

**Assignment 3**  
**Analysis/Resynthesis Composition**  
**Music 104, Spring 2011**  
**Polansky**

The term **analysis/resynthesis** is often used in computer music to describe the process of describing a sound by some essential, quantifiable components, and then altering those components in some way, and reconstituting them into a new sound. A simple example is the classic phase vocoder: sounds are analyzed and described by amplitude and phase partial coefficients, which are then available for a wide variety of mathematical/cognitive/musical/speculative transformations. The "numbers" are "put back together" in some way to create a new sound. This new sound emanates from the old sound via some describable, specific transformation.

A philosophical conundrum known as the *Ship of Theseus* posits a ship, which, over time, has every part of itself replaced by a new part. Every board, oar, sail, ornament. Philosophers ask whether the new "version" is the same ship. As a variant of this thought experiment, they consider the act of putting the old parts together, in a new place, and then asking, "what ship is that?"

The same questions might be considered with regard to analysis/resynthesis, with some additional, sound-specific considerations. In the example of the phase vocoder we might ask: What exactly are these component sinusoids? Why, in fact, do we need an "original" sound at all from which to reconstitute these partials into a new one? The answer to the latter question is inextricably involved in what we choose to do with the analysis information.

This line of thought is also, perhaps, relevant to questions of influence, historical development, and derivation in our own field of composition. Musical *responses* to this question might invoke compositional notions such as intent, insight (into the original sound and its transformative possibilities), recognizability, homage, parody, recontextualization, and even as acts more accurately described as analysis than composition..

**Assignment**

Make a piece that is the *analysis/resynthesis* of some other piece (thanks to Charles Dodge for suggesting this concept). Take some existing piece, and analyze it in some way that you believe (and you will be expected to argue for this) describes important features of its structure, existence, beauty. Transform the results of the analysis into a new piece.

The object of this assignment is to produce an interesting work that is directly related to its source, and which, by the nature of that relation, yields insight on the source and the compositional method of analysis/synthesis itself.

I ask that you do this not in a purely "intuitive" way. Rather, lean towards in a formal, explicable, objective approach, one that can be articulated clearly and specifically. Describe the process of analysis/resynthesis accurately enough so that we could, in fact, more or less **replicate** the process (and even the outcome). I am not interested in a poetic analysis/resynthesis, nor a "creative homage," nor that you were "influenced" by the source piece. I want you to **extract** something salient and *fungible* from the source piece, and transform that information into your own new piece. I am asking you to be a filter — the interest of your process will be similar to the way we evaluate what a filter does.

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