments and triplets. The generalizability of these findings is of interest, as it concerns the relative controllability and flexibility of beat motifs as well as the constitutive interaction between rhythmic levels. Some additional case studies will therefore be carried out with the aim of providing complementary data. The first investigates the relationship between beat motif architecture and beat duration, more precisely how the number of subdivisions affects the temporal variability and mean total duration of the beat. Figs. 95 and 96 show mean duration and spread for beat motif types in *Markensmondagen* and *Hans Holen*.



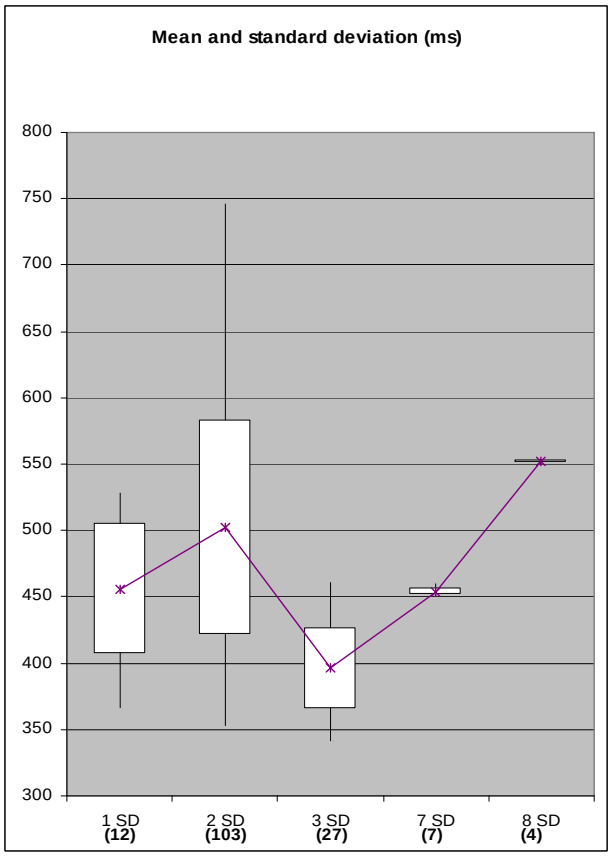


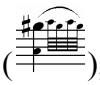
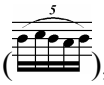
Figure 95. *Markensmondagen*.

Figure 96. *Hans Holen*.

Mean duration and spread for beat motif types in *Markensmondagen* and *Hans Holen*. The *-marks and the lines between them represent the mean, the white boxes the two-sided standard deviation, and the range is indicated by the vertical lines. The X-axis shows the number of subdivisions. The bracketed values indicate the number of observations.

In *Markensmondagen*, undivided beats (single tones) are by far the most temporally variable, covering a vast range of durations, from very short to very long. In this performance it is noticeable that the spread is relatively large for all categories of beat motif architecture. However, an important observation is that there are no short beats among the beat motifs subdivided into more than three notes. Thus, although temporally flexible, these beat motifs may be interpreted as being architecturally determined to occupy at least a certain length (i.e. they are prevented from being very short). In *Hans Holen*, the beat motifs with duple subdivision are the most temporally variable, followed by the undivided beats. In this performance the beat motifs with numerous subdivisions are timed in a very consistent way, i.e. the different renditions of each type have almost exactly the same duration. Again, there are no short beats among the beat motifs subdivided into more than three notes.

Obviously, the material in question is not "designed" to be analyzed through quantitative methods. First, beat motifs subdivided into more than three notes are unusual in the pols/springar

repertoire, meaning that the number of observations obtainable for each type of beat motif will vary a lot. In *Markensmondagen* and *Hans Holen* taken together, beat motifs with single, duple or triple subdivision represent as much as 94,2 % of the observations. Second, beat motifs with a certain number of subdivisions are not necessarily comparable. For instance, there is a significant difference between 1) a single melody tone ornamented with a trill (), 2) a melodic ornament (), and 3) a combination of melodic and ornamental tones () when it comes to the motor actions involved in their production.[245] All these types of subdivision are found in the data used in the analysis, which further limits the possibilities of generalization. It should be noted, though, that the beat motifs subdivided respectively into seven and eight in *Hans Holen* are architecturally identical, which is also reflected in the consistent timing data for these beats. Third, the motivic and metric contexts in relation to which the beat motifs are shaped are not taken into account. Thus, the compilation of data presented in figs. 95 and 96 should only be considered as a supplement to the more thorough interpretations in which the influence of these factors are discussed.

In spite of the reservations made above, the data are valuable in providing a background against which a more intuitive argument concerning the configuration between stable and flexible rhythmic elements is afforded. That is, although the data are limited, it lends support to the notion that the temporal flexibility and stability of beat motifs is partly determined by their relative architectural complexity. In short, undivided beats and beat motifs of low rhythmic density (duple and triple subdivision) are flexible and unstable, while beats of high density (ornamented beat motifs as a rule) are inflexible and stable.[246] This entails that while the duration of beats with multiple subdivisions is partly architecturally determined, the duration of simpler beat motifs is mainly contextually determined. For instance, in *Markensmondagen*, *Igletveiten* and *Hans Holen*, metric and motivic context were crucial to consider when analyzing how similar beat motifs varied in length. Moreover, as was seen in the analyses of sectional structure and performance timing, the simple outline of beat motifs affords a flexibility which may be utilized as a means of expressive variation.

[245] As will be further discussed below, this also relates to the distinction between structural and ornamental subdivision, which concerns some important aspects of rhythm production.
[246] It needs to be noted that the inflexibility of high density beat motifs mainly concerns how short they may be performed, i.e. there are no technical constraints preventing them from being lengthened, for instance by holding the initial or final tone longer.

Ornamentation and performance timing

The use of ornaments is a striking characteristic of the style of pols/springar playing and a variety of more or less idiosyncratic styles of ornamentation is heard when listening to skilled performers. Although analytically distinguished from structural elements, it has to be pointed out that ornaments are highly significant as means of accentuation, intensification and discrimination of parts of the melodic-rhythmic flow. Moreover, it is often misleading to regard ornaments as details being added to some kind of basic melodic-rhythmic structure. Certain ornaments may stand out as inseparable parts of a particular tune, and it probably would make little sense to musicians and listeners to imagine how removing these decorations would reveal some kind of basic form.[247] Also, in traditional tune-playing the use of embellishments is often to be regarded as a part of the very technique of handling the instrument, i.e. as aspects of performance style rather than as a part of the musical material as such.[248] At the same time, there is great freedom in the way of using ornaments and a normative model would inevitably fail to capture the nature of this expressive resource.

As already discernible from the presented timing data from the performances analyzed, ornaments often affect the temporal structure of the melodic-rhythmic context of which they form a part. For instance, in figs. 78, 86, 87 and 88, the relative complexity and subdivisional multiplicity of the beat motifs was mirrored by a gradual increase in beat length, indicating a possible constitutive relationship between beat motif architecture (number of subdivisions) and beat duration. This does not mean, however, that this relationship is one of simple cross-correlation: in *Markensmondagen*, it was observed that ornamented beat motifs with a certain number of subdivisions varied considerably in length, while the temporal rate of succession within the rapidly alternating part of the ornamental figure remained constant across examples. Below, a similar analysis is performed for *Igletveiten*. Fig. 97 shows the varying beat durations of ornamented beat motifs located within closely related part-motifs (three versions and a total of six observations), while fig. 98 shows the internal temporal structure of the trills.

[247] See also the discussion of the difficulty of analytically distinguishing between ornamentation and structural subdivision in chapter 4.1.

[248] For instance, most of the (hardly audible) "grace notes" occurring before the melody tone in *Markensmondagen* (see appendix 1) should probably be interpreted as the way in which the fiddler (more or less unknowingly) begins/forms a tone, rather than as decorations added to the melodic line.

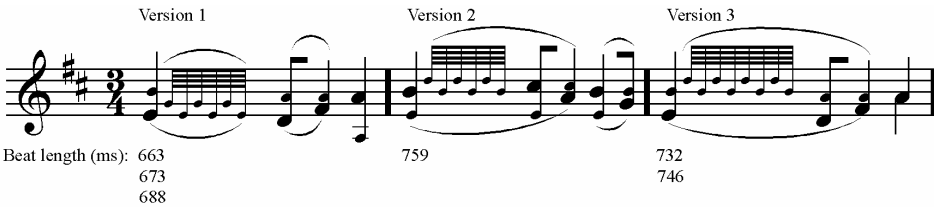


Figure 97. Long trills in *Igletveiten* (cf. fig. 78). Audio sample 8i (the sample features all six occurrences starting at the upper left and proceeding down to the lower right).

In fig. 97, the duration of the ornamented beat motifs varies, even when the number of subdivisions is the same, thus exemplifying temporal flexibility. Fig. 98, on the other hand, shows how the internal temporal architecture of these trills follows a consistent pattern: the five/seven short tones in the middle of the trills have almost exactly the same average duration in all versions, while the lengths of the initial and final tones vary. Thus, as was the case in *Markensmondagen*, the variation in beat length can be attributed to the extension of the initial and final tone respectively. In addition, there is a variation in the number of tones used (seven or nine), which by mathematical logic implies a slight variation in beat length given a constant rate of succession within the trills.

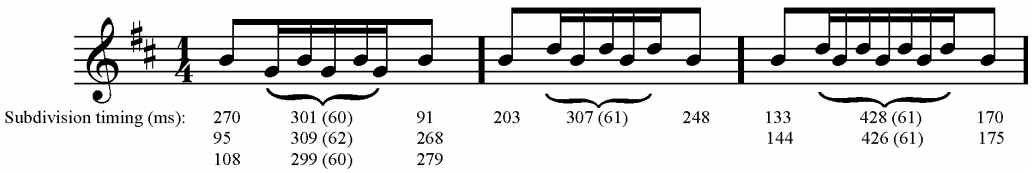


Figure 98. Long trills in *Igletveiten* (cf. fig. 97). Durational values (ms) for first tone, middle tones and last tone. The numbers in brackets indicate the average duration of the five/seven middle tones.

This is a striking example of the interaction between stable and flexible rhythmic elements at the beat motif level: the five/seven tones in the middle stand out as invariable elements, while the way in which the ornamented beat motif is initiated and how the transition to the subsequent unit is performed differ. The musical, intentional aspect behind these observations obviously may be considerably less clear cut. When ornamenting a tone like this, it seems highly unlikely that the fiddler is actually choosing between a number of different alternatives concerning the amount of subdivisions and the relative extension of the initial and final tone. However, in initiating a trill there might very well be an intentional choice between a direct or delayed start, and between a short and long trill. In addition, there is the influence of melodic-rhythmic context, which may affect the way its subordinate parts are temporally shaped.

The ornaments used in *Hans Holen* are generally different from the ones in *Markensmondagen* and *Igletveiten* in that they constitute melodic figures, as opposed to being decorations of a single melody tone. Fig. 99 shows beat durations of ornamented beat motifs located within closely related part-motifs in *Hans Holen*.

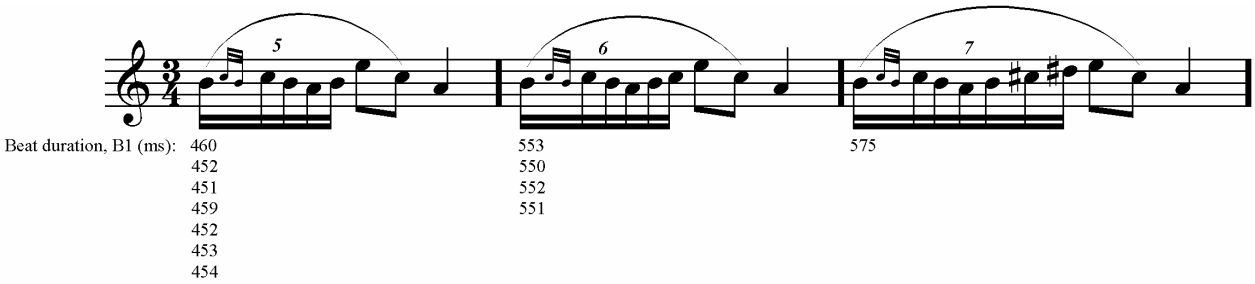


Figure 99. Melodic ornaments in *Hans Holen*. Audio sample 9m (the sample features all twelve occurrences starting at the upper left and proceeding down to the lower right). Note that the notation of B2 and B3 is simplified (the actual shape of these beat motifs varies from instance to instance).

In fig. 99, the variation in beat duration between comparable versions is almost nonexistent. Moreover, as opposed to the long trills in *Markensmondagen* and *Igletveiten*, the first and last tones of the melodic ornaments in *Hans Holen* have approximately the same length as the tones in the middle, i.e. they form a part of a sequence of equally spaced rhythmic events. In this case, the most notable observation is the temporal precision with which each beat motif is replicated when it reoccurs in different parts of the performance.

Two principal findings emerge from the analysis of ornament timing in *Markensmondagen*, *Igletveiten* and *Hans Holen*. First, temporal variation at higher rhythmic levels (beat and measure length) cannot be attributed to varying density in the ornamental figure as such. Instead, the total duration of ornamented beat motifs depends on the number of tones used in the ornament and the duration of the remaining, non-ornamental rhythmic elements. Second, the very high temporal precision with which the ornamental finger movements are performed indicates that ornaments might be performed according to a timing mechanism of their own, which is partly independent of the temporal structuring of higher rhythmic levels (beat and measure level timing). Moreover, the difficulty of controlling the timing of individual rhythmic events at such a fine temporal scale suggests that the movements involved need to be automatized to function as an integrated part of the performance. This entails that ornaments should be regarded as complete events, rather than as particular assemblages of individually timed subunits. From this perspective, ornamentation does not only concern the *degree* of mastery in the sense of performing technically demanding and unusual finger combinations. Given that the more or less fixed internal rate of succession

means that this aspect is very difficult to control, the technical appropriation of ornamentation stands out as being about "cracking the code," rather than being about gradually increasing the tempo until an acceptable finger speed is achieved. This is especially true of trills with multiple subdivisions () and quantized melodic figures with five tones or more, what have been termed melodic ornaments (). Thus, motor automatization appears to be a central part of learning ornamentation, which inevitably involves a limitation of conscious control over the motor actions involved.[249] Considered together with the observation of combinations of flexible and invariable elements (see figs. 54, 56 and 98), this means that the timing of ornamented beat motifs may be interpreted in terms of an interplay between absolute constraints (technical limitations and automatized aspects of performance action) and contextual constraints (the location of the ornamental figure within the melodic-rhythmic structure).[250]

These exploratory findings call for further investigation, and two questions are of particular interest. First, how (if at all) does the overall tempo of a performance affect the duration of ornamental tones? Second, considering that the process of chunking performance actions involved in ornamentation might be tempo-sensitive, are there identifiable limits to the places at which these chunks are transformed into structurally subdivided and thus temporally manipulable events? In this context it needs to be recognized that investigating the extent to which ornaments are temporally structured independently of global tempo is far from straightforward. In general, some kind of experimental approach seems necessary if the results are to be generalizable. On the one hand, an ideal case would seem to be when a fiddler plays a pols/springar tune and alternates between different tempi, for instance when teaching tunes to novices. On the other hand, this is a potentially unnatural situation, since there is no reason to assume that a fiddler would normally play a tune in the same way with the same ornaments when it is rendered slowly. Alternatively, two or more recorded versions of a tune played at different tempi are compared. This would ideally require that the different versions are performed by the same fiddler and that the elapsed time between the performances is not too long. This is because there are reasons to assume that motor capacity differs between individuals and that it changes with age and experience. Thus, considering that ideal samples from real performances are difficult to obtain, a carefully designed observation study seems to be the most reliable

[249] On the relationship between conscious and unconscious aspects of motor control, see Sun et al. 2005, who discuss this from the perspective of the interaction between implicit and explicit processes in skill learning (automatization).
[250] See also the summary in chapter 5.5.

approach,[251] a task which is beyond the scope of this thesis and has to be left for future research. However, existing research dealing with the timing of ornaments in other styles of music offer some insights that provide a background against which to discuss some implications of the findings from my analyses (see below).

Timing and temporal scaling - the interaction between structural and ornamental levels in rhythmic performance

In connection with the problems addressed here, there are several interesting research findings which might serve as references for the discussion. Windsor et al. (2000) present an empirical study which investigates the relationship between musical structure and the timing of 11 grace notes in 45 performances by the same performer of a short Beethoven piano piece at a range of tempi. Some of the results are particularly interesting here as they may demonstrate a distinction between what could be termed automatized and controlled timing of grace notes. The data obtained is claimed to provide evidence against the notion that changes in overall tempo leave the relative proportion of adjacent events invariant. However, there is a differentiation here which is crucial:

> Grace notes with a longer mean duration tended to lengthen significantly more than would be expected if they were relationally invariant, whilst shorter grace notes were roughly invariant over tempo.[252]

What can be read from this is that the current performance context displays a tempo-sensitive and non tempo-sensitive timing of grace notes, a distinction which seems partly determined by categorical length (if it is a typical short, or typical long, grace note). The authors' interpretations do not provide us with new formal music-theoretical categories in which to place these different kinds of grace notes, while the notes' mean duration and relative scaling with tempo are taken to be related to structural and stylistic features, as well as individual interpretive decisions. In a similar study (two pianists playing Robert Schumann's *Träumerei* at three different tempi) Repp (1994) concludes that "…major (cognitively controlled) temporal and dynamic features of a performance change roughly in proportion with tempo, whereas minor features tend to be governed by tempo-invariant motoric constraints."[253] One such minor feature is grace notes,

[251] Cf. the research of Windsor et al. (2000); Repp (1994) and Desain & Honing (1993) which is briefly commented on below.
[252] Windsor et al. 2000: 221-222
[253] Repp 1994: 269. Although these studies use empirical material that differs significantly from the genre I am working with in terms of instruments, repertoire and playing style, I believe that they may be used to support the

which according to Repp's investigation are "…timed in a relationally invariant manner across tempi."[254] With respect to the pols/springar material, further research might reveal the extent to which different rhythmic features change in proportion with tempo, for instance whether single grace notes scale with tempo in a different way than trills. Moreover, melodic ornaments (cf. fig. 99) may turn out to be transformable in the sense of being performed ornamentally (fixed rate) or melodically (flexible rate).[255] Again, a more experimental approach is probably needed to investigate these issues further.

The generalization to be made here is that there is a distinction between invariant and variable rhythmic events, which is determined by stylistic constraints (structural and expressive function) and absolute constraints (motor automatization) respectively. Thus, there is the question of what is possible to control, as well as how flexibility is constrained by stylistic conventions and other aesthetical concerns. With such a wide scope, the conclusions made in Repp's study are seen as simplifications. As discussed in chapter 4.1, Desain & Honing (1993) have demonstrated how we cannot assume that temporal relations are proportionally adjusted to tempo, and this hypothesis extends beyond the timing of grace notes. In this connection, the most important finding from their study is that a slower tempo implies a more elaborate short-span phrasing, within which other structural levels become more in focus. Moreover, given an asymmetrical and rhythmically flexible style, the investigative focus is expanded to include not only the flexibility and controllability of single events (grace notes or melodic tones), but also the interaction between two dynamic rhythmic levels. That is, how the architecturally determined temporal flexibility and stability of beat motifs interact with the stylistically determined flexibility of beat durations.

One possible criterion for defining a categorical distinction between structural subdivision and ornamentation from the perspective of rhythmic performance is when the automatized action pattern is changed into a transformable melodic-rhythmic structure. This transition is impossible to observe with accuracy from a listening perspective, as it relates to the bodily feeling of performing a certain combination of finger movements rather than estimations of durational relationships. With reference to this constraining aspect of analysis and interpretation, I shall now turn to a case in which my own performing experience forms the central point of orientation.

---

general notion that performance timing is constrained by automatized action patterns, and by continuous interactions between invariant and temporally flexible aspects of performance action.

[254] Repp 1994: 283

[255] Note that there is redundancy to this description, as this variation is actually the very definition of the distinction between ornamental and structural levels of performance timing. In other words, ornamental is not to be confused with decorative in this connection, as what is discussed is the distinction between structural subdivision and events timed according to a tempo invariant mechanism (ornamental subdivision), and whether changes in global tempo influence this distinction.

The example displayed in fig. 100 below is thought to illuminate typical features of the Swedish *Rättvik* style of pols/springar playing (the local term is *polska*) and clearly illustrates the nature of the analytical problem discussed. This excerpt is from a tune that I have played countless times with a number of other fiddlers. The figure does not represent any particular recording of the tune, but the typical ways in which these particular two-measure motifs tend to be performed and varied within the same performance.[256]

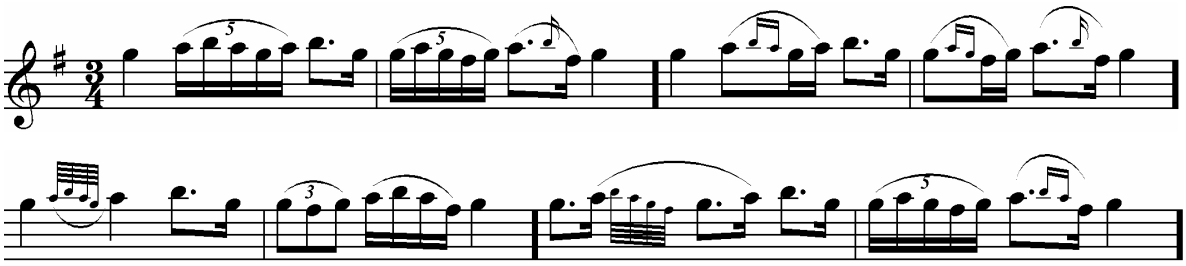


Figure 100. *Polska* after Blank Anders. Four versions of a two-measure motif from the second strain illustrating the shifting relationship between structural and ornamental subdivision.

