

Notations used in Sound/Path/Field

1. The basic temporal unit of Sound/Path/Field is the minute. The music for the ensembles is grouped into sections lasting from 1 to 6 minutes. A section may be printed on 1 to 3 pages. Pages in between sections tell whether the ensemble is to move to a new location or stay where it is. Each section has a header on its first page (and any subsequent pages). The header contains from left to right: the name of the section; the ensemble for which it is scored, where it is to play the section, and how long it lasts in minutes; the start time of the section and the start time of the last minute of the section; the page number.

The header from the first page of a section named "Wake up calls" is reproduced below. It is written for the Symphony Band to play at location DI. It lasts 2 minutes, beginning at minute 0:34, lasts until the end of minute 0:35.

Wake up calls. **Sym B at DI for 2** **0:34-0:35** page 1 of 1

2. A page may consist of one or more systems. A system usually notates one minute of a section. Time markers show the beginning and end of each minute, as well as portions of a system. A time marker is shown to the right of this paragraph. As in traditional musical notation, time is notated from left to right. Musical events are placed on the page proportionally between time markers so that "time equals space." For instance, an event notated equidistantly between time markers at 20 and 40 seconds starts at about the middle of that 20 second duration, at about 30 seconds. Events starting or ending at time markers are cued by the conductor. Other internal cues by the conductor are given by arrows, the placement of which between time markers generally suggests to the conductor where it is to occur; the exact moment for such cues is up to the conductor.

10
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The following system of music is from the section called "Door space" performed by the University Singers starting at time 0:51. Conducting gestures are given at each time marker, but nothing is sung until the conductor gives a cue after 10 (shown by the arrow). Sometime between 25 to 27 each singer utters a "tah," loud or soft. At 40 the entire chorus performs a downward glissando (lasting about a second or two). The conductor cues a clap (a second or two) after 45.

51:00

0 10 25 27 40 45 60

All: ↓

gloss.

f

gloss. is the rapid alternation of vowels; i. e.
[ahēohihōuhahihāa]

← Tah! →

f-p

Lah!

f

clap

x

f

The musical unit of the composition is the minute, and the onset of some minutes are marked by a note or two from the University Chimes. The following notation, which always occurs above and to the left of a system of music, shows this occurrence. Three examples are given; if a pitch is notated with an X, it is not played (because the chimes are diatonic). Thus, only the E-flat is heard in the second example, and nothing in the third.



3. There are four basic types of notations used in the piece:

- a) verbal text,
- b) "textures and designs,"
- c) ordinary musical notation with extensions
- d) "number notation."

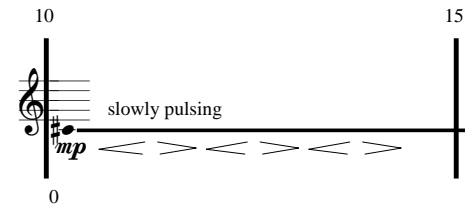
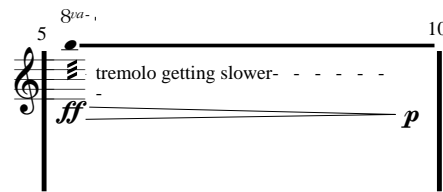
A section may use any or all of these notations.

a) Words and text indicate what and/or how to play. This notation is often used to characterize and shape improvisation. The placement of text from left to right in between time markers indicates when it is to be employed. Arrows after the text pointing to the right indicate the event is to continue.

Text is also used to describe how a more specific notation is to be played. Then it is written next to the event it describes.

Three examples follow.

soft but very rapid chromatic arpeggios in all ranges interspersed with chords



b) Graphic textures and designs are used to notate or suggest musical gestures and textures. Each player can follow a portion of the notation, but impressionistically, not necessarily exactly. In such notations, vertical space from bottom to top indicates pitch from low to high.

On the next page is an example from the string score, the section called "Side to side resound" starting at 1:23. The header for the section is given, but only the violin music is shown in the example. The first violin plays a continuously bubbling series of quick notes randomly oscillating around E-flat until at about 40 when the texture rises to the high E at 55, played in a Morse code-like manner. The second violins start out like the first but at about 12 move quickly up to C, play it a la Morse code, at 15 morphing into the previous texture and moving back to E-flat; the bubbling texture then continues until 55, and changes into Morse code.

