Israel Neuman

50 Milliseconds

for tenor saxophone and electronics

2019

Program Notes

The term “blurring threshold” was coined by German acoustician Fritz Winckel to signify the minimum time interval required for two sounds to be heard as separate sounds, i.e., if the time interval between two sounds is smaller then 50 milliseconds they will be heard as one sound. The only reference Pierre Schaeffer made to the saxophone in *Treatise on Musical Objects* (*TOM*) was in regard to concert hall reverberation and the "blending of a tutti" experiment in which he specified the “blurring threshold” of this instrument to be 32-40. Nonetheless, ***50 Milliseconds*** for saxophone and electronics derives much of its being from *TOM* and in particular from the Schaefferian typology of sound objects known as the TARTYP that was first introduced in this essay.

Performance Notes

This score is transposed. This score includes TARTYP sound-object graphic notation (Neuman 2015, Thoresen 2007) alongside traditional notation.

Sound objects are defined by three groups of characteristics: pitch, noise or glissando; sustained or iterative; short, medium, long or very long. Within these restrictions, the performer makes all other choices. For example, sound object N is defined as "pitch-sustained, medium duration (1-2 sec.)"- the performer chooses the pitch and dynamics; sound object X is defined as "noise-sustained, medium duration (1-2 sec.)" - the performer chooses how to produce the noise. The notation key includes the original alpha-numeric notation of sound object as it appears in the TARTYP as well as the sound-object graphic notation. All non-traditional graphic notation is explained in the notation key. Extended techniques are explained in the score.

The TARTYP sound objects are organized in three sound spaces. The saxophone is playing sound objects from space 1 and 2. The electronics are playing sound objects from space 2 and 3. The division into sound spaces is as follows:

Space 1 (Balanced) - sound objects N X Y N' X' Y' N" X" Y";
Space 2 (Redundant and Homogeneous) - sound objects Hn Hx Tn Tx Zn Zx Zy;
Space 3 (Sample and Accumulation) - sound objects E En Ex Ey An Ax Ay;

Improvisation sections are based on pitch-class K-Networks and the mapping of pitch classes to sound object presented in Neuman 2018. The material for improvisation appears in the boxes and includes unordered pitch-class sets in traditional notation as well as sound object notation. The performer may freely choose between pitch classes and sound objects within each box. Motion between boxes should follow the directionality of the arrows, i.e., the performer cannot reverse the motion if the arrow is unidirectional. The notation of pitch-class sets in the improvisation sections does not imply rhythm or register. For more information please visit http://israelneuman.com/SaxTARTYP.html.

Technical Notes

The person operating the electronics must be in a location that allows him/her to follow the saxophonist. The equipment required for the performance of the electronics of this score includes: a computer with the software Max/MSP 7 or a later version; a compatible audio interface device with two output channels; a mixer with two input channels and Left/Right output channels; and two speakers with amplification.

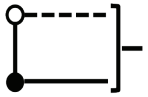
The electronics part of this score was composed in Max/MSP 7 for the Macintosh operating system. All the files, which are required for the performance of this part, are located in the folder <50MS_MaxMSP> and should be kept there at all times. Moving files out of this folder may result in a malfunction of the patcher. This folder is available from the composer and it includes detailed operation instructions. Following marking in the score the performer operates the electronics using the keyboard. The keys Q and W are used to select the sound space and appears in the electronic part within a square. The numbers keys 1 through 7 are used to select specific sound objects within each space and appears in the electronic part within an oval. The table below specifies the keys used for each space and sound object.

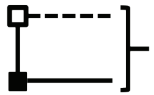
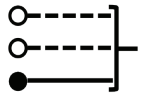
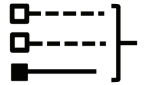
In the improvisation sections, the electronics part includes a choices of sound space and sound objects within this space. This material as well as the relevant keys appear within a box. The operator of the electronics may freely choose between these sound objects.

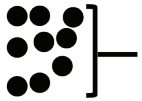
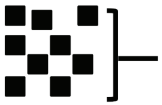
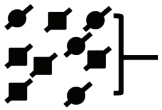
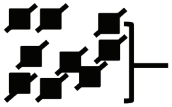
Space 2 Q		Space 3 W	
Hn	1	E	1
Hx	2	En	2
Tn	3	Ex	3
Tx	4	Ey	4
Zn	5	An	5
Zx	6	Ax	6
Zy	7	Ay	7

Notation Key

TARTYP Sound-Object Notation

Alpha-Numeric	Graphic Symbol	Description
N		Pitch-sustained, medium duration (1-2 sec)
X		Noise-sustained, medium duration (1-2 sec)
Y		Glissando-Pitch-sustained, medium duration (1-2 sec)
N'		Pitch-pulse, short duration (0.5 sec)
X'		Noise-pulse, short duration (0.5 sec)
Y'		Glissando-Pitch-pulse, short duration (0.5 sec)
N"		Pitch-iterative, medium duration (1-2 sec)
X"		Noise-iterative, medium duration (1-2 sec)
Y"		Glissando-Pitch-iterative, medium duration (1-2 sec)
H_n		Pitch-homogenous (sustained), long duration (5-7 sec)

