

# Tympanic Touch

a multi-sensorial piece for two performers and a game-system

marko ciciliani 2017

## “Tympanic Touch” a multi-sensorial piece for two performers and a game system

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approximate duration: 15 minutes.

This piece was written for *Schallfeld Ensemble* at the occasion of the *Novalis Festival* in Zadar/Croatia in August 2017. It has been composed as part of the artistic research project GAPPP, funded by the Austrian Science Fund as AR364-G24.

The title “Tympanic Touch” refers to the tympanic skin of the human hearing system. The piece focusses on sounds that are produced with materials that have very different surface characteristics: smooth, soft, shaggy, rough etc.. The intention of the piece is to offer the experience of haptic sensations via various senses, hence it is referred to as a multi-sensorial piece:

The materials are used as sound sources and are played in such ways that the surface characteristics are reflected in the sounds. Apart from the (1) **sonic** translation of the haptic impressions, the audience is also given the possibility to (2) **touch** the same materials that are used by the performers. This is achieved by handing an envelope to each audience member which contains one of the materials. At a later point in the piece, the used materials will also become (3) **visible** as in a video. Close up photographs of the materials are used so the surface characteristics can be also experienced through vision.

### Setup:

Two players, further on referred to as **playero** (player-zero) and **player1** (player-one), are seated at two tables that are symmetrically placed apart from each other, e.g. one table could be positioned on the left side of the stage area, the other on the right side. The performers must position themselves in such a way that they can not see the other performer's actions.

Each table is equipped with 2 omnidirectional condenser-microphones on a table stand with a so-called stereo-bar. The microphones are positioned at 90° to each other with a distance of approx. 15cm. All actions with the materials need to be performed in between these microphones which are used for amplification as well as to feed the signals into the computer-system, from now on referred to as the **game-system**. In addition, each table is equipped with a contact microphone which is used for detecting when the performers knock on the tables.

Each player has a so-called “Knocker” assigned to them. These are solenoids that are controlled by the game-system and thus acting autonomously. The two Knockers can be positioned on the tables of each player. They can be also placed further away from each player but it's important that 1) there is a clear spatial separation between the two, and 2) that each player can clearly hear her Knocker and distinguish it from the other Knocker. Fig.1 shows the Knockers.

On each table a webcam is positioned. It is used for registering the used materials with the game-system. This will be explained further below.

Each performer also has a tablet (e.g. an iPad) on their table through which the game-system informs them about the momentary status of the piece as a point of orientation. This will also be explained further below.



Fig.1: the two “Knockers” and their controller

A quadrophonic sound system is used in this piece. Thereby the two speakers on the left are assigned to player0 and the right two speakers to player1.

#### Materials:

The almost exclusive sound sources of this piece are 9 materials that each performer uses. The 9 materials have different surface characteristics which has to be revealed by rubbing the materials against each other. Since this entire piece is about the sensation of touch and how it can be made perceivable to other senses, the performers should at all times pay attention that the sounds they produce with the materials, also reflect its surface characteristics.

Fig.2 shows the different materials. They are ordered in three groups of three materials, that are arranged vertically on the image. Hence the left column forms a group, the middle column and the right column. Within each group the arrangement of the materials from bottom to top corresponds to smooth to rough. The materials in the left column consist of three different sorts of paper. The middle column contains materials made of fabrics. The bottom one is made of synthetic material. The two above are material from a carpet and felt. The right column consists of sand-papers of different grades, the smoothest one again positioned on the bottom, the harsher ones above.

As part of the piece, the performers will be required to recognize what material is being used, solely on the basis of the sound they produce. Apart from identifying the exact material, they also have to distinguish the identities of the three separate groups.

The game-system can not differentiate the used materials based on the sound. For the piece it is essential, though, that the game-system keeps track of the materials the performers are using. Therefore, a webcam is installed on the table of each player. On the back side of each of the nine materials, a so-called *amoeba-fiducial* is attached (Fig.3). With the webcam, the game-system can identify the nine different materials when seeing the corresponding fiducial. It is therefore important that the performers **always** first register the material they want to use by holding the fiducial over the webcam. In addition to the materials, a tenth fiducial is provided. In section 2b) the performers are required to sing single notes. In order to register the use of the voice with the game-system, the single fiducial has to be used.