Note that it is not necessary to play as many notes exactly in the precise contour indicated by the notation. The combination of notated texture and words should give the performer an idea of what is to be performed. When many players follow the notation, they should not try to coordinate exactly; the result should be heterophonic, producing an overall texture that emerges out of each player's contribution.

Side to side resound.

Strings at J for 1 1:23

1:23:00

c) Traditional musical symbols are used.

Much of the music in the piece is senza misura, so traditional rhythmic symbols are used in a looser sense than normal.

or very short note	short note, up to .5 seconds	or medium duration about a second	long note, more than 4 seconds in duration	note whose duration is shown specially by extended thick line
long pause or sustain of note	sustain note by reiterating it quickly and randomly, a la Morse code	Glissando	heavy vibrato	note with tremolo or flutter-tongue

Traditional rhythmic notation is used only rarely; in such cases, metronome markings are used to determine tempo.

Pitch is notated specially (as above), on staves, or by letter name where any octave can be used. In the following example from "Lost time" (at 1:25 in the Symphony Band's score), the performers are asked to play the notes in the box notation (see below) as either notated pitches in specific registers (the C, F#, G, and B) or in any register (the E, F, A, Bb, C#, D, and Eb).

all notes medium long to very long; if a notated pitch (on a staff) is out of range, play a short note of any pitch.

× or × is often used to notate a pitched noise such as a finger snap or a clap (it's pitch height is shown by its relation to other pitches or noises); it is also used to indicate pizzicato.

d) Musical textures are also notated by "number notation," as in the following example. A number n indicates one plays n notes within a beat; a 0 indicates a rest; a dash "-" means that the last note played in the previous beat is to be sustained into the present beat.

Number notation is conducted.

	0	beat = 45 MM							
flutes		: 2	1	1	1	3	4	0	:
oboes.		: 0	2	1	1	1	3	4	:
clarinets		: 4	-	2	1	1	1	3	:
alto sax		: 3	4	0	2	1	1	1	:
horn I		: 1	3	4	-	2	1	1	:
Tuba		: 1	1	3	4	0	2	1	:

p - f brass are muted

play 2 times →

In this arbitrary example, a beat at 45 MM is given by the conductor in one measure of 7 beats. Then the event is repeated. The arrow pointing to the right means the event will be continued beyond where it is situated on the page. Each instrument plays so many notes on or after the beats of the conductor. The flute player(s) (each) play(s) 2 notes on or within the first beat, then 1 note on or within the 2nd beat, 1 note on or within the 3rd beat, and so forth. Zeros indicate silence for a beat, so the flute player(s) rest(s) on the 7th beat. Dashes show sustained notes, as illustrated in the next example. A text may indicate the general character of the passage; here the music varies from p to f and the brass instruments are muted.

If there is no qualifying text, the choice of notes is free. Scales, either diatonic or chromatic, must not be used to satisfy the numbers. Rather, use many different kinds and contours of pitch sequences. Also do not use simple, even rhythms; use rests, different lengths and articulations of notes. To indicate the style desired, here are notations of three "good" realizations of the first three beats of the "clarinets" part.

♩ = 45 MM

♩ = 45 MM

♩ = 45 MM

4. Three other notational features are used in the piece: boxes, floating events, and canons.

a) Boxes contain events that may be played in any order, or at least in more than one specified order shown by lines connecting events. (The music constituting the events in the box is read always from left to right.) A box's placement in a system between time markers indicates its starting and ending time. Each player plays the box independently, following the notations and the texts. Examples follow.

25:00

0 5 35

vn I+ II:

vla:
v'c:

bass:

all pizz:

mp vib. *mf* slow gliss *mf* *f* slow gliss *mp* non vib.

play the events in the box in any order; rest in between each. Use the following (transposed) pitches.

Example from "Striking Distance" for the Strings beginning at 0:25. First, the violas hold a harmonic Eb. Then from 5 to 35, the bass players independently play events described in the box. As it says, these events are played in any order. (Only when the events in a box are connected via lines are they (partially) ordered (one follows the lines).)

