

Stuck like a Baroque-n record? Music evolves in noteworthy ways

May 31 2013, by Nicholas Bannan



Over the course of 200 years, music evolved into very distinct styles, each distinguished by melodic interval analysis. Credit: Mira (on the wall)

Think of your favourite piece of music. What aspects of its melody do you really like? Do you prefer a mix of fast and slow notes or an even tempo; do you like listening to low, bass-driven music more than high-pitched notes; or have you a preference for a single instrument or many playing together?

It's easy to see there's more to liking a [piece of music](#) than a catchy riff or easy-to-remember lyrics. Most people's [music](#) tastes, from opera to thrash metal, have a common quality: the presence of pitch differences

between notes, called melodic intervals.

As an interval can be defined as a difference in pitch between two notes, they can rise and fall. (Notes that do neither are treated as repetitions of the same pitch, itself a common feature in all music.)

Melodic intervals allow the listener to anticipate (to a degree) the composition of the track and have long been thought to play a key role in musical preference.

And it turns out this particular element of music also evolves over time, according to a paper published yesterday in the *Proceedings of the National Academy of Science*.

Musical evolution

Using a [digital database](#) of music from 1730 to 1930, researchers from Argentina and the US analysed melodic interval patterns of four music styles:

- **Baroque.** Music in the Baroque period (1600-1750) expanded the complexity of instrumentation, and established genres such as opera and sonata. Bach and Handel were Baroque composers.
- **Classical.** From around 1750-1820, the Classical era gave rise to music less complex and usually shorter than that in the Baroque style. The best known composers include Beethoven and Mozart.
- **Romantic.** From around 1815 to 1910, composers from the Romantic era (such as Chopin and Brahms) created music for the middle class, whereas in the past such compositions were usually reserved for the upper classes only.
- **Post-Romantic.** Music from the post-Romantic era (from the late 19th century onwards) incorporated aspects from the Baroque and Classical periods, but still retained Romantic

elements.

Interval analysis of music focuses on the building-blocks of pitch contour that, for instance, give rise to recognisable melody.

The researchers found Romantic and post-Romantic styles increasingly embraced notes outside the more tidy dependence on tonal predictability that, to a greater extent, characterises Baroque and Classical music.

Beyond intervals

It is important to recognise that while interval sampling is an efficient search for elements of music that clearly affect its perception, it does not (and cannot) replicate the means by which most people listen to music.

This study doesn't examine intrinsic factors such as note durations and the rhythmic patterns that arise from these – arguably as crucial to the stylistic features of music as pitch – as well as the timbres assigned to the means of performance, whether a trumpet, an organ, or an unaccompanied choir.

What really determines music style is the interaction between many different parameters. Music is multi-modal in this respect, and as well as sound-based factors such as melodic intervals, style also encompasses elements such as lyrical meaning, its narrative, and – above all in the case of Baroque and Classical music – the dance steps popular at the time of composition.

The melding of neuroscience and music showed last month that certain types of music can trigger reward systems in the brain.

Now, a developing international sub-discipline of computational musicology, hosted both in music departments and in laboratories

dedicated to computer science and experimental psychology, are developing robust statistical processes such as the one applied in this study.

Music science stands to benefit enormously from the development of new tools of the kind employed here.

In turn, performers have much to gain from understanding what is important in the material we sing and play that captures the attention – and hearts – of our audience.

More information:

www.pnas.org/content/early/2013/05/22/1222336110

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