#### The Game:

“Tympanic Touch” is based on game principles. The two performers are competing against each other during the entire performance. The piece consists of 8 sections which are explained in all details further below. Two of the 8 sections are electronic solo sections. All other 6 sections consist of games with particular tasks and goals.

It is important that the performers realize the piece while being aware that they are playing a musical multimedia piece and a game at the same time. Both aspects have to be taken into consideration to find a valid interpretation of the piece. Only following the rules of the game will not automatically deliver a musically satisfying realization. Only proceeding by musical criteria is not



Fig.2.: the nine different materials used



Fig.3.: the back side of one of the materials, showing the amoeba-fiducial

going to work either.

As mentioned above, the game-system informs the performers via a tablet about the section they are in and about the momentary status of the game. Four sorts of information are provided. On the top of the display, the section is shown that the musicians find themselves in. Underneath the current total score is displayed. In the lowest line information about the next necessary actions is provided. In addition there is a green circle that is at times activated. It indicates in turn-based games which player has to act next.

The content of the score should be memorized so that the performers can play the piece solely with the tablets as prompting device and memory aid.

#### The Form:

“Tympanic Touch” consists of 8 sections, that have the following names and numberings:

**Section 1)** the piece always begins with this section. The order of the following sections is partly determined by the outcomes of the performer's play.

**Section 2)** this section occurs in two forms, which are labeled 2a) and 2b). They are almost identical. The b) version is more compact and shorter.

**Section 3)** this section also occurs in two forms, 3a) and 3b). The b) version comes towards the end of the piece (as the second-last, or last section). It is the only section in which video is used.

**Section 4)** this section occurs only once, it is related to the sections 2a) and 2b).

**Section E)** this section is for electronics alone, hence the symbol E. It also comes in two versions, labeled Ea) and Eb).

There are 17 possible orders that the sections will occur in:

"1", "2a", "3a", "2b", "Ea", "4", "3b", "Eb"

"1", "2a", "3a", "2b", "Ea", "4", "Eb", "3b"

"1", "2a", "3a", "4", "Ea", "2b", "3b", "Eb"

"1", "2a", "3a", "4", "Ea", "2b", "Eb", "3b"

"1", "2a", "3a", "Ea", "2b", "Eb", "4", "3b"

"1", "2a", "3a", "Ea", "4", "Eb", "2b", "3b"

"1", "2a", "Ea", "2b", "3a", "4", "Eb", "3b"

"1", "2a", "Ea", "2b", "3a", "Eb", "4", "3b"

"1", "2a", "Ea", "3a", "2b", "Eb", "4", "3b"

"1", "2a", "Ea", "3a", "4", "Eb", "2b", "3b"

"1", "2a", "Ea", "4", "3a", "2b", "3b", "Eb"

"1", "2a", "Ea", "4", "3a", "2b", "Eb", "3b"

"1", "2a", "Ea", "4", "3a", "Eb", "2b", "3b"

"1", "2a", "Ea", "4", "Eb", "3a", "2b", "3b"

"1", "Ea", "2a", "3a", "2b", "Eb", "4", "3b"

"1", "Ea", "2a", "3a", "4", "Eb", "2b", "3b"

"1", "Ea", "2a", "Eb", "4", "3a", "2b", "3b"

As mentioned before, the order is determined according to the development of the piece. All sections except for the electronic ones Ea) and Eb) are short games, where the players compete against each other in various ways. The following section is selected according to the context and to who won the previous one.

Audience:

At the beginning of the concert, each audience member receives an envelope containing a sample of one of the nine materials that are played by the performers and a tooth-pick. The audience members should not to open the envelope before the piece starts. The sounds that the opening of the envelopes and the taking out of the materials cause, are part of the piece. The audience members are invited to scratch across the material with the tooth pick. Also, the audience members are free to exchange the materials with their neighbors so they experience different surfaces.

The audience has to be informed about this aspect of the performance. This should be achieved by printing the following text on the envelopes:

**Please do not open this envelope before the beginning of the performance of *Tympanic Touch***

Once the piece has started please feel invited to open the envelope. Do not try to suppress the sound that is caused by opening the envelope – it is part of the piece!

Inside the envelope you will find a tooth-pick, and a sample of one of nine materials that the performers are using as sound sources in this piece. The intention of this composition is to translate the surface characteristics of the different materials to the auditory and visual domain. In order to share with you also the haptic experience, this envelope has been handed to you.

