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# *Social Systems for Improvisation in Live Computer Music*

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Shelly Knotts

# On Edge

(2014)

For a Group of Monophonic Instruments

Duration: 7 minutes

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(2014)

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Duration: ca. 7 minutes

## Performance Directions

### Performance Materials

On Edge is a piece for any number of monophonic instruments (however 4-8 is the recommended group size), a conductor and 2-3 assistants (depending on group size).

All players play from the same score (pg. 5) which should be printed on A3 paper.

1 set per performer of the performance direction cards (pgs. 6-8) should be printed on A6 card.

Each performer and assistant should be able to see a stop watch during the performance.

### Notation

The score consists of 2 main elements:

- 'Nodes' - represented as circles.
- 'Edges' - represented as lines between nodes.

### Nodes

The Nodes contain pitch, note grouping and tempo information. For example the following Node would denote that the performer should play a pulse at pitch 'A#' in 9 semi-quaver groupings at 120 crotchet beats per minute.



is equivalent to:



A second Node (below) would denote that the performer should play a pulse at pitch 'B' in 18 semi-quaver groupings at 80 crotchet beats per minute.



is equivalent to:

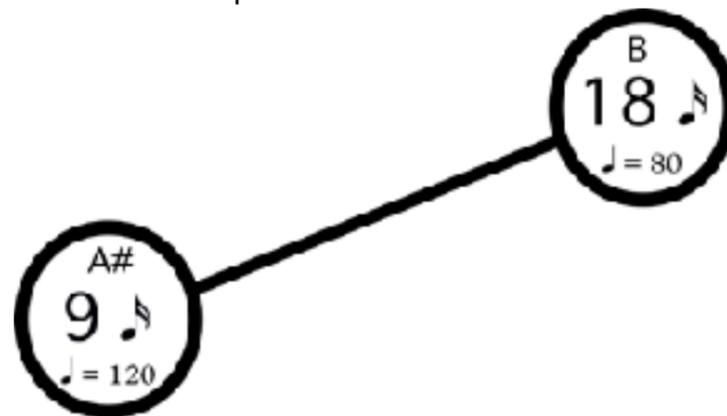


When at a node you have several options:

- Repeat the rhythmic cell for 5-10 repetitions.
- Take a break for the duration of 5-10 repetitions of the rhythmic cell.
- Mix rests and playing for the duration of 5-10 repetitions of the rhythmic cell.
- If you have a PURPLE or WHITE 'action' card you can carry out the action on the card.

### Edges

The line or 'Edge' between nodes denotes a transition from one state to another. For example the following figure represents a transition from the Node shown above to a second Node which contains the pitch 'B' in a grouping of 18 semi-quavers at 80 crotchet beats per minute:



In this instance the performer should transition from A# to B, slow down from 120 to 80 crotchet beats per minute and increase the grouping size from 9 semi-quavers to 18 semi-quavers.

There are a number of allowable strategies for transitioning for each of the 3 parametres:

Pitch:

- Alternate between the 2 pitches for the duration of the transition.
- Move stepwise or by glissando between the 2 pitches over the duration of the transition.
- Alternate between the pitches in blocks of their rhythmic groupings. I.e. if moving between the 2 nodes in the example above the performer should alternate between 9 A#s and 18 Bs for the duration of the transition.
- play A#s and Bs in a random order but change the ratio of A# to Bs gradually from 100% A#s and the beginning to 100% Bs at the end.

Tempo:

- gradually increase/decrease in tempo to move from one tempo to the other over the duration of the transition.
- alternate tempos in blocks over the duration of the transition.

Note Groupings:

- add or remove 1 note per repetition.
- Alternate between the note groupings at the 2 nodes for the duration of the transition.

The transition options can be combined in any combination for each Edge travelled along by a performer. For example one possible transition for the example nodes would be to combine alternating pitches, a gradual tempo decrease and adding one note to the group per repetition. i.e. as follows:

The musical notation consists of four staves. The first staff starts with a tempo marking of ♩ = 120 and a 'rit.' marking. The second staff shows a gradual decrease in tempo. The third staff shows a change in note grouping from 9 to 18 semi-quavers. The fourth staff ends with a tempo marking of ♩ = 80.

The duration of the transition should be proportional to the length of the line representing the Edge. A time:length scale should be agreed between performers and conductor before performing the piece.

## Performance Direction Cards

2 or 3 assistants are responsible for distributing performance direction cards to performers during the performance. There should be one set of cards available per performer.

The cards are colour coded depending on the parametre they relate to. A performer should not have more than one card of each colour at a time.

