

Timing-Sound Interactions

Groove-Forming Elements in Traditional Scandinavian Fiddle Music

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This article reports on a study of concepts and practices of microrhythm among skilled performers of traditional Scandinavian fiddle music, particularly the so-called *springar* tradition which features non-isochronous and variable beats and subdivisions within a triple meter framework. In this context, microrhythm refers to the overall shaping of musical events at the micro level, encompassing both timing (temporal placement and duration) and sound (shape/envelope, timbre and intensity). A particular focus is to explore how these musical features interact – as opposed to treating timing and sound separately – and how timing-sound interactions in turn are understood in terms of groove-forming elements. The study consisted of semi-structured interviews with four expert musicians, which have been transcribed and coded for key themes and concepts. Subsequently, these data were complemented by analyses of relevant musical segments. The interviews focused on the defining features of a good groove, and how aspects of sound are envisaged to affect aspects of rhythm and timing, and vice versa. It was found that groove is largely conceptualised in terms of movement and embodiment; that musical features (timing, accentuation, ornamentation, tone production) are seen to interact and overlap, suggesting a multi-parametrical concept of groove; and that melodic-rhythmic variation is an important groove-forming element. The interviews also revealed a strongly practice-oriented perspective on performance and aesthetics in which musical concepts are tightly integrated with their associated sound-producing movements (bowing, fingering, foot tapping).

Keywords: Groove, Microrhythm, Micro-Rhythm, Timing, Rhythm and Meter, Asymmetrical Rhythm, Scandinavian Folk Music, Hardanger Fiddle, Springar, Music Theory, Music Analysis.

This article reports from a study of concepts and practices of microrhythm among skilled performers of traditional Scandinavian fiddle music. A particular focus is the Norwegian *springar* tradition, which features non-isochronous and variable beats and subdivisions within a triple meter framework (Blom 1981; Johansson 2017a; Kvifte 1999). The study is part of the larger project TIME: Timing and Sound in Musical Microrhythm, which conducts “comparative investigations of four different rhythmic genres – jazz, electronic dance music, R&B/hip-hop and Scandinavian fiddle music – in order to gain new insights into the relationship between temporal and sound-related aspects of musical perception and performance.”¹

1. <https://www.uio.no/ritmo/english/projects/flagship-projects/time/>

Within the scope of the TIME project, we define microrhythm as containing both temporal and sonic features, including timing (early, late, or on the beat), duration (short or long), shape (changes in sonic features within the individual sound), timbre (sound colour), and intensity (overall energy/loudness). An important focus is to explore how these musical features interact and how timing-sound interactions in turn are understood in terms of groove-forming elements. For the sake of simplicity, timing can be defined in terms of *when* musical events happen and are perceived to happen, while sound refers to *what* is happening (a simple or compound sound, a loud or soft sound, a high or low note, a plain or ornamented phrase etc.). Given the hypothesis of a formative interaction between these dimensions they cannot be understood independently of one another. Moreover, as evident from my analysis, timing and sound are not merely interacting features in the sense that the one affects and is crafted in relation to the other. Rather, their interaction generates rhythmic effects – the experience of groove and flow – which themselves are the focus of attention.

Notably, this notion of microrhythm as a compound concept comprising both temporal and sonic aspects represents a rethinking that moves beyond existing scholarship's traditional focus on microrhythm as timing (Johansson et al. 2021; Sager 2005). As Anne Danielsen (2015) has noted, there is a shortage of research on the relationship between sound and timing beyond experimental studies using manufactured sounds devoid of musical context. Moreover, with regard to Scandinavian fiddle music, existing rhythm research is largely devoid of ethnographic insight into how performers make sense of performance timing and its associated concepts (groove, flow, phrasing, accentuation and timing-sound relationships) (Johansson 2017a). The present study thus complements existing research by taking on the complexity of performed music and including ethnographic data from practitioners of a particular style of rhythmic performance.

The Norwegian *springar* (also called *springleik*, *pols*, *polsdans* and *rundom*), which is largely equivalent to the Swedish *polska*, is a traditional couple dance in triple meter with numerous regional and local variants. Stylistic distinctions are mainly manifested by differences in rhythm, including characteristic patterns of beat accentuation (where and how accents fall), beat duration (the measure may be symmetrically or asymmetrically divided) and beat subdivision (even/duple, uneven/triple, and shifting or ambiguous) (Ahlbäck 1995).

Within these distinctions, practices and concepts of groove, timing and sound are highly specialised, subtle nuances of phrasing and melodic-rhythmic articulation determining the stylistic identity and quality of a performance (Aksdal et al. 2005; Blom 1981).² At the same time, and somewhat paradoxically, stylistic categories are highly flexible in the sense that the same rhythmic style, or even the same tune, may materialise in a variety of ways (Kvifte 1994; Omholt 2012).

2. See <https://youtu.be/Iw8IaesYRdI> for examples. The video features the interviewed fiddlers performing in different styles of the *springar* tradition.

This variability includes a number of musical features related to groove, timing and sound: beat duration patterns (varying from isochronous to highly non-isochronous), rhythmic subdivisions, dynamics (the distribution of accentual energy between and within notes and phrases), phrasing (which and how many notes that are tied together), ornamentation, intonation (the pitching of notes and intervals), harmonization (the use of double stops), onset quality (sharp, soft, gliding), and sound colouring. The fact that springar tunes are generally performed by solo fiddlers is an important factor here, as it allows for a high degree of individual expressive freedom and idiosyncratic modes of performance.

From these descriptions, questions arise as to how groove and groove-forming mechanisms are conceptualised among skilled practitioners in light of the project's overall focus on the relationship between temporal and sound-related aspects of musical perception and performance. To produce data that can shed light on these questions, I have conducted interviews with four expert musicians. This article presents some of the findings from the interviews, including certain specific manifestations of timing-sound interactions. An analysis of a segment from a *springar* tune further elucidates these findings.