In fig. 100, the subdivision profile of the beat motifs is constantly transformed, and it should be noted that the transcription does not represent an analytical interpretation of a recorded version, but my own hands-on experience of performing and "playing with" this tune. Thus, what are displayed are intentional alternations between categorically different beat motif architectures. Here, in a dual sense temporal scaling is exemplified in the dynamic relationship between musical structure, tempo and timing at lower levels. This tune is generally performed at a slow tempo, which potentially implies a more elaborate short-span phrasing through a shift in attention toward the subdivision level.[257] Theoretically, this implies that a larger portion of the rhythmic elements are subject to an influence from "the major temporal and dynamic features of the performance" (Repp), while there are still some combinations of elements whose temporal structure is "governed by tempo-invariant motoric constraints" (Repp). The distinction between these event categories is displayed in the transcription in the use of grace note notation for the invariant elements. Furthermore, the slow tempo and the flexible melodic-rhythmic architecture of these motifs facilitate what might be termed local temporal scaling. For instance, the beat

[256] The tune is a *polska* after the Rättvik fiddler Blank Anders (1904-1980). It was recorded by Per Gudmundson and Magnus Bäckström and featured on the record *Österdalskt* (Bäckström et al. 1978).
[257] "If I play the piece at another tempo, other structural levels become more important; for instance, at a lower tempo the tactus will shift to a lower level, the subdivisions of the beat will get more 'in focus', so to say, and my phrasing will have much more detail." (Desain & Honing 1993: 125 quoting their fictitious "friend" the pianist)

motifs notated as quintuplets are transformable in the sense that they may be performed "melodically" (slowly) or "ornamentally" with a shorter total extension.[258]

Regarding the temporal flexibility and stability of beat motifs, it is noticeable that relative architectural complexity is a determining factor, as was also demonstrated in figs. 95-96 for *Markensmondagen* and *Hans Holen*. This means that simple beat motifs ( etc.) are flexible and unstable, while high density and ornamented beat motifs are inflexible and stable. In this context, stylistic constraints should be understood in terms of the variational freedom allowing beats to stretch and contract within certain limits. Thus, architecturally complex beat motifs are allowed to stretch out regardless of beat position, while the temporal flexibility of simpler beat motifs may be used, actively or passively, when shaping the phrases in accordance with stylistic norms and expressive intentions. These observations regarding the density and complexity of beat motifs also correspond to the theoretical predictions concerning the degree of temporal control, motor automatization and tempo invariance, and illustrate the relativeness of temporal flexibility with regard to motoric, instrument-idiomatic and stylistic constraints. Tempo scaling, then, would necessarily imply some restrictions and temporal manipulations which are not only due to stylistic preferences. For instance, when the tune is played faster, the ornamentally subdivided beat motifs will occupy a proportionally larger temporal space, since a trill containing, for instance, five tones theoretically takes the same amount of time to perform as it would at a slower tempo.

The above discussion is also related to stylistic change in that both the amount of ornamentation has increased and the preferred tempo has decreased if we compare old recordings with present ones within some local styles. As expected, the ambiguity mentioned between structural and ornamental subdivision levels is found mainly in the playing of contemporary virtuoso fiddlers like Swedish Per Gudmundson and Norwegian Leif-Inge Schjølberg, i.e. the examples may not necessarily be representative outside the contexts constituted by the particular performers and performances discussed. On the other hand, it could be said that comparing slow, highly ornamented renditions with fast, "straight" ones, only reveals that the focus has changed from one level in the rhythmic hierarchy to another. Thus, the borderline where ambiguity applies has been moved rather than eliminated. In very fast renditions of some pols/springar

[258] In fact, given a "melodic" rendition the quintuplet notation is misleading, as the figure is not quantized but equivalent to the beat motif with quadruplet subdivision, only with one extra tone.

tunes it can, for instance, be difficult to hear some beat motifs which are "actually" divided into three as anything other than a single tone with embellishments ( vs. ).[259]

On the relationship between beat motif architecture and beat duration – the triplet case

By analyzing *Markensmondagen* an interesting aspect of beat and subdivision timing was indicated which involved the interaction between these levels in performing triplets. A brief repetition is in order: In *Markensmondagen*, all symmetrical triplets were relatively short regardless of metric position (B1, B2 or B3), while asymmetrical triplets () varied greatly in length. Moreover, in the cases where comparison between structurally similar motivic segments were possible, the total duration of asymmetrical triplets varied according to the relative extension of the longest tone, as the duration of the two short tones tended to be more or less constant. Thus, what was observed was a correspondence between triplet architecture (subdivision pattern) and beat duration. Finally, these differences and correspondences in triplet architecture and beat duration appeared to be related to motivic position rather than metric position. One implication that emerged from these findings was that differences in the total duration of triplet beat motifs were not the result of alternating accelerations and retardations. Instead, beat duration was aligned to the architecture of the triplet, which in turn appeared to be contextually determined. In other words, triplets were constantly rhythmically reshaped ( → ) and this reshaping affected the total duration of the beat motif.

In general, it is difficult to find examples in which triplets are scaled to a different total duration without their internal structure of relative durational values being changed. This is partly due to the fact that long sequences of triplets (covering two or more measures) are infrequent in the pols/springar material. Another reason is that such chains of triplets rarely seem to be correlated with a consistent asymmetrical beat duration pattern. Finally, it cannot be presumed that fiddlers necessarily intend to keep a steady asymmetrical beat ratio when performing several triplets in succession. Thus, recorded performances of pols/springar tunes do not seem to be suitable for an investigation of this aspect of the relationship between beat and subdivision timing. Therefore, I have performed a simple experimental case study which is presented below.

[259] Here, for example, the *pols* playing of Hans Haugen on the CD *Felespell fra Susendal* (Haugen 2004).

Case study – translation between symmetrical and asymmetrical triple meter

Introduction

The aim of this case study is to illuminate the temporal dynamics of the *intentional* manipulation of beat level timing with a focus on the rhythmic architecture of triplets. A deliberately constructed, neutral melody containing only triplets is presented to a fiddler well acquainted with the different styles of beat asymmetry. He is then asked to translate the sequence from symmetrical triple meter (represented by the score) to asymmetrical triple meter.[260] The main purpose of this investigation is to evaluate the explicit or implicit assumption that the asymmetrical grooves of pols/springar playing are explainable in terms of local tempo fluctuations (slow, average and fast beats), i.e. a constant modification of event density.[261] Accordingly, the following questions were selected for closer analysis:

- How well does the fiddler succeed in the basic task of transforming the symmetrical sequence into an asymmetrical beat duration pattern in which all three beats within each measure are of different length?
- What is happening at the subdivision level when the beats are lengthened and shortened?
- Are the beat motifs just being played slower/faster or is their internal temporal architecture reshaped in any (systematical) way?

Participant, material and procedure

The important criteria when recruiting a participant for this study were that the fiddler should be intimately familiar with several Norwegian and Swedish pols/springar styles, and that he/she could be assumed to understand and manage the basic task of translating between two different beat duration ratios. Erlend Viken, a skilled and widely experienced fiddler from Oppdal (Norway), was found to meet these criteria and agreed to participate.[262]

---

[260] It should be noted that such acts of translation actually occur within the contemporary Norwegian and Swedish fiddler milieu. Translating the same tune from a symmetrical to an asymmetrical groove or between short-long-average and long-short-average asymmetry is a well known phenomenon particularly among young Swedish fiddlers. See for instance the cover of the record *24 polsdanser frå Finnskogen* (24 pols/springar tunes from Finnskogen), where translation from "ordinary" *polska* (symmetrical with accentuation on the 1st and 3rd beat) to *finnskogspols* (long-average-short asymmetry) is explicitly referred to in the text as well as featured on the recording (Berglund et al. 2002).

[261] See chapter 3, and the section on Waadeland in particular.

[262] As a solo fiddler, Erlend Viken has recently done very well at The Norwegian Traditional Music and Dance Competition, both on the fiddle and the Hardanger fiddle. He is also a member of several cross-over bands, such as SterkeNils, Earlybird Stringband, Filibuster and Camilla Granlien Band.

The design of the experiment was defined so as to prevent confounding effects from idiomatic, stylistic features associated with tunes already known. This choice resonates with the basic understanding of groove and meter promoted in this thesis which implies that there really is no generalizable rhythmic framework to be found that can account for any particular style of rhythmic performance (*Tele-springar, Valdres-springar* etc.) with a reasonable degree of temporal precision. At the same time, there certainly are reasons to believe that a particular tune, as shaped and performed by influential fiddlers, may be intuitively associated with a certain timing profile.[263] In short, since it is believed that a tune familiar to the fiddler is already temporally structured according to a uniquely designed and well-integrated relationship between rhythmic levels through the idiomatic melodic-rhythmic structure of motifs and phrases, a "neutral" melody needs to be constructed. Accordingly, the melody chosen for this study is composed as an etude-like sequence of notes that is not associated with any particular tune or style (fig. 101):

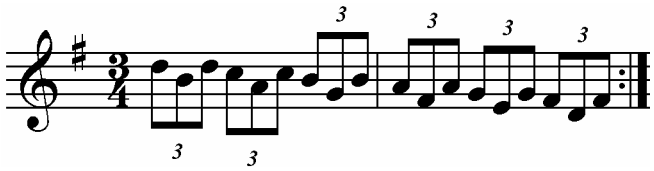


Figure 101. Translation melody with triplet subdivision.

The fiddler was asked to perform the following operations:

1) Play the melody in symmetrical triple meter with symmetrical triplets and preferred bowing patterns.
2) Keep the same tempo and translate the sequence into long-average-short asymmetry.

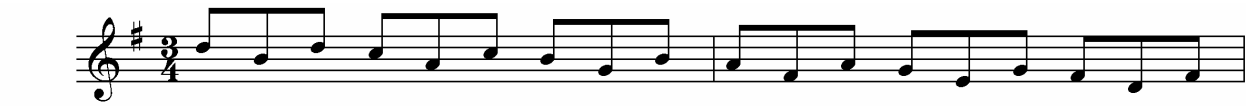
The fiddler was familiar with the "Tele-springar meter" (long-average-short) and had no problem understanding the task. No particular beat duration ratio was specified. Instead, the fiddler was told to rely on his own understanding and experience of the long-average-short meter. It was completely up to the fiddler to decide how much time and effort needed to be invested in each of the two operations. In practice, this meant that he used a couple of minutes to test out a suitable setting for the "tune" (mainly bowing) before playing it an unspecified number of rounds (basically until he was satisfied). I was present in the room during the whole session, which was

[263] This is not meant to indicate that a tune is associated with a particular pattern of beat durations, but a melodic-rhythmic contour to which a particular durational pattern is intrinsic.

recorded on a stereo compact flash recorder. Beat and subdivision timing were then analyzed according to the procedure described in chapter 4.2.

Results

Fig. 102 shows averaged subdivision and beat duration values for the symmetrical version, which was played four rounds. It is noticeable that the beat duration ratio is not completely symmetrical. Nor are the triplets symmetrical in a mathematical sense, although they may be considered to be so when defined relationally against asymmetrical triplets in a stylistic context. However, the pattern of durations at the subdivision level does not seem random. First, compared to the difference in duration between neighboring tones, the spread (standard deviation) for each measured unit is rather small (with the exception of the initial tone). Second, in all triplets the tone in the middle is the shortest, in some cases considerably shorter than the remaining tones in the beat motif. These observations contribute to the impression that the sequence as a whole is consistently structured according to some kind of idiomatic rhythmic logic.

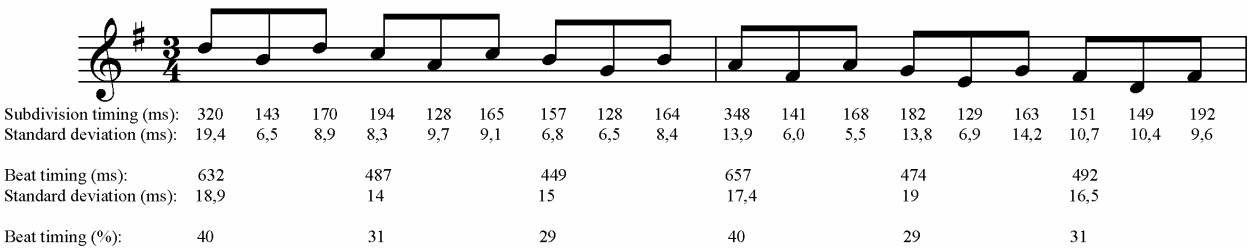


Subdivision timing (ms):	161	145	187	187	156	177	189	154	160	189	137	201	188	133	178	197	152	191
Standard deviation (ms):	12,2	2,7	6,3	7,2	5,2	2,5	1,9	4,5	6,5	0,7	1,6	2,9	8,1	4,8	2,3	4,8	6,7	7,6
Beat timing (ms):	493			520			503			527			499			540		
Standard deviation (ms):	5,7			9,1			7,4			3,2			14,4			3,4		
Beat timing (%):	33			34			33			34			32			34		

Figure 102. Subdivision and beat timing in symmetrical version. Audio sample 10a. The durational values for each tone/beat are averaged from four measurements (the sequence was played four rounds).

Fig. 103 shows averaged subdivision and beat duration values for the translated (long-average-short asymmetry) version, which was played nine rounds. The first observation is that the spread of the measured values is larger than for the symmetrical version. It is also noticeable that the average beat duration ratio is long-short-short rather than long-average-short. This does not mean that the performance fails to meet the criteria for the groove type in question (cf. the inconsistent beat duration values for the real *Tele-springar* performances analyzed in this thesis). What it might indicate, however, is that there is not necessarily a correspondence between intended and measured beat durations. Moreover, in this context the extent to which the performance conforms to common conceptions of the long-average-short meter is of no primary concern. Instead, the key question is how differences in beat duration are reflected in beat motif architecture. The following observations pertain to this issue: First, as was the case with the

symmetrical version, in all triplets the tone in the middle is the shortest. The duration of these tones varies in the range of 128-143 ms (15 ms spread). Second, in all triplets at least one of the tones lies in the range of 151-170 ms (19 ms spread). These measures of spread indicate that it is difficult to determine that there is a significant variation in event density (as would be the case if the whole sequence were performed faster or slower). Instead, the variation in beat duration (208 ms spread) can mainly be attributed to the relative extension of the longest tone in the triplets. Thus, the triplets are rhythmically reshaped and this reshaping corresponds with variation in beat duration in the sense that the long beats have a highly asymmetrical subdivision architecture, while the short beats are more symmetrical. This contrasts with the explanation that different beat durations are produced by means of acceleration and retardation.[264]



Subdivision timing (ms):	320	143	170	194	128	165	157	128	164	348	141	168	182	129	163	151	149	192
Standard deviation (ms):	19,4	6,5	8,9	8,3	9,7	9,1	6,8	6,5	8,4	13,9	6,0	5,5	13,8	6,9	14,2	10,7	10,4	9,6
Beat timing (ms):	632			487			449			657			474			492		
Standard deviation (ms):	18,9			14			15			17,4			19			16,5		
Beat timing (%):	40			31			29			40			29			31		

Figure 103. Subdivision and beat timing in long-average-short version. Audio sample 10b. The durational values for each tone/beat are averaged from nine measurements (the sequence was played nine rounds).

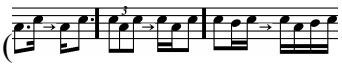
Discussion

In sum, the fiddler had no problem to present a symmetrical version and translate it into an asymmetrical beat duration pattern. However, this translation resulted in fundamental transformations of the internal temporal architecture of the beat motifs. Here it could be argued that if asymmetry was caused by local tempo shifts, the proportional temporal values of subdivisions would be (more or less) constant from one beat to the next. Since this is far from the case in the material analyzed, other explanations must be sought. Although the data is too limited to draw general conclusions, one interpretation seems viable: there is interaction between rhythmic levels in the sense that beat duration and subdivision are not controlled independently. Instead, there is an alignment between variation in beat duration and the *proportional* temporal values within the beat motif. This entails that the process which results in different beat durations should not be described in terms of tempo metaphors (faster/slower, acceleration/retardation etc.), but as *rhythmic reshaping*. A more general notion is that performance timing is constrained by a mutually constitutive relationship between rhythmic levels. However, exactly how and according

[264] Cf. the discussion of Waadeland's (2000) thesis in chapter 3.7.

to what mechanisms this influence manifests itself, and how systematic and random effects interact, are questions that require a more extensive and rigorous examination. The same could be said about the intriguing question whether it is *possible* to alternate intentionally between short and long triplets without changing their internal structure of relative durational values. In other words, in a context in which a fiddler is instructed to adjust the duration of triplet beat motifs in accordance with a predefined asymmetrical beat duration pattern, is it possible to keep constant the proportional durational values within the triplet, while varying the speed (density) with which the triplet is performed? Intuitively, this seems extremely difficult, but a carefully constructed experiment is needed to extend the knowledge of this aspect of performance timing and to uncover the mechanisms that complicate the task.

Timing and intentionality

The results from the experimental case study presented above actualize the question of intentionality in performance timing. As mentioned in connection with the preceding analyses, timing data from normal pols/springar performances do not allow for generalizations concerning timing and intentionality, and the total duration and internal shape of beat motifs needs to be understood with reference to a range of architectural and contextual factors. In this sense, the case study represents an exception in that the musician's intentional focus is on beat durations rather than on the melodic-rhythmic-dynamic articulation of complete phrases and motifs. As has been shown, intentional manipulation of the proportional ratio of beat durations is possible given a "normal" beat architectural structure with triple subdivision. At the same time, when considering the results from the observation study together with the analyses of *Markensmondagen*, *Igletveiten* and *Hans Holen*, beat level timing and subdivision timing do not seem to be controlled independently when there is a change at one of these levels. If this was the case, one would expect instances where consistent proportional temporal values within each beat motif are maintained in spite of variation in beat duration. The general lack of such data allows for the following speculative interpretation: If the musician sets out to control beat durations, he loses some control over the subdivision level, i.e. beat motif architecture. If, on the other hand, he concentrates on the temporal shaping of beat motifs, i.e. subdivision timing ( etc.), he loses some control over beat durations. The latter is evident through the ways in which beat duration is aligned to beat motif architecture, for instance when ornaments with numerous subdivisions "steal" time by requiring a certain space for their realization. However, it might be misleading to speak of intentional focus, as it seems little reason to assume that performers attend either to the total duration of individual beat motifs, or

to the proportional ratio between subdivisions. It would appear more sensible to point out that there need be a tolerance on both levels in order to make the music flow naturally.

Performance timing and synchronization

The underlying assumption in the discussion above that the performer does not attend to beat or subdivision durations is not meant to imply that there cannot be intentional shifts in focus. This is unambiguously shown by observations of performance synchronization. On the one hand, a pols/springar performer may synchronize the melodic rhythm with a steady beat provided by a backing section or a metronome, indicating a focus on beat onsets. Although this is considered to violate the rhythmic flexibility inherent in the pols/springar style, it definitely occurs.[265] On the other hand, two or more melody players may synchronize their performances without any rhythmic level being temporally stable, indicating a focus on the unfolding of melodic rhythm. This is not spectacular or unusual at all, as playing melodies in unison is the most common way to perform pols/springar tunes together. However, it would be misleading to equate this process with subdivision timing, as this would suggest a focus on how individual beat motifs are subdivided, rather than on how complete melodic-rhythmic phrases are shaped. Moreover, it remains highly hypothetical to assume that a temporally fluctuating pattern of melodic rhythm can be adjusted to an imposed beat duration ratio by means of temporal scaling, i.e. by beat motifs being played either faster or slower without changing their internal structure of relative durational values.

Another terminological and conceptual misalignment related to performance timing and synchronization is that observations of mutual synchronization of melodic-rhythmic patterns or beat onsets might erroneously lead to the conclusion that performance synchronization is achieved by attending to the duration of individual events. In fact, there is no reason to believe that onset timing is about synchronization with any imagined or played reference in any simple sense, not even in the cases in which the structure of this reference appears to fit with the actual distribution of played onsets, such as when a melodic rhythm is "synchronized" with a recurring metronomic beat pattern. This is supported by experimental evidence demonstrating that the detection of the temporal order of two stimuli depends on the difference between events exceeding a threshold of 30 ms,[266] a degree of synchronization which may easily be improved in

[265] David Loberg Code at The School of Music at Western Michigan University has actually created a software metronome with standardized beat duration patterns for various pols/springar types (see http://www.wmich.edu/mus-theo/maitregnome/MaitreGnome.html).
[266] Pöppel 1997: 57

real performance situations.[267] Thus, even synchronization with a stable, predictable beat is about *anticipation* in the sense that performance action needs to be taken prior to the event which is supposed to be synchronized with the reference, as adjusting onset timing "locally" by evaluating synchrony along the before/after axis would be impossible. Furthermore, the mutual synchronization of two melody players referred to above would suggest the hypothetical synchronization task to be about the individual timing of single events without relying on a stable external reference. Given a high density of events, this seems completely impossible. Thus, the fact that performers imitate and mutually synchronize temporally complex patterns of melodic rhythm needs to be explained by other means. Windsor (2004), writing with regard to Western Art Music performers, has an interesting point in this respect:

> …the remarkable ability of musicians to minimize asynchrony in Western Art Music performance is not primarily to do with skill in synchronization *per se*. Rather, it is to do with musicians sharing a similar mental representation of the structure of the music that they are playing. Such a shared representation, tied as it is to the motor programme which organizes their actions, allows for mutual prediction of when and to what extent the tempo should be modified.[268]

Although our use of the term *tempo* differs, I share Windsor's view on synchronization and performance timing. Moreover, since my focus is on solo performances and the freedom of rhythmic-temporal articulation associated with this performance tradition, it might be seen as irrelevant to discuss synchronization between performers. However, this discussion relates directly to the central theme of my thesis by illustrating the fallacy of reifying the temporal domain in the study of performance timing. In short, timing in a solo pols/springar performance is not merely about synchronizing onsets with a predefined temporal matrix, as existing theories seem to presume (see chapter 3). Nevertheless, a recurring pattern of temporal and intensive values is part of what makes a performance recognizable as a particular rhythmic style or groove. This paradox is at the heart of the conceptualization of style and rhythm and will be discussed further in the following section.

