# Apophänie

video-instrument for three performers

Rama Gottfried

for SPOR 2016

# Apophänie

video-instrument for three performers

performers A & B:
video puppetry

performer C:
camera control and
BCF2000 mixer

scene 1: amoebas
scene 2: seeds
scene 3: landscape
scene 4: hands

duration: ca. 15 minutes

Program notes:
“Apophänie” refers to the tendency of the human mind to find patterns in random data, which can be as harmless as recognizing shapes in clouds, or a form of delusional psychosis which sees meaningful connections in events that may or may not have any relationship to each other.

In the piece, we are introduced to a performance environment composed of multiple layers of movement at different scales. Actual-size human performers on stage are connected to biological entities performing in a microscopic theater. The action is right in front of us but just beyond our view, perceivable only through incomplete, implied information from the stage, and the digitally magnified sound amplification and video projection.

Shifting through a sequence of contrasting vantage points in the miniature pseudo-organic environment, a narrative grows between the microscopic entities. The organisms of the miniature *Apophänie* world are born, mutated, absorbed, and consumed within the virtual ecosystem. They are artificial components of the video-instrument apparatus, yet are alive, brought to life through sonic organization and the performer’s gesture.

The score for the piece thinks musically about the movements of the lifeforms springing from the physical material scene, but the material is unstable organic matter — to discover the entities hidden in the material, the performers must recognize the connections and emerging patterns in an ever changing field of interactions.

Performer’s notes:

Over the course of the piece, the audience grows used to watching you control the objects on the screen, creating a sense of being enveloped in the miniature world on the screen. In the fourth scene, when the prerecorded material comes in, try to sustain the impression that you are still controlling the video as much as possible until the score specifies to break the connection.

**1. March 2016: this is a preliminary version of the score. I will be sending video documentation to help describe visually the gestures used in the piece. The instrument software and scenic design are still in development estimated to be completed in early April, along with the prerecorded video section (scene 4). Further notes and descriptions are included in the following notation sections as well as in the score itself.**

# Materials

**Computer:**
1 MacBook Pro laptop, 2014 or later, with HDMI output

**Audio:**
1 audio interface (2 in / 2 out minimum)
1 speaker + amplified if not self powered
2 boom mic stands for scenography (*update: reduced to 2)
1 BCF2000 MIDI mixer
(*update: not using transducers or microphones yet, possibily may add them back in later)

**Projection:**
1 1080p30 projector
1 HDMI cable from computer to projector
1 semi-transparent matte plastic screen, approximately 2.75m x 1.54m
(image should be visible from both sides)
2 stands for screen

**Main camera:**
1 color camera capable of HD streaming to computer
1080p30 or greater resolution (Blackmagic Micro Studio 4k)
fitted with macro lens (Nikkor-Micro 55mm/2.8f)
1 SDI or HDMI converter to Thunderbolt or USB for camera (Blackmagic Mini Recorder, SDI)
with: - SDI or HDMI cable from camera to converter
- Thunderbolt or USB cable from converter to computer
1 stable tripod (i.e. does not wobble when focusing lens)
1 lens support system (FOTGA DP500 II)

**Ground camera:**
1 decent USB webcam (Logitech c930e)

**Lights:**
2 Amaran 160 Photo LED lights (with rechargeable lithium batteries)
with diffuse Tungsten filters
1 camera mount, or stand for photo light 1
1 stand for photo light 2
1 JANSJÖ Ikea LED clip lamps (*update: probably only 1 needed)

**Scene Materials:**

1 table ca. 2 x 1 meters, ca. 1m height

**Dress:**
3 black long sleeve shirts, long enough to cover arms completely, and connect to gloves

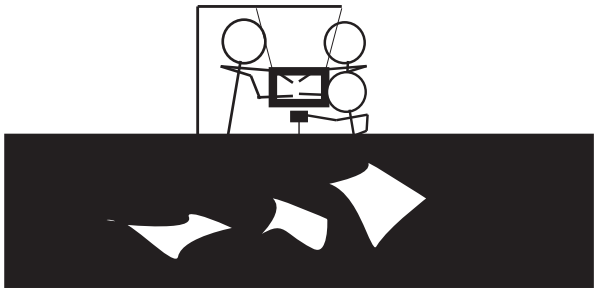
**Section 1:**
2 pairs of black gloves (tight fitting, non-reflective cotton)
2-3 yards of non-reflective black felt fabric
1 wooden dowel, ca. 12mm thick x 1 meter long
2 sheets of soft clear plastic, ca. 50 x 50 cm each
either specialty art material, or clear plastic bag, *must be very soft*
1 cardboard frame, ca. 28 x 17cm
with a 18 x 9cm cut out in the interior
string to tie frame to mic boom stand or dowel

**Section 2:**
2 pairs of white gloves (tight fitting, non-reflective cotton)
1 sheet of very white material, as white and non-reflective as possible, ca. 14 x 13cm
(*update: normal white printing paper works)
1 perfectly clear box (acrylic, plexiglass, or glass etc.) approximately 14 x 13 x 10cm
1 piece of wood or book for box platform (and section 3 extension)
1 perfectly clear petri dish (or similar)
1 sheet of thick, very black paper, as black and non-reflective as possible, ca. A4 (60 lb. weight)
1 handful of holographic gold metallic glitter, large pieces (i.e. not powder type)
2-3 white down feathers
2 thin wooden pokers (*update: finger tips in white gloves may work as well, or better)
(*update: removed wet materials, glue and caviar)

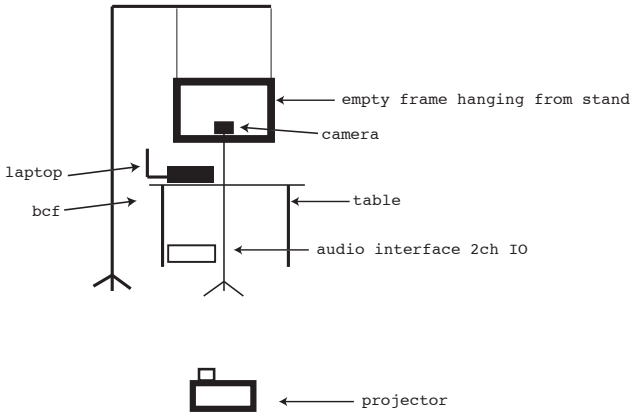
**Section 3:**
1 piece of cardboard or wood, ca. 100 x 45cm
with scenic texture glued to top, could be textured rice paper, or something else
visually functions as ground platform in landscape section
1 piece of wood or book, to set angle of landscape platform
1 piece of cardboard or wood placed under clear box to function as landscape ground extension in section 3
1 piece of wood or book for extension platform
1 sheet extremely reflective, thin metallic gold foil, ca. 2 x 1 meters
wrapping paper, or similar; when crumpled and placed by the backdrop should look like a mountain
1 meter white or partially transparent ribbon, ca. 5mm thick
small piece of bubble wrap, the kind with smaller bubbles, ca. 15 x 8cm

# Setup

## front view



simplified audience view (scene 1)