Methods

To explore discourses on groove and sound-timing interactions among traditional fiddlers, I conducted in-depth interviews with four expert performers of the Hardanger fiddle (an ornately decorated “Norwegian violin” with four or five sympathetic strings).³ The interviews were conducted in 2017 and 2018, based on a semi-structured interview guide that opened with general questions about what a good groove and a good sound are, then moved on to more specific questions about the musicians' reflections on the importance of timing, sound, and timing-sound interactions, respectively.⁴ While all topics and questions mentioned in the interview guide were touched upon, the interviews ended up being relatively open conversations. Moreover, all four musicians had their instruments in hand, actively using them to demonstrate particular features of playing technique and associated modes of melodic-rhythmic articulation.

As to music-analytical approach, I analysed a segment from a springar tune for beat and measure durations (inter-onset intervals), bowing patterns, ornamentation and double stops (Figure 1, p. 66). Inter-onset intervals were analysed manually, using the Adobe Audition software to mark the points in the sound graph that correspond to the start/end of the unit concerned and then measuring the distance between the points.⁵ It needs to be acknowledged that the fiddle produces sound images which make it challenging to precisely identify rhythmic onsets. While I have attempted to compensate for this source of uncertainty

3. About the interviewees:

Ottar Kåsa (born 1983) is firmly versed in the traditions from some of the most renowned fiddlers of Telemark and a multiple winner of the annual national competition in Norwegian folk music [Landskappleiken].

Anne Hytta (born 1974) is a versatile fiddler and composer with broad experience from a number of genres and projects. As a traditional fiddler, she has specialised in what is known as the Løndal tradition in Telemark through studying with masters such as Einar Løndal (1914–2005) and Knut Buen (born 1948).

Anders Erik Røine (born 1971) is a multi-instrumentalist and internationally renowned folk musician with numerous albums, tours and projects to his credit. As a fiddler, he has dug deeper into the rhythmic aesthetics of the Valdres-springar than most others.

Herbjørn Liahagen (born 1973) is an outstanding representative of the springar tradition from Hallingdal. Similar to the other interviewed fiddlers, Liahagen has a distinct personal style within the framework of the larger tradition, which in his case is characterised by a strong forward drive and abundant rhythmic and ornamental variations.

4. The original Norwegian version of key terms that were used in the conversations are enclosed in square brackets.

5. Some of the long notes in the analysed segment are covering more than one beat by being tied to the preceding or following beats. This means that there is no audible onset from/to which to measure the beat's duration. In these instances, I have used the foot tapping as an onset point and measured its distance to the adjacent melodic event onset. The data obtained this way is not directly comparable to played beat durations (see Johansson 2010a:73–74, 98) and should be understood as mere estimations.

by means of a consistent measurement procedure – making the same decision of placement in all comparable occurrences – it remains that the relationship between physical onset, measurements and experienced rhythm cannot be analytically determined (Kvifte 2004:61). A similar objection can be directed against the level of precision with which my analysis operates: the temporal resolution of measurement data is in milliseconds, which is far beyond the threshold for listeners' perception of timing differences (Clarke 1989; Hirsh et al. 1990). My response to these quandaries is twofold: 1) The precision with which rhythm is produced may be considerably higher than that of a listener attempting to detect such details (Johansson 2010a:119). 2) I do not assume that my measurements and timing data necessarily correspond to how temporal relationships are experienced by performers and listeners. For instance, onsets may be ambiguous, or substantial fluctuations in beat durations may go undetected (cf. below). Such discrepancies between measured beat positions and experienced rhythm are themselves interesting observations considering the focus on microrhythm as a multidimensional phenomenon. From this perspective, finding the precise beat onsets in an analysis of microtiming and feeling “the beat” (note the change in meaning) are not necessarily the same thing, and the latter is assumed to be dependent on other aspects of the music than timing alone.

Results and Analysis

Below, some of the main findings from the interviews are reported. Generally, it can be noted that the interviewees conceptualised groove in terms of movement and embodiment, which is a fundamental finding of many studies of rhythm and groove (see Keil & Feld 1994; Roholt 2014). In the interviews, this was evident from references to dancing and the fiddler's sound-producing movements (including foot tapping), as well as the use of movement metaphors in identifying rhythmic qualities of the sounding music. The latter included terms such as lift, drive, flow, breathing, energy, forward motion, balance, relaxing and resting (see also the remaining quotes below):

The most important thing that has to be in place is “lift and drive” [lyft og skuv]; that there is a sense of forward motion and energy that can inspire dancing (Herbjørn Liahagen).

To achieve a good dance groove [dansetakt], it's difficult but important to find the right balance or combination between relaxing and resting within the phrases and moving forward (Ottar Kåsa).

Within our genre, there is a more organic approach to rhythm and beat compared to some other genres where there is a more metrical understanding of rhythm and beat [...]. To use a metronome when playing tunes is pointless really, because the tunes groove [svinger]

naturally in a way. Listening to good recordings where the tunes are not played metronomically at all, you really get this feeling of a good flow [flyt] where nothing is halting in any way (Anne Hytta).

In terms of overt body movements, the most salient examples are the fiddlers' foot tapping and the right hand-/arm movements that control the bow. It is first of all interesting to note how these are seen to be interconnected and interactive rather than separate aspects of movement added on top of one another. Secondly, there seems to be a significant overlap between sound-producing and sound-accompanying movements.⁶ Foot tapping is generally considered to be reflective of the musician's (or listener's) metric interpretation of the music (Canter 2015). However, as seen below, how the foot tapping is executed is considered decisive for the musical outcome, suggesting that it is a constitutive rather than reflective element of rhythmic performance.

I'm completely dependent on the foot tapping when playing tunes [...]. For some time, I only tapped the first two beats and it took a while before I started to tap on all three beats, which creates a better flow in the springar [...]. When not tapping on the third beat the asymmetry⁷ tends to become exaggerated and somewhat unnatural (Anne Hytta).