6.5 Summary and discussion

In this part I shall summarize and critically discuss the key issues from the analyses and interpretations of the preceding chapters. The point of departure is the observation that there are both consistencies and inconsistencies in the rhythmic patterns analyzed. Accordingly, the

[267] Clayton et al. 2004
[268] Windsor 2004: 65

following discussion centers on the mechanisms and constraints according to which the relative flexibility and stability of temporal patterns appear to be determined. This also includes examining how different organizational, contextual and architectural factors interact in the shaping of these patterns.

From the observations so far, some summarizing generalizations can be made regarding the relative flexibility and stability of melodic-rhythmic elements and segments at different hierarchical levels:

- Comparable motivic sections spanning four or more measures are very similar in length (see chapters 5.2 and 6.2), meaning that durational fluctuations between individual measures and beats are in some way evened out throughout the section as a whole.
- Architecturally and contextually comparable motifs generally have similar timing profiles (see chapters 5.3 and 6.3). In other words, melodic-rhythmic segments structured and performed in the same way show a corresponding similarity in measured temporal values. In many cases, this implies that beat and measure durations vary between adjacent measures, since the level at which consistency occurs is the motif (two-measure period) rather than the individual measure.
- Individual beats vary greatly in length, even when they have the same number of subdivisions. There are different ways to interpret this observation. First, to produce an asymmetrical beat duration ratio, the duration of the three beats within the measure obviously cannot be the same. Second, as has been shown throughout this thesis, there are several architectural and contextual factors to consider when attempting to explain why a beat motif is temporally shaped the way it is.
- Individual tones (the building blocks of the beat motifs) vary greatly in length and isochronous time intervals between onsets seem to be more or less absent. The exceptions are successions of ornamental tones, which generally form sequences of equally spaced rhythmic events.
- In general, the formal rhythmic units (measures, beats and subdivisions) stand out as highly unstable as long as the duration data are not arranged according to how the melodic-rhythmic material is architecturally shaped and framed within motivic contexts.

From these general observations, it would appear as if temporal consistency increases at higher rhythmic levels (sections and motifs), while it decreases at lower rhythmic levels. This interpretation concerns the *relative* temporal stability of each rhythmic level. That is, in relation

to their average total duration, individual tones, beats and measures are highly variable, while the relative variability of longer sections is very small. It needs to be noted that the term stability applies in two different ways, which may or may not overlap. First, there is stability in the sense of a segment being (more or less) stable in total duration. Second, there is stability in the sense of a segment being (more or less) internally consistent. Longer sections are stable in the sense that they are similar in total duration. At the same time, internal flexibility is high at this level, as sectional segments (or the whole tune when it is repeated in its entirety) encompass the temporal variability at lower levels. In this case, stability in total duration does not necessarily imply that the segment is internally consistent. Instead, this stability may be seen as the result of smaller internal variations canceling each other out (see tables 4, 6 and 7). On the other hand, internal consistency logically implies stability in total duration. For instance, two beat motifs in which the distribution of individual tone durations is the same naturally will have the same total duration. The same can be said about different versions of equivalent two-measure motifs performed in the same way: if the distribution of individual beat durations is the same, the total duration of the six beats will be the same in all versions.

It is intriguing (and perhaps frustrating) to note that these observations do not convincingly explain the consistent structuring of the rhythmic performances analyzed. In short, there are indeed consistencies to be found, but these appear to be purely idiosyncratic, i.e. they do not match other performances conforming to the same stylistic category (*Tele-springar*, *Vågå-springleik* etc.). How, then, can something like a live musical performance have a system without relying on some kind of independent referential framework providing points of orientation for the integration of its parts? Is every single pols/springar performance to be considered an autonomous, self-contained system in which the points of articulation in the melodic-rhythmic course of events are interrelated by being complementary parts of higher-level wholes, as opposed to being positionally defined relative to a theoretical location within a neutral framework? This is hardly a dichotomous yes-or-no question. At the same time, it is a question that sets the agenda for further theoretical exploration and speculation in the sense of expanding the scope beyond the search for general predictive models which transcend specific instances of rhythm production. Accordingly, the generalizations made do not qualify as lawlike generalizations. Rather, they are to be regarded as interpretive statements indicating a potentially fruitful path for understanding how stylistic and performative mechanisms and constraints interact in the formative process through which a groove is shaped into a well-formed pattern of performed gestures.

In the following sections, I shall go beyond the mere observational level and provide a summarizing discussion of the findings concerning the architectural, motoric and stylistic constraints through which the stability and flexibility of durational values appear to be affected. Obviously, all melodic-rhythmic events might be said to shape the pattern of durations, as these events represent the sounding realization of a groove, regardless of whether or not this groove is thought to have a kind of independent, abstract existence as a mould waiting to be filled. However, the issue here is the degree of internal coherency vs. temporal flexibility and the nature of the constraints governing different categories of rhythmic events. This issue will be addressed from the perspectives of respectively the bottom-up and top-down processes of temporal organization.

Architectural complexity and the relative flexibility of beat motifs – the bottom-up perspective

If matters are viewed from the perspective of the individual beat motif, it appears that melodic-rhythmic density and architectural complexity are the decisive factors determining temporal stability and flexibility. On one end of the scale there are undivided beats and beat motifs of low rhythmic density (duple and triple subdivision). These are flexible to an extent that by far exceeds rhythmic tolerance, i.e. they may effortlessly be performed much longer or shorter than would be stylistically appropriate. On the other end of the scale, there are beat motifs of high rhythmic density (ornamented beat motifs as a rule). These are generally performed with a very high temporal precision, while flexibility is limited, which indicates that motor automatization is involved. Moreover, the strong internal coherency of these beat motifs makes them insensitive to any relocation to a new metric or motivic context, i.e. they are temporally mobile in the sense that they shape the temporal pattern of beats, rather than being shaped by or adjusted in accordance with such a pattern. Relative length (within the measure) is mainly contextually determined. This means that since a complexly ornamented beat motif will necessarily occupy a certain amount of absolute temporal space given its idiomatic and non-flexible design, its relative length is determined by the absolute extension of the two remaining (presumably more flexible) beat motifs within the measure. If one assumes that ornaments with numerous subdivisions do not scale with tempo (see chapter 6.4), relative length is also determined by the overall tempo of the performance in the sense that a certain ornament will occupy a proportionally larger temporal space when the tempo is fast.

One possible conclusion reached from these observations is that the duration of beats with multiple subdivisions is mainly architecturally determined, while the duration of simpler beat

motifs is contextually determined. In more general terms, we see how *performance constraints* and *stylistic constraints* operate in different but indistinguishable ways. The most straightforward example of the influence of performance constraints is the highly consistent temporal structuring of complex ornaments, which suggests that the precise timing of individual rhythmic events is automatized, and thus not just a matter of choice and preference. Moreover, the lack of examples of beat motifs being scaled to a different total duration without their internal structure of relative durational values being changed might indicate that rapid local "tempo shifts" would violate the idiomatic logic of performance timing. Or, to put it more carefully, pure acceleration/retardation is not a part of the expressive resources actively utilized by musicians. At the same time, taking stylistic constraints into account provides a necessary frame for considering the implications of these interpretations. Above all, accepting the empirically grounded assertion that pols/springar styles are flexible grooves in which there are no preferable (exact) beat durations with which the beat motifs are supposed to match means that complex beat motifs, which by necessity are time-consuming (absolute constraints), are "allowed" to occupy the temporal space required for their realization. This is especially evident when such complex figures are relocated to different beat positions. Regarding simpler beat motifs, however, stylistic constraints operate differently. These are rhythmically flexible and temporally manipulable (in terms of total extension) and thus adjustable in accordance with whichsoever contextual influence. In other words, these beat motifs are not constrained by their complexity and may effortlessly be shortened or lengthened to conform to a preferred motivic shape. It should be pointed out, however, that it is very difficult to determine to what extent this flexibility is utilized actively (individual event timing) or passively (phrase timing).

Motivic shape and stylistic constraints – the top-down perspective

In the performances analyzed, melodic-rhythmic motifs (two-measure motifs as a rule) generally are temporally shaped in a consistent way. These instances of a correspondence between motivic structure and timing patterns suggest that the precise timing of the measured units (measures and beats) is an intrinsic component of the melodic-rhythmic articulation of the motif seen as a complete rhythmic event. This means that beat duration patterns analyzed from a measure-by-measure perspective may leave a rather chaotic impression, while being consistent when studied with the melodic motif as a frame of interpretation. Thus, the observations made in this thesis add weight to the argument that melodic-rhythmic phrases have a rhythmic logic of their own which does not appear to be compatible with a predefined temporal matrix understood as a more or less static pattern of recurring beat durations.

Another example is the consistently structured cadential sequence of three triplets which occurred at sectional endings in *Markensmondagen*, and the sequence of repeated two-beat triplet motifs functioning as an extension of this closing formula (see figs. 59 and 62). These elements can hardly be considered to be complete melodic motifs. Still, the repeated two-beat triplet cycles in particular are striking examples of a correspondence between the spatial organization of the melodic-rhythmic material and beat duration patterns. More precisely, what was demonstrated was how the idiomatic rhythmic-temporal logic of melodic-rhythmic phrases or formulas may override other organizing principles. I am referring here to the observation that the repeated two-beat rhythmic motifs in the extension part of the closing formula demonstrated a temporal logic which seemed to be independent of metric context in the sense that the beat duration pattern was "moved along" with their relocation (see fig. 62). From this follows that the triplet formula can be interpreted in the same way as beat motifs of high density (see above) in the sense that both types of rhythmic events shape temporally the pattern of beats at the point where they turn up, rather than being adjusted to the durational category represented by the beat position in question (long, average or short). The important distinction is the nature of the constraints governing the different categories of rhythmic events. For instance, complex ornaments are temporally inflexible because of absolute motoric-technical constraints, while the triplet cycles are seen mainly as stylistic devices, shaped and integrated into a rhythmic performance according to stylistic principles. This distinction is important and reminds one that the frame of interpretation needs to be adjusted constantly when analyzing rhythmic behavior.

In the cases referred to here, stylistic and idiosyncratic[269] features apply to a large extent, and there may be no reason to consider motoric or technical constraints as explanations for observed patterns. For instance, given a simple/low density beat motif architecture throughout a motif, there seem to be no obstacles whatsoever to manipulating the beat level timing structure. At the same time, what are termed stylistic constraints might be a great deal more than individual and/or collectively negotiated preferences. For instance, stylistic constraints might as well be conceived as conceptual constraints in the sense that a well-integrated relationship between rhythmic levels and other musical parameters makes it difficult to imagine a motif being temporally structured in a different way. In other words, the production and perception of rhythmic patterns may be guided by a sense of well-formedness that constrains the performance of these patterns, as well as their individual elements (including the way they interact).

[269] Idiosyncratic is used here to mean that there are no stylistic rules requiring a certain motif in a certain tune to be played with a certain temporal structure, although a particular fiddler might play the motif in question highly consistently, at least within a single performance.

The formative dialectics between melodic rhythm and meter

As suggested in chapter 6.3, performance timing needs to be conceptualized as a combination of top-down and bottom-up processes. To some extent, the durational qualities of individual beat motifs seem to be subordinated to the melodic-rhythmic contour of the motivic structure functioning as their context. From this follows that there is no real mobility in the sense of beat motifs being moved around without being temporally affected by their new context. At the same time, beat motif architecture is clearly a decisive factor by determining relative flexibility/stability and thereby affecting the absolute extension of beats. Thus, a multi-leveled focus is required, in which different organizational, contextual and architectural factors can be shown to interact. Also implicit in this configuration is a set of expressive resources associated with rhythmic articulation and variation (phrasing, bowing, accentuation etc.).

The theoretical implication of the multi-leveled approach suggested here is that a model based on purely temporal values and beat duration ratios cannot possibly capture the constitutive processes behind measured durational data. In fact, no reliable generalizations can be made as long as only durations are considered. Instead, motifs and phrases, the melodic-rhythmic building blocks of a rhythmic performance, are seen as formulaic devices which organize and control the continuous flow of events. Thus, what is suggested is that these formulas possess a kind of patterning capacity; they seem to constitute a framework of their own, as much as they occur within such a framework. At the same time, as mentioned earlier, the organizational influence of rhythmic style cannot be ignored and the focus on the strong rhythmic-temporal identity of motivic units is not meant to suggest that they are shaped independently of the rhythmic framework through which a range of different tunes and performances are united. First, beat duration asymmetry is to be regarded as an inseparable part of the tunes as they are conceptualized through performance and learning, rather than through expressive information being added to some basic rhythmic structure. This view is supported by the fact that dancing, foot tapping and other recurring patterns of overt movement confirm that the basic rhythmic structure of these styles is asymmetrical. Second, the melodic-rhythmic material is temporally shaped and accentually articulated in accordance with the basic groove (*Tele-springar*, *Valdres-springar* etc.). The most important empirical premise on which this view rests is that melodic-rhythmic patterns do not appear to be translatable in the sense that they cannot be manipulated into another beat duration structure without being transformed. For instance, even though a symmetrical pattern of symmetrical triplets can be translated into an asymmetrical groove, this manipulation seems inevitably to result in a restructuring of proportional temporal values

(subdivision timing).[270] Moreover, it should be emphasized that the nature of the translation problem is not properly illuminated by merely referring to absolute constraints (the supposed difficulty to extend or contract beats without involuntarily transforming their internal temporal organization). With reference to the argument that the internal temporal and intensive structure of the beat motifs are shaped in different ways according to the basic groove, it may also be speculated that a hypothetical translation through acceleration/retardation would violate a sense of flow and temporal coherency crucial to the recognizability and quality of a particular groove.

Finally, durational fluctuations do not necessarily indicate an unstable or unpredictable meter. Here we only need to consider the fact that people mutually recognize and interact with these rhythms in a consistent manner. Thus, there is obviously a tolerance in the sense that a variety of different durational patterns can comprise the same meter (or groove). From this perspective, it seems difficult to explain meter perception as a measuring or counting process in which beat durations are continuously evaluated and matched to a temporal grid. It seems more realistic to, like Kvifte (2007), "see the process of entraining to a meter more as a pattern-recognition task than a computational task, that is, more a matter of learning to recognize and discriminate a large number of (musical) patterns than of learning to apply a small number of rules."[271] A *Tele-springar* meter, then, could be described as that unspecified criterion through which a range of different rhythmic performances are recognized as being the same groove. The problem arises when it is assumed that some kind of averaged pattern of beat durations is supposed to work as a norm by which the timing and integration of rhythmic elements are controlled, which is not the same as the assumption that performed rhythms are recognizable partly by their durational qualities. In sum, then, melodic-rhythmic phrases are in no way *forced* into a predefined pattern of beat durations, while clearly being shaped in accordance with the basic groove by which they are recognized. These obviously might be seen as competing principles. On the one hand, an asymmetrical groove implies the constant manipulation of the temporal structure of beat motifs, necessitated by the fact that they have to fit within an ever-changing local frame (a long, average or short period). That is, given a hypothetical case of a stable asymmetrical beat duration pattern, all beat motifs would have to be temporally adjusted in accordance with the constant alteration between shorter and longer periods (beat lengths). On the other hand, with reference to the observation that this is not what is happening in the performances analyzed, the strong rhythmic-temporal identity of melodic-rhythmic segments across metrical positions might be said to imply a constant transformation of the very groove which is supposed to temporally structure these

[270] Cf. the case study presented in chapter 6.4.
[271] Kvifte 2007: 81

units in the first place. This suggests another hypothetical alternative, namely that the rhythmic framework itself is unstable and unpredictable, having no independent existence. This conception runs counterintuitively to the observation that *Tele-springar*, *Valdres-springar* etc. are sustained as easily recognizable and readily distinguishable grooves. Simply put, a framework of this sort cannot be constantly transformed if it is to guide rhythmic performance.

One possible solution to the problem associated with the configuration between recognizability and flexibility referred to above, then, is to let the rhythmic framework be consistent with a *formulaic* conception of musical structure, which might then be defined by the multitude of its manifestations rather than some archetypal form or averaged basic structure. In this sense, the concept of groove or meter ultimately denotes a dynamic organizational framework that exists only by virtue of its interaction with the diverse manifestations through which it is recognized and continuously negotiated. In sum, a formulaic model of this sort is processual and performative by virtue of being in a continuous state of becoming and transformation through performance action. This means that a rhythmic variation is not seen as a deviation from a norm but as one out of several possible or potential (latent but not yet actualized) realizations of the groove. More fundamentally, a formulaic rhythmic model is not to be understood as a referential structure with which the timing of beats is adjusted to match and it will coincide with a contextually independent, static formal rhythmic framework only by accident. Rather, the guiding constraints on rhythmic performance may be thought of as arbitrarily specified criteria of well-formedness which are negotiated according to the principle that boundaries are determined negatively, i.e. by evaluating whether the performance is recognized as well-formed or not.

In this context, it is important to recognize that the dynamic interaction between organizational framework (style or groove) and the constitutive capacity of local events through their idiomatic design does not only concern the temporal domain of music performance. Every aspect of the musical material, including melodic, accentual and timbral relationships is shaped so as to conform to a sense of flow and coherency. Or, rather, a particular style, defined as a set of socially framed musical practices, has fostered certain idiosyncrasies which determine the appropriate patterns of interaction between parameters. This, however, does not mean that performed events within single parameters are intentionally matched to a predefined system which may be accounted for by the performers. For instance, I do not want to imply that melodic patterns are matched to rhythmic patterns or vice versa. Nor do I want to give the impression that a groove/style *prescribes* certain temporal or melodic patterns. Instead, I suggest that a groove/style *affords* certain realizations of melodic-rhythmic formulas within which temporal,

melodical, intensive and accentual properties are intrinsically related. The total interaction of these parameters, then, constitutes musical units as irreducible events from which an autonomous temporal or melodic patterning principle cannot be extracted. In other words, it cannot be determined which one of the expressive parameters is affecting or shaping the other, while this mutual influence is unquestionable. Consequently, neither the patterning of single parameters nor the constitutive interaction between different parameters appears to be possible to predict using simple models. Instead, as discussed above with respect to the rhythmic domain, it is hypothesized that the evaluation of these interactions is based on culturally and performatively negotiated notions of well-formedness. The implications of this and other interpretive statements are discussed in the following, final chapter.

7 Conclusions and implications

In this final chapter I shall attempt to synthesize my research findings by framing them within a wider theoretical and conceptual context. Thematically, the discussion is organized into six sections in which different theoretical perspectives are integrated to reveal an interpretive framework that is consistent with empirical data on performance timing and an ethnographically informed conceptualization of style.

7.1 Style as process

The notion of style as process is a unifying conceptual framework in my thesis. Above all, it represents a kind of metaphorical transferability between the different levels of analytical and interpretive enquiry. Style, understood as the socio-musical reality within which musical expression is situated and gains meaning, is seen as a continuously ongoing process in which musicians and audiences mutually renegotiate historically constructed webs of references and intrinsic meanings. In terms of the central perspectives found within interpretive sociology and anthropology, the socio-musical configuration is not viewed in terms of homologies, as expressive reflections of existing meanings and worldviews. Rather, the constitutive element is identified as being an interactive process of engagement in symbolic action where meaning is established and maintained, and where horizons may be constantly expanded without violating social and musical coherency. The creative act of performing music, then, is seen as an exploration of possibilities within finite but expandable horizons. Moreover, instead of searching for performance rules, I have arrived at a formulaic conception of musical structure, rhythm and timing. This entails that stylistic rules are understood in terms of what they afford rather than what they prescribe, and the aim of interpretive investments becomes to explore the principles constituting the expressive resources accessible to, and creatively shaped by, the imaginative musician. Underpinning this is the conception that there is a dialectical relationship between social-institutional and individual-expressive levels of style in the sense that performance practice contributes to shaping the musical and social reality within which it is framed.

Another aspect of the constitutive interaction between different levels of style is the process through which a fine-tuned sensibility for stylistic distinctions has been culturally and musically negotiated. From this perspective, one might speak of different styles of attention where stylistic knowledge within the pols/springar genre is defined in rather rigid terms. This is particularly apparent within the domain of phrasing and timing: a performance in which these aspects do not

work properly may not even be recognized as the rhythmic style to whose fine-tuned temporal tolerances it is supposed to conform. The seemingly paradoxical nature of this argument is revealed when considering the fact that stylistic categories are highly flexible in the sense that the same groove or rhythmic style may materialize in a variety of ways with highly variable beat durational patterns. This points to the fact that groove and style cannot be adequately defined by generalized rhythmic models relying on averaged or normative beat duration and accentuation patterns. Again a formulaic, processual model is required in order to account for the paradoxical nature of stylistic appropriation and evaluation. This means that a performance is not considered to be a realization of predefined stylistic rules, but as a process of becoming, intuitively recognized by its qualities as a well-formed pattern of performance gestures. This arbitrarily specified criterion of well-formedness equates to what has been termed stylistic constraints, i.e. what is affordable without disturbing stylistic coherency. This also extends to the relationship between material and expressive levels of style in the sense that the material level escapes rigid classification. Instead of an original form being altered, there is formulaic variation in which the material remains recognizable, while being constantly transformed, remodeled and expanded. Finally, this formulaic conception metaphorically parallels the cultural processes determining the boundaries of style at a higher level. From this perspective, style is seen as a heterogeneous field of contributions which together define the cultural and musical framework within which they are being made sense of. In other words, they are recognized as being distinguishable from alternative forms of musical and cultural expression, without the criteria for defining this sameness being possible to specify.