The colour categories relate to the following parametres:

- ORANGE = Dynamic Contour: the dynamic shape of each repetition of a rhythmic cell.
- YELLOW = Dynamic: the base dynamic to be played by the performer - i.e. the dynamic to crescendo to/diminuendo from in each rhythmic cell.
- BLUE = Timbre.
- GREEN = Transitions: performers should move along edges either twice or half speed relative to the agreed normal transition rate of movement.
- PURPLE = Actions: written instructions to be carried out by the performer.
- WHITE = \_\_\_\_\_: additional cards where additional instructions can be written during the performance, either when the PURPLE 'invent new instruction' card is given to a performer or when an assistant decides to invent a new instruction.

The below table shows a timeline for the assistants for distributing performance direction cards during the piece. The number in each coloured box shows the MAXIMUM number of card changes per performer per colour to take place during each time frame.

A card change is either placing, swapping or removing a card.

An approximate duration for the piece should be decided in advance and each section should last the duration of the total time divided by 7. It may be helpful for the assistants to write the start and end times of each section in the second row of the table.

Section:	1	2	3	4	5	6	7
Time:							
		6	2	1	1	1	1
			4	2	1	1	1
				3	2	1	1
					2	1	1
						2	1
							1

The default performance direction (before cards are distributed or when a card colour is missing) is to play between mp to mf with an accent on the first note of each note grouping and with a 'normal' timbre. Pitches can be played in any octave.

## Structure and Navigation

An approximate duration for the performance should be agreed between performers and conductor before beginning.

The piece consists of 3 main 'sections' - defined by the type of movement around the score by the performers:

'Free Movement': performers can follow any path they chose around the score.

'Come Together': performers should attempt to converge on the same Node on the score.

'Avoid Each Other': performers should try to avoid landing on the same Node as another performer.

Beginning the piece: Performers should choose a Node to begin on from the nodes near the outer edge of the score which have only one Edge.

After the conductor gives the signal to start the piece performers can stay at the Node that they chose to begin on for as long as they choose. After each performer decides to travel to the next Node they can then move freely around the score until the conductor gives the next signal.

The Conductor can then give as many 'Come Together', 'Avoid Each Other' and 'Free Movement' signals as they choose before giving the signal to end the piece after the agreed duration of the performance.

When the conductor gives the ending signal there are two possibilities depending on whether you are at a node or on an edge when the signal is given:

- If you are at a node, finish your cycle of 5-10 repeats with a diminuendo from the point of the conductor's signal to the end of the piece.
- If you are on an edge finish the transition and then complete a full cycle of 5-10 repeats when you reach the next node with a diminuendo from the conductor's signal to the end of the piece.

Performers should always exit a Node from a different Edge to the one that they entered it. Effectively this means that the Nodes at the outer edge of the score are out of bounds after the beginning of the piece as it is not possible to leave from a different Edge to the one that the performer arrived on.