The foot tapping is essential, I think. It's indispensable as a reference for the variations in the bowing. That is to say, they [the bowing patterns] also have meaning without the foot tapping, but at the same time, to have the two against three groove [a common feature in Norwegian fiddling] you have to have the foot tapping as a reference (Anders Røine).

To me, the foot tapping is a very unconscious thing. The feet just start to move automatically. Nor am I particularly conscious about the interaction between the feet and the right [bow] hand. I know that they work together but exactly how is a bit mixed together in here [points to his head]. Often when I teach tunes to people who are not familiar with Hardanger fiddle tunes I discover that the right hand movements or the bowing patterns that are completely natural to me are not that natural but learned [referring to the fact that other musicians might have difficulties understanding how the bowing patterns are organised, a point also made by Røine and Hytta]. And, of course, it's here [in the bow hand] that much of the rhythm is produced on the fiddle (Ottar Kåsa).

It's important how much air that you manage to generate through the foot tapping. Because you might tap heavy and then you will play heavy almost automatically because it affects how you think rhythm and groove [takt]. So, I try to tap lightly, by not using the heels for instance, only the ball of my feet, and sort of doing this lift [illustrates with a rising movement with his hands] [...]. I tap

6. See Godøy & Leman (2009) for a taxonomy of sound-producing, communicative, sound-facilitating and sound-accompanying movements in music making.

7. Asymmetry refers to the long-average-short beat duration cycle of the so-called *tele-springar*.

the third and the first beat with both feet, and I use only the right foot for the second beat, which is the weak beat in Halling-springar [illustrates with a feather-like hand movement]. And it's particularly important that the third beat is like ... upwards in a way [illustrates with a rising movement with his hands], because it's supposed to work as an energy charger for the return to the first beat. So, the foot tapping is something that I actually think about occasionally ... that it should underscore and substantiate – sonically, but also in my body – that I'm thinking “up, up” rather than “down, down” (Herbjørn Liahagen).

Observing the musicians' skilful command of their craft, it seems apparent that bowing and foot tapping represent an experiential, tacit and deeply embodied form of musical knowing that is utilised intuitively in performance. It could also be argued that these and other learned patterns of movements are the foundation of the musical-aesthetic signature of the performer rather than merely instrumental to a musical end (i.e. means to achieve a particular desired outcome). In other words, particular ways of operating the instrument and using the body (which are typically unique to a particular player) are performative in the sense of preceding and shaping their aesthetic results (Johansson 2015). From this perspective, the characteristic and idiosyncratic body language of each of the four interviewed fiddlers – including left- and right-hand posture, fingering and bowing, foot tapping, head nodding and body swaying – is their respective style as much as it is a means to accomplish a particular stylistic signature.

The above line of reasoning rests on the assumption of a convergence between conceptual and sensory-motor driven, embodied dimensions of knowledge.⁸ Within traditional music making this is reflected in the overall absence of explicit concepts and abstractions, musical features (legato, dynamic accentuation, types of ornamentation etc.) being more or less synonymous with the body actions by which they are produced (bowing, fingering etc.). There are several ways in which such a practice-oriented understanding of musical possibilities could be accounted for in the analysis of timing, sound, and timing-sound relationships in the springar genre. A specific and illustrative example is the tendency for ornamented beats to be “prolonged.” As Liahagen explained when demonstrating various variations of a phrase, “now this note becomes longer because I'm doing a trill there.” Taking this statement and its context into account, one should consider whether the note/beat is longer simply because the associated finger movement takes its time to perform while noting that there is a tolerance for said fluctuations in beat duration within the style of playing in question. The practice-oriented perspective on performance and aesthetics also suggests a framework for understanding the convergent relationship between musical parameters as further discussed below. In short, body movements, such as bowing, produce packages of musical content (temporal, accentual, harmonic and timbral properties) that remain

8. These thoughts pertain to the postulates of embodied cognition theory, the full consideration of which is beyond the scope of the present study. See Shapiro (2010) for an illuminating account, particularly his notion of three themes of embodiment: *conceptualisation, replacement, and constitution*.

linked together as long as they are not abstracted from the movement (through analytical or pedagogical intervention). It could also be speculated that such abstractions are rare among traditional fiddlers for the simple reason that they do not aid musical communication. Simply put, “bowing” – albeit a multifaceted and complex concept – makes sense to performers, while “beat timing,” “subdivision ratios,” “attack and sustain components” etcetera. do not. Similarly, the musicians referred to particular notes as “the second finger,” “the fourth finger” etcetera. as opposed to “the C sharp,” “the fifth” etcetera., which again suggests a preference for tangibles over abstractions.

Another striking observation I made was that the fiddlers rarely focused on the temporal placement of sounds alone when I asked the question “what constitutes a good groove [takt]?”:

Immediately, I am thinking flow. Then I am thinking about lines [linjeføring]; that those great melody lines should flow and shine through. [...] The rhythm is shaped by the melodic motifs and the bowing [how notes are tied together and accentuated] [...] The bowing is what is truly essential to the rhythm. And it took me a while to realise how different bowing patterns in the same motif create a different experience of the melody, and how this may bring rhythmic life to a tune (Anne Hytta).

It's partly about avoiding monotony by weighting the notes differently and in the right way ... to emphasise certain parts of the melody (Ottar Kåsa).

Groove is not primarily about getting the timing right [adjusting the duration of beats]. It's more about getting rid of distractions in order to get into the flow that you sort of know from extensive experience with this music. [...] So, good groove [god takt] is definitely not merely the points in time when you put down the finger or start the bow. It is also about dynamics [dynamikk – distribution of intensity through differentiation in bow speed and pressure] (Herbjørn Liahagen).

