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Investigating Meter as Shape. A Case Study of Norwegian Telespringar

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INTRODUCTION

The experience of musical rhythm includes the interaction between *sonic rhythms* and *underlying reference structures*, such as *meter*.

This study investigates whether experienced musical meter may not only include such points in time, but also trajectories between the points–that is, metrical shapes.

TELESPRINGAR

Certain traditional Scandinavian dance tunes are referred to as being in so-called *asymmetrical meter*–that is, the beats in the measure are of uneven duration. This study focuses on a specific style of traditional Nowegian dance music called *telespringar*.

Telespringar is normally played on a Hardanger fiddle. The sound can be characterized as "flowing," often with smooth transitions from one beat to the next. People familiar with the style of telespringar can nevertheless readily determine the temporal positions of the beats.

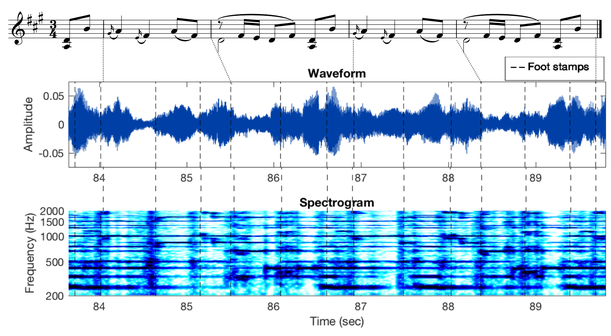
METHOD

A fiddler playing telespringar on Hardanger fiddle and a couple dancing telespringar participated in the study.

Participants' body motion were recorded using an advanced optical infrared motion capture system.

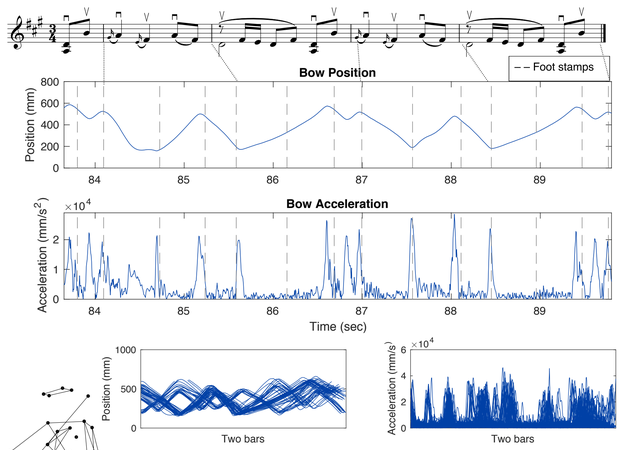
ANALYSES

Sound



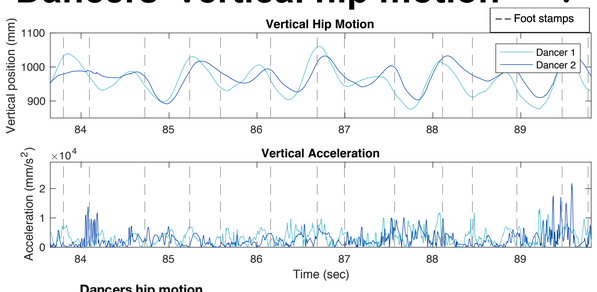
There are smooth transitions between sonic events. The arrival of new events do not result in acute energy peaks.

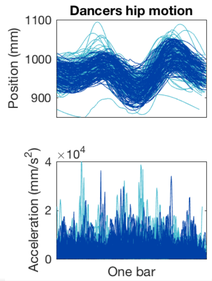
Bowing motion



The bowing patterns are related to the phrasing of melodic segments. The majority of the directional changes coincide with foot stamps.

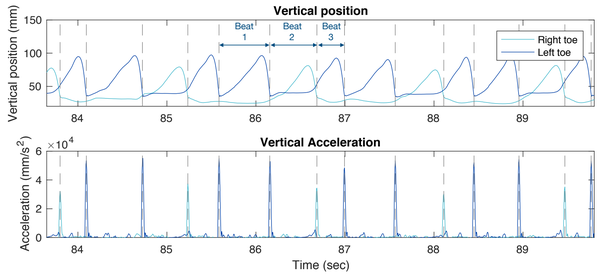
Dancers' vertical hip motion





The vertical dance motion show a regular pattern at beat level. Similar to the sound, it has a smooth and flowing quality and unlike the bow motion, there are no beat related acceleration peaks.

The fiddler's foot stamping



	Mean beat durations in % (SD)		
	Beat 1	*Beat 2*	*Beat 3*
Duration	39 (1.5)	38 (1.8)	23 (1.3)
Patterns	39 (2.2)	36 (2.9)	25 (1.3)
	Long	Medium	Short

The fiddler's regular foot stamping indicates a *long–medium–short* duration pattern at beat level.

RESULTS

- The fiddler's foot stamping revealed a stable *long–medium–short* beat duration pattern.
- The dancers' vertical hip motion showed a consistent pattern on measure level. The turning points do not correspond to the fiddler's foot stamping, but the *shape* corresponds to the durations between the foot stamping.
- The analysis of bowing patterns revealed patterns related to the phrasing of melodic segments. The majority of the directional changes and their associated sonic events coincide with foot stamps and corresponding beat-positions.

CONCLUSION

- The results support the view that there is a close relationship between musical meter and performers' periodic body motion.
- The analysis of the performers' periodic body motions also revealed periodic motion shapes on beat level.
- This suggests that the underlying meter may not only include metrical points in time, but that each metrical beat duration has a corresponding *metrical trajectory* with a certain *shape*.