

Apropos sonification: a broad view of data as music and sound

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Abstract Numbers have been identified with symbolic data forever. The profound association of both with acoustics, music, and sonic art from Pythagoras to current work is beyond reproach. Recently, sonification looks for ways to realize symbolic data (representing results or measurements) as well as “raw” data (signals, impulses, images, etc.) into compositions. In the strictest sense, everything in a computer is symbolic, that is, represented by 0s and 1s. In the arts, the digital age has broadened and enhanced the conceptual landscape not simply through its servitude to the creative process, but as its partner. However, there is a rich history of the use of data that no doubt has paved the way for many of today’s experiments including my own.

Keywords Music · Sonic art · Music history · Algorithmic composition · DNA music

1 The sound of music

La parole indéfinie, c’est le son.

—F. Chopin

Music is abstract to begin with. This must be distinctly understood or what follows will make little sense. Throughout history, much music was inextricably attached to text or used as an extension of language to give it meaning, as in the Ubuntu (the talking drums of Ghana)—literally a musical telegraph. The songs of the Inuit throat singers, though wordless, are filled with narrative. In the

Western common practice, the rise of “pure” music freed of text matured in the nineteenth century through the ideals of romanticism. E. T. A. Hoffmann saw instrumental music, particularly Beethoven’s, as the sole purveyor of genuine expression to music’s specific nature (its abstraction). He goes on to say that:

Music is the most romantic of all the arts—one might almost say, the only genuinely romantic one—for its sole subject is the infinite...music discloses to man an unknown realm, a world that has nothing in common with the external sensual world that surrounds him, a world in which he leaves behind him all definite feelings to surrender himself to an inexpressible longing (Hoffman 1813).

Similarly, Chopin believed that a musical work should reveal its essence by itself. Beyond that, Walter Pater in his landmark essay on the School of Giorgione suggests that art reaches its highest essence when it approaches music (Pater 1978). Here, he is not only speaking to the formal aspects of music that act as glue even in the absence of representation, but of the intangible expressivity that results in the lack of direct imagery. However, from the madrigalisms of the Renaissance to the films of today, music and meaning have been infused so thoroughly that an inventory of musical motives, gestures, and textures have become so bonded to theatrical sentiment that one might say that music and metaphor are inseparable.

In Western society, the distinction between the sound of noise on the one hand, and what constitutes music on the other, has dissipated only some 60 years ago. Such distinctions of an acoustic nature were not commonly made by other cultures throughout history. Instruments were built out of ordinary materials; music originated from everyday sounds. Sonic entities with or without definite pitch

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