7.2 The dialectic between rhythmic levels

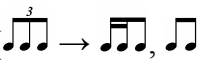
The asymmetrical styles of pols/springar playing are groove-based in the sense that the tempo is perceived as constant and that the unfolding of rhythmic events corresponds to a triple-time dance meter. The peculiar feature is that different durational values are assigned to each of the three beats within the measure. Thus, a certain recurring pattern of beat durations is one of the basic features by which a particular rhythmic style (groove) is recognizable. At the same time, as my analyses have shown, there are significant durational fluctuations on all rhythmic levels. First, subdivision patterns are non-isochronous and continuously varied. Second, the beat duration ratio varies from measure to measure and short and long beats may change position from one measure to the next. Third, extensions or contractions of beats are not temporally compensated for within the measure. Instead, there is a tolerance allowing the whole measure to stretch out or contract. This empirically evidenced temporal variability casts doubt over assumptions about

meter, understood as a recurring structure of beat durations, as a basic framework constraining actual melodic-rhythmic realizations. At least, the expressive resources displayed through the analyses presented do not allow such a framework to be rigid.

The observations presented above do not explain much about the way musical time is organized and controlled. It is only stated that formal rhythmic units (measures, beats and subdivisions) do not comprise a coherent system, unless this is described in terms of constant, largely unsystematic deviations from nominal or average values. However, since rhythmic patterns are indeed performed consistently with high temporal precision, it does not seem reasonable to describe these patterns in terms of deviations from a norm. Therefore, an alternative explanatory framework is required to understand how these flexible rhythms are organized. Briefly, performance timing is interpreted as a dynamic continuum of two interrelated processes.

First, there is what has been called a top-down process which is related to the observation that comparable melodic-rhythmic motifs (generally two-measure motifs) are temporally structured in a very similar way, variation being attributable to the numerous and intricate modes of formulaic variation involving rhythmic and melodic reshaping, and the use of different embellishments, bowing patterns and double stops. This in turn implies that motivic units, defined as complete melodic-rhythmic events, possess a kind of patterning capacity in the sense that they constitute a framework of their own, as much as they occur within such a framework. From this perspective, the independent temporal logic of melodic-rhythmic structure entails that measure, beat and subdivision durations are subordinated to the shaping of the complete motif, understood as a particular bundle of closely interrelated temporal, melodic and intensive values. Thus, the precision with which a performer may replicate rhythmic patterns when motivic units are repeated is not explained in terms of an ability to estimate and adjust the durations of individual beats and/or tones. Instead, the motif is seen as a complete rhythmic event which is imitated with the aid of a gestural representation of the melodic-rhythmic contour of the pattern as a whole. It also should be noted that the fact that similar motivic segments may contain different sets of durational values does not automatically contradict the notion that the motif functions as a rhythmic gestalt according to which the relationship between temporal values is configured. When a new (rhythmically different) version of a motif is realized, a new rhythmic whole is potentially established in relation to which the timing of individual events is subordinate.

Second, there is the bottom-up process, in which focus is on the way the temporal architecture of single beat motifs affects the shape of the pattern which functions as a context for their realization (the measure or the motif). This is particularly well illustrated when a beat motif

with an architecturally determined long duration (high density or heavily ornamented beat motifs) is relocated within a metric context, thus affecting the durational ratio between the three beats within the measure. From this perspective, beat duration is aligned to beat motif architecture more or less regardless of metric or motivic position. However, it needs to be taken into account that the relative temporal flexibility and stability of beat motifs are architecturally determined in the sense that simpler (low density) beat motifs are flexible and unstable, while complex (high density) beat motifs are inflexible and stable. The mutually interdependent and constitutive interaction between rhythmic levels is also illustrated by the alignment between variation in beat duration and the *proportional* temporal values within the beat motif. As has been indicated, beat duration and subdivision are not controlled independently, as it seems very difficult to scale subdivided beat motifs to a different total duration without changing their internal structure of relative durational values. This entails that the process which results in different beat durations should not be described in terms of tempo metaphors (faster/slower, acceleration/retardation etc.), but as *rhythmic reshaping* ( etc.).

The top-down and bottom-up processes are so closely intertwined that it may be misleading to treat them separately. Instead it might be said that *the process* of performance timing comprises both these constitutive influences. The central assumption of this model, then, is that the analysis of performance timing needs to focus on the relational unfolding of melodic-rhythmic events to be able to conceptualize the unique, context-specific interactions between rhythmic levels, as opposed to an analysis of how performed rhythms deviate from or are related to an idealized model based on beat duration. However, there is a paradoxical, seemingly contradictory element to this model considering the fact that a rhythmic style (*Tele-springar*, *Valdres-springar* etc.) is recognized by the general rhythmic-temporal properties that a range of different (melodically and rhythmically unique) performances have in common and which distinguishes them from alternative styles/grooves. In this way, the melodic-rhythmic material is indeed temporally shaped and accentually articulated in accordance with the basic groove. Thus, understanding the guiding constraints of performance timing requires a multi-leveled focus so different organizational, contextual and architectural factors can be shown to interact in different ways.

7.3 Parameter interactions – melodic rhythm as groove-forming element

This part is devoted to a further theoretical exploration of parameter interactions with a particular focus on the inherent multidimensionality of the rhythmic domain of performed music. Musical parameters interact in profound ways in a performance and the importance of this interaction is especially evident in rhythmically flexible styles in which the melodic line constitutes the basic groove-forming element. In this way, the interaction between different levels in a rhythmic hierarchy seems analytically inseparable from the interaction and mutual interdependence of musical parameters. One of the most obvious examples of parameter interaction is suggested by the term *melodic rhythm*, and there is more to this than the simple co-existence of melodic and rhythmic patterns. Except for the obvious point that there is no melody without rhythm, there are several other interconnections which directly concern performance timing. For instance, while very complex and seemingly unpredictable rhythmic patterns may be replicated when a motivic section is repeated, or when skilled performers play the same melody in unison, this could hardly be the case if the melody were removed, leaving only percussive attacks to constitute the temporal pattern of onsets. In other words, the comprehensibility of the flexible pols/springar rhythms is completely dependent on the melody. This entails that the conventional notion that there is no melody without rhythm while there certainly can be rhythm without melody appears to be true only as long as it is not implied that a pure rhythm may be extracted from a melodic rhythm while still retaining its identity as a *structure* of durations.

These notions should remind us of the mutual relationship and inseparability of parameters in music perception and production. Experientially, it seems musical parameters are invading each other's perceptual domains in a way so that timing cannot be perceived independently of our perception of other structural and expressive parameters.[272] In many contexts, talking about variation in timing probably would make no sense to a musician or listener, while pointing out how alternative versions are distinguished by being differently rhythmically and melodically articulated through the creative use of bowing figures, embellishments, accentuations and rhythmic transformations may conform completely to musical and technical conceptions.

From the perspective of rhythmic production, it may be generalized that timing is both an active and passive parameter. It is passive in the sense that the duration of individual events is subordinated to the articulation of the rhythmic phrase of which they form a part. As Clayton et al. (2004) note regarding the "purely" rhythmic pattern of clap stick beats traditionally performed

[272] See MacDougall 1903; Bengtsson & Gabrielsson 1980

by the Dyirbal-speaking people in North Queensland: "[…] what performers recall or activate in performance is not a series of individual strokes but complete patterns with distinct temporal fine structures."[273] Moreover, in the performance of a melodic phrase, timing may be seen as passive in the sense that durational values are interwoven parts of a well-formed pattern in which the melodic, intensive and temporal contour is experientially inseparable. In the simplest of terms, a melodic, dynamic or ornamental variation resulting in a durational variation does not entail timing being an active expressive parameter. On the other hand, a performer may attend to the duration of a particular tone within a melodic-rhythmic pattern which functions as a reference for the active variation in timing. There are of course no clear boundaries between the active and passive expressive use of timing. However, the important point which concerns both production and perception is that we often cannot tell what the constitutive links are between the separate parametric events, even though there clearly are such links. Moreover, it might be misleading to ask how rhythm and timing are *affected* by other parameters. In other words, a melodic motif, an ornament etc. does not affect timing unless timing is measured in relation to an idealized pattern of abstract durations. Rather, timing is the very articulation and integration of these events, leaving timing as something external to the melodic flow as a theoretically constructed description.

Groove description and the reification of time

The above discussion suggests that one needs to be careful when theorizing how different aspects of the purely temporal parameter interact and work together in the production and perception of rhythm and groove. Thus, the reification of time in the study of the asymmetrical styles of pols/springar playing is a problem to the extent that averaged or idealized beat durational models function normatively, as the guiding constraints on which attention is supposed to be directed during performance. The reason for this is that models based on purely temporal relationships ignore fundamental aspects of how rhythm is produced and perceived. In other words, such models must not be confused with the mechanisms by which the fine-grained integration of rhythmic patterns is achieved. There are good reasons to remain alert to this problem, considering that theoretically informed models may affect the way musicians think about and perform different pols/springar grooves. In this connection, Meyer (1989) provides a valuable reflection on the nature of parametric differentiation:

[273] Clayton et al. 2004: 33

> …our theories about the world tend themselves to be parameter-specific. And such theories (about political, social, musical, and psychological patterns and processes) not only affect our understanding by emphasizing the autonomy of parameters; they feed back to and influence the behavioral practice from which they were originally derived.[274]

This is a very important point with vast implications for the understanding of the relationship between theory and practice. On the one hand, analytical work is necessarily about segregation in the sense that a musical flow needs to be translated into separate parameter values, even if later we try to bring it all together by explaining how these parameters interact. In short, we have no well-established signs or symbols describing "the wholeness" of a performed gesture or the constitutive interaction between parameters. On the other hand, this does not mean that a musical phrase can be learned by a musician by adding one parameter at a time. For instance, even though some teachers, researchers and musicians seem to believe that the pols/springar styles are temporally structured by some independent beat durational matrix, it seems impossible to control the temporal flow of events without the organizational influence of the melodic rhythm as it is structured in motivic sections. However, such a theoretically informed conception may still influence musical practice by constraining and consolidating rhythmic behavior. Thus, this kind of analytical intervention into stylistic behavior should be avoided, unless one wants to advance stylistic change by disciplining performers to the claims of some theoretical model. The argument is really quite simple. *If the behavior of a parameter (rhythm, melody, timbre etc.) cannot be understood with reference to its own constraints, then it is impossible to construct predictive models based solely on measured values from this parameter.* At least, this cannot be done without violating the multi-parametrical constraints which bind this behavior. Thus, the analytical challenge, which requires further empirical investigation and theoretical speculation to be solved, is to develop a kind of flow-description model that can function as a representation of the patterns and correspondences which make up a musical event.

7.4 The concept of rhythmic tolerance

In this part, I shall briefly explore the explanatory potential of the concept of rhythmic tolerance by theorizing how freedom and constraints are interwoven elements of style understood as a set of expressive and experiential resources negotiated through performance practices. As will be demonstrated, this concept may be applied both analytically and metaphorically to the material by incorporating the different theoretical and methodical issues that have been the main concerns

[274] Meyer 1989:114-115

of this thesis. The point of departure is the general freedom of variation that is characteristic of the pols/springar style, and the empirically evidenced temporal variability in particular, which requires one to attempt to account for the ways in which performers and listeners might come to understand and potentially make use of this flexibility.

Analytical application

On the analytical level, rhythmic tolerance concerns the stylistically determined flexibility of temporal values in the performance of pols/springar tunes and the patterns of possibilities that govern the production and perception of rhythm and timing in this style. Rhythmic tolerance has three main dimensions. The first concerns the flexibility of the rhythmic framework, i.e. the fact that measures and beats may vary considerably in terms of both absolute and relative length from one part of a performance to the next (or between different performances) without compromising the experience of flow, tempo and groove. The second concerns tolerance in relation to the *identification* of rhythmic events on a time axis, i.e. the relationship between measurable points in the musical flow (physical onsets) and experienced rhythmic (musical) onsets. The third concerns synchronization behavior and the precision with which musicians, listeners and dancers might operate when interacting with a rhythmic course of events.

Tolerance and the concept of flexible groove

The notion of *flexible groove* addresses the musician's ability to shape melodic-rhythmic phrases within a malleable temporal framework. This dimension of rhythmic tolerance is easily exemplified by the fact that a variety of different beat durational patterns can account for the same groove. On a more local level, we have also noted that rhythmic performance requires a certain tolerance in the sense that extensive ornamentation and other elements of expressive musical performance need to be "allowed" to occupy a certain amount of temporal space.[275] From this perspective, rhythmic tolerance thus centers upon the stylistically determined relationship between flexibility and coherence (in the form of the frames and boundaries without which "flexibility" would have no meaning). Moreover, as was discussed in chapter 6.5, though we might note that a groove's measured units vary in length, this does not necessarily imply that it will be experienced as temporally varied or unstable. In fact, this variability may not be noticed at all, which suggests that one should be careful before concluding that the recognizability and

[275] This feature is a stylistic trademark in more than one sense. For instance, the observation that ornaments are allowed to "steal" time for their realization would not account for the corresponding interaction between rhythmic levels in the highly ornamented Irish style of tune-playing. Here, other kinds of ornaments have been developed which generally seem to fit within a rather uniform beat duration pattern.

quality of a groove is evaluated mainly by its beat durational properties. Related to this is the danger of confusing tolerance with a lack of precision, i.e. that the performer is allowed to deviate from a preferred beat duration pattern. With regard to the case studies presented in this thesis, such an interpretation would potentially leave us with the counterintuitive explanation that the temporal precision with which the fiddlers operate is very low. Above all, such reliance on a basic beat-duration model against which to measure, describe and explain expressive deviations (whether stylistically acceptable or not) will interfere with the recognition of precisely rendered temporal patterns that answer to other structuring principles. For instance, as was demonstrated in chapters 5.3 and 6.3, comparable renditions of melodic-rhythmic motifs may be temporally structured in a very similar way, while comparing the individual measures of these motifs reveals extensive variation in the duration of beats and measures. Thus, the point is that formal rhythmic units need to be temporally flexible—imprecise, in effect—in order to allow for the very *precise* rendition of rhythmic patterns generated elsewhere within the complete melodic-rhythmic gestures or sentences of the music itself. From this perspective it follows that it is a mistaken conclusion that beat duration variations are either random fluctuations due to performance inaccuracy or controlled deviations from a norm (an average pattern). In short, since rhythmic patterns are indeed performed consistently with high temporal precision, while giving the impression of chaos when viewed from a measure-by-measure perspective, one needs to expand the analytical scope in the search for explanations.

It is noticeable that while rhythmic tolerance might refer to the observation of temporal variability among successive measures, it might also point to the possibility that motifs can be performed in different ways, for instance by allowing highly ornamented beat motifs to stretch out in time. As a theoretical argument, then, the concept of rhythmic tolerance does not imply any particular relationship between the categorical and expressive levels of rhythmic performance. Its flexibility includes that of the categorical reference in relation to which expressive timing variations may be performed and perceived. Related to this is the observation that durational variations generally are difficult to perceive, possibly due to the irregularity of the referential structure. This supports the understanding that the rhythmic-temporal domain is an *open parameter* in the sense that it may be varied within certain limits without disturbing stylistic coherency. In other words, this variability is inherent to the style, something which in itself is closely related to the fact that variations may be difficult to detect as temporal variations.

Onset quality and interpretive ambiguity

This dimension engages rhythmic tolerance in connection with the *identification* of rhythmic events on a time axis. Here I shall draw on the *center of gravity* or *beat bin* metaphor, as expounded by Anne Danielsen. According to this view, the actual location of the beat is, at least under certain conditions, not a specific point in time. Rather, the beat must be conceived of as a concentration of energy with extension in time.[276] This is particularly apparent when the physical representation of the start of a rhythmic event is ambiguous, as often is the case in fiddle music, where musicians use the almost endless potential for articulative variation as an expressive resource. Accordingly, the "fading-in" of tones, ornamentation, glissandi, legato, bow dynamics etc. may increase the tolerance range within which a rhythmic event is estimated to start. Or, the musical onset may be perceived as having a certain extension rather than being represented by a specific point in time. This aspect of rhythmic tolerance is illustrated in several examples in chapters 4-6 and calls attention to the *varying* difficulty of determining the exact point of transition between rhythmic elements. In some cases, the rhythmic onset is rather unambiguous, with a distinct attack that is not muddled by a slide or grace note. In other cases, the audible rhythmic information is much more difficult to interpret. Examples of the latter include instances where the beat onset is defined by an ornamental tone (or several ornamental tones) (see figs. 15, 19, 52, 53, 58 and 61), or where there is no physical representation at all of the beat onset (e.g. a long glissando). The point is that while analytical operations may require that we choose among different measurable points in time, normal musical interaction does not. A rhythmic realization of the sort referred to above may simply extend the temporal space within which a musical onset is experienced by a listener, making it superfluous to distinguish among the various actual attacks (in the cases where such attacks are present).

It is important to note that this perspective on rhythm perception extends beyond the prediction that timbral and architectural characteristics of the sounds produced affect the way in which the start of rhythmic events is perceived. This is related to the fact that the relationship between physical onset and the "point" at which a rhythmic event is perceived or intended to start cannot be deduced from the sound, regardless of the distinctiveness of the attack.[277] For example, we cannot know for sure whether the physical onset is located slightly before the point at which the performer (or another listener) would place the beat (cf. chapter 4.2). Moreover, in addition to the spectral components of the sound, listener onset perception may be affected by the density, regularity and symmetry/asymmetry of the sequence of sounds surrounding the

[276] Danielsen 2006: 79; Danielsen 2010
[277] Cf. Kvifte 1999

given event.[278] Thus, the identification of a rhythmic event will always be ambiguous when measured against a mathematical time grid. Rhythmic tolerance, then, refers to the fact that the experience of a rhythmic event need not correspond to a measurable point in the musical flow. Instead, the event has a certain extension which may vary according to a variety of acoustic and perceptual factors.

Tolerance and musical interaction

This dimension of rhythmic tolerance relates to the precision and resolution with which musicians, listeners and dancers might be expected to interact with a rhythmic course of events. This aspect is especially relevant to consider in situations of musical interaction where synchronization is crucial to the experience of flow and coherency. From this perspective, the flexibility of *pols/springar* rhythms demands a particular attentiveness to the unfolding of musical events at a very localized level. Successful musical interaction thus relies upon a shared conception of musical structure, as well as of the expressive means through which it may be communicated and highlighted. Here it might be said that given a certain degree of improvised variation resulting in durational fluctuations on all rhythmic levels, perfect synchronization between musicians, or between musician and dancer, seems impossible. However, it may still be an ideal and as such demonstrate an almost limitless scale of potential virtuosity or mastery in the musical interaction. This is spectacularly demonstrated by the Swedish-Norwegian folk music band Groupa, who play rhythmically flexible pols/springar tunes as an ensemble.[279] Within a shared and potent concept of *melody as the rhythm carrier*, these and other leading folk musicians have developed an accepted approach to these flexible grooves.[280] To these musicians, beat duration diversity and onset ambiguity are simply challenges to be overcome rather than insurmountable obstacles to rhythmic coherence. The notion of melody as the rhythm carrier, then, implies that the groove-forming element is the melody rather than some structure of percussive accents in the backing section. Thus, the melody, not the accompaniment, provides the rhythmic reference on which all rely.[281] The accompaniment instead accommodates different ways of articulating this melodic rhythm. Although both synchronization and tension are

[278] Danielsen 2010
[279] Listen, for instance, to the tune *Sparve lilla* on the album *Imeland* (Groupa 1995) or the tune *springleik* on the album *Lavalek* (Groupa 1999).
[280] Johansson (2001) includes interviews with leading Swedish folk musicians that elaborate on their attitudes toward rhythmic performance.
[281] This is in contrast to many other musical genres where a stylistically acceptable groove can be produced (and perceived) without the melody as reference.

potential outcomes of a successful interactive interplay between these musicians, the quality of the musical interaction inevitably relies on a shared conception of how the melody is articulated.

The attitudes and conceptions represented by the contemporary folk music band Groupa may be seen as principles guiding and constraining performance practices, and as an ideational framework within which particular manifestations of rhythm come to be understood and evaluated. The extent to which these attitudes are representative of the average Scandinavian folk music band is not important in this connection.[282] Instead, the point is to illustrate one of the interpretive and experiential *possibilities* that this material offers. From this perspective, attitudes toward the rhythmic-temporal domain of performed pols/springar grooves should be treated as valuable data in an attempt to theorize how different ideals, conceptions and performance practices are mutually interacting and interwoven parts of a style as an experienced and lived potential of musical expression.

Metaphorical application

Metaphorically, the concept of tolerance is reflected in the overarching sociological level of style in that this represents both boundaries and freedom, thus capturing style as a field of musical production and experience within finite but expandable horizons. Moreover, it resonates with the conception of style as a potential for expression, rather than as a classified body of repertoires and performance practices. Again, we arrive at a formulaic conception of the different levels of style and their interaction, conforming to the basic idea that style resides in a state of flux. From this perspective, the object of study becomes the freedom and constraints through which expressive and experiential possibilities are explored and negotiated through performance practice and evaluation. This would further emphasize the symbolic transferability and explanatory potential of the concept of tolerance, which encompasses the formulaic nature of this style through the continuous process of reconstruction utilized within its limits.