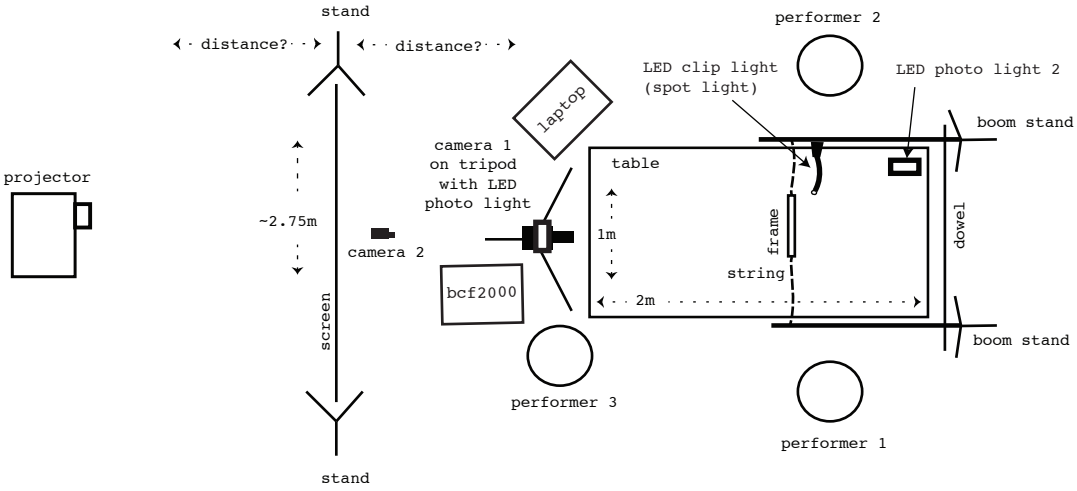



simplified front view
without performers, screen,
and many other items

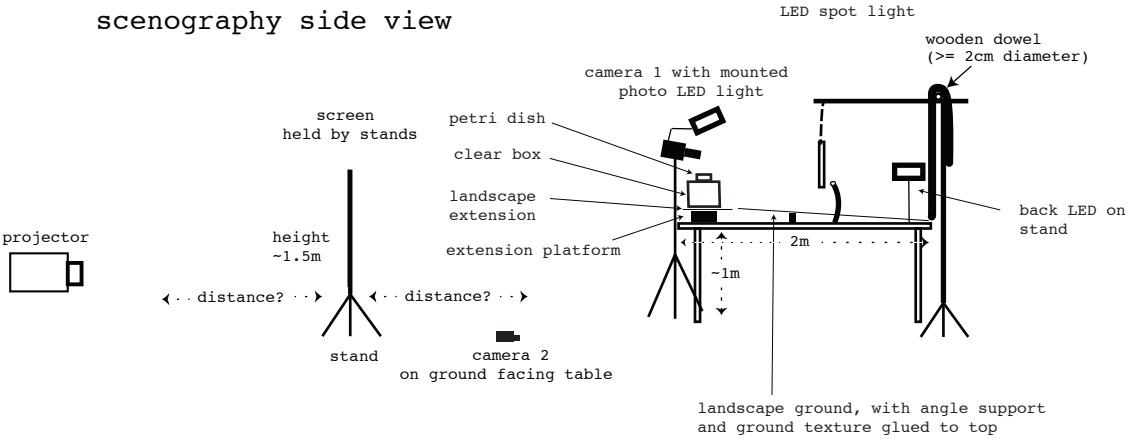
## top view

to be determined:
- projector to screen distance
- screen to table distance

NOTE: placement of laptop and bcf is open, in prototyping, they are placed on the table, so this may be fine in performance also.

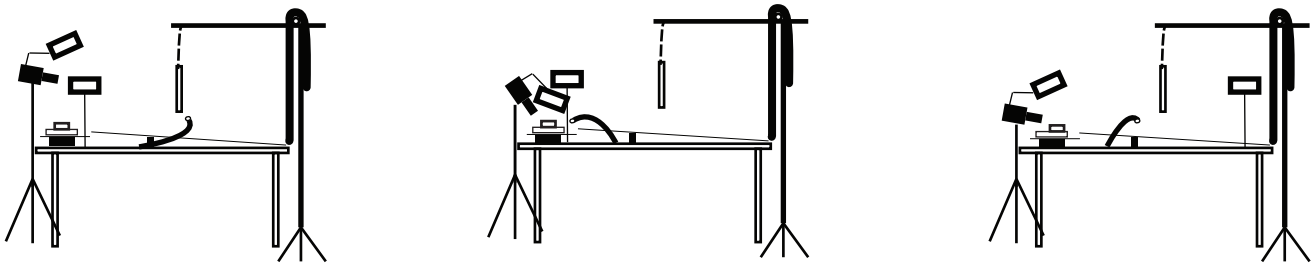



## scenography side view



# scene changes

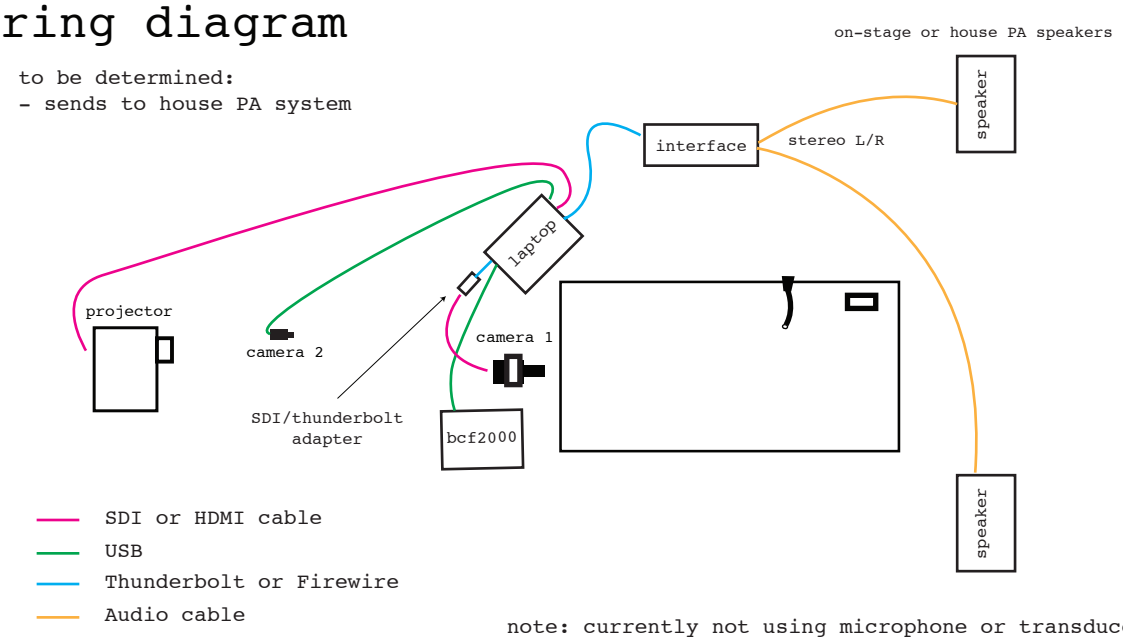
scene 1 | scene 2 | scene 3



The key to smooth and fast changes between scenes is to have the landscape already constructed and positioned for the camera at the lowest tripod level. The tripod ideally should be the kind with a height adjustment rod, so that you don't need to adjust the tripod leg height between scenes. Similarly, the height for scene 1 should be determined based on the necessary height for scene 2.

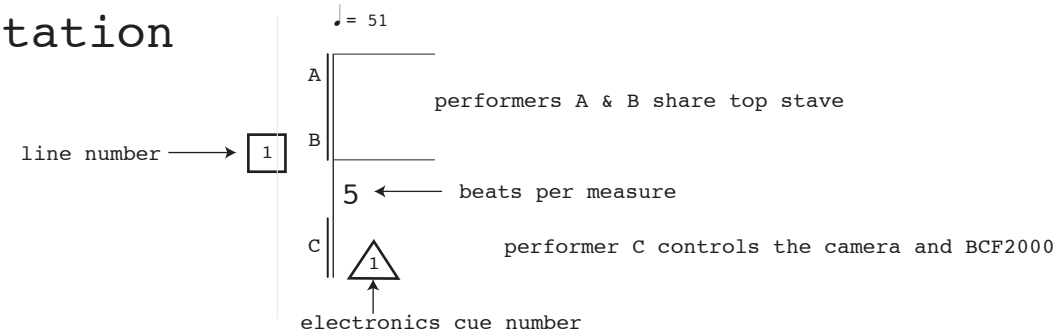
# wiring diagram

to be determined:
- sends to house PA system




note: currently not using microphone or transducer

# Notation




In scenes 1 & 2, notion indicates the resulting sound, as well as the type of gesture used to create it, but not the exact physical action to take. In most cases, vertical placement on the staff indicates relative pitch, the thickness of the notation indicates relative loudness.

At all times the performers should watch the screen to see the effects of their actions, and attempt to find characters to portray the actions described in the score. For most of scene 3, performers A & B are frozen while performer C slowly focuses through the landscape (see more below).

Between each scene (except 3/4) there is a transition section, the transitions should be considered part of the performance, and performed "in character."

## scene 1: amoebas

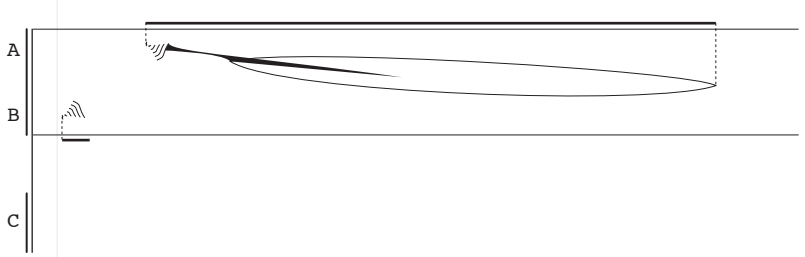
In scene 1, performers wear black gloves, with black long sleeve shirts, and are invisible to the camera against the black backdrop. Performers A & B hold thin plastic material in their hands which they use to create amoeba like creatures on the screen. The vertical placement on the staff indicates hypothetical pitch, the thickness of the notation indicates the relative visual size of the amoeba shape. One effecive technique for creating shapes is to use both hands (in black gloves) to in order to completely hide the plastic in your hands. Then using one or the other hand, you can reveal a little part of the plastic in the light, or slowly stretch open the plastic with two hands to create larger shapes. You can also use the black of the gloves to divide the plastic into multiple parts which can give the impression of moving independently.