Similarly, the question “what constitutes a good sound [sound or klang]?” was characteristically associated with temporal and rhythmic aspects as well:

A good fiddle sound is rich and resonant, and sharp at the same time. [...] When this works my playing becomes more precise and this is important for timing as well. [...] It also allows for a more differentiated articulation where you mark certain notes more and others less. [...] The opposite is a more diffuse sound, which I associate with music that doesn't quite groove [som ikke svinger helt] (Anne Hytta).

[A good sound] affects the experience of rhythm and flow in a temporal sense as well. [...] to achieve the good groove, we can't... there can't be any empty spaces within the fiddle in a way. [...] So, one has sort of to develop a good sound in the fiddle as well, to get the proper forward thrust [god framdrift] (Herbjørn Liahagen).

It's about finding the point of balance at which the string sound and the resonance from the instrument meet [a sweet spot where the volume is not maxed out, allowing for dynamic variations in both directions]. [...] When I manage to find that balance, I become more relaxed when I play and there is more room to play around with the rhythm as well (Anders Røine).

[...] I think that some of the best fiddlers manage to build this continuous ringing sound [dån] in the fiddle, both by means of their tonality [tonalitet – finger placement and the corresponding pitching of notes] and probably the bowing as well. And in a way that the fiddle is alive in a way, throughout the whole tune. [...] Fiddlers like Ottar Kåsa and Jan Beitohaugen, for example, they manage to ... their tonality is very "correct" [...] so that one note does not kill the overtones in another note and so on.⁹ [...] And of course, when you get this "ring" in the fiddle, as on that recording with Ottar [referring to a live recording that was played back during the interview], this will affect the experience of rhythm in a purely temporal sense as well (Herbjørn Liahagen).

In this musical context, groove and sound emerge as multidimensional, interrelated and mutually constituting phenomena. First of all, timing understood as the placement and duration of notes and beats is but one of several aspects of performance that are considered important to the groove. In fact, to the extent that it is mentioned at all, timing in this sense is mainly used to indicate that this is *not* what rhythmic performance first and foremost is about.¹⁰ What really stands out is the bowing, here understood as the varying ways in which notes are shaped (sharp vs. soft attack), tied together and accentuated/weighted. In addition, the musicians mentioned a number of "unconventional" features not commonly associated with rhythm and groove, including ornamentation, intonation, overall sound and the shaping of melodic lines (see also the remaining quotes below).¹¹ This finding should be understood against the backdrop of scholarly literature that addresses springar grooves primarily in terms of beat timing patterns (Blom 1981, 1993; Haugen 2016; Johansson 2010a; Kvifte 1999; Waadeland 2000). The reasons for this are legitimate from an analytical point of view, but it seems clear that something is missing from the point of view of the performer.

In confronting the methodological challenge of attempting to redress this imbalance I am well aware of the fact that the musicians talk about groove-forming mechanisms mainly in metaphorical and/or qualitative terms rather than in terms of absolute properties and their

9. This somewhat unconventional association between intonation and sound (and in turn with groove) occurred among the other musicians as well. As Røine postulated, "All those microtonal embellishments ... the notes in between ... I'm about to stop calling this intonation. It's more a sound thing."

10. Some of the musicians address the importance of beat timing implicitly by noting that they reject monotonous or "too obvious" grooves where the exact same beat duration ratio is repeated in every succeeding measure (see the section on variation as a groove-forming element below).

11. The absence of beat timing as a separate expressive component of rhythmic performance was particularly evident when the musicians demonstrated various techniques and groove features on their instruments.

effects. Moreover, these mechanisms are seen as potentialities as much as predictive relationships. To illustrate with some examples from the interviews, the quality of an attack *might* suggest that it is early *or* late;¹² ornamentation *might* blur *or* accentuate rhythmic events; fluctuations in beat durations *might* be consciously/actively initiated *or* a passive side effect of other features (ornaments occupying time for their realisation etc.), and they *might* have an experiential effect *or* go unnoticed (see the discussion of the music example below) and so on. What is also relevant here is that the fiddlers seemed largely unaware of some of the real-time effects of particular performance decisions. Instead, the interviewees reported that some of these effects were retrospectively assessed when they played back recordings of themselves as part of their practice (Hytta and Liahagen).

More generally, all four fiddlers made it very clear that achieving a good groove is a highly contextual and dynamic challenge, the success of which is dependent on a number of circumstances, including which tune is being played, the fiddler's physical and mental fitness in the moment, how the instrument behaves and responds,¹³ as well as the spatial, acoustic and social setting of the performance. Rather than viewing these notions in terms of inconsistency, I suggest that they highlight the processual and emergent nature of rhythmic performance. From this perspective, the springar groove is not a fixed classificatory concept; a quality that is automatically achieved when a set of generic attributes are put together in the right way; a template or formula that can be applied to and/or translated between different tunes and settings. Rather, groove is understood almost in terms of an ideal state of being – notably without being represented in any *particular* ideal – and as an open entity residing in a perpetual state of becoming.¹⁴ While this account might seem foreign to musicians who are used to delivering grooves, riffs and other musical elements almost on demand (cf. the daily work of the studio musician), it is strongly supported in the Norwegian traditional music discourse, which is filled with stories of those special moments when everything seems to have come together perfectly for the fiddler. It is part of this mythology that these exemplary instances are rare, implying that it is more likely that things do not come together perfectly and that no one really knows the recipe for the ideal groove.

