

**Electric Evolutionary Fairytales:
Binary State GIS, Mendelian Genetic Metaphor, and Boolean Symbolism for Schoenberg,
Schumann, and Others**

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ABSTRACT:

This paper combines the musical tradition of organic-biological metaphors with Lewin's (1987, 1995) Binary-State GIS in order to interpret text-painting and form. Like biological organisms, each musical object has identifiable traits. And the *flux* of such traits portrays diversity and evolution of biological and musical things. A trait may be viewed as a binary state: present vs. absent. This fuses several benefits. First: it enables the application of Lewin's Binary State GIS beyond the uses Lewin original proposed. Second: it allows sets of binary states to be treated statistically to model similarity and continuous flux. Third: pattern modeling tools of extra-musical binary state systems such as gene expression/repression and manipulation (motivic evolution as inheritance of traits) as well as electric circuit switching can be applied to music. Fourth: the expressive interaction between semantic binary oppositions in a sung text and binary states in music can be modeled (shown in computer animations). The approach is demonstrated in analyses of Schoenberg's Op.19, No.3, the medieval song *En ce dous temps d'este (Le lai des Harlequines)* from *Roman de Fauvel*, Berg's *Lied der Lulu*, and Schumann's *Märchenbilder* (Fairytale Pictures).