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## **Painting blue -on measuring intonation in Hardanger fiddle tunes**

This presentation is an attempt to demonstrate, by using a function in the software *Melodyne* as a polyphonic pitch detection tool, how patterns of variable intonations in Norwegian Hardanger fiddle music can be explored, analyzed and visually presented. The paper is a modest proposal for a reasonably accessible method of measuring and analyzing music, in this case traditional fiddling.

The main source for my research is the Hardanger fiddler Johannes Dahle from Telemark (1890-1980), who is regarded as an excellent performer with an authentic playing style, and who is well-known among other performers and insiders regarding his intonation. Nevertheless, I sense that his manner of tonal “coloring” is perceived as demanding among younger generations.

From the point of view of conventional music theory, the most striking and surprising detail in Dahle’s

tonal language is the raising of the expected tonic, often in the upper part of the pitch range. In several tunes in different tunings, a tonic, or better, a tonal center/frame, is established through melody and drone strings working together. In the soundscape, this appears as polyphonic structures, and is presumably recognized as a major triad in most cases. Intonations in the upper range – mainly on the E-string – challenge this basic frame when the fiddler fingers the expected tonic “much too high”: 20, 50 or even 70 cents above the expected pitch (meaning the diatonic step). These intonations are definitely not accidental; rather, they are intended by the performer. Scales of diatonic intervals with octaves as a frame can hardly be described as basic concepts in this music. Non-diatonic intonations seem to be used as a conscious, expressive tool – the performer is “painting in blue”.

My main purpose is to demonstrate how the visual outputs from *Melodyne* provide a functional point of entry for discussing possible patterns and systematics in an intonation practice that largely challenges conventional music theory. I consider *Melodyne*, in which pitch/intonations are displayed in relatively clear and legible graphs, to be an adequate tool for my purposes, despite, of course, several reservations concerning the technical measurements.



**Figure 1.** A screenshot from *Melodyne* showing intonations on the E-string; open string, 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> finger in first position performed by Johannes Dahle

Furthermore, the findings might bring new knowledge to a debate (in Norway apparently never-ending) on pitch and intonation among scholars in general, and, more specifically, to the case of traditional fiddling in Scandinavia. The performer's irregular intonation, sometimes referred to today as "hovering" or "floating" intervals, or, more frequently, as "blue notes", has been in focus in the Norwegian debate for a century (Omholt 2015 and 2008; Kvifte 2012; Sevåg 1993). A visual approach to older recordings may also serve as a useful guideline for younger generations of fiddlers concerning intonation, scales, timbres and harmony.

Empirical examples will consist of sound recordings of traditional fiddling, live performance, relevant visual examples from Melodyne and simple models and statistics based on a quantitative approach to the Melodyne outputs. Observations will be discussed in relation to existing research on pitch and intonation practice in Scandinavian fiddle music.

## REFERENCES:

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### Literature:

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