

Making music, making mathematics, and making meaning

An LKL Maths-Art seminar by
Meurig Beynon, University of Warwick

Tuesday 11 December,
6.00 – 7.30pm

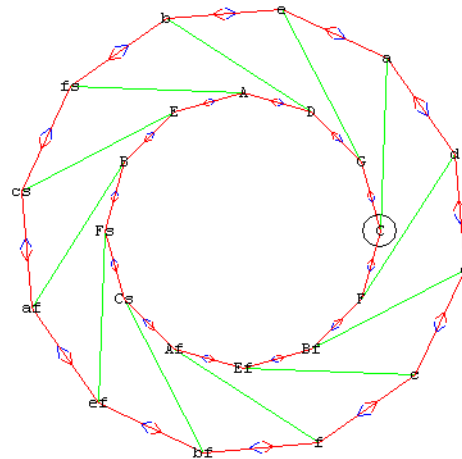
London Knowledge Lab, WC1N 3QS

This talk will address the relationship between formal and informal meanings in music, in mathematics and in computing. Formal notations and structures have played a prominent role in all three fields – musicologists, logicians and computer scientists all study meaning as defined by the interpretation of symbols and forms. At the same time, each field has a rich and extensive practice that forces us to confront meaning in a much broader and more informal sense, whether through the extra-musical qualities of programme music, the aesthetic appeal of a mathematical visualisation, or the emotional impact of a computer game.

Music, mathematics and computing wrestle with the relationship between the formal and the informal in different ways. Every performing musician can relate to Gustav Mahler's observation that "what is most important is not in the notes". Every educated mathematician appreciates the limitations of formal logical systems, as witnessed by the failure of the programme in the last century to "axiomatise" the whole of mathematics and the celebrated work of Gödel and Turing. Computing, as the least mature of these three disciplines, strives to stand solidly upon the foundation of formal mathematics yet is manifest in practice across a vast canvas of human

activity that defies formalisation. The need to go beyond formality is nowhere more apparent than in the making of music, mathematics and software. As observed by the mathematician Emile Post in 1941, the negative findings of Gödel and Turing are proof that "mathematical thinking is, and must be, essentially creative" and that mathematics must inevitably "return to meaning and truth".

Thinking about computing technology in a way that goes beyond its recognised powers to process formalisms motivates an alternative conception of computing based on using the computer to create "construals" rather than programs. The notion of a construal is borrowed from David Gooding, a philosopher of science who introduced it in his studies of the "making of meaning" in experimental science. Its relevance to the making of mathematics and music will be illustrated with an elementary study in group theory, and with a personal construal of Schubert's famous setting of Goethe's poem, Erlkönig, that highlights the originality of his musical imagination.



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Meurig Beynon is Reader in Computer Science at the University of Warwick, where he is co-director of the Empirical Modelling Research Group.

All welcome. No registration or ticket required, but an email to lkl.maths.art@gmail.com is appreciated to assist with planning.

LKL Maths-Art seminar series

Website and archive: www.lkl.ac.uk/maths-art

This seminar is part of a regular series of maths-art seminars held at the London Knowledge Lab, usually on the second Tuesday of each month during term times. To receive email announcements about events, subscribe to the mailing list at www.dcs.bbk.ac.uk/mailman/listinfo/lkl-maths-art.

We propose these seminars as explorations of the connections between "mathematics" and "art", where both terms are understood broadly: art implies visual art (painting, drawing, sculpture, computer graphics, video), architecture, music, textile art, literature/poetry (and others), and mathematics implies both mathematics as a discipline and the related disciplines in science and engineering for which mathematics is an essential means of expression and communication.

Seminars are normally video-recorded for viewing on the website, and may also be web-cast live.

The seminar organisers are John Sharp and Phillip Kent. We welcome your suggestions about speakers or topics for future seminars; email us at lkl.maths.art@gmail.com.

Getting to the London Knowledge Lab

Nearest tube stations are: Holborn (Central, Piccadilly lines), Russell Square (Piccadilly line). Approximately 10-15 minutes walk from either station.