Please feel invited to explore the feeling of touching the material. Feel free to contribute sonically to the performance by using the tooth-pick to also explore the sounds that can be produced with the material.

Also exchange the material with your neighbors who likely have found a different sample in their envelope. Don't forget to follow the performance as well :-)

The performance and your personal exploration of the material should complement each other.

If for some reason it is not possible to print this text on the envelopes, the audience can also be informed about this part of the performance by addressing them verbally either just before the performance of the piece, or – better – at the beginning of the concert.

### Tech List:

#### Speaker System:

- quadrophonic sound system with symmetric positioning of the front and back pair
- subwoofer (mandatory!)

#### FOH:

- mixing board with 10 inputs, 4 of which are for omnidirectional condenser-microphones, 2 contact mics and 4 channels from the audio interface belonging to the game-system
- all 6 microphone signals have to be sent to the audio interface of the game system

#### Microphones:

- 4 omnidirectional condenser-microphones, 2 for each table, positioned with a table-microphone stand and a stereo bar.
- 2 contact microphones

#### Video projection:

- size and ratio variable
- possible connections: VGA, HDMI or DVI

#### Additional items:

- 2 Knockers (as displayed in Fig.1), operated by an Arduino Uno. The knockers are large solenoids, powered by a separate power supply.
- 2 tablets with software touchOSC installed
- 2 small tables and 2 chairs for each of the two performers.

#### Note to the sound engineer:

As mentioned above, the use of a subwoofer is mandatory. The purpose of the subwoofer in this piece is to offer yet another haptic experience, namely the experience of sound as vibration on the skin and in the bones. In a number of sections, low rumbling sounds occur that are strongly band limited. They are supposed to be emitted primarily through the subwoofer. The amplitude of the subwoofer has to be adjusted in such a way, that this sound can be experienced in the described way (via skin and bones). This is the main criteria, not the balance with the remaining sound produced in the piece. In other words: the subwoofer can be off balance with the rest of the piece.

## **Section 1**

The piece always starts with this section. It consists of a turn-based game.

The player starting the first turn is determined randomly and is indicated on the tablets with the green circle.

The chosen player selects one of the 9 materials, and registers it with the game system.

As soon as the material was identified, a message is displayed on the tablet that the recording system has been activated. However, the recording does not start before a sound input above a certain threshold has been detected. Make sure that the recording is not started too early by making an unintended sound.

Now the performer plays a continuous sound by rubbing the 2 sheets against each other. A smooth and continuous sound is supposed to be produced. Pay attention that the surface characteristics of the material are mirrored in the produced sound. The sound is recorded for the duration of 5 seconds. The progress of the recording is also displayed on the tablets. \*)

After the recording was finished, the knockers start to play erratic rhythms for several seconds. The performer keeps playing until the next player starts the response. Then the first sound gently fades out while the second player performer keeps playing.

After the first recording was finished the other player is prompted to respond to the first sound.

The rules for the response are as follows:

Identify the material the previous player used, based on the sound. Respond by choosing a DIFFERENT sound from the SAME group. If this is done correctly, the responding player gains 2 points and is allowed to start the next round.

If the chosen sound is from a different group, the respondent failed and the previous player gains one point. In that case the previous player is also allowed to again start the next round.

If the respondent selects the IDENTICAL sound that the previous player used, it is treated as a DRAW. Each player gains one point and the respondent is allowed to start the next round.

Musically and technically the response takes place in the same way as the beginning of the round: the material is first registered with the game system. When the material has been identified, the recording system is activated but not started until a sound was detected. After the recording of 5 seconds was finished, the result is displayed and the next round can start.

After the evaluation of a round, a synthetic texture starts playing. It fades out as soon as the first recording of the next round starts. This sort of synthetic texture will return several times during the piece in increasingly complex forms. It reflects the score of the two players. The speakers on the left (from audience perspective) correspond to the score of player0, the speakers on the right to the score of player1. For every point a player gains, an additional frequency is added to the texture of the synthesis.

The winning condition for this section is as follows:

One player has to lead by at least one point. Furthermore a total of at least 4 points must have been achieved.

If player0 wins, section 2a) follows, if player1 wins section Ea) is next.

\*) please note that it is vital that the sound is recorded as continuously as possible. This sound forms the basis for the synthesis taking place in this piece and if accidentally silence is recorded, the synthesis will be silent as well.