Three main sound types are controlled by the amoebas:
1) when ever a new amoeba appears there is a short, high pitch click sound (granular)
2) medium sized amoebas control filtered field recordings
3) large amoebas create pitched feedback/resonance sounds (the point of entry of the shape has some effect on the resulting pitches)

In this example:

Player B: enters with a short click sound, by suddenly appearing in the screen then quickly dissapearing.

Player A: a short percussive sound, then filtered field recording, gradually cross fading into the resonance/feedback materaial as the size of the amoeba increases (the cross fade is automated in the software).




## scene 2: seeds

In scene 2, performers wear white gloves, and are huddled close to the clear plastic box with the camera angled downward and positioned very closely. The position of the camera and the bright white background gives a microscope like impression on screen. On top of the box sits a petri dish with various textures and organic shapes of paper, feathers, and glitter. The focal plane should be on the top/middle of the paper shapes, so that the glitter is slightly out of focus, and the white background is completely out of focus, smooth and pure white. The bright top lighting also overexposes the white gloves and allows them to blend into the white background.

The black paper should be cut into small pieces, with various organic, and feather like shapes. To prepare the paper before cutting, crumple the sheet tightly into a ball and then smooth out many times so that the surface of the paper becomes soft, flexible, and leather-like. Then, cut the paper into small pieces using scissors or a blade so that the edges are clean and not torn (in order to contrast with the feather edges). The glitter is either on the bottom of the dish, under the paper and feathers, or could be added by the performers as the scene develops.

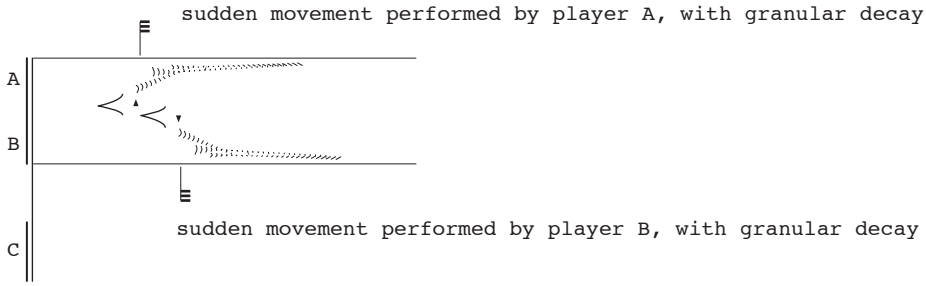
The performers in this section animate the materials in the petri dish, with finger tips, thin pokers, or tweezers. One effective technique for animating the paper and feather shapes is to use your finger tips (with gloves on) to very very lightly touch the paper, in particular the larger paper shapes with feather like sections cut into them which gives a spring like function. Using the springiness of the paper, you can lightly bounce the paper causing it to animate other smaller paper and feather shapes in the image. Try to avoid having your finger in the image.

Sound is created whenever something moves on the screen, with a controlled sequence of sound material. Towards the end of the section, performers A & B begin preparing scene 3, by dramatically pulling long swathes of material from what looks like the box on stage, and placing it in the set to create the landscape in scene 3. (This part needs to be developed in rehearsal)

Three main sound types are controlled by sudden movements in the scene, the performers make one action gesture, indicated above and below the staff, which triggers a sequence of sounds.
(*update: removed resonance/feedback in this scene, so will need to adjust the score )

1) pitched clicking sounds
2) granular synthesis patterns, based on the amount of movement
3) filtered noise sounds

*update* currently, there are only two cues composed for this section, more will be coming but will be essientially the same idea -- the cues are used to create shape the sound development by changing the balence of different layers of activity.

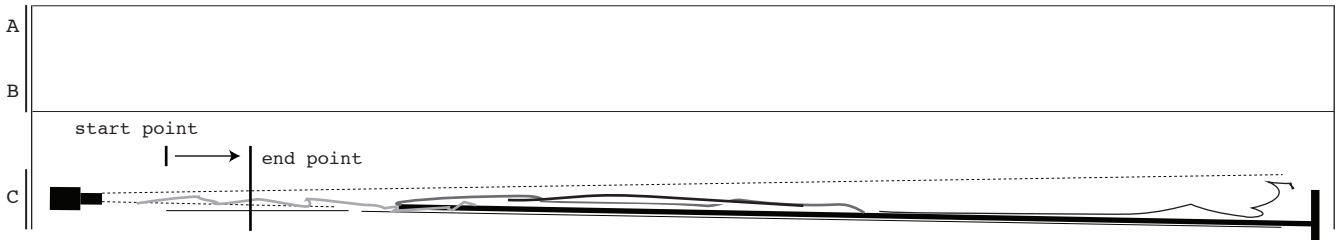


## scene 3: landscape

In scene 3, performer C focuses the lens through the diorama-like landscape. The edges detected in the image control the sound processes, and the graphic overlay on the video image. The scene is constructed out of a long sheet of white rice paper, laid flat on a long piece of cardboard or wood, which acts as the ground for the scene, with various plastic and reflective gold mylar used to create the landscape. In constructing the landscape, the goal is to have some part in focus as the lens shifts from near to far focus (occationally is it effective to have no edges in focus as well).

In the extreme foreground, the petri dish from scene 2 is placed as close as possible to the camera while still being able to be focused on (ca. 10cm with a micro-Nikkor 55mm lens), there should be part of a white feather visible, and some of the black paper shapes; the edge of the petri dish should not be visible. Leading from the petri dish into the middle-ground, the ribbon and other materials can be strung along the field of view, gradually leanding towards the illuminated gold mylar in the background. Note that in order to have the ability to focus through the scenography, care should be taken to make sure that no part distracts the eye when it is not in focus. For example, is it is most likley undesirable to have a large black object in the middle of the camera field of view when moving towards the mylar background. The mylar in the background, should looke like a mountain range, with rocky peaks and valleys. Behind the mountains, the rice paper should complete the camera frame, creating a sky like feeling. Note that when the lens is focused in infinitiy setting the image becomes flat looking, so for best results avoid focusing all the way back to the paper background, the farthest focal plane should be just before the mountain range comes fully into focus. Also, the graphics and video analysis becomes a little heavy in processing at this point since there are so many edges in focus.

Performers A & B are frozen for the first part of the scene while performer C focuses through the landscape. Try to keep the camera as still as possible when focused so the image doesn't bounce around too much. This may require a strong video tripod and lens support system (still needs to be tested here, my testing tripod is very bouncey). In the second part of the scene, performers A and/or B picks up the fathest LED light and begins to slowly move the light around the scene. The result should give the impression of traffic passing outside a blurry window. Towards the end of the scene, performers A & B enter with their hands out of focus, the video reference will be helpful here. At the end of scene 3, the light is placed directly facing the camera, and completely over exposing the image to become a bright white background behind the other performers' hand(s) moving quickly back and forth. This acts as the transition to the pre-recorded material for scene 4 which begins in the same way.




Here performer C focuses the lens from the start point to the end point, indicated by the short and long vertical lines in the horizontal landscape representation over the course of the time indicated for the measure.

## scene 4: hands

At the very end, performers A & B move their hands quickly back and forth in front of the camera, this creates a blurred, flickering image. In scene 4, a prerecorded movie (with sound) plays on the screen while performers A & B give the impression that they are still in control of the image on the screen. After a period of time, the performers and image on the screen break away from each other. At the final climax, the hands on the screen pull the performers down to the ground behind the projection screen in sequence, one beat per performer. Try to look as if you are being grasped and pulled to the ground by the giant hands.

## coda: cables

On the beat after the final performer is pulled to the ground, the video cuts to the second camera, a simple webcam with a wide angle lens, laying on the ground with the performers. The image of the screen is of the performers on the ground laying in the cables under the table, and behind the screen (places the audience has not seen). In the final 1 minute of the piece, slowly crawl, or slither away from the screen and camera. The impression should be that you have been "disappeared" by the hand on the screen, and are now inside the machine, or in the miniature theater space that was established through the first 3 scenes.