## Conductor Signals

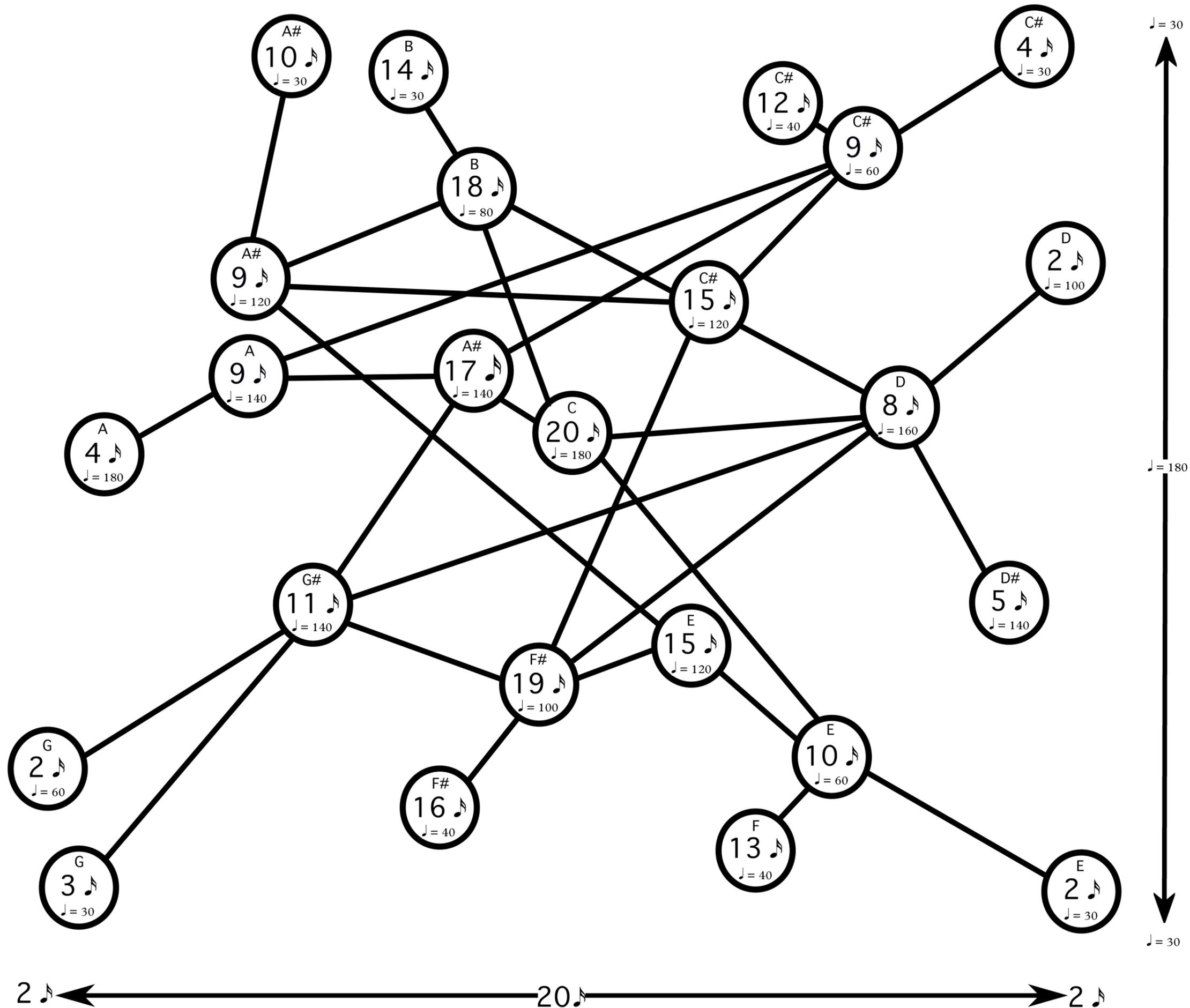
Start: The conductor will give a double handed down beat to signal the beginning of the piece.

Come Together: The signal for beginning a 'come together' section is the conductor moving their hands towards each other, palms facing centre.

Avoid Each Other: The signal for beginning an 'avoid each other' section is the conductor moving their hands apart, palms facing outwards.

Free Movement: The signal for beginning a 'Free Movement' section is the conductor making a large circle gesture with one hand.

End: The Conductor will give a second double handed down beat to signal the end of the piece.



Dynamic Contour



Dynamic Contour



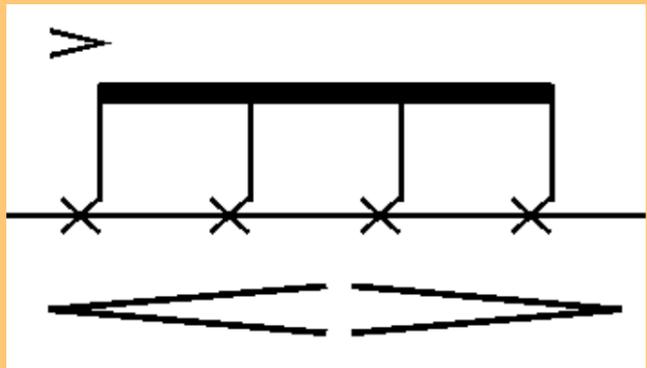
Dynamic

*ff*

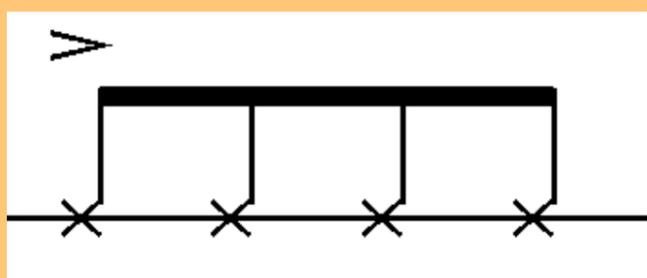
Dynamic

*f*

Dynamic Contour



Dynamic Contour



Dynamic

*mf*

Dynamic

*mp*

Dynamic

*p*

Timbre

harsh

Timbre

soft

Transitions

double  
speed

Dynamic

*pp*

Timbre

warm

Timbre

bright

Transitions

half  
speed

Action

take a  
break

Action

rearrange  
other  
performers'  
cards

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Action

move to  
any node  
on the  
score

Action

invent a  
new  
instruction

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