While taking these considerations into account complicates the prospect of fully accounting for groove-forming mechanisms, the findings point the analysis of springar grooves in a number of directions that would potentially otherwise go unexplored. Moreover, it could be argued that for an analytical springar model to be of use to musicians it has to relate to how they conceive of rhythmic performance in practical terms. It seems unlikely that this criterion would be met merely by presenting parameter values, such as beat durations, degree of dynamic differentiation, attack and sustain components, number of notes tied together, the timing of ornamental onsets etcetera. As already indicated, traditional fiddlers rather tend to conceive of musical “parameters” in terms of

12. According to the musicians' accounts, sharp/fast attacks and soft/slow attacks generally function in different ways. Sharp/fast attacks indicate a relatively unambiguous placement and may be used to highlight that something is happening that demands attention. Soft/slow attacks (or “secret” attacks as Hytta called them) indicate an ambiguous placement and do not attract attention as rhythmic events with a particular temporal location.
13. The Hardanger fiddle is very sensitive to environmental conditions both with regard to tuning and how the instrument performs overall. Different fiddles also have different idiosyncratic characteristics that require appropriate choices and actions on the part of the player. For instance, some fiddles sound best when tuned in B, while other fiddles thrive in C or C sharp. Moreover, as reported by the musicians, fiddles respond differently (“fast” and “slow” were among the terms used to describe this), which in turn demands various forms of performance action, and inspires different rhythmic styles of playing.
14. The notion of groove as a state of being also finds support in the writings of Danielsen (2006), Keil & Feld (1994) and Roholt (2014).

sound-producing movements. Moreover, the individual parameters and their values are often not controlled directly or intentionally. This is particularly true for the precise timing of rhythmic events, which in many cases seems to be a side effect of other musical features and performance decisions (see Discussion). A practically relevant model input, then, could potentially consist of the contextual conditions under which successful grooves are produced as much as their absolute properties.

As indicated throughout the analysis so far, one of the most striking findings is perhaps that *variation* in the overall melodic-rhythmic crafting of the tunes is seen as a crucial groove-forming element, which applies to a number of aspects of rhythmic performance: which notes that are accentuated; how the music is phrased by means of varying bowing patterns, rhythmic subdivisions and ornamentations; the alternation between sharper and softer onsets, and the different sound colours of the instrument; and melodic and intonational variation. As seen from the quotes below, the topic of variation appears in a variety of contexts more or less directly related to the question of what constitutes a good groove. It should also be mentioned that the role of variation was not addressed as a separate question and the topic did not feature in the interview guide. This might be seen as ignorance on my part, but it also further highlights the importance of variation as an aspect of rhythmic performance.¹⁵

People are very different when it comes to this and some are perhaps less occupied with rhythmic variation and think more, eh ... not exactly machine-like but perhaps more static [...] kind of a metrical standard, while I am very occupied with the playfulness and the variation.

[To the question “What is the musical effect of fast and sharp versus soft and slow sounds [lyder], and are you using these effects deliberately?”] I am using it deliberately and probably also intuitively because ... well, I’m terrified of anything static. I think it’s horrible to listen to tunes where things are played exactly the same way over and over. [...] So, I’m definitely using it deliberately to ... the one thing is the musical experience, that variation is necessary; the other thing is [when playing for dancing] that the dancers sense that you are interlocked and bonded together in a way. You [referring to the dancers] get a kick in the butt in a way, ha ha (Herbjørn Liahagen).

[To the question “If everything is played correctly, timing-wise, does that automatically become a good groove? And if not, what is missing?”] No ... to me, what is missing then is exactly what we talked about earlier, what for example Harald Fylken is doing, that he places the motifs, not in this obvious way but a bit off from the rhythmic subdivisions in the springar. He plays around with the placement of ... well I don’t know how conscious it is, but he does

15. The types of variation referred to here decidedly fall under the heading of “repetition with a difference” characteristic of many groove-based traditional and popular musics around the world (see Danielsen 2018).

it anyway. And then I feel that everything becomes so much deeper. Far deeper. It's like ... you always hear something new when you listen to it. While with the modern groove [every measure/three-beat cycle sounding the same], that's it; you hear everything at once (Anders Røine).

[Talking about varying between long and short bow strokes:] To vary the bowing is also pretty important. For a long time now, it has been this ideal of using long bow strokes almost no matter what. [...] But it's important to differentiate the bowing and to highlight the short strokes as well. I think this is important to achieve a richer ... and to illuminate the motifs of the tune as well. [...] It's like this river metaphor. [...] In some places the water slows down, and suddenly it runs faster.¹⁶ It's about creating this liveliness; that it doesn't get monotonous (Anne Hytta).

[Exemplifying the notion that a good groove takes many forms and that different fiddlers have different strategies to achieve it:] [...] while others are considered to have a good groove [god takt] but in a different way by [...] They rest on other places in the tune [...] so that you get tricked [finta ut] in a way. Take Johannes Dale for example, who shapes the groove in a completely different way [compared to Hauk Buen, Bjarne Herrefoss and Eivind Mo who were mentioned earlier in the interview]. Suddenly he ... "ah, he stretches that note," and then it's like "wow!" While you shouldn't get tricked all the time, I think that you kind of get more interested in listening to music where you get sort of surprised – that you don't have the feeling that it just moves along in the same way straight forward (Ottar Kåsa).

[To the question "Is there a difference between the fast and sharp and the soft and slow sounds when it comes to how one experiences the sound's placement on the beat?"] I don't think it's a linear effect. I mean, you can vary between an early sharp attack and a late sharp attack. Or you can have a soft start of a note that is early in relation to the foot tap. [Follow-up question: "So a very precise attack doesn't necessarily indicate that it's precisely on the beat?"] Not necessarily. It might as well be to highlight a variation in the rhythm. [...] Similarly, when you dawdle on the rhythm by extending a note to get this surging energy in the bowing. This is also to highlight that "right here something happens that is a deviation."¹⁷ Because as I said before, it is often the deviations that generate [...] both the musical excitement of the listener and the "whipping" of the dancers; [...] the functional aspect that it creates rhythmic drive (Herbjørn Liahagen).

Overall, there are a number of principal and interrelated findings in these accounts: 1) Variation as such is important to the experience of groove and musical excitement, as well as to the communicative relation

16. It should be noted that springar playing is characterised by a constant tempo, meaning that "slows down" and "runs faster" should not be understood as if some segments are played with faster BPMs than others. "To highlight the short strokes" rather relates to density variation in subdivision, how many notes that are tied together, and/or how a single stroke of a particular duration is articulated (e.g. long and smooth vs. short and abrupt).