In this case, the notes for these events are derived from the pitches given (sounding an octave lower since this is a passage for the string basses). A low, slightly turbulent texture results,

A second example of a box was presented on page 3. There the events are partially ordered (one chooses an initial event, then follows the lines connecting events). Note that some events are rests. Dynamics are given generically by the indication p-mf; therefore, each event can be played with different dynamics each time by each player.

b) Floating events. These are events that are played (usually once) independently by each player reading the notation. The event is preceded by a back-arrow and followed by a front-arrow which point to time markers. The event is to be played sometime within the temporal span between the time markers. It is important for players not all to play the event in the middle of the time span, but in effect distribute copies of it all over the time span. The following example shows a short Bb that is to be played somewhere between times 0 and 10.

0 10

Also see the example (between time markers at 25 and 27) on page 1. A more substantial example is given at the top of the next page.

In the next example, from the second system of the University Singers' event "L'Allegro" occurring at 0;39, we see floating events in all parts notated from 5 to 15; each singer sings his/her event after he/she completes the held notes notated as being sustained a little after 5, the cut-off coordinated by the conductor as indicated by a cue arrow. The soprano, alto, and tenors continue with floating events until 50; underneath this texture the bass singers sustain a Bb, with change of text coordinated by conductor cues. After 50, all players speak in unison, as cued by the conductor.

39:00

sop: un-twist-ing all the chains

alto: twi-st un-twist-ing all the chains

ten: un-twist-ing all the chains

bass: [Uh] ing un-twist-ing all the chains

All: spoken that tie

mf *p* *mp* *mf* *p*

c) Canons. The players read the same line(s) of music, each starting after the next in a staggered manner, as in a canon. The first player (the leader) and the order of the others is worked out ahead of time. When a player gets to an asterisk, the next player starts. If the followers do not reach the end of the canon's music by the end of the section, they stop and enter the new section on time, unless the score states otherwise.

Here is the first system of a canon from "Shelley's revolt," sung by the Women's Choir at 31:00.

31:00 **CANON:**

The canon lasts for three minutes; the conductor cuts off any singers still performing exactly at 33:60.

all: through [th] [oo] * a chasm [m] [aa] s [k k] [k] of hills they roll [ih] s rrr[oh] [l]

when singing vowels, try not to duplicate other sustained pitches you may hear; however, once in a while, do duplicate a heard pitch.

Three special forms of canons are used: radiation, cyclic and recursive canons.

Here is a radiation canon from the fourth system of "L'Allegro" at 41:00, sung by the University Singers. In this event, the singers are spread over an area on the quad.

One singer is assigned the role of leader and interprets the boxes. The other singers follow by ear the leader's singing, and subsequently, other singers, too, so the canon radiates out from the leader to the rest of the chorus.

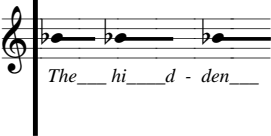
The note about timings means that the time markers indicate time for only the leader because the followers are performing the canon's music after so many seconds of delay.

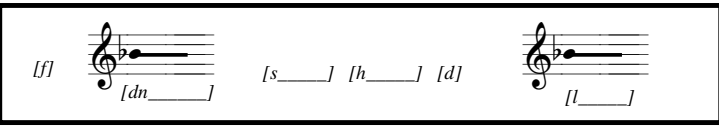
41:00 RADIATION CANON:

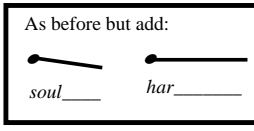
(these timing are for the leader only)

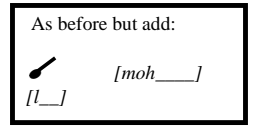
0 10 40 50 60

Leader chooses events from box: Run a few of the events together.

leader: 







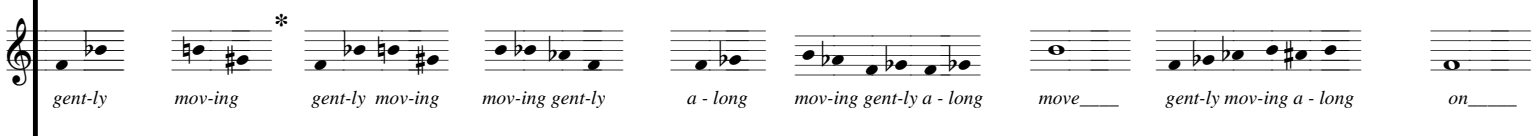
The leader stands in the center of the space; canon following progresses from the singers near to the center outward to singers at the edges. Each singer imitates--as closely as possible--a neighboring singer nearer to the center. Each singer should not sing until the person imitated is finished. The canon continues until 41:60, at which time it abruptly ceases.