# prelude: transition to scene 1

C

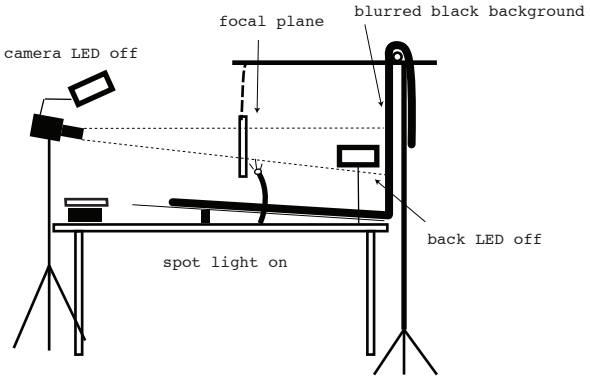
1) position camera and check system,
when ready cue A & B

A & B

10′

2) put on black long sleeves, black gloves in unison,

3) pick up plastic sheets, and compress them so they
are hidden in your hands



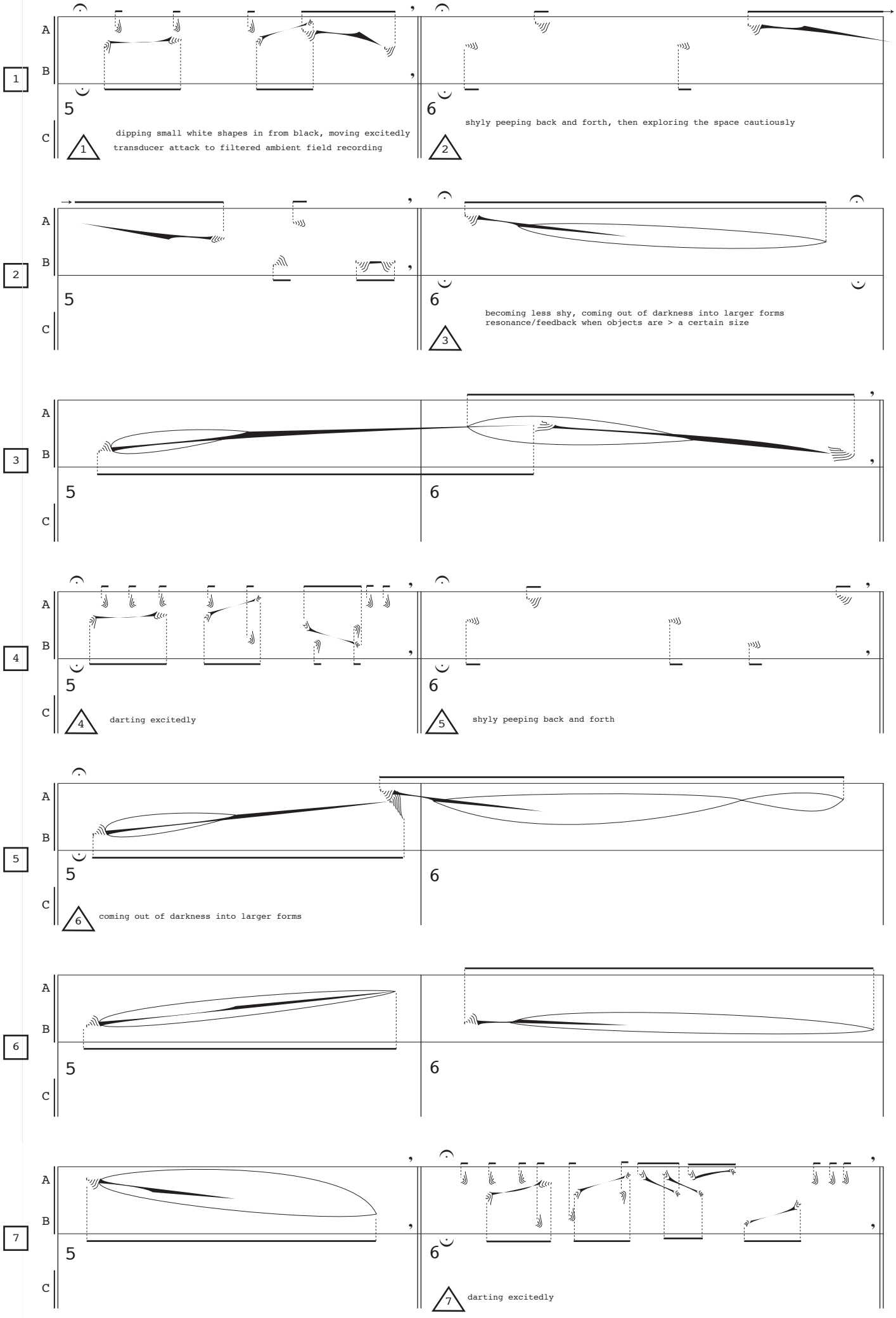

camera positioned within frame dimensions,
and focused at the frame, so that things are
in perfect focus when at the frame.

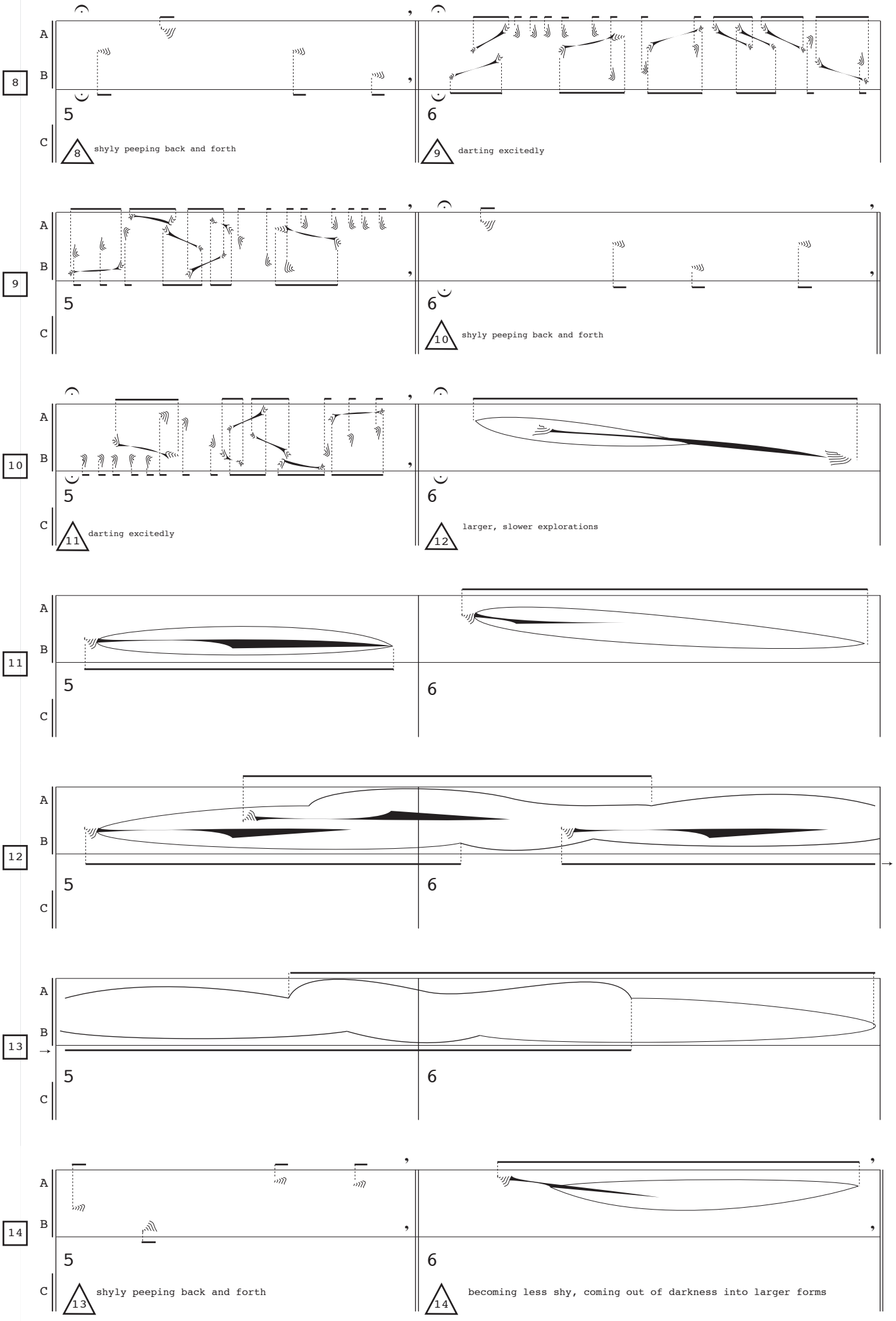
no frame should be visible on the camera.

if necessary cover landscape platform with
black fabric

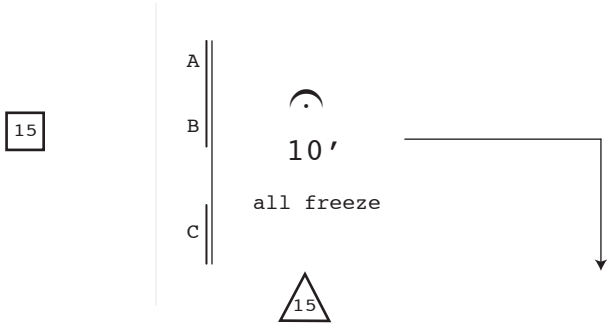
♩= 51

# scene 1: amoebas




8
A
B
C
5
6
8
shyly peeping back and forth
9
darting excitedly
9
10
shyly peeping back and forth
10
11
darting excitedly
12
larger, slower explorations
11
12
13
14
shyly peeping back and forth
becoming less shy, coming out of darkness into larger forms