Alpha-Numeric	Graphic Symbol	Description
H_x		Noise-homogenous (sustained), long duration (5-7 sec)
T_n		Glissando-MorePitch-homogenous (sustained), long duration (5-7 sec)
T_x		Glissando-MoreNoise-homogenous (sustained), long duration (5-7 sec)
Z_n		Pitch-Redundant (iterative), long duration (5-7 sec)
Z_x		Noise-Redundant (iterative), long duration (5-7 sec)
Z_y		Glissando-Pitch-Redundant (iterative), long duration (5-7 sec)
E_n		Pitch-unpredictable (sustained), very long duration (+10 sec)
E_X		Noise- unpredictable (sustained), very long duration (+10 sec)
E_y		Glissando-Pitch-unpredictable (sustained), very long duration (+10 sec)
E		Glissando-Noise-unpredictable (sustained), very long duration (+10 sec)

Alpha-Numeric	Graphic Symbol	Description
T		Glissando-Noise-homogenous (sustained), long duration (5-7 sec)
W		Glissando-Noise-sustained, medium duration (1-2 sec)
Φ		Glissando-Noise-pulse, short duration (0.5 sec)
K		Glissando-Noise-iterative, medium duration (1-2 sec)
P		Glissando-Noise-Redundant (iterative), long duration (5-7 sec)
A_n		Pitch-unpredictable (sustained), very long duration (+10 sec)
A_x		Noise- unpredictable (iterative), very long duration (+10 sec)
A_y		Glissando-Pitch-unpredictable (iterative), very long duration (+10 sec)
A		Glissando-Noise-unpredictable (iterative), very long duration (+10 sec)

Lines

Lines represent levels of intensity. Intensity can be defined by dynamics, register and rhythm