Recursive canons involve a series of events, a, b, c, etc. that the leader and the chain of followers sing in this way: a, a b, a b c, etc. The example comes from the Women's Choir, in the section "Welcome." at 1:00.

01:00

RECURSIVE CANON:

0 60

all: 

All stop abruptly at 01:60

Cyclic canons have all players starting at once; each player is preassigned a place in the canon to begin. Text will tell whether the canon progresses until all players have returned to their starting point, or to play/sing until a designated point in time. This example comes from "Playing the field." played by the Symphony Band at 1:06. Note that the horns sustain notes following the conductor while the canon progresses.

1:06:00

0 30 40 50 60

fl: **CYCLIC CANON:** Each player starts simultaneously in a preassigned place in the pitch sequence and plays continuously until 60.

ob:
cl:
s+a sax:
trps:

hns:

4. Vocal notation (including words to be spoken or intoned) conforms to the above notations; text is italics. Players may have to alternate quickly between speech, special sound effects, and/or ordinary singing. Some idiomatic examples of vocal notation follow with commentary.

The next example comes from the section "Take part," at 0:55, sung by the Westhill High School Chorus. The slow, downward glissando at 0 and the sustained tones at 30, are not to be interpreted literally in 4 or 8 voices or pitches; rather the pitches are free so that many more notes will sound (some of them untempered, producing a dense sound-field); however the registers of the notes in the voice matter and in this case are further nuanced by text indications for various voice parts. Pure vowels are called for and written in brackets to show they are not parts of words. As in many passages with sustained tones, the chorus members stagger breathing.

55:00

0 gliss slowly; women use low range; men use high range

All: *f* *p*

[Aa]

clap: *f*

20 *p* *p*

bass: [n]

30 sop low; tenors low

All: *f* *p* *mf* *mp*

[Oo]

clap: *f*

45 *p* *p*

bass: [n]

60

1:09:00

0 10 30

(stage) whispered

whistle

mp < >

f

L[ee]____ J[ah]____
 P[ee]____
 n[ah]____ t[uh]____n____
 ter! [ah]____l th[ah]____n

To the left is another example from the Westhill High School Chorus score, a portion of "Whispered calls," at 1:09. The chorus members are to whistle a high G# (in the right octave). In the box, they perform the phonemes (actually derived from the names "Peter, Jonathan, Lee and Alton") in a loud stage whisper, which should be mysterious, not histrionic. The events in the box are unordered.

The next example is from "Heart Mantra," chanted by the Childrens' Chorus at 1:23. The Womens Choir performs the same event at the same time at another location. The two chants begin together as specified, but they may go out of synch as they independently progress.

1:23:00

0 60

slow chant on Eb4:

led by conductor at circa ♩ = 40 MM

All:

Start at same time as womens' choir.

* "hah!" is short and accented.

text: Guh teh guh teh, puh ruh guh teh, puh ruh smm guh teh, bhoh-dee svah hah!*. (stop chanting at end of text.)

In the next example, the pace of the chanting is directly controlled by the conductor. The chorus has to move between free pitches and notated ones. The example is from "Water-fowl." at 0:29, sung by the Westhill High School Chorus.

29:00

0 5 15 40 60

each singer uses his/her own pitch.

mf

High as the level of the moun - tain tops

chinting led by conductor

mf *mp* *mp* *mf*

A circuit amp - ler than the

sop alto ten bass

f *mf*

lake be - neath_

Hundreds of circles and circlets, too and fro, upward and downward

each singer sings the text independely (on one pitch).

5. Other notational innovations and special practices are directly given and explained in the score.