CGSC 130 Reading Notes: Bregman (1990) on "Auditory Scene Analysis"

In the second half of the 20th century Albert Bregman conducted some of the most important research on our perception of the auditory environment. His key question: how do we sort out which sounds go with which sources in our environment, especially as sounds change over time, and as both our ears and those sources can move around(?). Building on the notion of "scene analysis" from vision (while keenly aware of how audition and vision are different), Bregman developed a model of the "auditory scene." Bregman is also a lucid writer, one to emulate in your own writing.

The most relevant pages in this reading: 1-29; 36-38; 43-45. Examples of visual and auditory illusions can be found in the course folder (see the "Bregman Supplemental Materials" folder)

Terms and Conecpts
- General Concepts
    - Heuristic Mechanism
    - Schemas
    - Psychophysics: Denise Covington
- Scene Analysis
    - Surfaces, Edges, Contours
    - Regions, Shapes, Objects
    - Occlusion
    - Apparent Motion
- Auditory Scene Analysis – Quincy D'Alessio
    - Acoustic Event, Acoustic Source
    - Auditory Object
    - Auditory Stream
- Gestalt Principles – Sarah Burckle
    - Belongingness, Exclusive Allocation
    - Ambiguity, Multi-stability
    - Proximity, Similarity, Grouping, Perceptual Closure
- Auditory Streaming Factors
    - Frequency, Time, Distance
        - Onset Synchrony
        - Pitch Proximity
    - Körte's Third Law
    - Sequential Integration

Discussion Questions
1. What is the problem of auditory scene analysis (i.e., the "cocktail party problem")?

2. What sort of information is conveyed by sound? How is it different from the information conveyed by light? – Arielle Hugel

3. Are Gestalt principles of perceptual organization learned or innate? Why do you think so?

4. A melody is an example of an auditory stream. If several musicians were going to play a melody, what would they have to do (i.e., what would the composer have to do) in order to create a coherent melody?