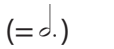
constant intensity with fade in/out

slowly increasing fast decaying intensity

dynamic intensity

Other Notation

activate electronics using specified key in computer keyboard



approximate duration

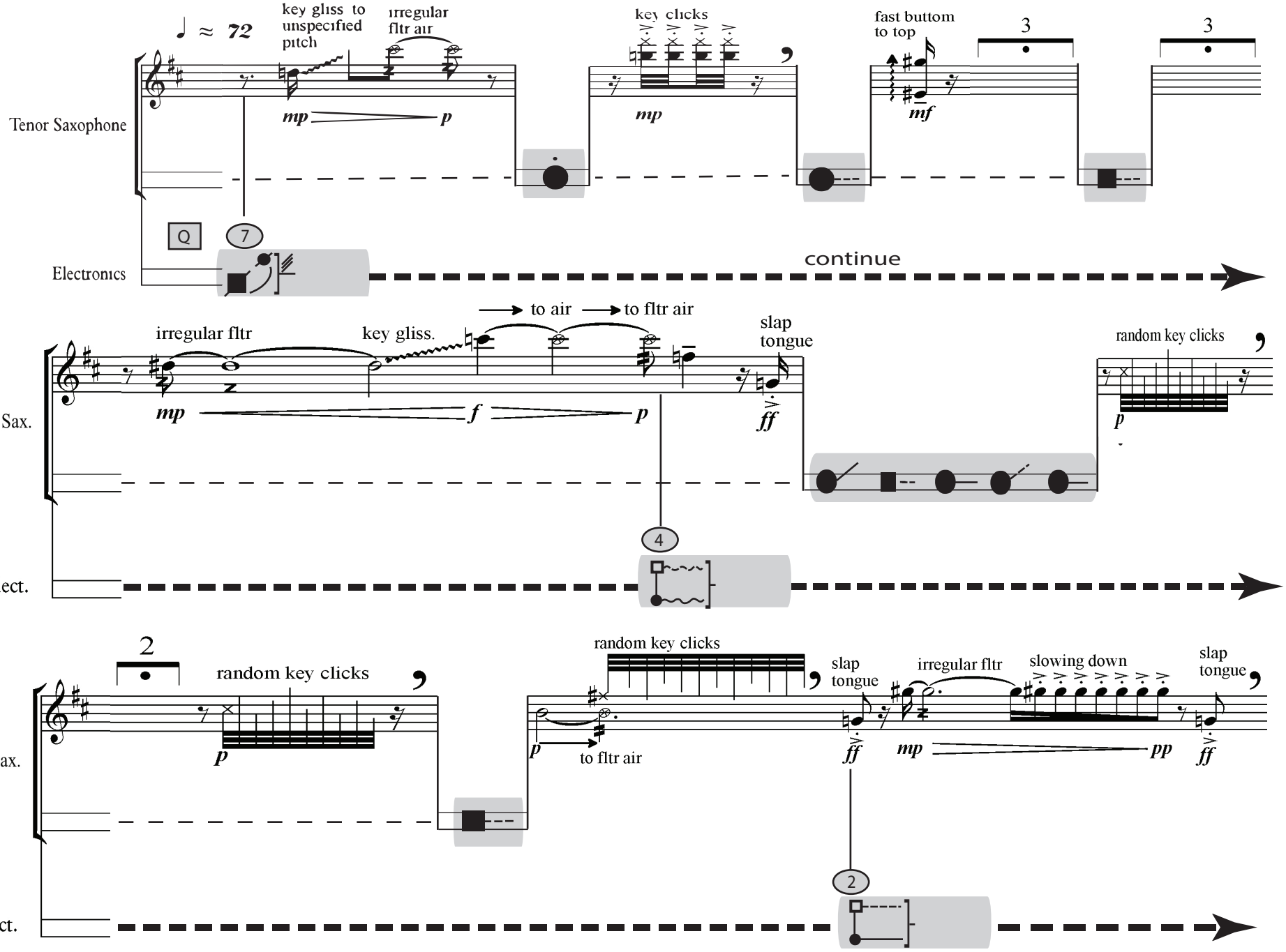
horizontal alignment

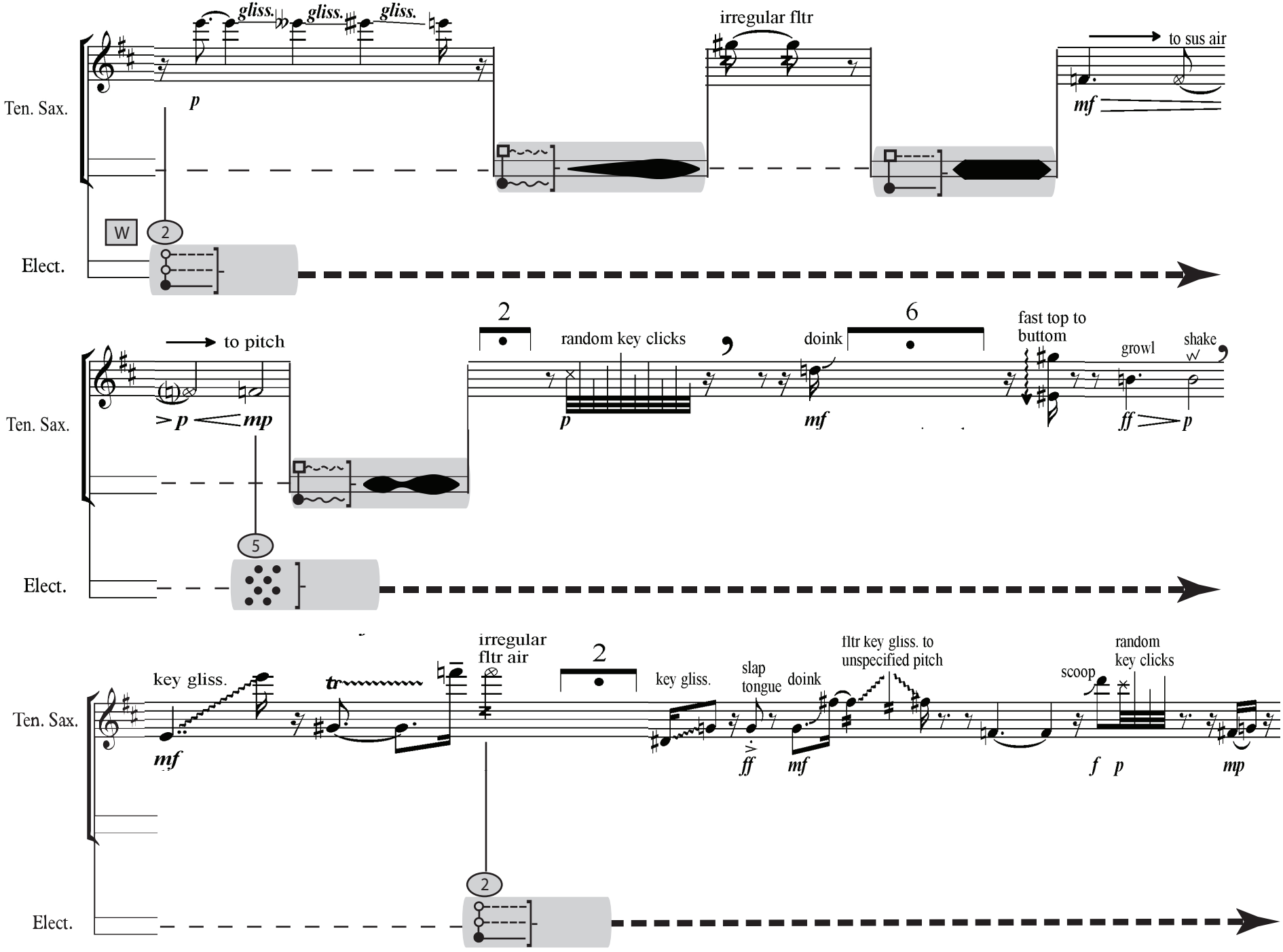
vertical alignment

continue similarlly

50 Milliseconds