17. As further discussed below, in this context "deviations" do not refer to deviations from a metric grid/nominal beat positions or accentuation patterns. Instead, what is referred to is variation between successive segments.

between performers (that something is happening beyond the repetitive format of the tunes). 2) The musical elements that are subjected to variation are as much features of sound as of what is commonly referred to as rhythm or timing. 3) The emphasis on variation again points towards a negative and open-ended definition of groove: the music should not be static, but exactly how it should or could be varied to create the desired liveliness is situationally determined and cannot be specified in general terms.¹⁸ 4) While particular variational techniques (whether used deliberately or more instinctively) are deemed important as groove-forming devices, the associated musical effects are not given but open-ended and contextually constrained.

Another set of findings concerns the more particular techniques and effects that were highlighted by the musicians as important to the groove. Bowing, accentuation (dynamics), intonation and attack have already been mentioned.¹⁹ Interestingly, another feature that was described as an important groove-forming element was ornamentation. As seen below, ornaments are not taken to be mere decorations to the melodic-rhythmic line. They are instead seen as crucial components of the rhythmic fabric.

The ornamentation is often an important part of the groove. Because it may emphasise, or sometimes contradict, rhythms in the melody. And it may soften things up or accentuate certain things in the groove [takt] and rhythm. Although it's not part of the melody, one may use the ornamentation to underline things, or to create variation (Herbjørn Liahagen).

[To the question, "So there are more things than the purely temporal that make the music groove?":] Oh yes, and it's how he [referring to Harald Fylken] uses the bowing patterns and how these are placed within the rhythmic course of events. And then there is another thing that I've been working on and thinking a lot about, and that's the ornaments. [...] I have listened a lot to old recordings with fiddlers [Anders K. Rysstad and others are mentioned] and they play the ornaments on the subdivisions. The ornaments are rhythmical [...] as opposed to what one might hear today [...] with these long trills that have nothing to do with the rhythm of the tune, like "drrrr". I'm thinking more of ornaments as a rhythmic devise, simply a way of grooving (Anders Røine).

In some traditions, the ornamentation is more a part of the melody in a way. Such as in the Løndal tradition where if you remove the ornamentation a significant part of the music disappears, while other tunes may perhaps be played without ornamentation and you can still hear that a good deal of the music is retained (Ottar Kåsa).

[To the question "If flow is the important thing (referring to a statement earlier in the interview), what is it in the tunes that should flow?":] It's those melody lines that you can shape with different

18. This, however, does not imply that anything goes. As Hytta noted with reference to bowing, "you may play a phrase in very many different ways, but that is not to say that you can play in any way."

19. One important aspect of rhythmic performance that has not been mentioned is tempo. Choosing the right tempo for the tune, dance and occasion in question is a crucial part of traditional fiddling. However, the musicians only addressed this topic in general terms and it will not be further discussed in this article.

types of bowings. That's one thing. And then it's the ornamentation, which in a way, according to my ideal, should not be something that is added on top as a mere decoration. It should be something that grows out of the melody lines. So, the ornamentation shouldn't stop the flow but be a part of the flow. [...] Some places the ornamentation is part of what drives the music forward (Anne Hytta).

In addition to emphasising that ornamentation is an important groove-forming device, these quotes further highlight that musical parameters are tightly integrated: ornaments are not so much added to a rhythmic structure that exists independently of these “additions” as they are an inseparable part of a rhythmic whole. More generally, the musicians seem to consistently reject (explicitly or implicitly) that rhythm and groove are separate components in relation to which other aspects of performance are articulated. “The groove object” (my own term) – whether a whole tune, a phrase or a one-beat configuration of sonic events – is decidedly a heterogeneous object of multiple constituents. It is also a dynamic object by being created through the interaction between all aspects of the music, which mutually influence one another. From this follows that there is no particular ideal configuration of expressive elements. It is rather the unique combination of musical features within the particularities of the individual performance that determines the span of musically viable timings, accentuations, phrasings, attacks, rhythmic subdivisions, ornamentations and intonations.

Music Example

To further highlight some of the key findings of the present study, I will now present an analysis of an excerpt from a springar tune. Figure 1 shows three versions of a two-measure motif from the springar tune “Fra morgon til kveld” performed by the Hardanger fiddler Bjarne Herrefoss (1931–2002).²⁰ This example can be used as an illustration of several of the points made earlier. Notably, instead of just repeating the motif, the fiddler uses a range of different variational techniques to breath rhythmic life into the phrase: bowing patterns and beat subdivisions are changing throughout; bow attacks vary along the sharp/soft axis; grace notes and ornaments both blur and accentuate beat positions; long notes exhibit internal dynamic development with a swelling in intensity, creating a surging rhythmic effect; notes are weighted differently between beats and measures; and certain notes are “prolonged” and “shortened” respectively (the quotation marks are justified as explained below).

Referring to springar playing in general, and Herrefoss' playing in particular, the combination of the various variational techniques was talked about by Kåsa and Liahagen in terms of a tension-and-release strategy in which there is an alternation between “holding back” and “letting go” within the phrases. These expressive strategies also create the

20. The recording is taken from a radio broadcast (NRK) and features a performance from the 1970 *Austlandskappleiken* in Ål. It should be noted that although Herrefoss' playing was a recurring reference during the interviews, this particular recording was not discussed.

