field and perfect circuit

- a continuous sound sustained for a long time. the entrance of this sound is preferably accented with a percussive attack that decays slowly. the exit is preferably accented with a percussive attack that is punctuated.

- at least 5, preferably more, simultaneous realizations of the smith diagram of some simple perfect squared square or rectangle* (which is essentially a circuit represented by a directed graph) according to the following guidelines and possibilities:
    - the sum of the edge labels in a path from the positive pole to the negative one corresponds to some predetermined amount of time, which is ephemeral with respect to the total duration of the piece. (all paths have the same sum.)
    - the circuit/graph is realized by starting at the positive pole and moving across edges to adjacent vertices until the negative pole is reached.
    - for each edge crossing, an event occurs for the duration corresponding to the edge label (proportional to the length of any path from pole to pole). the start of the first event is accented with a percussive attack that decays slowly. the end of the last event is accented with a percussive attack that is punctuated. the start/end of all other events may be accented with a percussive attack that decays slowly or is punctuated. possible events are provided below listed from top to bottom in order of the amount they should occur. the top two are mandatory; the bottom two optional. the same event cannot repeat successively.
        - a (quasi-)continuous sound with or without a distinct pitch or set of pitches. (favored for longer events.)
        - a short percussive sound quickly repeated at an individual tempo with respect to any other quickly repeated sounds that may already be occurring. (favored for shorter events.)
        - a reading of a text relevant to the piece that is not the text of this score.
        - an event perceived as a single gestalt over the duration indicated by the edge label.
    - if 2 or more events start or end at the same time, the accented attacks must be simultaneous. that is, timing should be executed with precision.
    - preferably, all the realizations together traverse every edge in the diagram at least once. if resources limit the number of paths that can be traversed, then subsets of paths that have several corresponding starts and stops while crossing as many edges as possible should be preferred. not too dense, not too sparse.

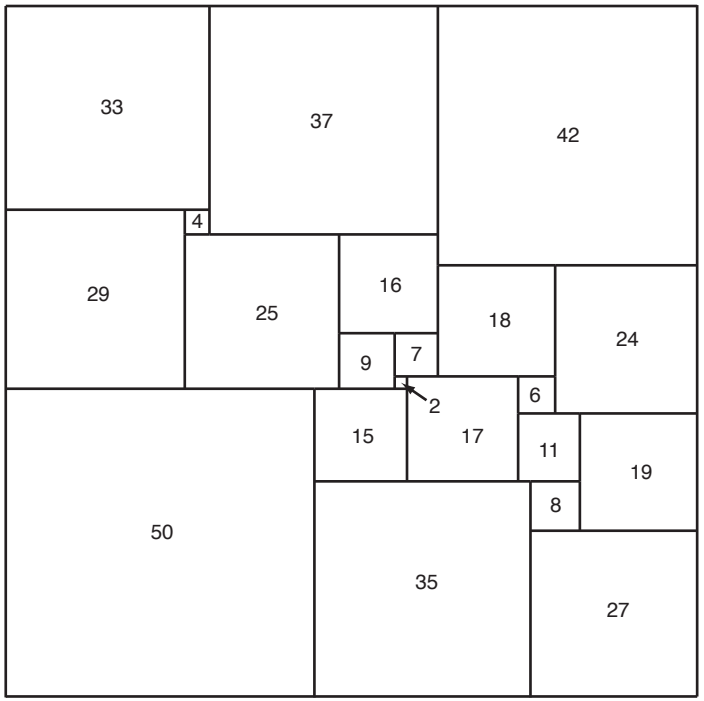
- the piece starts and ends with the long sustained sound alone for a duration at the very least twice the length of the realization of the simple perfect squared square or rectangle.

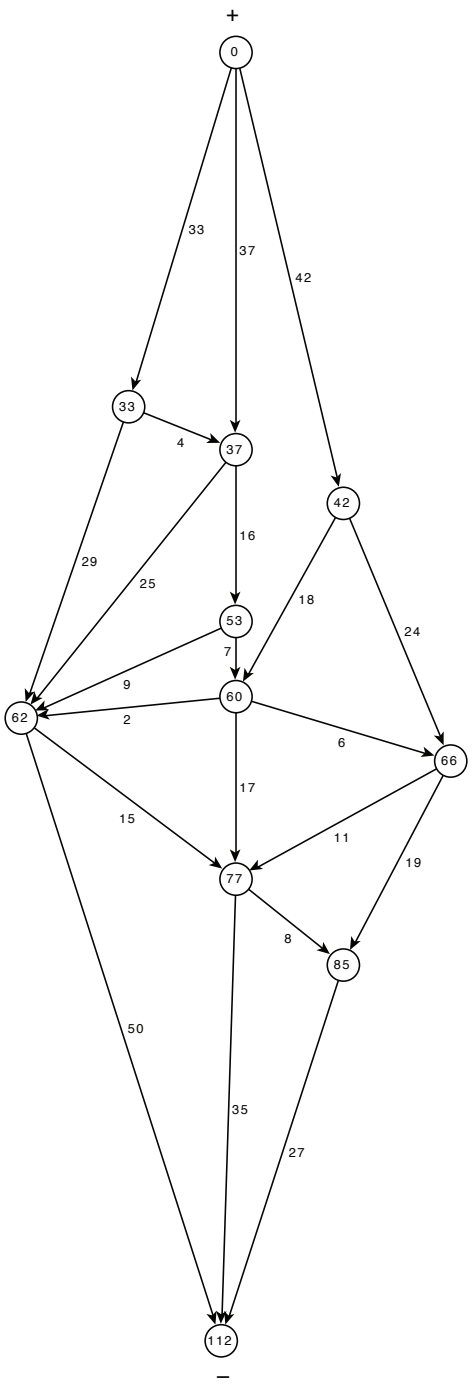
- perhaps with the performers and instruments out of view or in a dark space with the performers and/or instruments dimly (and directly) lit if necessary. perhaps as an installation. allowed to repeat. possibly with silence between repeats.