## Section 2a)

### Introduction to the 4 rhythmic patterns and their responses

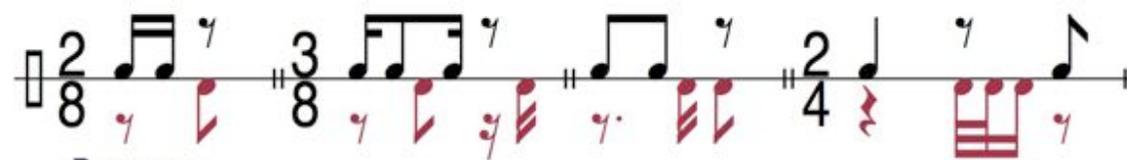
In this section for the first time 4 different rhythmic patterns are used that the players have to familiarize themselves with. They are going to be used in sections 2a), 2b) and in the most extreme way in section 4).

The principle is simple: Whenever the knocker attributed to one of the players play one of the rhythmic cells, the corresponding player has to complete the cell as notated, by knocking on her table.

The 4 patterns, including the correct responses (in red), are:

1)                      2)                      3)                      4)

**Game System:**



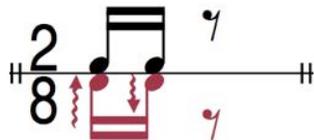
**Response:**

### About Section 2a):

This is a variation of the game "paper, scissor, stone", hence it is a chance based game where the players cannot influence the outcome. Certain materials defeat other ones. Every single material has the equal chance to win or loose.

Both performers start simultaneously in this game. The first "round" of this section is started by selecting any of the nine materials and registering it with the game system. As soon as both players registered a material, the knockers start to play dense rhythms that are composed of the 4 rhythmic cells. AT THIS POINT THE PLAYERS DO NOT RESPOND TO THE PATTERNS! These rhythms are composed as follows:

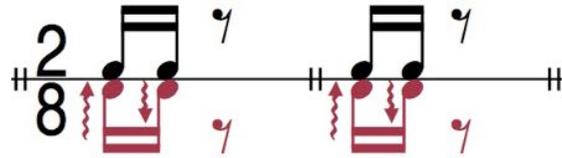
- the first time, both knockers are starting by playing 2 x the 2/8 pattern Nr. 1. Then each knocker will independently combine 3 x pattern 1), 2 x pattern 2), 2 x pattern 3) and 1 x pattern 4) in random order. Although the order is randomized, the total duration is not. It is exactly 11/4 or 22/8, which the performers have to count in order to join the knockers for an additional pattern 1), at the end of this rhythmic sequence. At this point the performers quickly and impulsively rub the selected material against each other with a vertical motion, in between the two microphones:



A synthetic tone starts to play on the side of the player who came out as winner of this round, unless if both players happened to choose the identical material. In that case it is a draw and a low rumbling sound will start instead of a synthetic pitch. In that case the rumble stays on all until the end of the next round.

The next round is started identically to the previous time, by selecting a different material and registering it with the game system. As soon as both players registered their material, the knockers will start to play again, this time in a slightly faster tempo.

- The second time, the structure of the rhythm is identical to the first time, with one small difference. Again, the knockers will start by playing 2 x pattern Nr.1. Then they will again continue with the same selection of patterns in random order, that will again sum up to a duration of  $11/4$  or  $22/8$ . The only difference in comparison with the former round is, that this time the rhythmic sequence will conclude with 2 x Pattern Nr.1), as opposed to only 1 x. The players rejoin accordingly, by playing:



Again, a synthetic tone starts to play on the side of the player who came out as winner of this round, or a rumble will occur if it is a draw.

A third round is played which is again triggered by registering materials. Again, the tempo of the rhythmic sequence will be slightly faster than the previous time. The beginning and the main body of the patterns are the same, this time the sequence ends with 3 x Pattern Nr.1), which is again rejoined by the players:



Most of the time, not more than three rounds will be played before the section concludes with the so-called "knocker-duel". However, if the players happened to have played several draws, additional rounds might be added. The concluding pattern 1) will repeated one extra time with each turn.

The condition that has to be fulfilled in order to proceed to the duel is that at least three rounds must have been played and that one player has to have achieved more points than the other.