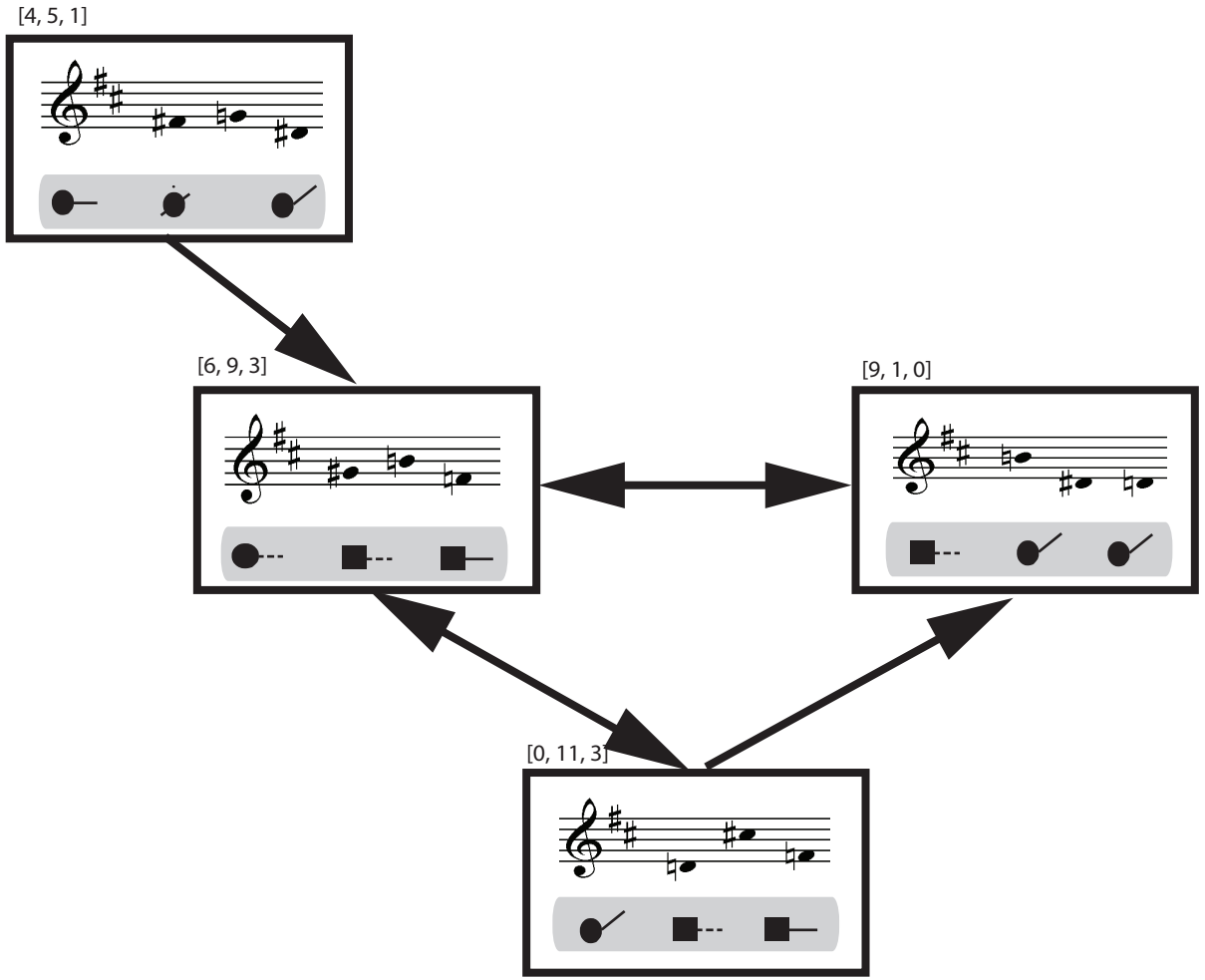
Israel Neuman



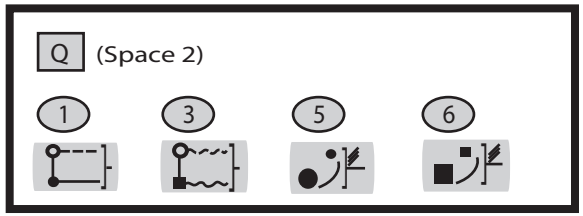

Ten. Sax.
gliss.
gliss.
gliss.
p
irregular fltr
to sus air
mf
W
2
Elect.
to pitch
p
mp
2
random key clicks
p
doink
mf
6
fast top to buttom
growl
ff
shake
p
5
Elect.
Ten. Sax.
key gliss.
tr
mf
irregular fltr air
2
key gliss.
slap tongue
ff
doink
mf
fltr key gliss. to unspecified pitch
scoop
f
random key clicks
p
mp
2
Elect.