- clear. not loud. cohesive. primarily concerned with the phenomena of sound itself.

* an example of a perfect squared square, its corresponding smith diagram and possible paths through it are given on the following page. see http://www.squaring.net (accessed may, 2009), which has examples of several perfect squared squares and rectangles, descriptions of smith diagrams and related information.

- *michael winter* (new smyrna beach, fl; may, 2009)





- left: a perfect squared square of lowest order (least number of squares). see a. j. duijvestijn (1978) "simple perfect squared square of lowest order" in the *journal of combinatorial theory*.

- middle: the smith diagram for the duijvestijn perfect squared square.

- right: a list of all possible paths (both by edges and vertices). paths by vertices are most likely easier to read as they give absolute values. for example, if the units of the rectangle are determined to be equivalent to seconds, then the realization of the smith diagram is 112 seconds in total.

paths by edges:	paths by vertices:
{42, 24, 19, 27}	{0, 42, 66, 85, 112}
{42, 24, 11, 8, 27}	{0, 42, 66, 77, 85, 112}
{42, 24, 11, 35}	{0, 42, 66, 77, 112}
{42, 18, 6, 19, 27}	{0, 42, 60, 66, 85, 112}
{42, 18, 6, 11, 8, 27}	{0, 42, 60, 66, 77, 85, 112}
{42, 18, 6, 11, 35}	{0, 42, 60, 66, 77, 112}
{42, 18, 17, 8, 27}	{0, 42, 60, 77, 85, 112}
{42, 18, 17, 35}	{0, 42, 60, 77, 112}
{42, 18, 2, 15, 8, 27}	{0, 42, 60, 62, 77, 85, 112}
{42, 18, 2, 15, 35}	{0, 42, 60, 62, 77, 112}
{42, 18, 2, 50}	{0, 42, 60, 62, 112}
{37, 16, 7, 6, 19, 27}	{0, 37, 53, 60, 66, 85, 112}
{37, 16, 7, 6, 11, 8, 27}	{0, 37, 53, 60, 66, 77, 85, 112}
{37, 16, 7, 6, 11, 35}	{0, 37, 53, 60, 66, 77, 112}
{37, 16, 7, 17, 8, 27}	{0, 37, 53, 60, 77, 85, 112}
{37, 16, 7, 17, 35}	{0, 37, 53, 60, 77, 112}
{37, 16, 7, 2, 15, 8, 27}	{0, 37, 53, 60, 62, 77, 85, 112}
{37, 16, 7, 2, 15, 35}	{0, 37, 53, 60, 62, 77, 112}
{37, 16, 7, 2, 50}	{0, 37, 53, 60, 62, 112}
{37, 16, 9, 15, 8, 27}	{0, 37, 53, 62, 77, 85, 112}
{37, 16, 9, 15, 35}	{0, 37, 53, 62, 77, 112}
{37, 16, 9, 35}	{0, 37, 53, 62, 112}
{37, 25, 15, 8, 27}	{0, 37, 62, 77, 85, 112}
{37, 25, 15, 35}	{0, 37, 62, 77, 112}
{37, 25, 50}	{0, 37, 62, 112}
{33, 4, 16, 7, 6, 19, 27}	{0, 33, 37, 53, 60, 66, 85, 112}
{33, 4, 16, 7, 6, 11, 8, 27}	{0, 33, 37, 53, 60, 66, 77, 85, 112}
{33, 4, 16, 7, 6, 11, 35}	{0, 33, 37, 53, 60, 66, 77, 112}
{33, 4, 16, 7, 17, 8, 27}	{0, 33, 37, 53, 60, 77, 85, 112}
{33, 4, 16, 7, 17, 35}	{0, 33, 37, 53, 60, 77, 112}
{33, 4, 16, 7, 2, 15, 8, 27}	{0, 33, 37, 53, 60, 62, 77, 85, 112}
{33, 4, 16, 7, 2, 15, 35}	{0, 33, 37, 53, 60, 62, 77, 112}
{33, 4, 16, 7, 2, 50}	{0, 33, 37, 53, 60, 62, 112}
{33, 4, 16, 9, 15, 8, 27}	{0, 33, 37, 53, 62, 77, 85, 112}
{33, 4, 16, 9, 15, 35}	{0, 33, 37, 53, 62, 77, 112}
{33, 4, 16, 9, 35}	{0, 33, 37, 53, 62, 112}
{33, 4, 25, 15, 8, 27}	{0, 33, 37, 62, 77, 85, 112}
{33, 4, 25, 15, 35}	{0, 33, 37, 62, 77, 112}
{33, 4, 25, 50}	{0, 33, 37, 62, 112}
{33, 29, 15, 8, 27}	{0, 33, 62, 77, 85, 112}
{33, 29, 15, 35}	{0, 33, 62, 77, 112}
{33, 29, 50}	{0, 33, 62, 112}