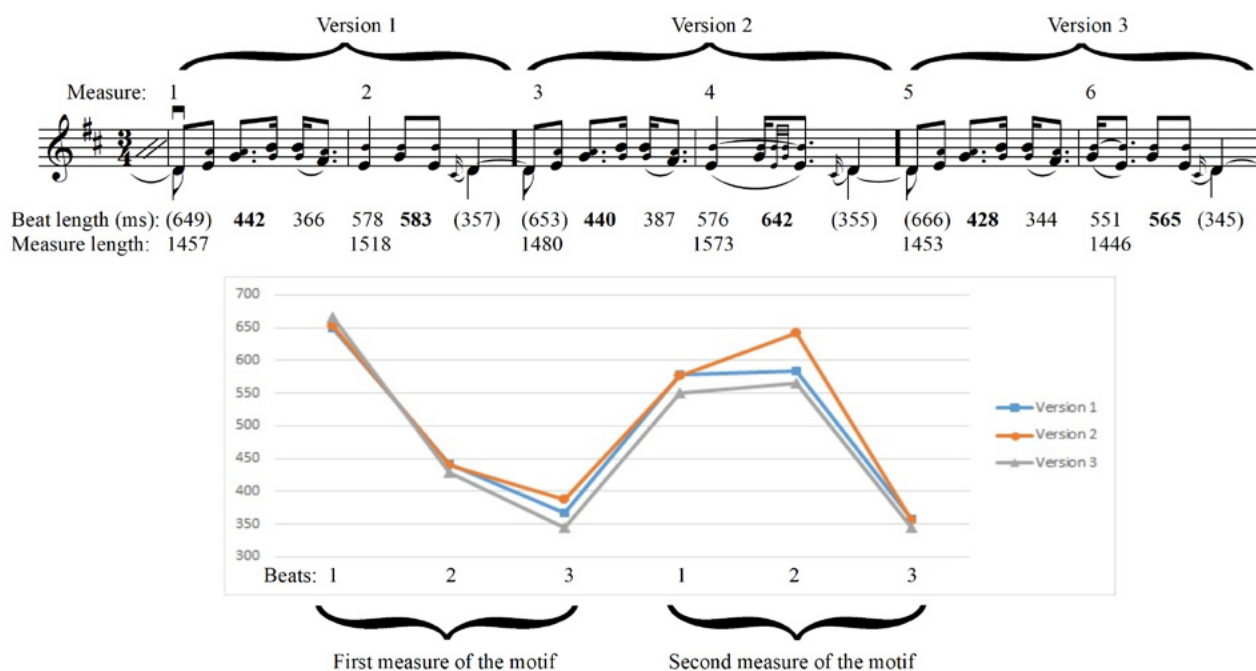


Figure 1. “Fra morgon til kveld” [From dawn till dusk] (*Tele-springar*: Long-Average-Short asymmetry). Three versions of a two-measure motif played in immediate succession with timing data for beat and measure durations (bracketed numbers represent tied beats where measurements are made using the foot tapping as onset points). The line chart shows the beat timing profile for the motif as a whole and its consistency across repetitions.



Sound Example 1.
Bjarne Herrefoss
(1931–2002) – “Fra morgon til kveld”, three versions of a two-measure motif.

impression that the music is structured in long phrases or sentences of varying length, rather than short repetitive rhythmic chunks as implied by the barlines (1-2-3, 1-2-3, etc.). The melody lines are “shining,” to borrow a metaphor from Hytta, and it is intriguing to consider the dramatic difference between the repetitive simplicity of the melody as depicted in the score and the richness and diversity of the melodic-rhythmic sequence as performed. On this note, while the melody is stated to be an important element of the groove, it seems questionable whether the melody can be separated from the expressive components that make it “shine,” except for analytical purposes. Again, the groove object – whether viewed from the perspective of melodic structure or some other aspect – is better accounted for in terms of interactive relationships between multiple musical components and the body actions by which they are produced.

In terms of beat timing, “Fra morgon til kveld” is a *tele-springar* in which the beat level is categorically non-isochronous with sequential beat durations of long-average-short in the cycle. However, as seen from the timing data in my analysis this pattern is not consistent: the duration of the second beat alternates in every other measure, being shorter in the first measure, longer in the second measure, shorter in the third measure and so on. The second beat of the fourth measure has been additionally extended: at 642 ms it is 214 ms longer than the shortest second beat.

To assess the significance of these timing variations, I created an informal follow-up study in which the interviewed musicians, together with five other highly knowledgeable springar performers, were asked to listen to the recording and point out which of the beats were prolonged and shortened respectively. Interestingly, no one observed the rather substantial durational fluctuation of the second beat and only one of

the experts picked out the second beat of the fourth measure as being subjected to expressive variation.²¹ Instead, the experts praised the playing as exemplary of the tele-springar groove:

I've listened to the recording many times and I must say that I cannot hear any variation in the beat/groove [takt] but rather in the accentuation and the length of the bow strokes [how many notes that are tied together] (NN1).

I think this sounds like pretty "normal" tele-springar throughout. At least, it must be great to dance to (NN2).

Strange, I don't pick up any variation at all, just maximum groove (NN3).

I must admit that to me this sounds completely normal and typical (NN4).

Actually, I don't think there is anything strange compared to the "regular tele-springar beat/groove [takt]" (NN5).

Sometimes there is variation in the distance between the beats when fiddlers are "pulling" the beats to create an extra surge or some other effect. But I don't feel that this is what's happening here. He is rather varying the melody within the beat/groove [takta] (NN6).

Discussion

Although this follow-up study lacks the required control and rigour to meet the standards of a proper experimental study, it supports the idea that the fluctuations in beat duration are so seamlessly embedded into the overall melodic-rhythmic flow of the performance that they remain largely undetectable. For this to make sense, it seems inevitable to return to the idea of a formative interaction between timing – understood as *when* musical events occur – and sound – understood as *what* is occurring. On this note, the fiddlers' discourse contained many examples of musical parameters overlapping or converging, including duration (short/long) being conflated with accentuation (light/heavy) (cf. Clarke 1989; Tekman 2002), and timing (early/late) being conflated with attack quality (sharp/soft) and/or intensity. Moreover, as has been suggested elsewhere (Johansson 2010a, 2017b), melodic-rhythmic shapes, bowing, ornamentation and dynamics – including the physical effort with which these actions are performed – generate durational patterns that could hardly be considered intentional as a particular distribution of time points. As shown in the line chart in Figure 1, while the individual measures have different timing profiles, the timing profile of the motif as a whole is largely consistent throughout the three repetitions, with the exception of the second beat of the fourth measure. This, together