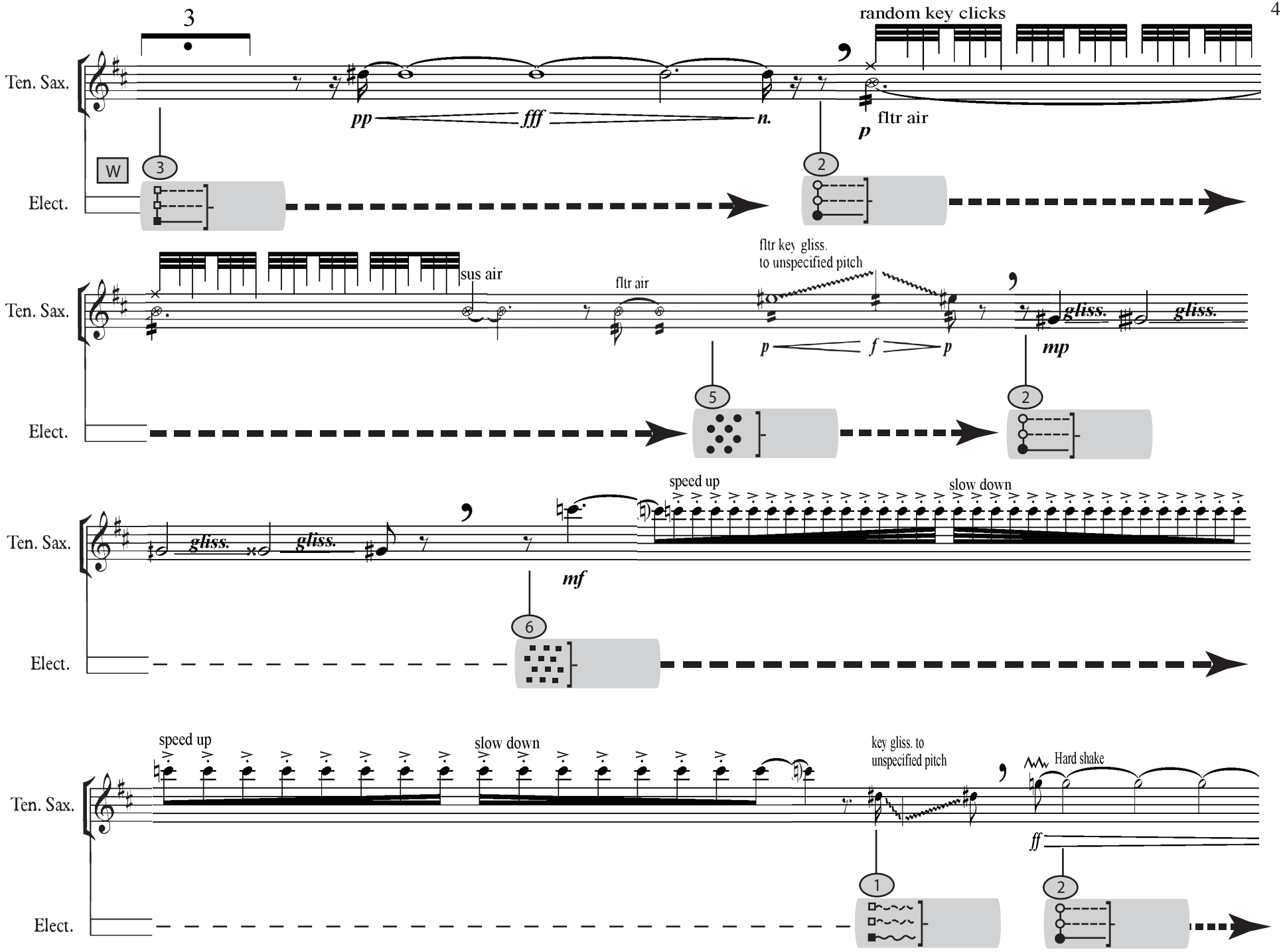
Improvisation A

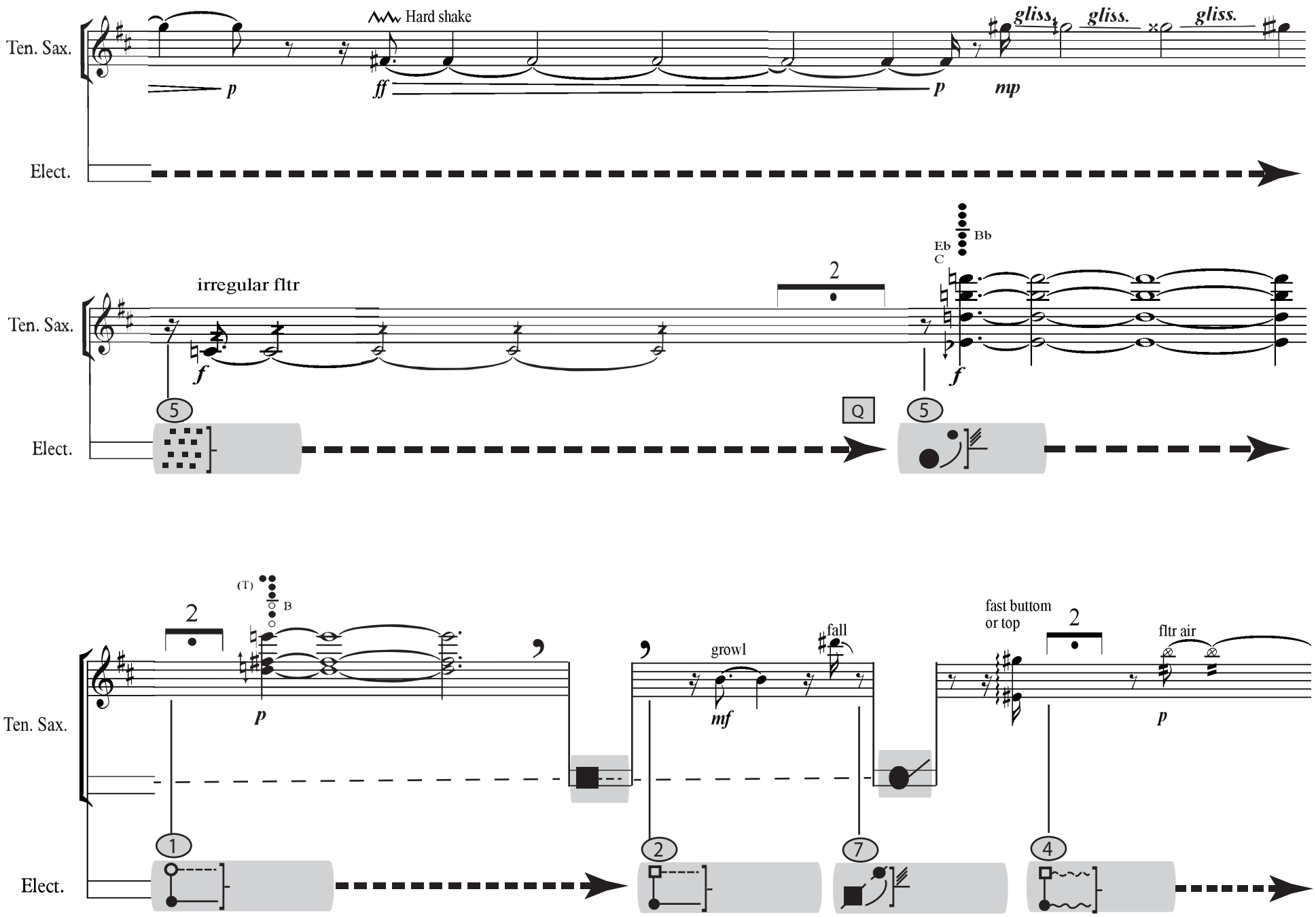
Tenor Saxophone:

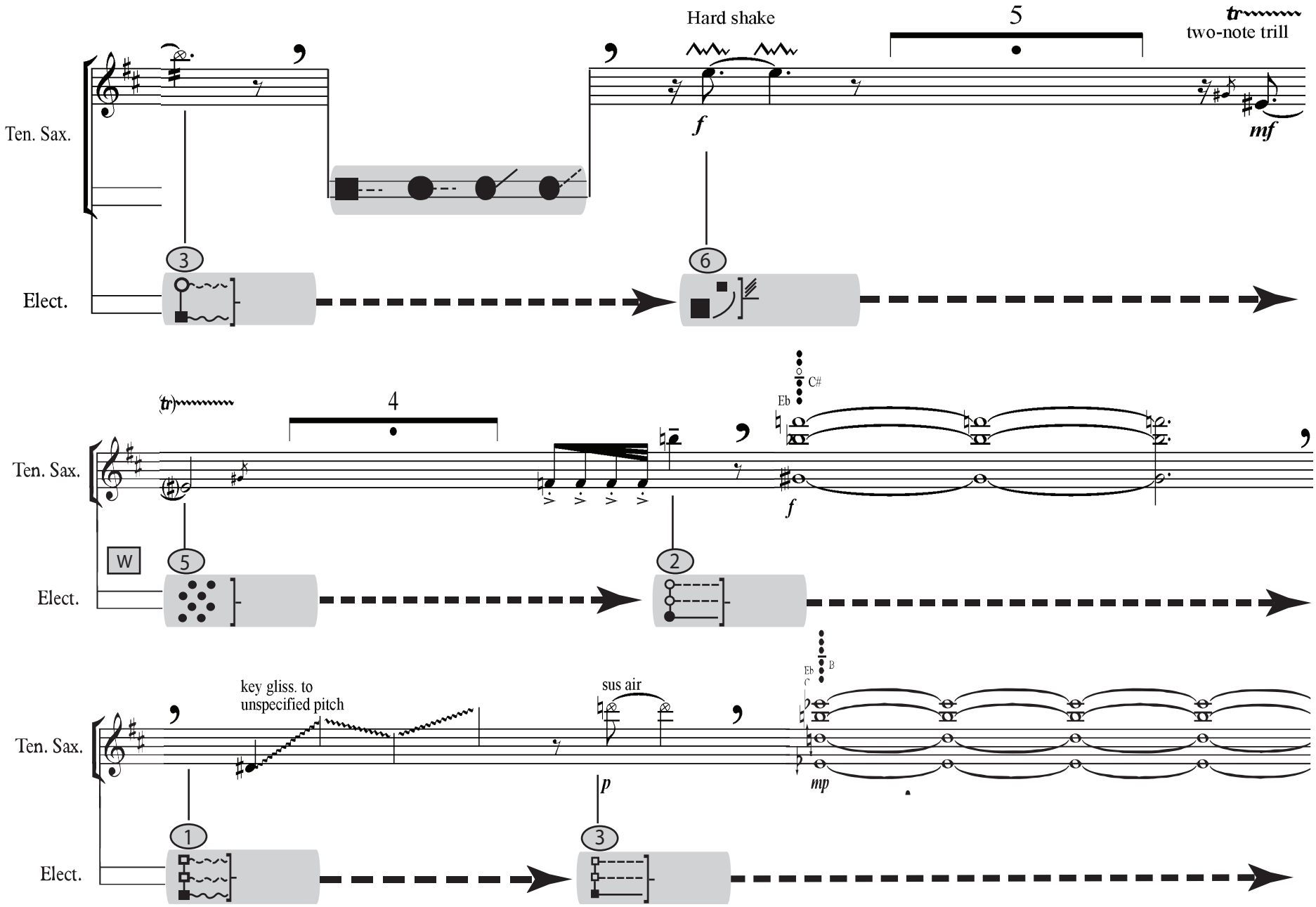


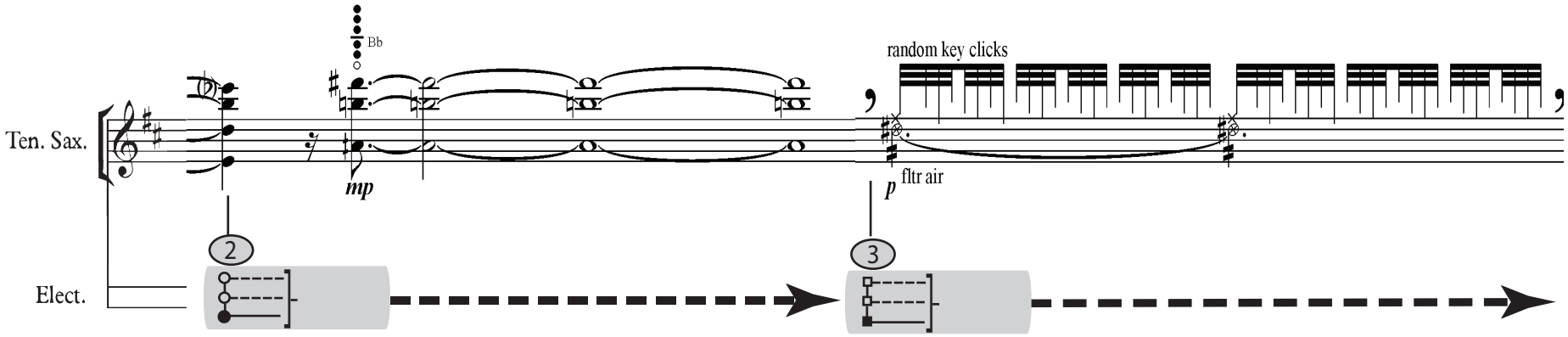
Electronics:




3
random key clicks
Ten. Sax.
pp
fff
n.
p
fltr air
W
3
2
Elect.
sus air
fltr air
fltr key gliss.
to unspecified pitch
Ten. Sax.
p
f
p
gliss.
gliss.
mp
5
2
Elect.
speed up
slow down
Ten. Sax.
gliss.
gliss.
mf
6
Elect.
speed up
slow down
key gliss. to
unspecified pitch
Hard shake