# transition to scene 2:




C

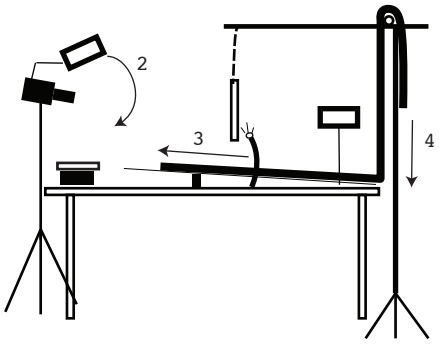
1) reposition frame spotlight at box

3) rotate camera down to box

A & B

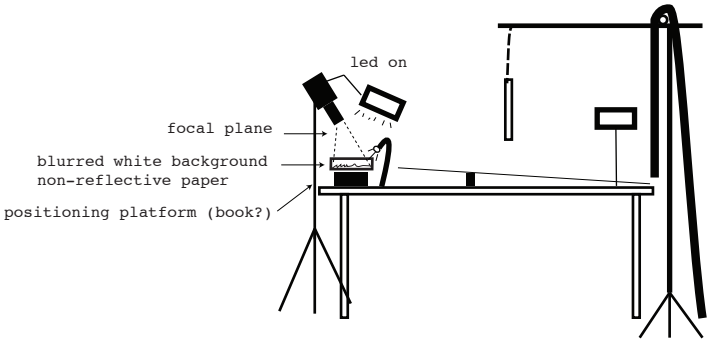
2) take off black gloves and put on white gloves in unison