21. Note that the scale of these fluctuations in beat duration is enormous compared to other contexts in which timing variations are present and assessed by listeners. To illustrate, in his famous study of the detection threshold for small timing deviations Clarke (1989) concluded that subjects were able to perceive as little as 20 ms lengthening of a note in a metronomic context (400 ms note durations) and 50 ms in a "rubato context".

with a number of similar observations in other springar performances, supports the notion that beat timing variations are intrinsic to the overall melodic-rhythmic articulation of the motif as much as they are expressive deviations from some nominal beat duration ratio (which in this case is asymmetrical). The context for this argument is the notion that the melodic rhythm as performed is the rhythm rather than something occurring in relation to a rhythmic reference. As Hytta noted when explaining some of the challenges of working with musicians from other genres: “you need to understand the melody to understand the rhythm [...], it’s not the rhythm that carries the melody.” This is significant, as it explains why variations in beat duration are generally not heard as syncopations but simply as the rhythm/the beat of the tune.

From this perspective, the difference between the two measures ($1/3/5$ vs. $2/4/6$) of the motif in Figure 1 is not to be considered a variation in timing as long as the difference is not produced and perceived with reference to the timing profile of the individual measures (or some neutral grid). Instead, it might be suggested that the motif as a whole references itself: when performed differently, discrepancies will potentially be noticed and assigned an expressive function. As Liahagen cautioned: “When I speak of deviations, I’m simply referring to deviations from the last time I played the same motif. I’m not thinking of deviations from some metronomic groove [symmetrical or asymmetrical] or from a tempered scale, but deviations from rhythms and intonations in other parts of the tune.”

From this point of view, the extension of the second beat of the fourth measure in Figure 1 possibly meets the criteria of a true timing variation given that it departs from an established timing profile. However, this is only potentially the case: the variation was evidently hard to detect, despite the substantial fluctuation in beat duration, and there is no way to know the performer’s rhythmic intentions. Overall, while the musicians all agreed on the importance of variation in the sense of something interesting happening that sparks attention, there is little support to claim that this is about timing, understood in terms of beat durations. Clearly, there is a tolerance allowing beats and measures to stretch and compress without compromising rhythmic coherence (Johansson 2010b). But this does not mean that performers, listeners and dancers attend to the durational fluctuations as such. It seems more appropriate to view these fluctuations as an output of a performative process, implying that they are clues to understanding the process as much as its constituents.

This discussion highlights the multidimensional and emergent nature of the springar groove as expressed in the interviews. Concretely, melodic lines, ornaments, intonations, phrasings, timings and accentuations are not merely seen as occurring on top of or in relation to a groove. Rather, grooves are formed through the emergent interaction between these musical features. The importance of variation (rhythmic, tonal, timbral, harmonic) is also interesting in this regard, not in the sense of variation over or in relation to a groove/beat but as a groove-forming element in

itself. This highlights the idea that groove is not a fixed or generalised concept, but more something that is continuously explored, “discovered” and developed, implying that it will take different forms with different performers and circumstances. This notion that the springar groove insists upon flexibility and variation is also reflected in the reported difficulty of performing springar music in ensembles, particularly when including a rhythm section. In the absence of a rhythmic formula that works beyond specific contextual conditions (a measure or two), co-performers are in principle left to negotiate a constantly shifting definition of what the rhythm is as opposed to merely adapting to it.

Finally, the processual and multidimensional nature of the springar groove is reinforced by a strongly embodied conception of musical processes and possibilities. Importantly, there is something more to this than the notion that the musical output is mirrored in sound-producing movements, which in turn get the majority of attention due to the absence of abstract terminology, or that these movements are mere means of translating a concept into a sound image. It seems more in line with the findings of the present study that both the groove concept and its sound image are so tightly integrated with their associated physical efforts that they merge into one coherent whole. The strongly practice-oriented perspective suggested here aids the understanding of the convergent relationship between otherwise separate elements of music, including how rhythmic-temporal aspects interact, overlap and merge with aspects of sound. Correspondingly, abstract models of temporal relationships and other variables, however sophisticated, are in danger of missing the point by treating the outputs of a process as its constituents. As indicated throughout the present analysis, a fiddler’s rhythmic performance produces a number of outputs in the form of durations, pitches, timbres and dynamic intensifications that are not necessarily intended or perceived in terms of individual parameter values. Instead, in many cases the smallest musically meaningful event is a compound unit of multiple components corresponding to a particular physical gesture. The conflation of otherwise separate parameters is also relevant to consider in this context. For instance, the observed examples of pitch being conflated with sound/timbre and duration being conflated with dynamic intensification not only suggest that the same musical effect may be produced by different means, but that the musical effect as such is something other than what is represented by conventional musicological terminology.

In accordance with these findings and speculations, my main suggestion for future research is to further investigate musicians’ forms of musical knowing and the contextual conditions under which successful springar grooves are produced and perceived. Ideally, the focus of research should include practical, hands-on approaches to rhythmic performance, as well as processes of learning; various aspects of music-dance interactions and other formative influences; and how expressive behaviours are affected by stylistic, idiomatic and idiosyncratic constraints, including

motor-contextual factors. One potentially fruitful approach might be to conduct focus group interviews where musicians and dancers are invited to reflect on their practice together with fellow performers. The material for this type of session could be live playing in a workshop format, video excerpts from the participants' own performances and rehearsals, as well as selected exemplary recordings by other fiddlers. The participants could then be asked to identify particular groove features and to discuss their composition, musical function and means of production. Such a study would be valuable in its own right, but it could also set the stage for more sophisticated theoretical models of parameter behaviours and interactions.

Acknowledgments

This research is part of the project “TIME: Timing and Sound in Musical Microrhythm,” which is funded by the Research Council of Norway (Grant 249817). ■

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