The lowest level of performance and interpretive action concerns the detectability of temporal details and differences. As have been discussed, factors such as event duration diversity, onset ambiguity and the multi-parametrical nature of rhythmic experience dictate a flexible mapping of rhythmic events. This should not be understood as if there is a specific point in the musical flow where the beat actually is located, while "disturbing" factors make it difficult to pinpoint this precise location. Rather, the material affords a range of interpretive possibilities, the

[282] For instance, the fact that another stylistically reasonable alternative is to straighten out the rhythm and let a backing section provide a standardized groove only reminds us of the multitude of solutions available, rather than calling into question the validity of the example reviewed.

nature of which may vary according to the knowledge and attention invested in the interaction, in addition to the physical "extension" of the rhythmic elements in question. Moreover, while there may be a great tolerance for detectable differences, very subtle details may be crucial to the experience of flow and coherency, without necessarily being identifiable by being measured against a reference. On the next level, there are comparable renditions of motivic units or subunits (beat motifs, ornaments etc.) in which differences may be perceptually detectable but experienced and evaluated as equivalent in a musical sense. In this case, sameness is defined by principles of substitution, rather than by detectable differences. This does not entail that an original form can be identified against which variations can be measured. Instead, there is a range of stylistically acceptable realizations produced by means of formulaic variation. That is, a certain version of a motif (or of a tune) represents only one out of an infinite number of stylistically appropriate realizations, the limits of which cannot be determined in advance (i.e. independently of the realization itself). Again, this corresponds to the notion of style as a potential for expression, i.e. a set of continuously negotiated *possibilities* rather than a coherent system of derived rules.

A further application of the concept of tolerance, then, might comprise the flexibility of stylistic categories, for instance the different ways in which a rhythmic style may materialize while still retaining its recognizability. Proceeding on this path would imply that one would eventually end up at some kind of overarching, generic category (Norwegian folk music, Scandinavian folk music etc.), which encompasses all levels below. It needs to be noted, though, that the encompassing capacity of a generic category is theoretical and abstract in the sense that it is only indirectly related to performance decisions and audience evaluation, i.e. it is continuously being revised through processes beyond immediate control. At the same time, genre operates as a socially and musically agreed framework for artistic and creative investments and audience appreciation, which means that all levels of the generic hierarchy are interrelated in some way. The concept of tolerance, with its inherent formulaic character, thus metaphorically encompasses the multi-levelness of *style as process*, as well as the differences between the different levels of this process. These range from immediate estimations, judgments and performative actions, via the socio-musical performance practices which constitute particular stylistic realities, to large-scale sociological processes of institutionalization through which the overall generic category is maintained. In this way the concept of tolerance, as defined in this thesis, applies directly to the lower levels of this process and in a symbolic sense to the higher levels. This testifies to the encompassing capacity of the concept in that it comprises the

interactive and mutually constitutive relationship between different levels of style, different rhythmic levels and expressive parameters in musical performance.

7.5 The interaction between categorical and expressive levels in rhythmic performance

The asymmetrical styles of pols/springar playing provide an interesting case to discuss the interplay between rhythmic categories and expressive timing. As discussed in the previous sections, these styles are flexible, melody-based grooves to which temporal variability is intrinsic, perhaps leaving the question of determining the limits of such variability within different contextual constraints the most relevant and challenging analytical task. At the same time, it remains a theoretical challenge to determine some kind of reference against which to measure and describe variations in timing. This is a central and problematic area within the field of expressive timing research, and it would seem reasonable to draw on research findings and theoretical perspectives from this field to enrich my interpretations. However, there seem to be some stylistic features in pols/springar playing which prevent the easy application of some of the central theorems of this paradigm.

First, the way in which expressive timing in Western Classical music has often been studied tends to focus on how performers utilize local tempo variations as a means to communicate aspects of musical structure.[283] Consequently, the production as well as the reception/perception of phenomena such as *acceleration* and *ritard*,[284] and *tempo rubato*[285] have been investigated from different empirical and theoretical perspectives. The models developed within this field of research (generative models of tempo functions, tempo curves, time maps etc.) do not immediately appear to be relevant to the exploration of temporal aspects of the asymmetrical styles of pols/springar playing, as these styles are characterized by a constant, danceable tempo.

Second, the alternative approach, which also seems to be genre-oriented, focuses on what has been termed *time-shift* (or *event-shift*) patterns.[286] Here, micro-timing patterns in repetitive music with a globally stable tempo, so-called *groove music*, are measured as deviations from a regular pulse. When referring to the practical implementation of these analytical findings in modern computer software, *groove templates* could be seen as "a musically powerful first

[283] Honing 2001
[284] Epstein 1995
[285] Timmers et al. 2000; Yeston 1975
[286] See Honing 2001

approximation to stylistically appropriate microtiming."[287] However, although such models could potentially account for some typical recurrent timing patterns at the beat and subdivision levels in some styles of pols/springar playing, they would not be able to account for the observed variability at these levels. Moreover, these models often seem to be constrained by the assumption that a regular pulse functions as a reference through which the performer and listener come to appropriate and appreciate stylistically acceptable timing patterns.[288] As discussed earlier, this assumption is not consistent with the observations made about pols/springar playing, as this reference seems impossible to pin down from any level of the performed rhythm. However, there may still be some kind of imagined referential structure in relation to which performed rhythms are produced, experienced and evaluated. This is explicitly assumed by Waadeland (2000) in his discussion of swing and groove in performed music (see also chapter 3.7):

> When making a musical performance swing, the performing musician is *giving* 'life' to the rhythm through a process by which (more or less) conceptualized structural properties of rhythm are *transformed* into live performances of rhythm. Such a process of rhythmic "transformation", often denoted 'timing', or 'expressive timing' (cf., Clarke, 1999. Pp.489-490), may be seen as a result of the musician performing 'against the pulse', or, as we prefer to put it: being caused by the musician *moving in various 'non-metronomical' ways*. Sounding musical consequences of expressive timing are 'artistic deviations', or, 'deviations from the exact[…]and it is shown that different kinds of rhythmic deviations are characteristic of different musical *styles* of performance.[289]

The empirical and analytical challenge, then, is to define these conceptualized structural properties of rhythm which are supposedly transformed into live performances of rhythm. Regarding the asymmetrical styles of pols/springar playing, there seem to be three more or less plausible alternatives, as listed below:

1) The categorical reference is an imagined symmetrical triple meter. Thus, all tendencies toward asymmetry are to be regarded as expressive variations, deviations or transformations. As discussed in chapter 3, this appears to be Waadeland's (2000) and Bengtsson's (1974) position.

[287] Wright & Berdahl 2006: 572
[288] "It is commonly believed that music with appreciable deviations from a stable beat (event shifting music), such as jazz, has an implicit fixed time grid." (Bilmes 1992: 208). See Kvifte (2004) for a critique of this approach. See also Timmers & Honing (2002) for a critique of the use of the score as a reference for expressive timing.
[289] Waadeland 2000: 3-4

2) The categorical reference is a predefined asymmetrical beat duration pattern (short-long-average or long-average-short), which leaves deviations from this model as expressive (or faulty) variations. With the exceptions mentioned above, this alternative appears to conform to a consensus among Scandinavian folk music scholars (see chapter 3).
3) The categorical reference is defined by identifying *performed* rhythmic patterns that appear to be temporally consistent. This alternative seems to be consistent with my observations and theorizations, although it poses some theoretical problems that require further attention.

As argued in chapter 3, to classify everything that deviates from a metronomic/symmetrical rendition as expressive variation is rather questionable considering that beat asymmetry seems to be intrinsic to the basic rhythmic framework within which the expressive structure of temporal and intensive values are chiseled out. The problem with the second model has also been extensively discussed. In general, since measured timing variations are closely interrelated with melodic-rhythmic architecture it seems strange to assume that these variations are produced and perceived with a predefined beat duration ratio as a guiding reference. If this were the case, it would unreasonably imply that that the very high temporal precision with which the same "deviant" patterns are replicated when motivic segments reoccur is achieved by the performer evaluating and adjusting the durational relationship between performed beats and their nominal lengths. Moreover, a mechanical rendition in which the melodic rhythm is forced to fit with a predefined beat duration model would seem to violate the idiomatic logic of performance timing, thereby possibly being perceived as a (unnatural) variation rather than as a neutral norm or reference.

The third alternative, then, is fundamentally different from the first two in that the reference is seen as growing from the events unfolding as opposed to being pre-established and independent of the performed music. In this context, a performed version of a melodic-rhythmic motif could be seen as a reference for the identification of expressive timing variations, i.e. additional temporal information not being part of the "original" rhythmic contour of the motif. This alternative suggests that the temporal values of the referential structure are not constant, not even within one single performance (given that each motif has a timing profile of its own). Here, the analytical challenge is to separate true variations in timing and temporal patterns that are intrinsic components of categorically different versions. As was noted in chapters 4.4 and 6.3, the general variational freedom and melodic-rhythmic flexibility of motifs make it very difficult to determine the boundary between categorical and expressive variation, although this distinction

might still be highly important in appreciating the subtleties of the melodic-rhythmic course of events. This becomes especially evident when considering that a significant timing variation may contribute to the reconstructing of the basic figure (category) with reference to which the variation is understood.

The importance of this issue is evident from the fact that a reference needs to be determined if timing is to be comprehensible as an analytical concept. This can scarcely be questioned considering that timing is a relational quality. Accordingly, variation in timing is variation in relation to a categorical reference. The alternative would be to assign all durational configurations a category of their own. However, apart from violating the economizing logic of human information processing capacities, this would make the notion of timing redundant and one would not be able to discuss this expressive quality in musical performance. As Desain and Honing (2003) put it:

> First, without categorisation there would be no reference against which to judge the expressive duration of a note: one would not be able to appreciate the difference between a deadpan and an expressive performance. And, second, too much and too strict categorisation would cause a loss of timing information and the difference between a deadpan and an expressive performance would not even be noticeable.[290]

Clarke (1987) has solved this by theorizing that both categorical and expressive information are available at the same time and that expressive timing is "perceived by listeners as qualitatively different from the temporal information that specifies rhythmic structure."[291] This means that there is a tolerance within each category which specifies the expressive timing allowed before crossing over to another category.[292] The size of the category has been shown to be determined by the presence of a metrical context and the architectural complexity of the rhythmic pattern.[293]

Regarding the problem of constructing a musically relevant and analytically suitable categorical reference, then, I find support in Desain and Honing's (2003) notion that rhythmic categories are not well represented by their mechanical, score-based rendition, "the performance centroid (interpreted as the most communicative rendition of a category) being a more likely candidate."[294] This idea resonates well with my having chosen to see the referential structure as something that grows out of the performed sequence of melodic-rhythmic events. In other words, the construction of rhythmic categories is seen as a formative process, in which expressive

[290] Desain & Honing 2003: 362
[291] Clarke 1987: 30
[292] Desain & Honing 2003: 352-353
[293] Clarke 1987; Desain & Honing 2003
[294] Desain and Honing 2003: 359

information is detectable only by virtue of the relation between alternative realizations. As an example to illustrate this process, I shall refer to an excerpt from the tune *Fra morgon til kveld* (*Tele-springar*) performed by Bjarne Herrefoss (Hardanger fiddle).[295] Fig. 104 shows a twice repeated two-measure motif, which is varied throughout its three occurrences, mainly by the fiddler using different bowing patterns, embellishments and subdivision transformations.

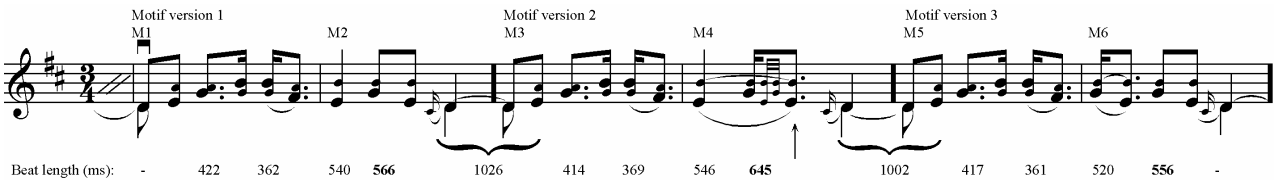


Figure 104. *Fra morgon til kveld* (*Tele-springar*) performed by Bjarne Herrefoss. Three versions of a two-measure motif. Audio sample 11a.

The reason for introducing a new example, instead of just referring to *Markensmondagen*, *Igletveiten* or *Hans Holen*, is that fig. 104 illustrates a rare instance of timing variation, in which influential factors such as sectional division can be ruled out as explanations for the expressive behavior in question. Moreover, the fact that the motif is played three times in succession makes it possible to identify references for analyzing the relationship between stable and variable temporal values, or, between categorical structure and "additional temporal information." From this perspective, the prolongation of the tone marked with an arrow could be identified as a true variation in timing, rather than as an intrinsic component of the motivic structure (compare the values in bold in fig. 104). To clarify this even further: the data used for comparison are not the varying beat duration ratios between neighboring measures, but the distribution of temporal values within the complete motif, which is highly consistent across all three versions, with the exception of the prolonged tone marked with an arrow. It should be pointed out, however, that this interpretation is not justified by the measured durational values as such, which do not specify categorical boundaries (see chapters 4.4 and 6.3). Rather, the impression that the three versions represent a relationship of sameness in terms of overall rhythmic contour, and that timing stands out as an expressive mode of its own, arises from listening repeatedly to the whole phrase.

Although intuitively appealing, there are some significant problems with this approach. First, everything going on in a pols/springar performance is expressive behavior by being a formative process of creatively shaping an open form. For instance, another fiddler might not play this motif in the same way. Thus, the reference has no existence which is independent of the

[295] The recording is taken from a radio broadcast (NRK) and features a performance from the 1970 *Austlandskappleiken* in Ål.

particular melodic-rhythmic context from which it may be extracted. Second, the notion of formulaic variation suggests that there is no original form functioning as a reference for expressive transformations. For instance, how can we know that one of the versions of the motif in fig. 104 functions as a reference? We cannot, and this is a serious theoretical problem. However, it is not necessarily an experiential problem, as this version of the motif *may* very well function as a reference for a listener who attends closely to the unfolding of musical events.

The one significant conclusion to be made is that expressive timing is a relational quality. At the same time, it is so closely intertwined with musical structure that one is in danger of creating an artificial separation between these domains. As Clarke (1989) notes, "timing is both a *medium* to convey structure and a *component of* structure."[296] Or, as Desain (1992) writes:

> Expressive timing: the large intended deviations from metronomical timing found in a performance *cannot be easily removed by pre-processing*. Furthermore the deviations contain valuable information about musical structure. However, many theories are based on an assumed regular time grid.[297]

In other words, the process cannot be reversed in order to reveal what was there in the first place, i.e. before the expressive timing was "added". This adds additional weight to the argument that structural and expressive domains are largely inseparable, and that timing patterns stand out as deviations or additions only if abstract references are applied. This would imply that structure in itself is flexible in the sense that it is defined by the multitude of manifestations by which it is recognized. Accordingly, the state-of-the-art research into categorical rhythm perception referred to in this section does not really yield results that reveal the precise nature of the categorical reference. Instead, what is in fact investigated is the tolerance range within which a rhythmic category remains identifiable.

7.6 Modeling the groove – rhythm as process

As discussed in the previous sections, neither tempo fluctuations nor deviations from a fixed pulse (symmetrical or asymmetrical) seem to be stylistically or theoretically relevant points of departure for a theoretical modeling of the pols/springar grooves. To this end, the concept of rhythmic tolerance, to which a formulaic conception of musical structure is intrinsic, is seen as a valuable complement to prevailing approaches. However, this is not a predictive or generative model, as it is concerned with the flexibility of parameter values (i.e. possibilities), rather than

[296] Clarke 1989: 8
[297] Desain 1992: 42. Italics added.

with the constitutive mechanisms through which rhythmic patterns are produced. As discussed in the section about the dialectic between rhythmic levels, such mechanisms are indeed at work, and tolerance is not to be confused with random variations within an acceptable range. Thus, considering the presence of constitutive links between organizational, structural, architectural and contextual factors, an intriguing question arises as to whether these patterning principles can in some way be formally modeled. In this connection, computational models of music performance seem to offer a promising point of departure, as they explicitly aim to provide explanations and predictions in the form of performance rules, rather than surface observations and classifications.

Computational models of music performance

In their article from 2004, Widmer and Goebl summarize some of the research conducted within the field termed computational modeling of expressive music performance. "Computational modeling is an attempt at formulating hypotheses concerning expressive performance in such a precise way that they can be empirically verified (or disproved) on real measured performance data."[298] When given a specific, fixed setting for all parameters, a computational model is thus supposed to be able to predict the values of a specific set of variables from the values of the other variables.

One of the most well-known approaches is the so-called KTH model associated with the research milieu at the Royal Institute of Technology in Stockholm.[299] Here, a set of performance rules based on local musical context is thought to prescribe timing, dynamics and articulation. By a professional musician evaluating any tentative rule brought forward by the researcher, there is a constant feed-back loop trying to find the best formulation and parameter settings for each rule; what is known as the "analysis-by-synthesis approach".[300] In contrast, the Todd model, associated with Neil Todd, is summarized by the notion of "analysis-by-measurement", i.e. empirical evidence is obtained directly from measurements of human expressive performances. The theoretical assumption is that one simple rule can be used to model the relation between musical structure and performance. More specifically, it is assumed that a performer slows down at certain points in order to enable the listener to perceive the hierarchical structure of the music.[301] The Mazzola model, associated with the Swiss mathematician and jazz pianist Guerino Mazzola, is built on an enormous theoretical background that cannot be fully accounted for here.

[298] Widmer & Goebl 2004: 203
[299] See Friberg (1995) for an overview.
[300] Widmer & Goebl 2004: 205
[301] Widmer & Goebl 2004: 207

The basic features of the model, however, consist of an analysis and a performance part respectively. Basically, the result is a sort of additive, rule-based, structure-to-performance mapping. Finally, Widmer and Goebl present their own approach, which is known as the machine learning model. According to the authors, this is an alternative way of building computational models of expressive performance. The point of departure comprises large amounts of empirical data in the form of measured performances by skilled musicians. Via inductive machine-learning and data-mining techniques, the computer discovers significant regularities in the data which in turn can be generalized as performance rules. Machine learning is stated to be able to predict both local, note-level expressive deviations, and higher-level phrasing patterns. Furthermore, these two types of models may be combined to yield an integrated, multi-level model of expressive timing and dynamics that takes into account both the hierarchical structure of the music and the local musical context.[302]

In spite of apparent differences between the various approaches, there seems to be agreement that there are a range of correspondences between aspects of musical structure (grouping, hierarchical organization etc.) and aspects of expressive music performance. There also seems to be evidence that local and global level timing patterns are interconnected and to a certain extent explainable with reference to this mutuality. These general observations appear to fit well with my findings, although the detailed descriptions of particular performance rules are not necessarily relevant to consider, as these rules supposedly differ from the principles associated with the musical style with which I am working.[303] The point is that it seems to be possible to produce an acceptable performance by using computational modeling. This leaves us with the intriguing question whether it would be possible to construct models that in some way could predict the rhythmic-temporal course of events within a certain style of pols/springar playing. In other words, would it be possible to implement in a generative model the principles and "rules" of performance timing which have been singled out through my analyses? It certainly seems relevant to consider the possibility, since this would comprise a model which could function as a validation of the assumptions made about the nature of rhythmic performance within a particular style. However, there are major problems with such an approach if some of the basic assumptions of the computational modeling paradigm remain unquestioned.

First, the simplistic and reductionistic way in which the score is treated as a reference representing musical structure is hardly valid for any style of performed music. The problem is that the status of the hypothetical durational relationships represented by the score is taken for

[302] Widmer & Goebl 2004
[303] The research reviewed has primarily been concerned with Classical music performed on the piano.

granted rather than critically evaluated, in spite of the tremendous complexity of the matter. The way terms like lengthening and shortening are used accordingly suggests that since the current unit is shorter/longer than its nominal duration in the score, something must have been added. For instance, regarding the KTH rule system, it is stated that "every rule tries to predict (and to explain with musical or psychoacoustic principles) some deviations that a human performer is likely to *insert*."[304] This view in turn is consistent with the basic assumption within the expressive timing paradigm, here referred to by Desain & Honing (2003): "In music performance, timing information is *added* to the nominal durations of the note categories, based on the interpretation of the musician."[305] Why on earth the theoretical duration represented by a note in a score should be a meaningful reference in terms of how an event would *really* be timed if the performer had not inserted a proper expressive deviation is in most cases far from being illuminated. The problem associated with this kind of reification was addressed above in the discussion of rhythmic categories and expressive timing, where it was concluded that structure and expressive behavior cannot easily be separated unless a theoretically constructed rhythm is applied as reference. Thus, computational models might very well be able to translate a score into a stylistically acceptable rendition, but the extent to which the relationship between musical structure and expressive performance is illuminated remains highly unclear.

Second, in spite of the briefness of this review it seems rather clear that existing computational models aim at representing general stylistic features rather than the possibilities for variation offered by a particular performance style. Or, more correctly, variation is defined with reference to a hypothetical norm, i.e. a score or a metronome, while phenomena such as variation of the same phrase with reference to its own timing profile are not considered. Ideally, then, a computational model of a certain pols/springar groove should be based on a rich set of data from which a range of stylistically acceptable renditions could be constructed, thereby reflecting in some way the performer's exploration of the *possibilities* at hand. In this way, the model would also take the form of a description of the stylistically constrained boundaries within which variation can occur.

A pols/springar model – theoretical and stylistic constraints

I do not want to rule out the possibility of constructing a model in which stylistically acceptable parameter values can be predicted. However, the criterion that the model should be able to translate between musical structure and expressive behavior cannot be met, as it seems

[304] Goebl et al. 2005: 78. Italics added.
[305] Desain & Honing 2003: 341. Italics added.

impossible to specify the nature of the structural reference other than in abstract terms. One alternative is of course to ignore this epistemological problem and simply use the theoretical durations represented by notes in a score as references, regardless of their experiential status.[306] With this point of departure, performance rules may be applied to the "raw material" to simulate a natural-sounding pols/springar rendition. Starting from the top and moving downwards through the hierarchy of groove-forming mechanisms, the first aspect to consider is the recurring pattern of uneven beat durations. If this were the only important criterion, the modeling process would be a straightforward operation. However, as demonstrated in chapter 3.7, with reference to Waadeland's attempt to model pols/springar grooves, simply scaling beat motifs to varying total durations violates both absolute and stylistic constraints. This brings us to the second set of rules, which concerns the mutually constitutive interaction between rhythmic levels, a factor which existing theories dealing with the asymmetrical styles of pols/springar playing fail to consider. With this point of departure, some suggestions can be made as to how a pols/springar groove might be modeled.