Ten. Sax.
ff
1
2
Elect.

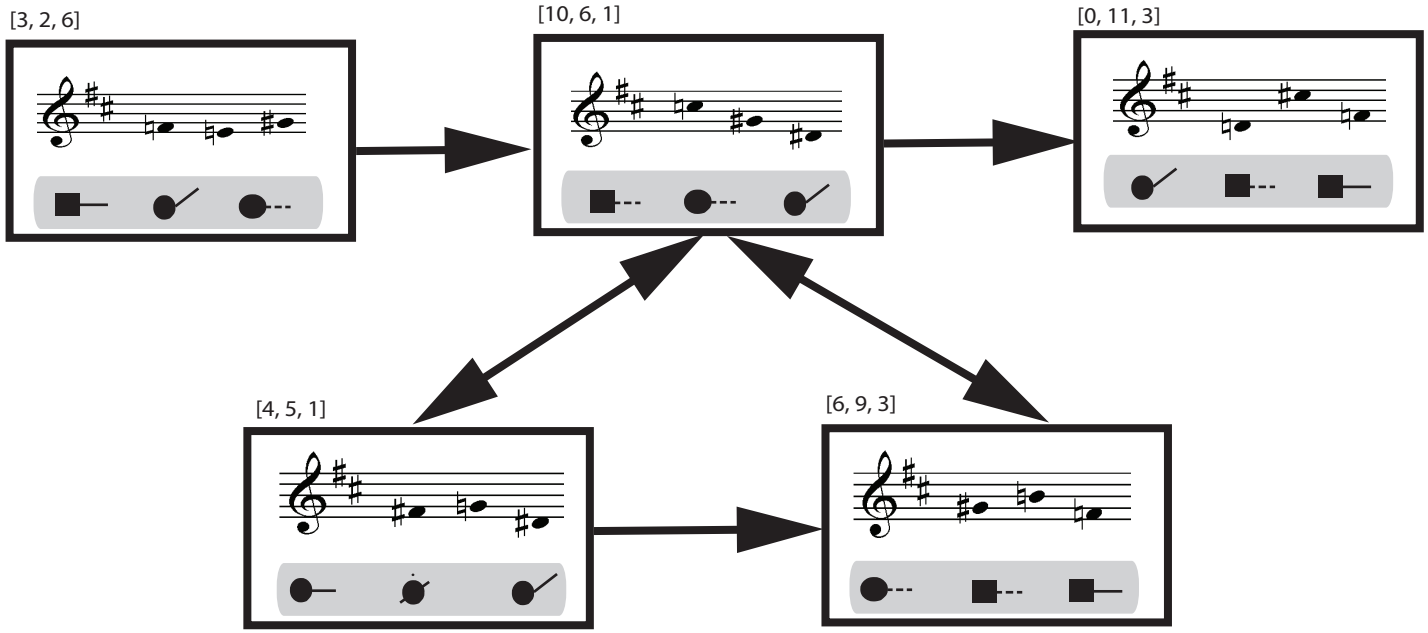

Ten. Sax.
Hard shake
p
ff
p
mp
gliss.
gliss.
gliss.
Elect.
irregular fltr
f
2
Eb
C
Bb
f
5
Q
5
(T)
B
2
p
growl
mf
fall
fast buttom
or top
2
fltr air
p
1
2
7
4


Hard shake
5
two-note trill
Ten. Sax.
f
mf
3
6
Elect.
4
C#
Eb
Ten. Sax.
f
W
5
2
Elect.
key gliss. to
unspecified pitch
sus air
B
Eb
Ten. Sax.
p
mp
1
3
Elect.

