This chapter goes into a high level of detail concerning representations of pitch. The author begins by introducing the problems of unidimensionality—such as pitch as mere physical frequencies—and discusses how the psychological sensation and interpretation of pitch is not clearly demonstrable by a linear model. For instance, two pitches separated by an octave are perceived to be more similar than two pitches that are nearer in frequency.

Shepard makes an interesting point about interval preference. The frequencies preferred, he says, “often fail to conform to the predicted most simple ratios” (347). I wonder, however, if this may just be an artifact of the pervasive equal-tempered system that Western culture has adopted. This may affect a listener’s “feel” for what a third or a fifth sounds like when “in tune.”

The idea behind the chapter is to find the most appropriate schematic for representing pitches, taking into account the special intervals (octave, fifth, and other simple pitch ratios) and their perception as being consonant. First he introduces the simple helix model, whereby the chromatic pitches are arranged in ascending motion around a spiral. In this way, octaves match up vertically. Shepard also talks about the circle of fifths, to account for the perceived similarity of the fifth and the fourth (the fourth being an octave minus a fifth).

From these simple models, the author makes some attempts to consolidate them as multidimensional representations. First is the double helix, which relates to the simplicity of major diatonic keys. Next is a model that exists in four dimensions, and covers transpositions in the chromatic scale as well as the circle of fifths. Shepard continues to combine representations into the five-dimension model, but even this still leaves out the importance of the major third (365).

The author acknowledges the fact that most musical pitches are actually made up of the fundamental plus the harmonics, the latter being important in pitch relatedness as well. The way that the upper harmonics line up apparently plays a part in perception of pitch relatedness. It is a little dubious what is meant by “musical background,” and more importantly, whether this actually means anything. More musical background may just reflect a particular training in Western music and hence the equal-tempered system—this may in itself be more confounding.