First, undivided beat motifs could be automatically adjusted to a predefined average beat duration ratio simply by being shortened or lengthened depending on the metric position in question (long, average or short). Second, beat motifs with duple or triple subdivision would need to be temporally adjusted by means of rhythmic reshaping, rather than by acceleration/retardation. For instance, the symmetrical triplet could be assigned the durational value of the short beat position, while long and average beats are produced by one of the tones being stretched. Third, beat motifs of a higher density than triple subdivision could be allowed to extend the duration of the beat, regardless of its position (long, average or short). Their total duration could be simply calculated from a specified, maximum density of subdivision units, which in turn could equal the density of the symmetrical triplet. The same principle could be applied to quantized melodic ornaments and trills, although they should be assigned a higher fixed density. Finally, temporal fluctuations from the average beat duration model should not be compensated for within the measure. Instead, simpler beat motifs are assigned a fixed absolute duration, while complex, time-consuming beat motifs are allowed to extend the whole measure and change the proportional relationship between the three beats.

If these criteria were applied to a score-based rendition of a pols/springar tune, it potentially would be possible to simulate a certain rhythmic style, at least to the point of recognizability. However, a lot of special rules would need to be applied to account for the subtle performance

[306] Of course, this requires the notation to be neutral in the sense that it is not intended to represent the actual durational values in a performed rhythm. Otherwise, there would be nothing to transform.

decisions that make a performed rhythm flow in the right way. For instance, in order for triplets to be reshaped in a stylistically acceptable way ( ,  or ), their contextual function needs to be determined. Moreover, locking the symmetrical triplet to the short beat position would violate the idiomatic logic of motivic structure. In short, such a model would not account for the mechanisms of performance timing understood as a combination of top-down and bottom-up processes. To do this, the model cannot be based solely on formal rhythmic units (measures, beats and subdivisions), but needs to take into account the patterning capacity and constitutive force of motivic entities, in which melodic contour form an inseparable part of the pattern as a whole. Thus, a reliable generative *rhythmic* model would need to be constructed by means of a dynamic system approach, in which all parameters are mutually interconnected. To formulate rules that can predict this multi-parametrical behavior would seem to be a highly complicated task, although the possibility cannot as yet be dismissed. In fact, this seems to be what computational models aim to achieve. However, advancing with the modeling of pols/springar grooves requires a more experimental approach and a richer set of data to accompany my interpretations.

Rhythm as process

A pervading problem in the scientific study of musical rhythm is the relationship between referential structures and performed rhythms.[307] The key question within this problem is whether the chosen references are musically meaningful or purely theoretical, i.e. whether the relationship or tension between the reference and the performed rhythm bears any significance. In many cases, this is far from clarified, and reliable empirical evidence is often lacking. For instance, it is very difficult to explain the fact that beat durational fluctuations are often not detected by listeners and dancers,[308] yet it is insisted that a beat duration ratio is the reference to which performed rhythms are experienced and evaluated. Apparently, people pay so little attention to this "reference" that variations in beat durations go unnoticed. To me, this sounds like the wrong reference has been chosen.[309]

[307] See Danielsen (2006) for a particularly illuminating discussion of this problem.
[308] I have played a lot of examples to colleagues and fellow musicians who claim that they cannot hear that the beat duration ratio varies from measure to measure, even though this clearly is the case according to measurements. Again, the same conclusion is reached: a well-formed pattern is simply not experienced as a variation or deviation unless one forces oneself to attend to the relative distribution of parameter values within comparable formal units (measures).
[309] A similar critique has been advanced by Westman (1998) of the academic conceptualization of the "deviant" pitches (quarter-tones) in Norwegian and Swedish tune-playing. Among other things, he has shown that these "deviations" need to be understood with reference to their placement within melodic formulas, rather than their placement in relation to the root.

A related problem which arises when analyzing rhythmic behavior is distinguishing between observed patterns of parameter values and the constitutive mechanisms through which these patterns are produced. Within the field of research dealing with the asymmetrical styles of pols/springar playing, these often seem to be confused, for instance by implicitly assuming that measured (or estimated) temporal values within a single domain (usually beat durations) indicate that the performer attends to these values as guiding constraints. This is the core of the problem, which also calls into question my suggestions for a generative pols/springar model: although a groove may be recognized partly by its beat durational properties, this does not mean that performance timing is directly controlled through a matching of the total duration of individual beat motifs with a preconceived framework of beat durations. The melodic rhythm simply is not organized in this way, as has been demonstrated by my analyses and interpretations.

More generally, it could be concluded that parameter values are inevitably defined relationally. It is meaningless to speak of long tones, high pitches, rough timbres etc. unless there is a reference to evaluate these qualities against. At the same time, it is very difficult to pinpoint these references. Moreover, different expressive parameters are largely relationally defined, for instance by melodic patterns being distinguished from (although closely interrelated with) rhythmic patterns. This analytical deconstruction implies an autonomy of parameters even if it is insisted that parameters interact in mutually constitutive ways. Thus, even a dynamic generative model would necessarily be restricted by parametric differentiation in the sense that values for *different* parameters would need to be specified in order for these parameters to be able to interact in a dynamic way. However, the human being producing music with his or her body does not necessarily function in this way, meaning that the production of a sequence of closely interrelated sounds should not be assumed to be parametrically differentiated. From such a perspective, a performed motif is not a melodic pattern to which rhythmic, dynamic and timbral information is added. It is a complete, irreducible event which cannot be translated into separate parameter values in any musically meaningful way. Regarding the question of references, then, it could be said that the experience and demarcation of a performed pattern of musical sounds do not depend on the ability to identify the relationship between immediately successive events or between the individual event and an underlying referential grid. The pattern is grasped intuitively in the same way as the contour of a physical surface may be recognized and "photographed" without the subject being able to account for the way separate parts are related to each other.[310]

[310] These ideas resonate with those of German *Gestalt* psychologists. By these it was held that a collection of interrelated sensory data constituting a whole *does not have a gestalt; it is a gestalt*. From this perspective, the individual parts are not added together to make up a whole. Instead, the parts are only functions of the perceived

From this perspective, the points of articulation in the melodic-rhythmic course of events are interrelated by being complementary parts of a larger shape or contour. This is opposed to the view that individual events are positionally defined relative to a theoretical location within a neutral framework. Understanding stylistic behavior from the perspective of rhythmic production and perception, then, requires a shift in focus from the relationship between the performed music and the reference, to the immediate context of rhythmic information within which the formative process occurs. Ideally, this would involve one living into the condition from which melodic-rhythmic articulations are produced and experienced and acknowledging the fact that being situated within this context is a fundamental precondition for understanding why a certain rhythm is produced the way it is. Again, the focus is on the patterning function of musical formulas understood as complete performed gestures, which in spite of their multi-parametrical and multi-referential complexity, constitutes completely recognizable and understandable patterns.

This discussion allows two conclusions to be made. First, it is suggested that the gestural aspects of musical perception and production are taken more fully into account when studying rhythmic phenomena. Related to this are the complex processes of learning and habituation as important aspects of the formation and appropriation of the architecture of sound. From this perspective, melodic-rhythmic patterns may be understood mainly in terms of the bodily sensation of the way they are performed. For instance, a part-motif consisting of an intricate combination of melodic and ornamental tones may not be conceptualized as a series of pitches and/or durations exactly because it cannot be taught by means of a deconstructive operation in which relational parameter values are identified. In short, learning to replicate such a phrase is about getting in touch with the bodily feeling of performing it, and about making the complete pattern of interrelated movements into one event, into one single gesture. This, however, does not mean that the temporal output of this process is random, even if timing can by being built into the architecture of the gesture be seen as a passive parameter. In fact, timing is crucial in that the wrong relation between temporal values would destroy the self-consistency of the pattern. The point is that this consistency is not achieved by attending to the relational unfolding of events as such. Instead, performance practices have fostered certain *event-parameter* models through which the identity of a formulaic unit is specified.

---

whole (Ellis 1969). As should be evident from the discussion of the dialectic between rhythmic levels, I do not agree completely with this extreme position. However, although the constitutive capacity of the individual "building blocks" is not taken into account, the concept seems consistent with the idea that parameter values of individual events are to a certain extent subordinate features of the whole of which these events form a part.

Second, the conception of rhythm and groove is that of a formative process. That is, the groove-forming elements do not exist independent of the particular manifestation of the pols/springar rhythm that the performed tune represents. However, some clarifications need to be made. On the one hand, groove is equivalent to conventional descriptions of meter, i.e. a recurring pattern of relationally defined accents and durations. In this sense, groove or meter is independent of the actual rhythmic realization by being axiomatic, thus needing no unambiguous support from the unfolding of contrasting sounds.[311] In other words, meter perception is based on schemas learned through socially mediated experiences, leaving meter/groove an organizing principle that tells the dancer or listener how to organize the rhythm, i.e. in periodic patterns of three beats of unequal (and potentially fluctuating durations). On the other hand, as has been stressed on various occasions, the rhythmic shape of the melody cannot be fully explained simply as a realization of a predefined metric organization. Nor is the relationship between such a neutral grid and performed rhythms seen as meaningful in the sense that questions of performance timing can be explained with reference to the patterns of synchronies and asynchronies that arise. Instead, rhythm is seen as a formative process by its being in a continual state of becoming. This entails that the relational unfolding of melodic-rhythmic events shapes its own references through which expressive qualities and tensions emerge. Moreover, the independent existence of meter or groove as an organizational framework is understood in terms of *the potential for rhythmic expression and experience* afforded within this framework. From this perspective, it is the different ways in which it is realized that defines the groove. Finally, I want to expand on the notion of style as process by acknowledging the synthesizing power of this concept. This allows for a conception of rhythmic (i.e. stylistic) rules as a playful and stylized game, where the formulaic nature of the musical material is metaphorically reflected in the higher level processes within the generic framework. On both levels, the rules of the game are always in play by being continuously negotiated and renegotiated through communicative behavior.

7.7 Suggestions for further research

In closing this thesis, I would like to suggest some directions for further research. First I want to point out that I am fully aware that I have touched upon a range of topics that deserve to be treated more thoroughly. It needs to be kept in mind, however, that the overall aim has been to enrich the understanding of certain styles of rhythmic performance. Accordingly, the eclectic use

[311] Cooper & Meyer 1960; Blom & Kvifte 1986

of various methodologies and research findings reflects this aim as much as it relates to an ambition to rework the theoretical nexus of rhythm and timing. At the same time, my research findings have a wider application within a variety of fields of academic enquiry. Some of the critical themes identified for further empirical and theoretical study are mentioned below.

Complementary empirical studies

The most obvious next step given the current research context is to expand the empirical scope. Initially, this could include a wider spectrum of performed music from the Norwegian and Swedish fiddle-based style of pols/springar playing. With a richer set of data to explore, stronger generalizations could possibly be made. At the same time, the musical diversity of this genre could be more fully accounted for, for instance by examining a range of different local styles and performances from a variety of settings (dances, competitions, concerts etc.). Moreover, valuable data could be gained by interviewing musicians to illuminate how they reflect upon different aspects of performing tunes, including how rhythm and timing are conceptualized and possibly theorized. Of particular interest is a more thorough study of the way fiddlers learn and how they individually shape the material handed over. In this context, it should also be mentioned that a variety of more experimental approaches may be valuable in further illuminating the nature of the constraints governing rhythmic performance within the pols/springar style.[312] Finally, the processes of stylistic change within the pols/springar styles certainly deserves more attention, for instance by comparing older with newer recordings, and by investigating more closely the relationship between the individual performances and how they are framed within different institutional and ideational contexts where conceptions of rhythm and style are fostered. Related to this is a more general level of sociological enquiry where an identification of stylistic change becomes a point of departure for exploring the principles by which social and musical boundaries are simultaneously maintained, challenged and expanded.

Another expansion of the topical scope that seems to suggest itself is to study synchronization behavior among musicians and dancers engaged in an interaction with a melodic-rhythmic course of events. Considering that the pols/springar style was originally meant as dance music and preserves this role to some extent, and that the relationship between music and dance is often described as a dynamic and mutually interactive interplay, it would be most interesting and challenging to attempt to explore empirically the range of potential temporal points of reference for the music/dance interaction. Above all, attention should be centered on

[312] Cf. the discussion of absolute constraints in the performance of ornaments and the experimental case study on triplet timing presented in chapter 6.4.

the different ways in which dance rhythm is expressed through the body, and how the dancer ”reads” the music. In short, what does it mean to “follow the fiddler” (a usual term among skilled dancers) and how do dancers use their bodies to interact with nuances in the music? Is it, for instance, the case that a skilled dancer anticipates and follows some of the rhythmical-temporal variations that fiddlers may produce in their performance? Is this achieved by a pre-knowledge of and attention on the particular melody being played (including knowledge of the fiddler in question), or are there other strategies at work? Can discrepancies between musical rhythm (melodic rhythm) and dance rhythm (bodily movements) create a tension which in itself constitutes a central part of the experience of dance? Moreover, is it the case that one alternates between following (synchrony) and not following (tension)? To what extent is this variation in the relative synchronization with the music intentional and controlled? The same interest could of course be directed toward how the fiddler “reads” and relates to the dancer as a co-performer.

Regarding the interaction between musicians playing together, several intriguing questions remain to be answered. For instance, how are constraining features of performance style, including temporal fluctuations in formal rhythmic units, dealt with in ensemble settings where melodic voices interact with accompanying voices? Moreover, how are musical details, which are idiomatically designed through the expressive resources associated with the fiddle, executed on other instruments, with different resources for sound production and other idiomatic strains? Or, more theoretically, how are event parameters, understood as the idiosyncrasies that determine the identity of a formulaic (i.e. flexible) entity, defined in a way that allows such translations to mean the same in a musical sense?[313] Related to this is the question of how ensemble playing may foster new ways of utilizing and interacting with the peculiarities of melodic rhythm. Finally, all these questions concern the issue of how musical concepts are reformulated and how style is renegotiated through these processes.

An even more intriguing task would be to expand the study to include other styles of music in which surface rhythmic structures differ from those of the pols/springar style. To what extent are the rhythmic features of the pols/springar styles unique? And even if they are, are there still mechanisms at work that may be generalized beyond the specific instances of rhythm production studied in this thesis? Studies of what is known as non-measured (unmetered) music are of particular interest considering that there might be close parallels to the pols/springar styles in terms of how the music is temporally structured. As Kouwenhoven (2004) notes, although non-

[313] A striking example is how Irish traditional musicians perform typical ornaments on different instruments. Here, idiomatic features prevent these ornaments being performed in the same way on the different instruments. Nevertheless, the “different” renditions are identified as musically equivalent events.

measured styles are often described as music of low temporal coherence, this may be a completely misleading description:

> I cannot think of the nonmeasured folk songs that Antoinet Schimmelpenninck and I collected in China as 'events of low temporal coherence.' Sure, if you look at the time ratios of subsequent pitches in a single performance, these evidently do not add up to a regular and repetitive pattern, as in measured music. But musicking is a dynamic system. The 'same' tune is never the same tune, and considerable variations occur in every new performance. Yet if you ask a Chinese singer to repeat a 'free-flowing' song *with the same words*, even after several months, the same or a very similar organization of time may re-emerge in performance, except in those places where words in the text have been omitted or altered.[314]

The observation that these singers adopt fixed individual patterns in the "free-rhythmic" renditions of different songs clearly suggests that controlling musical time does not depend on regularity and predictivity measured as purely temporal qualities within well-defined sectional frames. Melody and text appear to be particularly important, and the remark that small changes in the text may affect the otherwise highly consistent timing pattern raises an intriguing question: is this interconnection between text and timing paralleled in the highly consistent temporal structuring of the measured but "free-flowing" pols/springar style? From this perspective, changing the words could be seen as equivalent to the fiddler's manipulation of the melodic "sentences."[315]

This is only one example of where research findings and theorizations concerning different forms of music can be mutually enriching. The important point is that styles of music with seemingly chaotic and irregular rhythmic organization may prove to be highly consistent when studied from another perspective. In other words, the conclusion that these rhythms are incoherent is based on an interpretive framework that hinders the detection of the coherent patterns.[316] Again, analysis needs to be preceded by a more intuitive approach in which the feeling of coherency is allowed to guide the theoretical modeling. As Kvifte (2005) notes about the *flexible meter* in some Norwegian folk songs: although these grooves may be very difficult to describe in terms of beat periods and regularities, the rhythm is clearly ordered and by no means

[314] Kouwenhoven 2004: 53-54
[315] See also chapter 6.3 for a brief note on this subject.
[316] Another misinterpretation manifests itself in the concept of *complex meters*, referring to meters in which the beat level of the metric hierarchy consists of a non-isochronous series of durations (London 1995: 59). In this case, complexity is assigned to the music with reference to the fact that the rhythmic structure is difficult to describe with prevailing musicological concepts and models. Thus, complexity does not necessarily refer to the rhythm being difficult to understand from the perspective of musicians or listeners.

randomly structured.[317] It remains to be convincingly argued, however, how such a rhythm can be experienced as temporally well-ordered by performers and listeners when it lacks regularity within this domain. Above all, these examples raise the question whether a true flow-description is possible, i.e. if complex and seemingly irregular patterns of parameter interactions can be theoretically modeled in a way that resonates with peoples' intuitive insights and experiences from performing, listening and moving to music.

Another interesting question arising in this context is whether it is possible to build topologies that enable the classification of different styles of rhythmic organization, i.e. how the temporal flow of events in musical performance is organized and controlled. One approach is to take the hierarchical levels of meter as a point of departure and attempt to determine at what level regularities occur. For instance, as suggested by Kvifte (2007), some grooves may have an isochronous subdivision level functioning as a smallest common denominator, while in other grooves regularities may occur at higher levels (the measure, the phrase etc.). In the latter case, the temporally stable unit may be divided arbitrarily and the smaller units do not have to conform to simple mathematical fractions of the unit above.[318] However, this model does not explain how this higher-level stability is achieved, only that it is not by counting isochronous subdivisions. Moreover, there are musical styles in which no rhythmic level is temporally stable, or in which rhythmic levels in fact cannot be specified at all (cf. the unmetered styles previously referred to). From this point of departure, a different kind of typology might be suggested. As has been argued already in this thesis, the organizational capacity of the formulaically structured *melodic rhythm* is crucial to consider. From this perspective, one could speculate whether some styles of music are rhythmically structured by an independent groove template, a temporal matrix around which all rhythmic events are organized, while other styles are structured by an independent rhythmic logic intrinsic to the melodic-motivic organization. This is of course an exaggerated dichotomization, but it suggests an interesting avenue of further research. An important point to be made is that such a typology should by no means be bound to conventional generic categories (traditional music, popular music, classical music, jazz etc.). For instance, we have to leave open the possibility that the ornamented phrase-bound musicking of a Hardanger fiddler has a lot in common with the "free-rhythmic" wailing of a soul singer when it comes to the way the temporal flow of events is structured and controlled. Moreover, as suggested above, the time-structuring function of the song text should be given more attention. Among other things, this should

[317] Kvifte 2005: 200
[318] Kvifte 2007: 80

encourage music researchers to draw on findings from the field of study dealing with speech rhythm.

Finally, do purely percussive rhythms (to the extent that such really exist) have a status of their own in the sense that they need to have at least one stable level (isochronous subdivisions, regularly occurring beats etc.) to be memorable and manageable? Or is a "melodic" conception of rhythmic structure far more important to rhythm production and perception than generally assumed? After all, we have to consider the fact that a variety of "complex" and irregular rhythms may be replicated as long as these rhythms are aligned with a (imaginary) melody (or spoken text), while they would stand out as completely incomprehensible as assemblages of pure durations. The speculative question, then, is whether performed rhythms produced by means of counting numbers of time quanta represent the exceptions rather than the rule. In any case, this topic deserves further research attention with a focus on the means through which rhythmic patterns are produced (performing a melody, singing/reciting a text, playing a rhythmic pattern on a non-melodic instrument etc.) and on how different styles of rhythmic organization have consolidated in close dialogue with these tools for rhythm production.