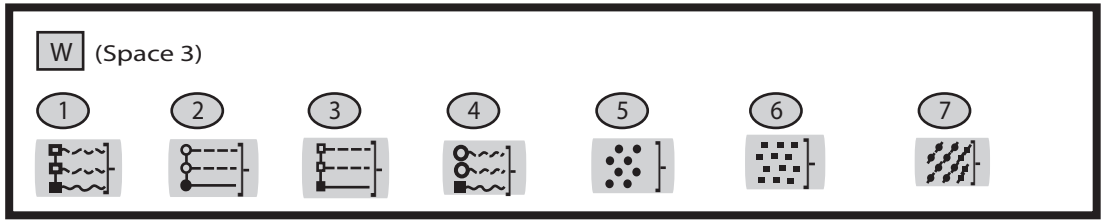


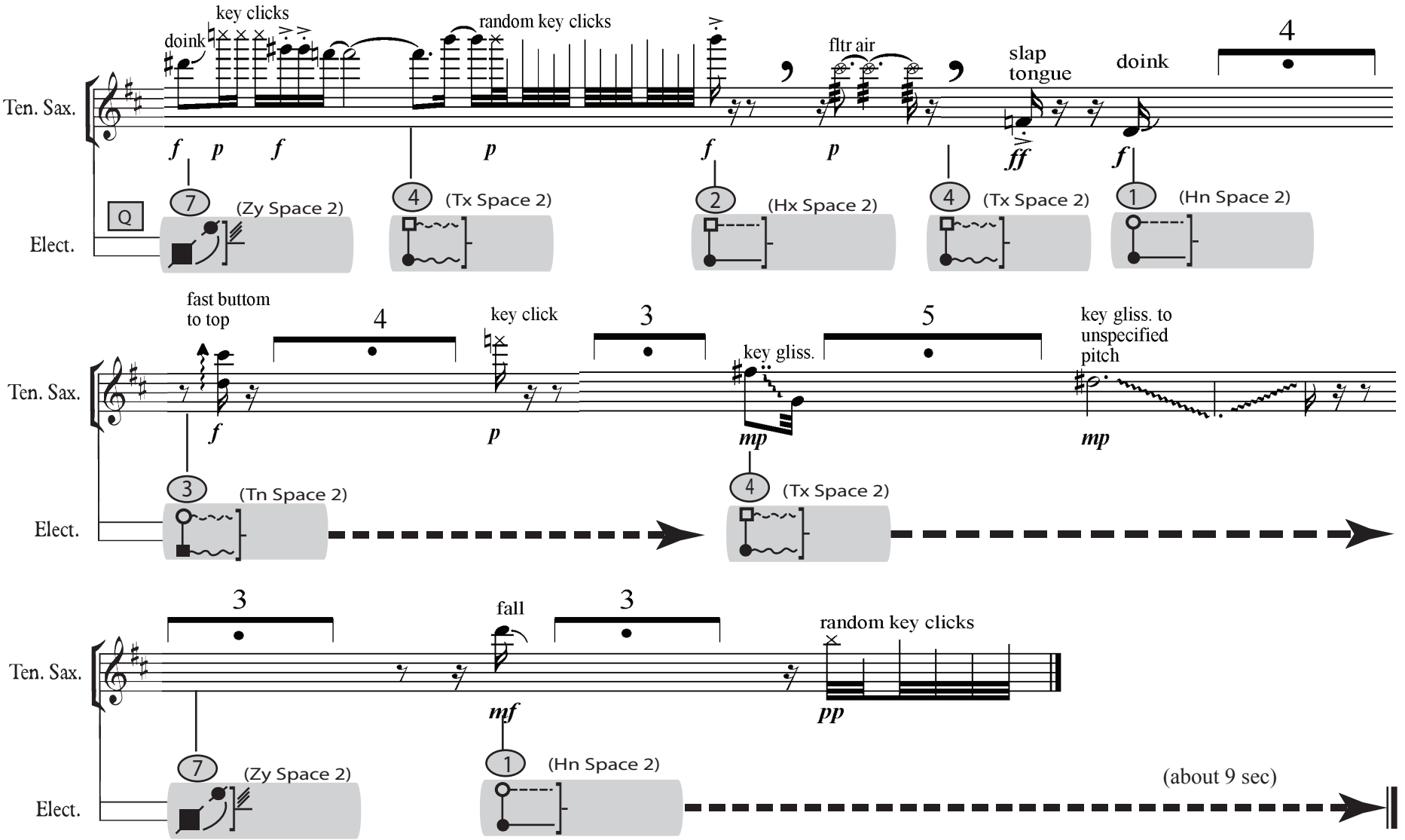
Improvisation B

Tenor Saxophone:



Electronics:




Ten. Sax.
doink
key clicks
random key clicks
fltr air
slap tongue
doink
4
f p f p f p ff f
Q
7 (Zy Space 2)
4 (Tx Space 2)
2 (Hx Space 2)
4 (Tx Space 2)
1 (Hn Space 2)
Elect.
fast buttom to top
4
key click
3
key gliss.
5
key gliss. to unspecified pitch
f p mp mp
3 (Tn Space 2)
4 (Tx Space 2)
3
fall
3
random key clicks
mf pp
7 (Zy Space 2)
1 (Hn Space 2)
(about 9 sec)