4) shift black fabric back to expose white platform



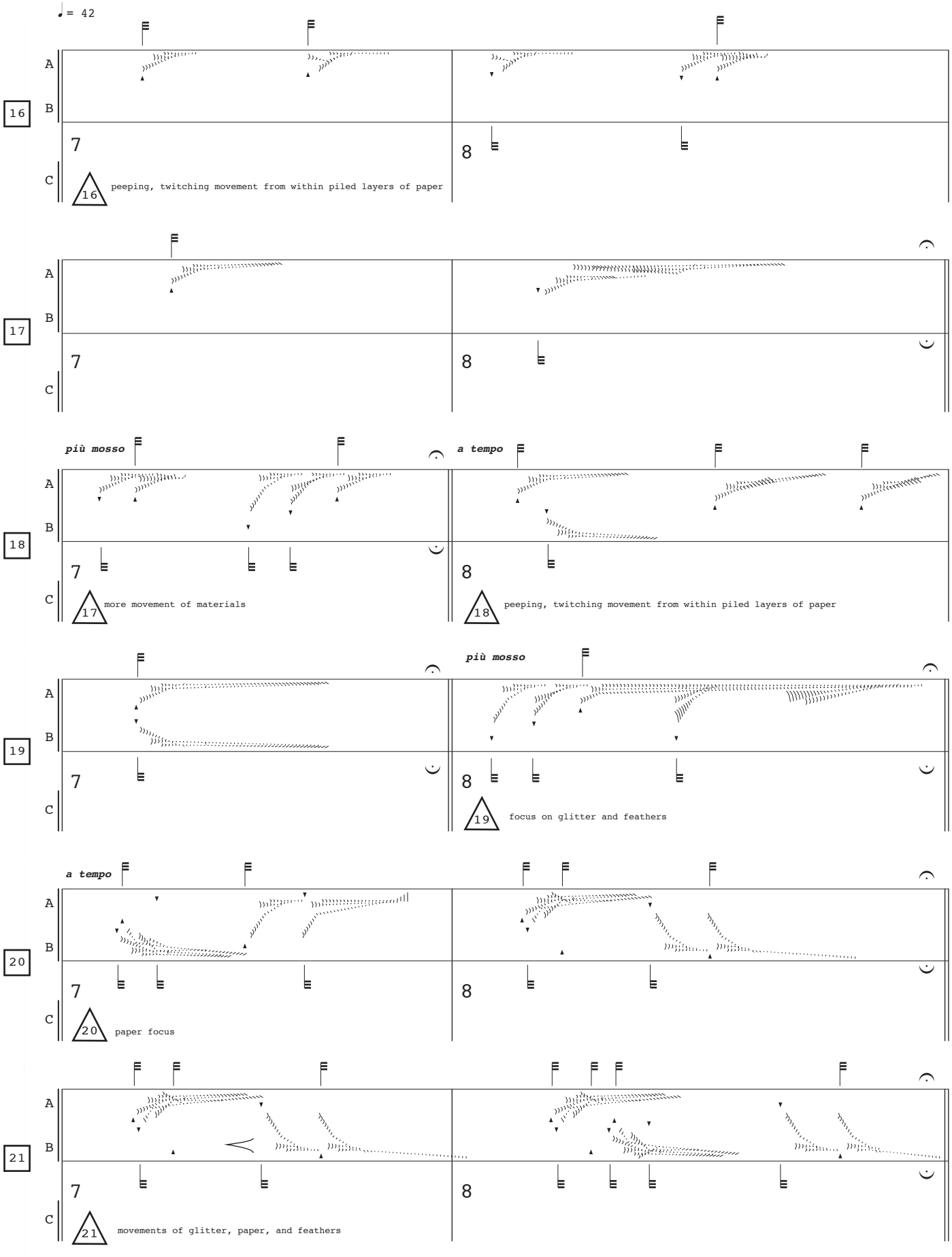

5) turn on camera mount LED light (unison) 5) turn on spotlight at box

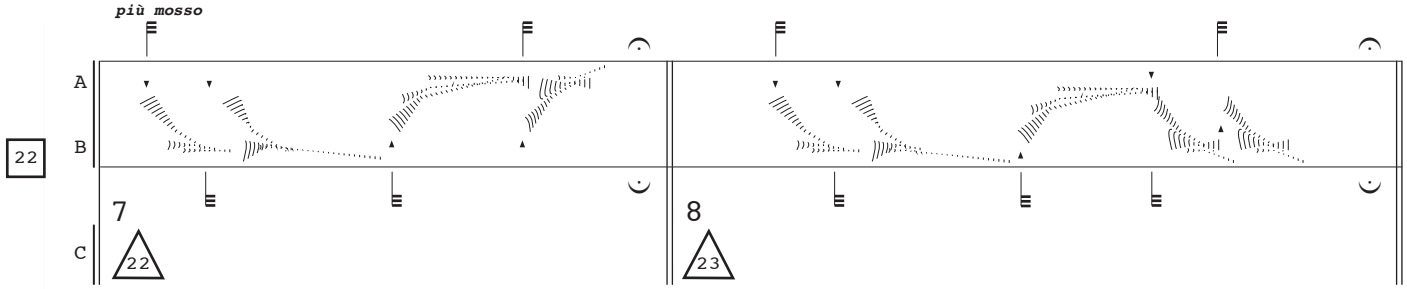
6) check camera image and focal plane



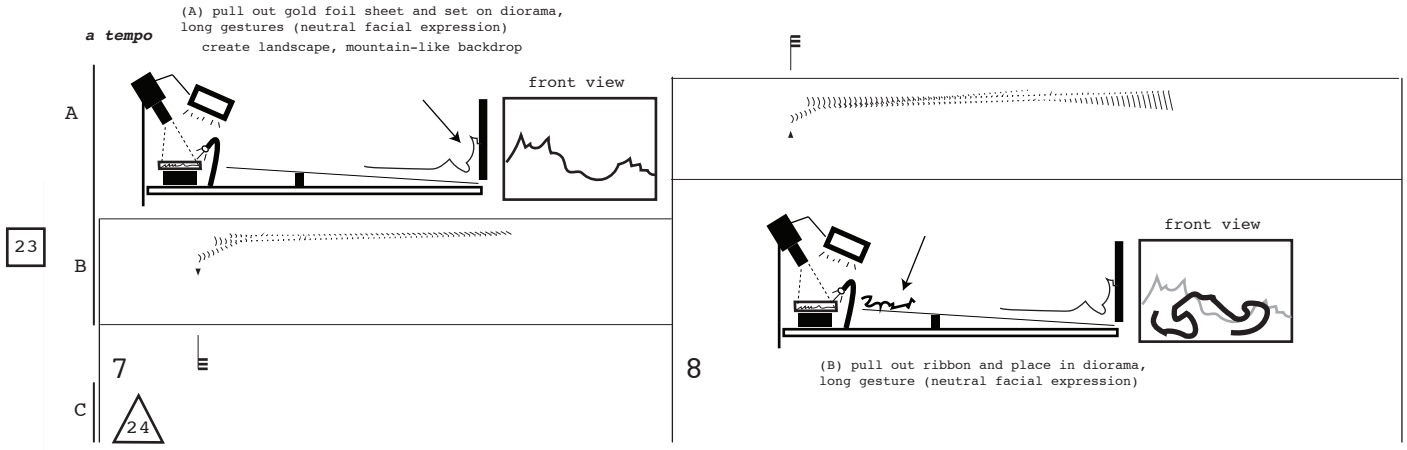
# scene 2: seeds

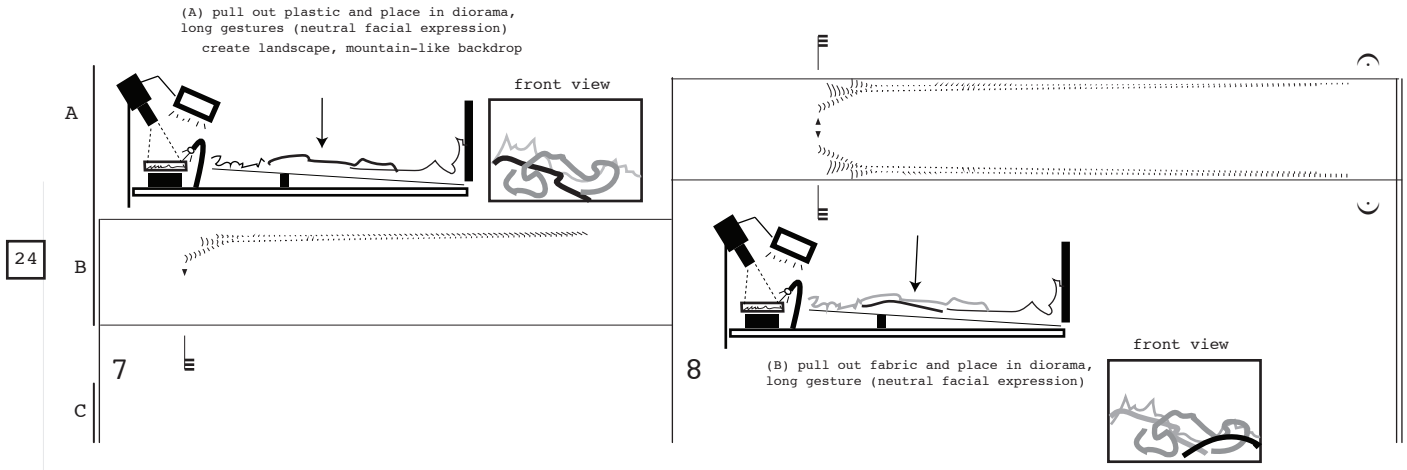
black paper particles, clustered against white background,
sudden, slight, sporadic movements trigger sound envelopes

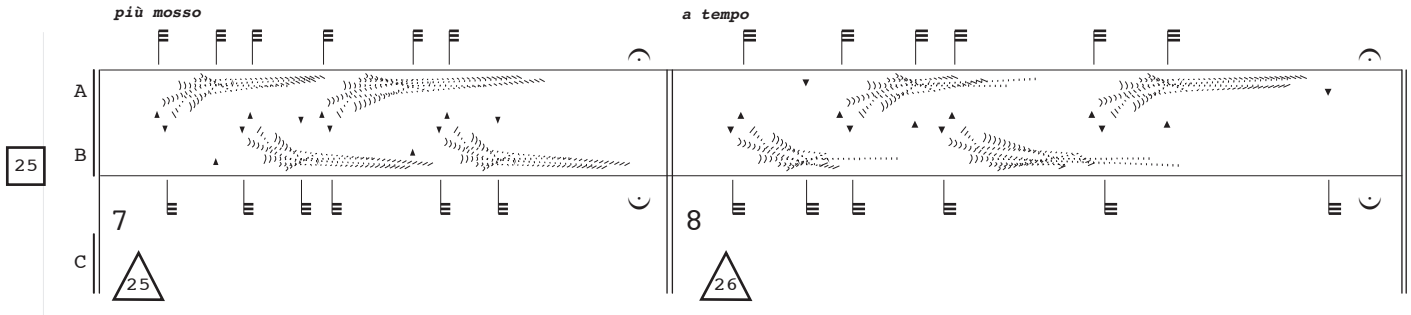




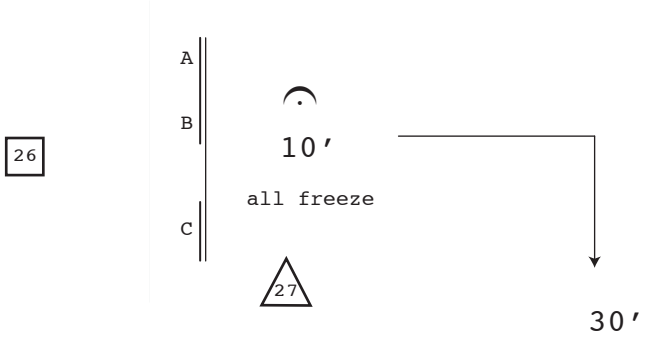

*** update: you may want to preset the landscape before starting the piece to make this go faster
*** but it may be visually interesting to see the colors from the light box expand into the colors of the landscape... more details coming