Broadening the theoretical-conceptual scope

On a more general and theoretical level, there are some fields of research that could be drawn upon to enrich and broaden the conceptual horizon. The growing research program into *embodied cognition* represents one perspective that seems particularly relevant to the current research context.[319] The basic notion is that cognitive processes are deeply rooted in the body's interactions with the world. Regarding rhythm production and perception, this notion can be employed to emphasize the idea that the processes structuring the temporal flow rely on the gestural (i.e. bodily) representation of performed rhythms, rather than on an independent cognitive framework. In this context, the musicians' interaction with their instrument becomes a crucial point of concern. Iyer (1998), writing with sympathy for this idea, makes the following claim:

> The embodied-cognition viewpoint suggests that a musician's internal representations are intimately tied to his or her connection with the instrument, which forms part of the music-making environment. Musical abstractions certainly exists, but I claim that how an individual musician chooses over time to interact with that instrument gives rise to the majority of the musician's cognitive apparatus.[320]

[319] See The Internet Encyclopedia of Philosophy for an overview (http://www.iep.utm.edu/e/embodcog.htm)
[320] Iyer 1998: chapter 4

As already suggested, the embodied interaction with musical sounds is also important when experiencing music (including rhythm) from a listening perspective. As Clayton et al. (2004) convincingly note, "the motor system is not only responsible for *producing* a rhythm, but is also involved in the *perception* of rhythm."[321] Or, as Leydon (2002) writes, "physical gestures of the body serve as interpretants for motivic shapes, rhythms and contours."[322] This constitutive interaction between perception and production also seems crucial to the understanding of how musicians learn and memorize rhythmic patterns, i.e. by imitating bodily movements directly perceived or imagined to be involved in the production of the pattern.[323]

Finally, theoretical conceptions of rhythm, meter and timing advanced by empirical studies should maintain a continuous dialogue with the developments within music theory, where emerging theories are consolidated and contested. One interesting theoretical development is the view of meter as a generative process rather than as a static and invariant measure. Christopher Hasty's (1997) *Meter as Rhythm* is a milestone in this respect and his processive perspective appears to resonate with my theorizations, in which the focus is on the dynamic and contextual nature of rhythm production and perception. However, although Hasty's book represents an interesting contribution to the theory of rhythm and meter, I have found it difficult to agree with this approach. Hasty's theory of meter as projection relies heavily on the listener's experience of duration on an event-to-event basis. I have taken as a point of departure the production side of things with a focus on the *formative process* through which a groove is shaped into a well-formed pattern of performed gestures. The perception perspective, then, concerns how the listener tunes in to this process by intuitively attending to a pattern of closely interwoven auditory and somatosensory sensations and evoked potentials. In this way, the listener is seen as mentally reconstructing patterns of complete melodic-rhythmic gestures rather than relating to patterns of durations. Moreover, I find the idea of music theory as an autonomous branch of knowledge problematic in general and difficult to reconcile with the research model I have chosen. Accordingly, although it is important to keep up with developments in music theory, I sense a greater potential in more comprehensive approaches, where the point of departure is an understanding of musical action and conception as an integral part of a broader behavioral and communicative framework. From this perspective, music analysis and theorization are seen as being inseparable ultimately from the study of the performance practices and stylistic realities through which the structure of musical sound is created and made sense of. In conclusion then, I

[321] Clayton et al. 2004: 8
[322] Leydon 2002
[323] See also Godøy 2003

would suggest that the ideas developed in this thesis should encourage further investigations of the formative processes of rhythm, groove and style with a truly comprehensive scope of concern.

Bibliography

Ahlbäck, Sven 1995. ”Karaktäristiska egenskaper för låttyper i svensk folkmusiktradition. Ett försök till beskrivning.” Stockholm: Kungliga Musikhögskolan.

Aksdal, Bjørn 1993a. ”Innsamling og institusjonalisering.” In Aksdal, Bjørn & Nyhus, Sven (eds.): *Fanitullen. Innføring i norsk og samisk folkemusikk.* Oslo, Universitetsforlaget: 317-341.

Aksdal, Bjørn 1993b. ”Instrumentene – Typologi og historikk”. In Aksdal, Bjørn & Nyhus, Sven (eds.): *Fanitullen. Innføring i norsk og samisk folkemusikk.* Oslo, Universitetsforlaget: 15-67.

Aksdal, Bjørn 1993c. ”Samspillformene”. In Aksdal, Bjørn & Nyhus, Sven (eds.): *Fanitullen. Innføring i norsk og samisk folkemusikk.* Oslo, Universitetsforlaget: 68-84.

Aksdal, Bjørn & Nyhus, Sven (eds.) 1993. *Fanitullen. Innføring i norsk og samisk folkemusikk.* Oslo, Universitetsforlaget.

Anderson, Benedict 1996. *Forestilte fellesskap. Refleksjoner omkring nasjonalismens opprinnelse og spredning.* Oslo, Spartacus Forlag AS.

Apeland, Sigbjørn 1998. *Folkemusikkdiskursen. Konstruksjon og vedlikehald av norsk folkemusikk som kulturelt felt*. Hovedfagsavhandling i etnomusikologi. Universitetet i Bergen.

Arnestad, Georg 2001. *”Men vi skal koma i hug at tradisjonen alltid vert oppløyst og omskapt…”. Om folkemusikk og folkedans i det seinmoderne Noreg.* Rapport fra Norsk Kulturråd, Nr. 27. Oslo, Norsk Kulturråd.

Asheim, Håkon 1995. *Fra bruksmusikk til “lydarspel” – Konserttradisjonen i hardingfelemusikken*. Hovedfagsavhandling i musikk. Universitetet i Oslo.

Barthes, Roland 1977. *Image Music Text*. Essays selected and translated by Stephen Heath. London, Fontana Press.

Ben-Amos, Dan 1983. “The idea of folklore: An essay.” In Issachar, Ben-Ami & Joseph, Dan (eds.): *Studies in Aggadah and Jewish folklore*. Folklore research center studies VII. Jerusalem, The Magnes Press: 11-17.

Bengtsson, Ingmar 1967. ”On melody registration and ’Mona’.” *Elektronische Datenverarbeitung in der Musikwissenschaft*. Regensburg: 136-174.

Bengtsson, Ingmar; Tove, Per-Arne & Thorsén, Stig-Magnus 1972. "Sound analysis equipment and rhythm research ideas at the institute of musicology in Uppsala." *Studia instrumentorum popularis* 2: 53-76.

Bengtsson, Ingmar 1973. *Musikvetenskap. En översikt.* Stockholm, Scandinavian University Books.

Bengtsson, Ingmar 1974. "On notation of time, signature and rhythm in Swedish polskas." *Studia instrumentorum musicae popularis III*. Stockholm, Musikhistoriska museet: 22-31.

Bengtsson, Ingmar & Gabrielsson, Alf 1980. "Methods for analyzing performance of musical rhythm." *Scandinavian journal of psychology* 21: 257-268.

Berkaak, Odd-Are 2004. "Riksscene for folkemusikk og folkedans." En utredning på oppdrag fra Norsk Folkemusikk- og Danselag. Oslo, NFD

Bilmes, Jeff 1992. "A model for musical rhythm." *Proceedings of the 1992 international computer music conference*. San Jose: 207-210.

Blacking, John 1971. "Deep and surface structure in Venda music." *Yearbook of the international folk music council* III: 91-108.

Blacking, John 1981. "Making artistic popular music: the goal of true folk." In Middleton, Richard & Horn, David (eds.): *Popular music 1. Folk or popular? Distinctions, influences, continuities.* Cambridge, Cambridge University Press: 9-14.

Blacking, John 1995. *Music, culture, & experience*. Chicago and London, The University of Chicago Press.

Blom, Jan-Petter 1981. "The dancing fiddle." In Blom, Jan-Petter, Nyhus, Sven & Sevåg, Reidar (eds.): *Slåttar for the Harding fiddle. Norwegian folk music, vol. 7*. Oslo, Universitetsforlaget: 305-312.

Blom, Jan-Petter 1993. "Rytme og frasering – forholdet til dansen". In Aksdal, Bjørn & Nyhus, Sven (eds.): *Fanitullen. Innføring i norsk og samisk folkemusikk.* Oslo, Universitetsforlaget: 161-184.

Blom, Jan-Petter & Kvifte, Tellef 1986. "On the problem of inferential ambivalence in musical meter". *Ethnomusicology* 30 (3): 491-517.

Blom, Jan-Petter; Nyhus, Sven & Sevåg, Reidar (eds.) 1981. *Slåttar for the Harding fiddle. Norwegian folk music, vol. 7*. Oslo, Universitetsforlaget.

Bourdieu, Pierre 2000. *Pascalian meditations.* Stanford CA, Stanford University Press.

Butler, Mark J. 2005. *Unlocking the groove. Rhythm, meter, and musical design in electronic dance music.* Bloomington, Indiana University Press.

Chernoff, John Miller 1979. *African rhythm and African sensibility. Aesthetics and social action in African musical idioms.* Chicago, University of Chicago Press.

Clarke, Eric F. 1987. "Categorical rhythm perception: An ecological perspective." In Gabrielsson Alf (ed.): *Action and perception in rhythm and music.* Stockholm, Royal Swedish Academy of Music: 19-33.

Clarke, Eric F. 1989. "The perception of expressive timing in music." *Psychological research* 51 (1): 2-9.

Clarke, Eric F. 1999. "Rhythm and timing in music". In Deutsch, Diana (ed.): *The psychology of music*. San Diego, Academic Press: 473-500.

Clarke, Eric F. 2004. "Timers, oscillators and entrainment." *ESEM CounterPoint* 1: 50-51.

Clayton, Martin; Sager, Rebecca & Will, Udo 2004. "In time with the music: The concept of entrainment and its significance for ethnomusicology." *ESEM CounterPoint* 1: 1-81.

Cooper, Grosvenor W. & Meyer, Leonard B. 1960. *The rhythmic structure of music.* Chicago, University of Chicago Press.

Coulmas, Florian 2006. *Sociolinguistics: The study of speakers' choices*. New York, Cambridge University Press.

Cowdery, James R. 1990. *The melodic tradition of Ireland.* Kent, The Kent State University Press.

Crystal, David (ed.) 2009. *Dictionary of linguistics and phonetics* (sixth edition). The Language Library. Published Online: 23 Feb 2009.

Danielsen, Anne 2006. *Presence and pleasure: The funk grooves of James Brown and Parliament*. Middletown, Connecticut, Wesleyan University Press.

Danielsen, Anne 2010. "Here, There and Everywhere. Three accounts of pulse in D'Angelo's 'Left and Right.'" In Danielsen, Anne (ed.) *Musical Rhythm in the Age of Digital Reproduction*. Farnham, Surrey, UK, Ashgate (forthcoming).

Desain, Peter 1992. "Can computer music benefit from cognitive models of rhythm perception?" *Proceedings of the 1992 international computer music conference*. San Francisco: 42-45.

Desain, Peter & Honing, Henkjan 1993. "Tempo curves considered harmful." *Contemporary music review* 7 (2): 123-138.

Desain, Peter & Honing, Henkjan 2003. "The formation of rhythmic categories and metric priming." *Perception* 32: 341-365.

Desain, Peter & Windsor, Luke (eds.) 2000. *Rhythm perception and production*. Exton PA, Swets & Zeitlinger Publishers.

Deutsch, Diana (ed.) 1999. *The psychology of music*. San Diego, Academic Press.

Doğantan-Dack, Mine 2006. "The body behind music: precedents and prospects." *Psychology of music* 34 (4): 449-464.

Ellis, Willis D. 1969. *A source book of Gestalt psychology*. London, Routledge & Kegan Paul.

Epstein, David 1995. *Shaping time. Music, the brain, and performance*. New York, Schirmer Books.

Fjalestad, Olav (ed.) 1971. *Eivind Groven. Heiderskrift til 70-årsdagen 8. oktober 1971*. Oslo, Noregs Boklag.

Fowler, Carol A. 1980. "Coarticulation and theories of intrinsic timing." Journal of Phonetics 8: 113-133.

Friberg, Anders 1995. *A quantitative rule system for musical performance*. Doctoral dissertation. Department of Speech, Music and Hearing. Royal Institute of Technology (KTH), Stockholm.

Friberg, Anders & Sundström, Andreas 2002. "Swing ratios and ensemble timing in jazz performance: Evidence for a common rhythmic pattern." *Music perception* 19 (3): 333-349.

Frith, Simon 1996. "Music and identity." In Hall, Stuart & du Gay, Paul (eds.): *Questions of cultural identity*. London, Sage Publications: 108-127.

Gabrielsson, Alf 2003. "Music performance research at the millennium." *Psychology of music* 31 (3): 221-272.

Gates, Henry Louis, Jr. 1988. *The signifying monkey. A theory of Afro-American literary criticism.* New York, Oxford University Press.

Gaukstad, Øystein 1980. "Norsk folkemusikk. Innsamlingsarbeidet i 200 år." *Sumlen. Årbok för vis- och folkmusikforskning.* Stockholm, Svenskt visarkiv och Samfundet för visforskning: 65-95.

Geertz, Clifford 1973. *The interpretation of cultures*. New York, Basic Books.

Gérard, Claire; Drake, Carolyn & Botte, Marie-Claire 1993. "Rhythm perception: Interactions between time and intensity." *Contemporary music review* 9 (1-2): 179-189.

Godøy, Rolf-Inge: "Motor-mimetic music cognition." *Leonardo* 36 (4): 317-319.

Goebl, Werner; Dixon Simon; De Poli Giovanni; Friberg Anders; Bresin Roberto, & Widmer, Gerhard 2005. "'Sense' in expressive music performance: Data acquisition, computational studies, and models." In Leman, Mark & Cirotteau, Damien (eds.): *Sound to sense, sense to sound: A state-of-the-art.* Genova, S2S2 Summer School: 63-103.

Greig, Gavin 1963. *Folk-song in Buchan and folk-song of the North-East.* Hatboro, Pennsylvania, Folklore Associates.

Groven, Eivind 1971. "Musikkstudiar – ikkje utgjevne før. 1. Rytmestudiar". In Fjalestad, Olav ed.): *Eivind Groven. Heiderskrift til 70-årsdagen 8. oktober 1971*. Oslo, Noregs Boklag: 93-102.

Hasty, Christopher F. 1997. *Meter as rhythm*. Oxford, Oxford University Press.

Havåg, Eldar 1994. *For det er Kunst, vi vil have. Norsk oppskrivartradisjon og folkemusikkforskning: eit moderne prosjekt.* Hovedoppgave i musikk. Universitetet i Oslo.

Honing, Henkjan 2001. "From time to time: The representation of timing and tempo." *Computer Music Journal* 25 (3): 50-61.

Iyer, Vijay 1998. *Microstructures of feel, macrostructures of sound: Embodied cognition in West African and African-American musics*. PhD dissertation. Berkley, University of California.

Johansson, Mats 2001. *Stil som retorik och praxis. En musikantropologisk studie av nutida svensk folkmusik*. Hovedfagsavhandling i etnomusikologi. Universitetet i Bergen.

Keesing, Roger M. 1974. "Theories of culture." *Annual review of anthropology* 3: 73-97.

Keil, Charles & Feld, Steven 1994. *Music grooves*. Chicago and London, The University of Chicago Press.

Kouwenhoven, Frank 2004. "Some remarks on music as reorganized time." *ESEM CounterPoint* 1: 52-55.

Kvifte, Tellef 1985 "Om varianter og variasjoner." In Bolstad, Ingjald; Kyte, Arnfinn; Mæland, Jostein (eds.): *Norske tonar. Heidersskrift til Sigbjørn Bernhoft Osa på 75-årsdagen*. Oslo, Universitetsforlaget.

Kvifte, Tellef 1994. *Om variabilitet i fremføring av hardingfeleslåtter – og paradigmer i folkemusikkforskningen.* Skriftserie fra institutt for musikk og teater 2. Det historisk-filosofiske fakultet. Universitetet i Oslo.

Kvifte, Tellef 1999. "Fenomenet 'asymmetrisk takt' i norsk og svensk folkemusikk." In Vollsnes, Arvid (ed.): *Studia musicologica norvegica*. Oslo, Scandinavian University Press.

Kvifte, Tellef 2000 *Musikkteori for folkemusikk – en innføring*. Oslo, Norsk Musikforlag A/S.

Kvifte, Tellef 2004. "Description of grooves and syntax/process dialectics." In Hawkins, Stan: *Studia musicologica norvegica*. Oslo, Universitetsforlaget.

Kvifte, Tellef 2005. "Fleksibelt metrum - noen refleksjoner med utgagnspunkt i norsk folkemusikk." In Ressem, Astrid Nora; Edvardsen, Erik Henning; Thedens, Hans-Hinrich & Kvideland, Reimund: *Balladar & blue Hawaii*. Oslo, Novus forlag: 199-206.

Kvifte, Tellef 2007. “Categories and timing: On the perception of meter.” *Ethnomusicology* 51 (1): 64-84.

Levy, Morten 1989. *The world of the gorrlaus slåtts. A morphological investigation of a branch of Norwegian fiddle music tradition*. Acta ethnomusicologica danica 6. København, Forlaget Kragen ApS.

Leydon, Rebecca 2002. “Towards a typology of minimalist tropes.” *Music theory online. The online journal of the society for music theory* 8 (4).

Lilliestam, Lars 1995. *Gehörsmusik: blues, rock och muntlig tradering.* Skrifter från Musikvetenskapliga institutionen 37. Göteborgs Universitet. Göteborg, Akademiförlaget.

Lundberg, Dan & Ternhag, Gunnar (eds.) 2000. *The musician in focus. Individual perspectives in Nordic ethnomusicology*. Stockholm, Publications issued by The Royal Swedish Academy of Music 91.

MacDougall, Robert 1903. “The affective quality of auditory rhythm in its relation to objective forms.” *Psychological review* 10 (1): 15-36.

May, Elizabeth: *Musics of many cultures* 1983. Berkley, University of California Press.

Meyer, Leonard B. 1989. *Style and music*. Philadelphia, University of Pennsylvania Press.

Meyers, Helen (ed.) 1992. *Ethnomusicology. An introduction.* New York, MacMillan Press.

Miguel, Alonso; Bertrand, David & Gaël, Richard 2004. “Tempo and beat estimation of musical signals.” Conference proceeding article from the 5th international conference on music information retrieval. Barcelona, Audiovisual Institute, Universitat Pompeu Fabra.

Moore, Michael 1974. “The Seeger melograph model C.” *Selected reports in ethnomusicology* II (1): 3-11.

Nettl, Bruno 1983. ”Ethnomusicology: Definitions, directions and problems”. In May, Elizabeth (ed.): *Musics of many cultures*. Berkley, University of California Press.

Ó Canainn, Tomás 1978. *Traditional music in Ireland.* London, Routledge & Kegan Paul.

Omholt, Per Åsmund 2000 *Form og struktur i norsk slåttemusikk. Et analysearbeid med utgangspunkt i et materiale fra Krødsherad*. Hovedfagsoppgave i etnomusikologi. Universitet i Bergen.

Palmer, Caroline 1997. ”Music performance.” *Annual review of psychology* 48: 115-138.

Ramsten, Märta (ed.) 1982. *Einar Övergaards folkmusiksamling*. Stockholm, Svenskt Visarkiv/Almqvist & Wiksell International.

Repp, Bruno H. 1994. “Relational invariance of expressive microstructure across global tempo changes in music performance: An exploratory study.” *Psychological research* 56 (4): 269-284.

Rice, Timothy 1987. ”Toward the remodeling of ethnomusicology”. *Ethnomusicology* 31 (3): 469-488.

Rice, Timothy 1994. *May it fill your soul. Experiencing Bulgarian music.* Chicago and London, The University of Chicago Press.

Schechner, Richard 2006. *Performance studies. An introduction*. New York, Routledge.

Sun, Ron; Terry, Chris & Slusarz, Paul 2005. “The Interaction of the explicit and the implicit in skill learning: A dual-process approach.” *Psychological review* 112 (1): 159-192.

Sæta, Olav & Sevåg, Reidar 1992. *Slåtter for the Normal Fiddle, vol. 1*. Oslo, Universitetsforlaget.

Ternhag, Gunnar 1992. *Hjort Anders Olsson - spelman och artist*. Hedemora, Gidlunds Bokførlag.

Thedens, Hans-Hinrich 2000. ”It’s the individual who is the ‘dialect.’” In Lundberg, Dan & Ternhag, Gunnar (eds.): *The musician in focus. Individual perspectives in Nordic ethnomusicology*. Stockholm, Publications issued by The Royal Swedish Academy of Music 91: 75-101.

Thedens, Hans-Hinrich (ed.) 2004. *Revitalisering av tradisjoner*. *Norsk Folkemusikklags tidsskrift* 18.

Timmers, Renee; Ashley, Richard; Desain, Peter & Heijink, Hank 2000. “The influence of musical context on tempo rubato.” *Journal of new music research* 29 (2): 131-158.

Timmers, Renee & Honing, Henkjan 2002. “On music performance, theories, measurement and diversity.” In Belardinelli, Marta Olivetti (ed.): *Cognitive processing*. (International quarterly of cognitive sciences): 1-19.

Tokofsky, Peter 1997. “Communal creation revisited: Authorship and creativity in the ‘Elzacher’ Fasnet.” *Western folklore* 56 (3-4): 215-232.

Trouillot, Michel-Rolph 1995. *Silencing the past. Power and the production of history*. Boston, Beacon Press.

Waadeland, Carl Haakon 2000. *Rhythmic movements and movable rhythms. Syntheses of expressive timing by means of rhythmic frequency modulation.* Doctoral dissertation. Department of Musicology. Norwegian University of Science and Technology. Trondheim.

Wang, Cecilia Chu 1983. “Discrimination of modulated music tempo by music majors.” *Journal of research in music education* 31 (1): 49-55.

Westman, Johan 1998 *Melodi-klang-intonation. En tonalitetsteoretisk studie med utgångspunkt i äldre skandinaviska låtar spelade på hardingfela och fiol*. Hovedfagsavhandling i etnomusikologi. Universitetet i Bergen.

Widmer, Gerhard & Goebl, Werner 2004. "Computational models of expressive music performance: The state of the art." *Journal of new music research* 33 (3): 203-216.

Windsor, Luke W. 2004. "Analysing coordination in Western art music: Lessions for ethnomusicology?" *ESEM CounterPoint* 1: 65-67.

Windsor, Luke W.; Aarts, Rinus; Desain, Peter; Heijink, Hank & Timmers, Renee 2000. "On time: the influence of tempo, structure and style on the timing of grace notes in skilled musical performance." In Desain, Peter & Windsor, Luke (eds.): *Rhythm perception and production*. Lisse, Swets & Zeitlinger.

Wiora, Walter 1938. "Die aufzeichnung und herausgabe von bolksliedweisen." *Jahrbuch für Volksliedforschung* 6.

Wright, Matthew & Berdahl, Edgar 2006. "Towards machine learning of expressive microtiming in Brazilian drumming." *Proceedings of the 2006 international computer music conference.* New Orleans: 572-575.

Yeston, Maury 1975. "Rubato and the middleground." *Journal of music theory* 19: 286-301.

Discography

Berglund, Mats; Håkansson, Göran; Lien Jenssen, Atle & Sæta, Olav 2002. *24 polsdanser frå Finnskogen*. Grue, Finnskogen Kulturverksted.

Bäckström, Magnus; Gudmundson, Per; Ingels, Ingrid; Ingels, Erik & Ingels, Bror 1978. *Österdalskt. Låtar från Ore, Rättvik och Boda*. Giga.

Buen, Hauk 2000. *Feledåm*. Buen Kulturverkstad.

Buen, Knut 1992. *Håvards Draum*. Buen Kulturverkstad.

Buen, Knut & Buen, Hauk 1992. *Fykerud'n*. Buen Kulturverkstad.

Buen, Knut & Buen, Hauk 1995. *Spel til dans*. Buen Kulturverkstad.

Groupa 1995. *Imeland*. Amigo.

Groupa 1999. *Lavalek*. Xource.

Gudmundson, Per 1993. *Per Gudmundson*. Mockfjärd, Giga Folkmusik HB.

Haugen, Hans 2004. *Felespell fra Susendal*. Ta:lik.

Høgemo, Håkon 2000. *Solo*. NORCD.

Schjølberg, Leif-Inge 2001. *Fele-ljom*. Schjølberg.

Various artists 1995. *Norsk folkemusikk. 10 cd boks med opptak fra NRK's arkiv*. Grappa/NRK.

Various artists 1997. Meisterspel. Heilo.

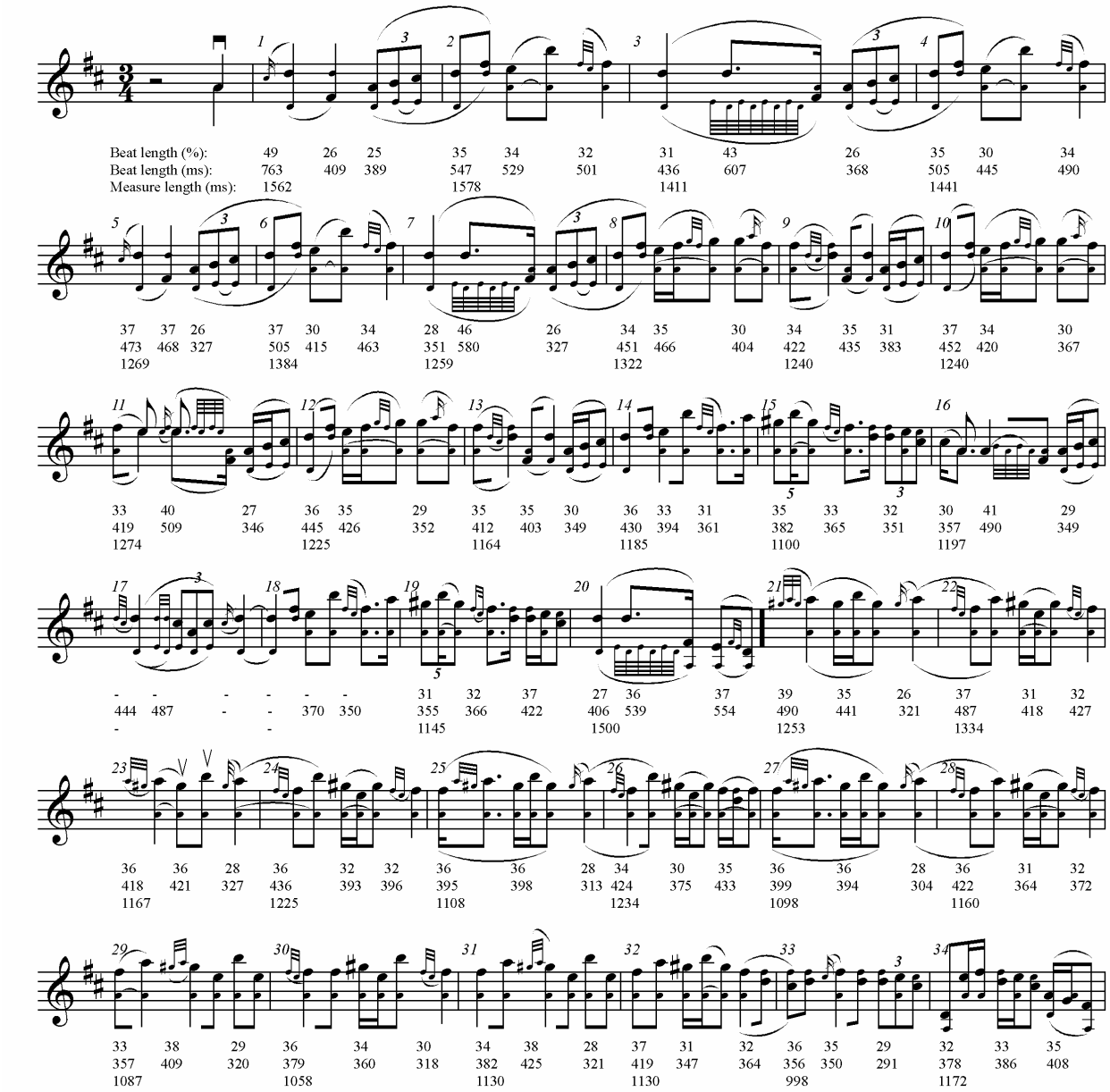
Westberg, Tron Steffen 2002. *Bortover all vei*. 2L.

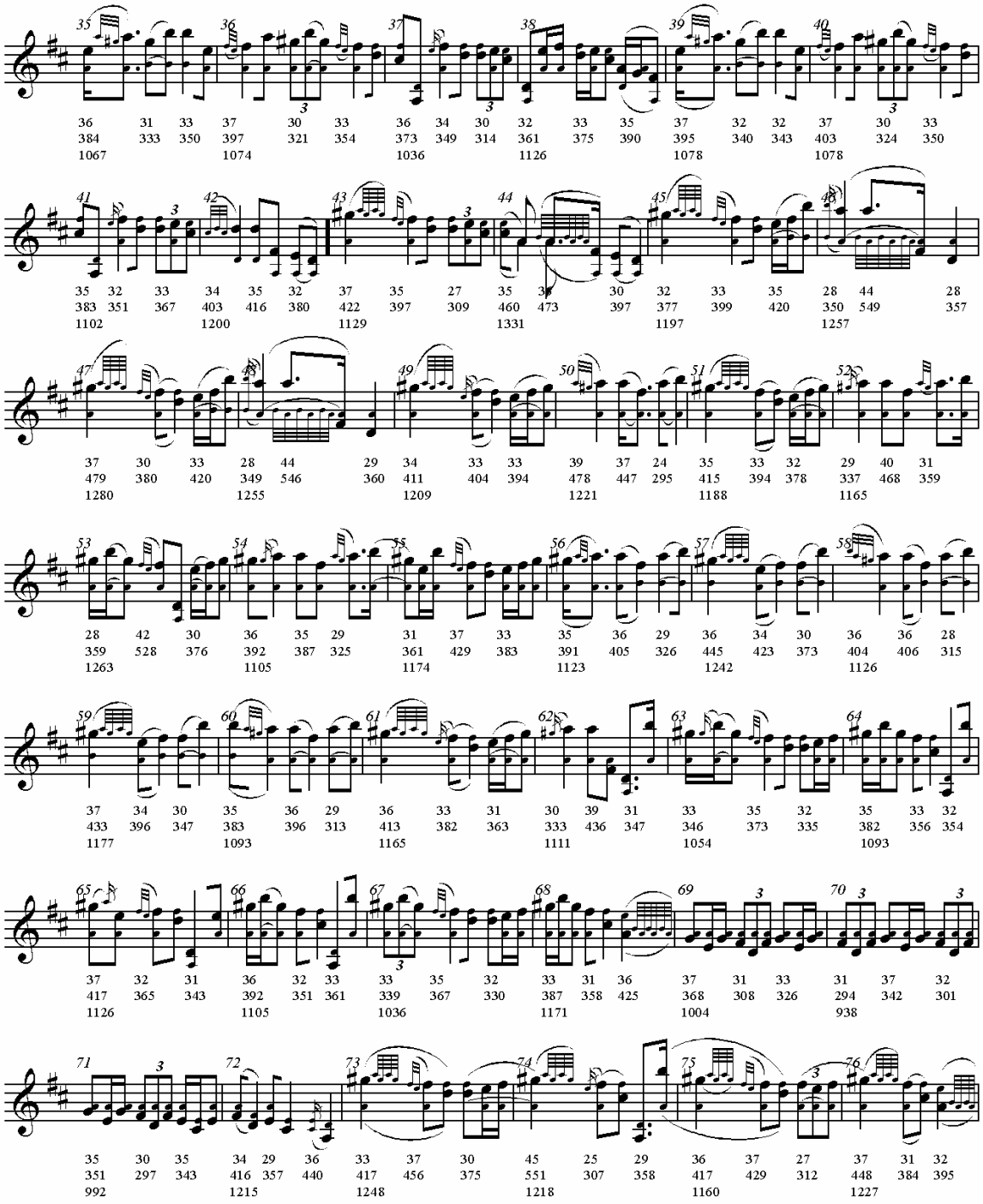
Archive material

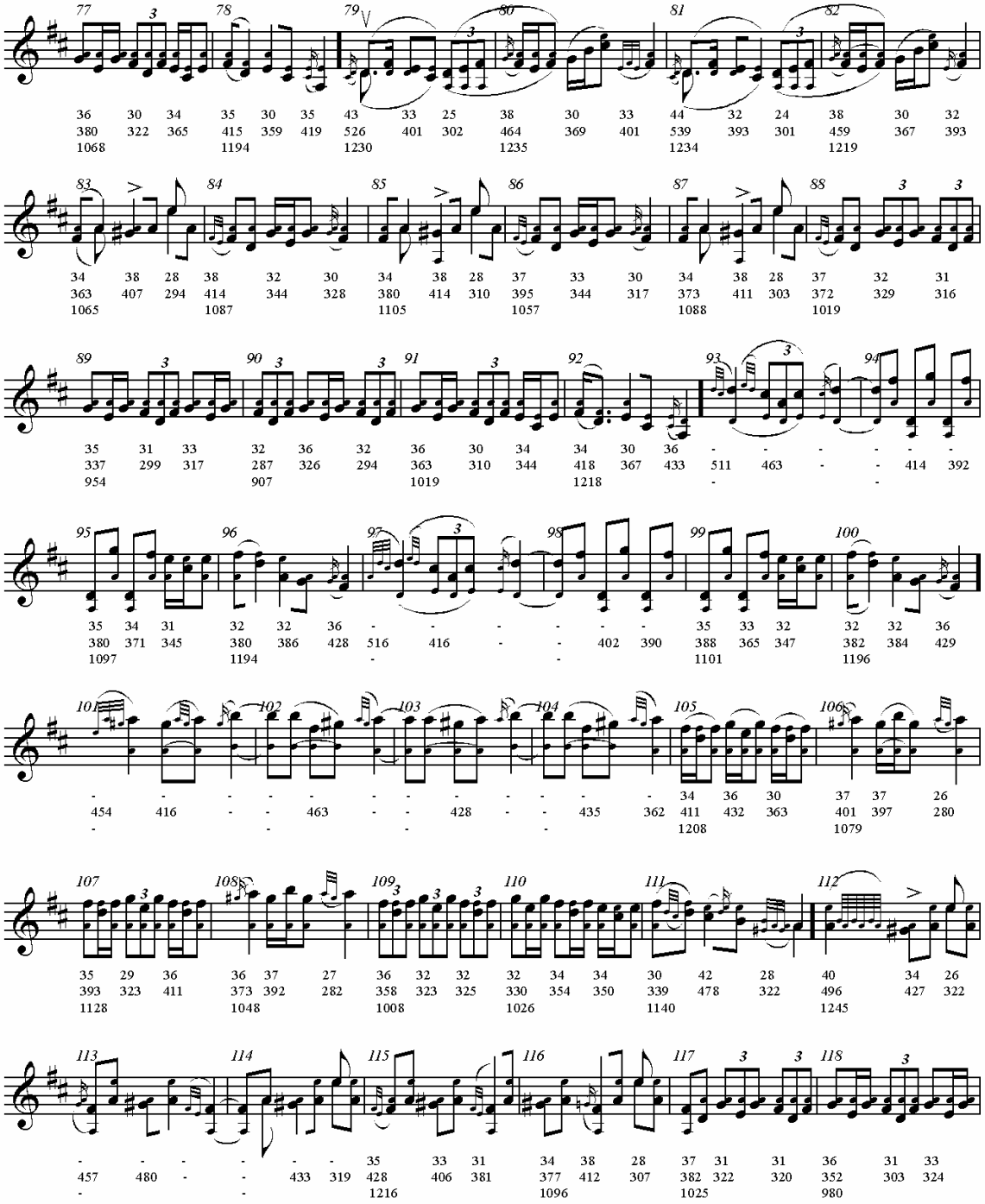
Borgen, Gunnulf: *Markensmondagen*. Archive recording from *Norsk Folkemusikksamling*. NFSTr 0184 (originally a studio recording from a 78 record from 1935).

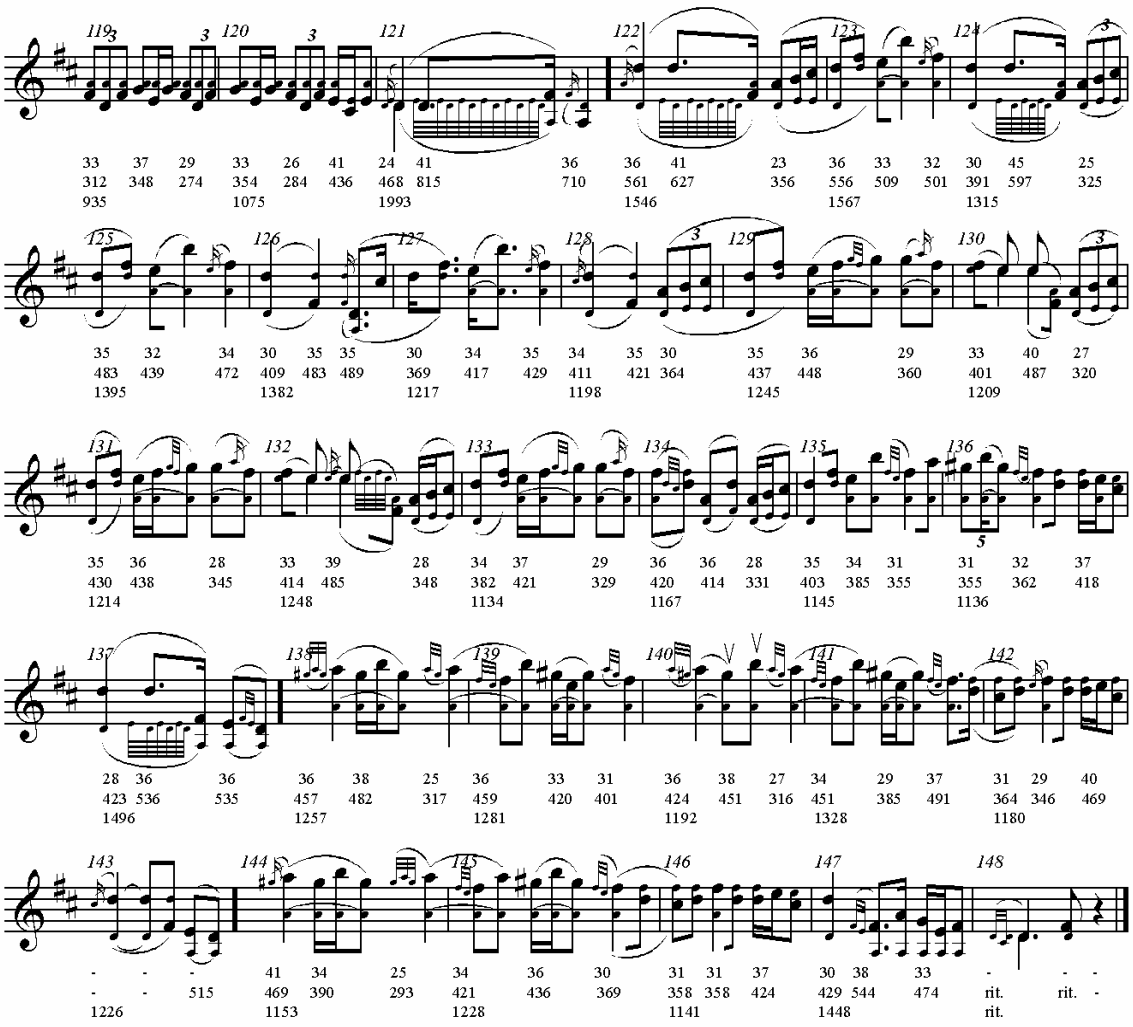
Herrefoss, Bjarne: *Igletveiten*. Live recording from a concert at Gol Campingsenter 08-03- 1991. Archive recording from *Folkemusikksenteret i Buskerud*. FiBTd0214:3.

Appendix 1: Gunnulf Borgen – *Markensmondagen*. Detailed transcription and timing data.




35 36 37 38 39 40
36 31 33 37 30 33 36 34 30 32 33 35 37 32 32 37 30 33
384 333 350 397 321 354 373 349 314 361 375 390 395 340 343 403 324 350
1067 1074 1036 1126 1078 1078
41 42 43 44 45 46
35 32 33 34 35 32 37 35 27 35 30 32 33 35 28 44 28
383 351 367 403 416 380 422 397 309 460 473 397 377 399 420 350 549 357
1102 1200 1129 1331 1197 1257
47 48 49 50 51 52
37 30 33 28 44 29 34 33 33 39 37 24 35 33 32 29 40 31
479 380 420 349 546 360 411 404 394 478 447 295 415 394 378 337 468 359
1280 1255 1209 1221 1188 1165
53 54 55 56 57 58
28 42 30 36 35 29 31 37 33 35 36 29 36 34 30 36 36 28
359 528 376 392 387 325 361 429 383 391 405 326 445 423 373 404 406 315
1263 1105 1174 1123 1242 1126
59 60 61 62 63 64
37 34 30 35 36 29 36 33 31 30 39 31 33 35 32 35 33 32
433 396 347 383 396 313 413 382 363 333 436 347 346 373 335 382 356 354
1177 1093 1165 1111 1054 1093
65 66 67 68 69 70
37 32 31 36 32 33 33 35 32 33 31 36 37 31 33 31 37 32
417 365 343 392 351 361 339 367 330 387 358 425 368 308 326 294 342 301
1126 1105 1036 1171 1004 938
71 72 73 74 75 76
35 30 35 34 29 36 33 37 30 45 25 29 36 37 27 37 31 32
351 297 343 416 357 440 417 456 375 551 307 358 417 429 312 448 384 395
992 1215 1248 1218 1160 1227


77 78 79 80 81 82
36 30 34 35 30 35 43 33 25 38 30 33 44 32 24 38 30 32
380 322 365 415 359 419 526 401 302 464 369 401 539 393 301 459 367 393
1068 1194 1230 1235 1234 1219
83 84 85 86 87 88
34 38 28 38 32 30 34 38 28 37 33 30 34 38 28 37 32 31
363 407 294 414 344 328 380 414 310 395 344 317 373 411 303 372 329 316
1065 1087 1105 1057 1088 1019
89 90 91 92 93 94
35 31 33 32 36 32 36 30 34 34 30 36 - - - - - -
337 299 317 287 326 294 363 310 344 418 367 433 511 463 - - 414 392
954 907 1019 1218 - -
95 96 97 98 99 100
35 34 31 32 32 36 - - - - - - 35 33 32 32 32 36
380 371 345 380 386 428 516 416 - - 402 390 388 365 347 382 384 429
1097 1194 - - 1101 1196
101 102 103 104 105 106
- - - - - - - - - - - - 34 36 30 37 37 26
454 416 - - 463 - - 428 - - 435 362 411 432 363 401 397 280
- - - - 1208 1079
107 108 109 110 111 112
35 29 36 36 37 27 36 32 32 32 34 34 30 42 28 40 34 26
393 323 411 373 392 282 358 323 325 330 354 350 339 478 322 496 427 322
1128 1048 1008 1026 1140 1245
113 114 115 116 117 118
- - - - - - 35 33 31 34 38 28 37 31 31 36 31 33
457 480 - - 433 319 428 406 381 377 412 307 382 322 320 352 303 324
- - 1216 1096 1025 980


119 120 121 122 123 124
33 37 29 33 26 41 24 41 36 36 41 23 36 33 32 30 45 25
312 348 274 354 284 436 468 815 710 561 627 356 556 509 501 391 597 325
935 1075 1993 1546 1567 1315
125 126 127 128 129 130
35 32 34 30 35 35 30 34 35 34 35 30 35 36 29 33 40 27
483 439 472 409 483 489 369 417 429 411 421 364 437 448 360 401 487 320
1395 1382 1217 1198 1245 1209
131 132 133 134 135 136
35 36 28 33 39 28 34 37 29 36 36 28 35 34 31 31 32 37
430 438 345 414 485 348 382 421 329 420 414 331 403 385 355 355 362 418
1214 1248 1134 1167 1145 1136
137 138 139 140 141 142
28 36 36 36 38 25 36 33 31 36 38 27 34 29 37 31 29 40
423 536 535 457 482 317 459 420 401 424 451 316 451 385 491 364 346 469
1496 1257 1281 1192 1328 1180
143 144 145 146 147 148
- - - 41 34 25 34 36 30 31 31 37 30 38 33 - - -
- - 515 469 390 293 421 436 369 358 358 424 429 544 474 rit. rit. -
1226 1153 1228 1141 1448 rit.