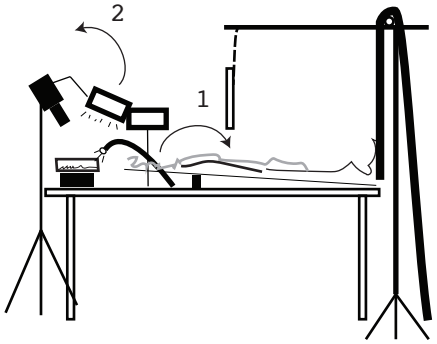



# transition to scene 3:



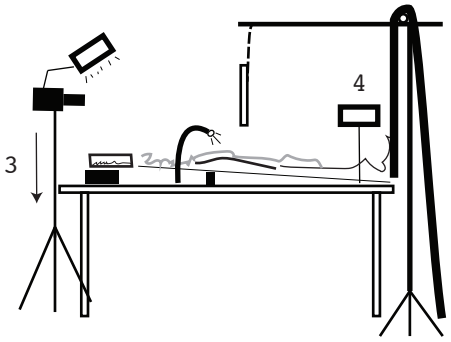

1) reposition spotlight

2) rotate camera head up

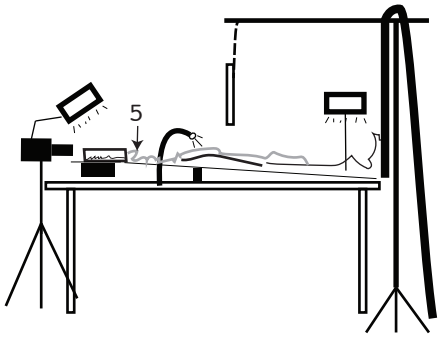



3) lower tripod height

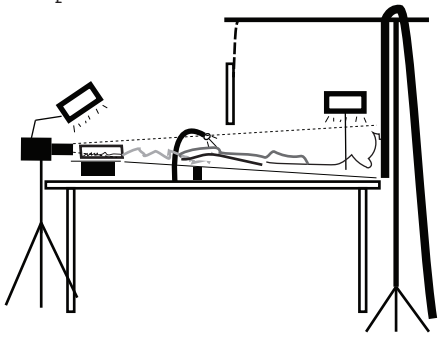
4) reposition LED spotlight




5) reposition ribbon so that it leads close to the camera lens

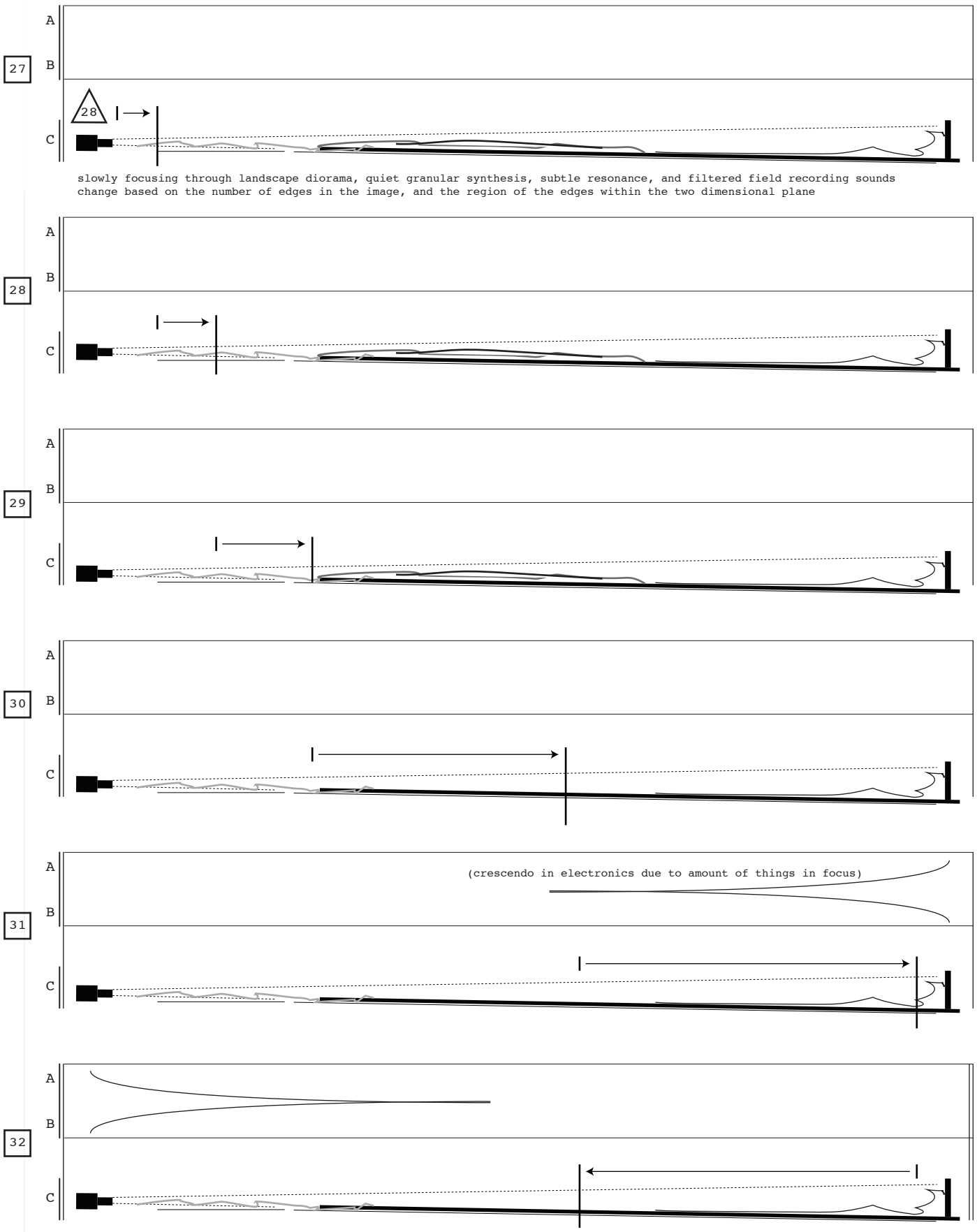


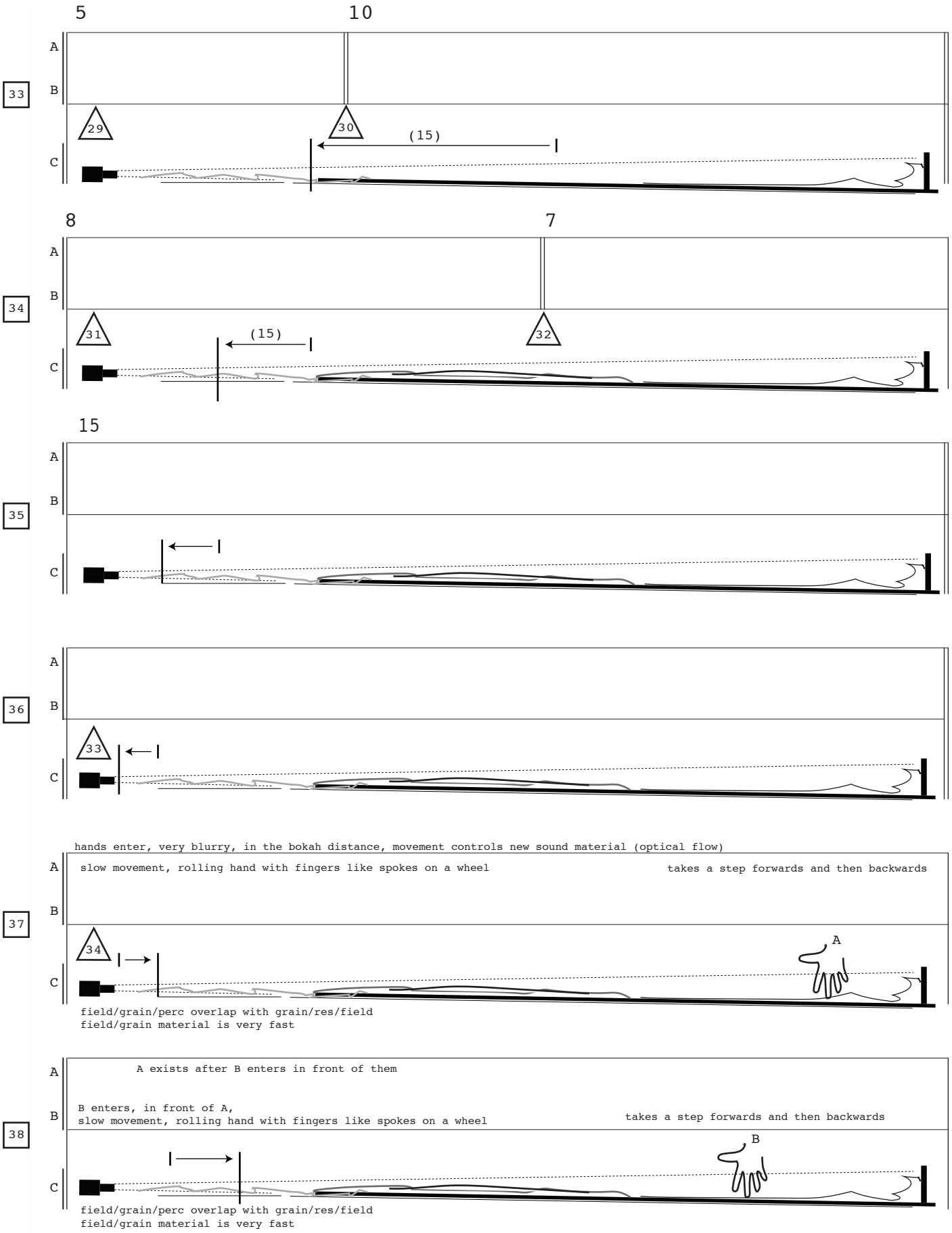

6) adjust camera image, and set focal depth to minimum



♩= 62

# scene 3: landscape



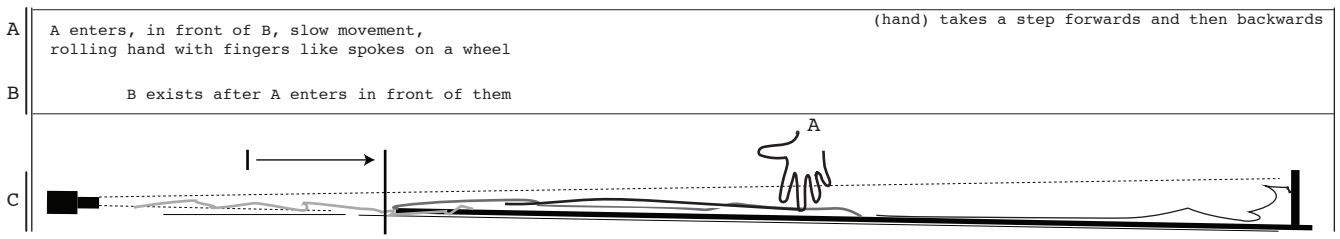

5
10
A
B
33
29
30
(15)
C
8
7
A
B
34
31
(15)
32
C
15
A
B
35
C
A
B
36
33
C
hands enter, very blurry, in the bokah distance, movement controls new sound material (optical flow)
A
slow movement, rolling hand with fingers like spokes on a wheel
takes a step forwards and then backwards
B
37
34
A
C
field/grain/perc overlap with grain/res/field
field/grain material is very fast
A
A exists after B enters in front of them
B
B enters, in front of A,
slow movement, rolling hand with fingers like spokes on a wheel
takes a step forwards and then backwards
38
B
C
field/grain/perc overlap with grain/res/field
field/grain material is very fast

39

A enters, in front of B, slow movement,
rolling hand with fingers like spokes on a wheel

(hand) takes a step forwards and then backwards

B exists after A enters in front of them

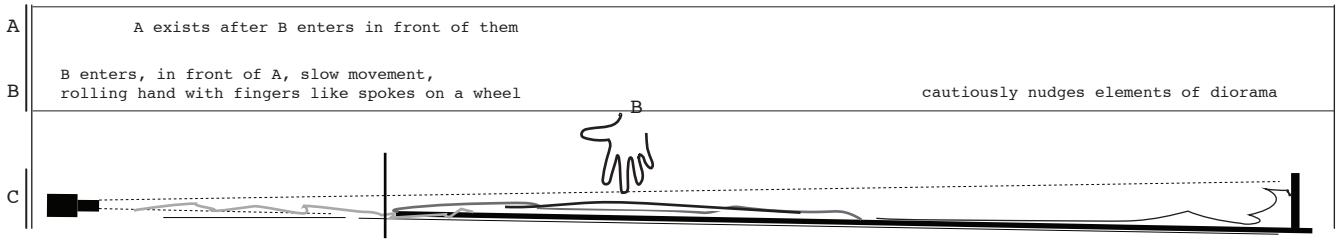



40

A exists after B enters in front of them

B enters, in front of A, slow movement,
rolling hand with fingers like spokes on a wheel

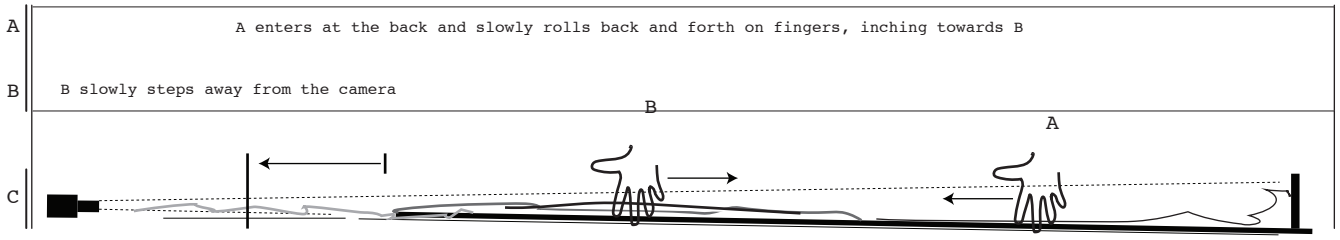
cautiously nudges elements of diorama




41

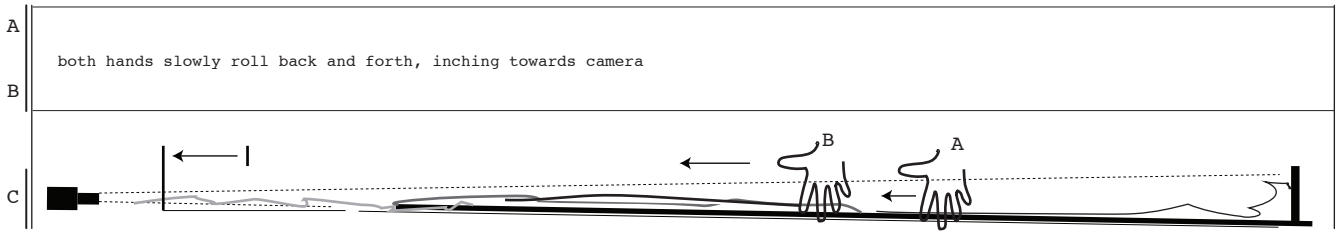
A enters at the back and slowly rolls back and forth on fingers, inching towards B

B slowly steps away from the camera



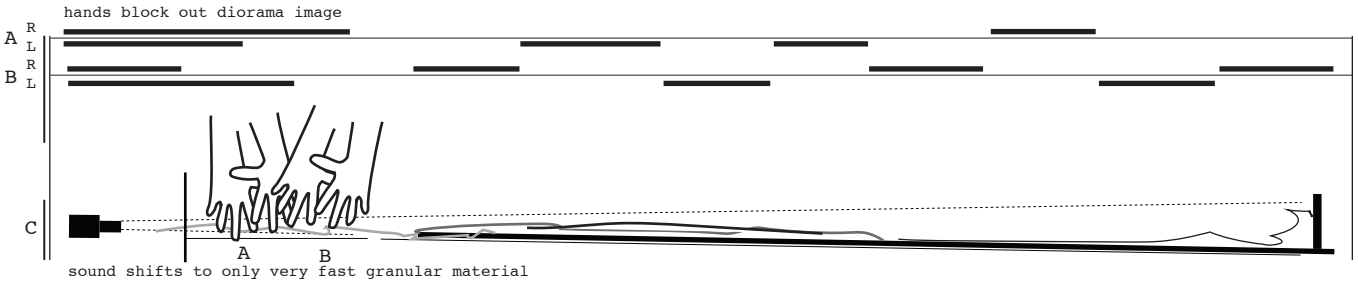

42

both hands slowly roll back and forth, inching towards camera




43

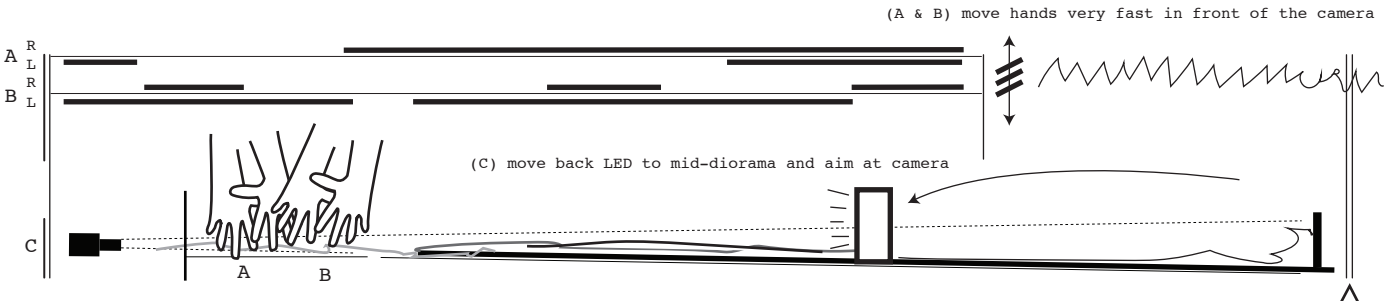
hands block out diorama image




sound shifts to only very fast granular material

44

(A & B) move hands very fast in front of the camera




(C) move back LED to mid-diorama and aim at camera

35

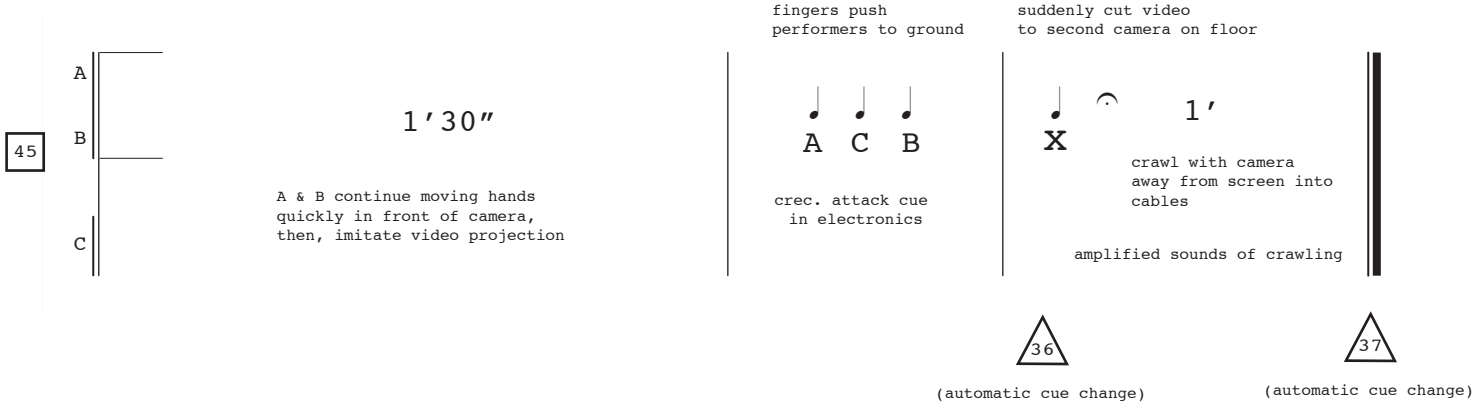
cut to pre-filmed material
A & B continue moving hands
quickly in front of camera

## scene 4: hands

The final saturated granular sounds from the diorama section are the opening of the video, providing a smooth transition.

On the screen, the prerecorded movie plays, performers should study the movie and mimic the movements for ca. 1’30”, the impression should be as much as possible that the performers are still controlling the screen.

Gradually the performers may break away from mimicking the movie, to show that they are actually not controlling the screen.

At the end of the 1’30” prerecorded video, the hands on the video pull the performers one by one down on to the ground behind the screen, hidden from the audience’s view.

## coda: cables