#### The "Knocker-Duel":

During the "Knocker-Duel" the winner of the previous rounds has to respond to the patters played by her knocker as it has been described above. The tempo, is 4 times slower, than the preceding rhythmic passages. Again, the same collection of patterns will be played in random order, preceded by 2 x pattern 1). If the winner performs well, she can gain up to three points. If she performs badly one point might be deducted from her score.

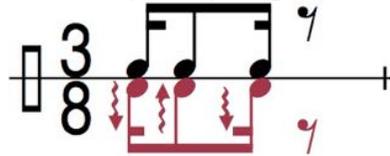
During the "knocker-duel" the other player can try to distract the winner by playing additional rhythms with her material, in the rhythmic fashion as in the previous patterns. The rhythms should be improvised. They should however fit into the 16-th grid or a triplet 8-th grid of the slowed down tempo.

Section 2a) will be followed by Section 3a) if player0 comes out as the winner of this section, or Section Ea) if player1 is the winner.

## Section 2b)

This section is set up identically as Section 2a) but it comes later in the piece.  
There are a number of important details, that are different in this section, though.

Here, the rhythmic passages are starting with merely 1 x Pattern 1). After that again both knockers will play a random succession of patterns, but this time the selection consists of merely one pattern of each kind: 1 x pattern 1), 1 x pattern 2), 1 x pattern 3) and 1 x pattern 4). Hence the overall duration of the random succession is only  $12/8$  or  $6/4$ ! The conclusion of the rhythmic passage, where the players join in with their materials is this time pattern 1):



Like the previous time, with every round this concluding measure is repeated an extra time: it is played only once during the first round, twice during the second, and three times during the third round. Generally speaking, the tempo is also faster than in Section 2a). The synthesis that is started after each round (unless a draw resulted from the round) consists of two pitches, instead of one. If there is a draw, again the low rumbling sound will occur.

### Use of voice

An important element of Section 2b) is that the players are required to use their voices **at least once**, by singing a note on a vowel, with no specific pitch, as a replacement for the actions with the material

In this situation the performers will thus sing for the duration of the concluding measure after a rhythmic sequence, including possible repetitions of this measure:



This is the only time in the entire piece that the voice is used.

For the registration of the voice, a single fiducial marker is prepared so the game-system can process this action accordingly. In the scoring system, the voice has the function of a joker. It beats any of the other materials, however, if both performers happen to use the voice at the same time, they will neutralize each other and will both lose a point in the internal point system of this section (thus not in the official total score!). In most cases this will lead to an extra round that will have to be played.

As is Section 2a), the winner of this section performs the "Knocker-Duel". This is again following exactly the same principle as in Section 2a), however, the pool of randomly chosen patterns that will be played by the knocker and that the winner will be required to adequately respond to, is 3 patterns of each kind: 3 x pattern 1), 3 x pattern 2), 3 x pattern 3) and 3 x pattern 4).

Section 2b) will finish after the "Knocker Duel" with a short solo of electronics that lasts in seconds as long as the sum of points by both players in the official score multiplied by 2. Depending on the context, Section 2b) will be followed by one of the Sections 3) or one of the Sections E).

### Section 3a)

Section 3a) is related to Section 1). It also challenges the performers to identify material by listening to their sound. Contrary to Section 1), in this section the players do not respond to the material being played by their opponent, but to sounds produced by the game system itself.

As soon as one of the performers identifies a sound, she knocks on her table. Subsequently she has to take the SAME material that she thinks was played by the game-system, register it, and then play it through the microphones in the same smooth fashion as in section 1). If she identified the sound correctly, she will be rewarded two points. If she failed to identify the correct sound, but guessed the right group, she will still get one point. If she fails to recognize the material and the group, the opponent is rewarded with one point.

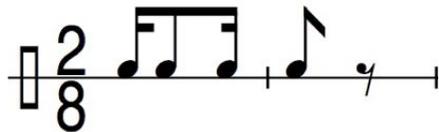
#### Details about the sounds played by the Game-System:

At the start of the piece the game-system reads pre-produced sound samples of all materials. During the course of Section 1) a part of these recordings is overwritten by the materials the performers choose to play – this is why the 5 second recordings have been registered in section 1).

The sounds played in Section 3a) are all based on these recordings. The game-system generates a number of so-called spectral freezes based on each of these recordings. A spectral freeze takes a tiny snippet from a recording, analyzes its spectrum and resynthesizes this specific constellation of frequencies and amplitudes as a static sound. This typically results in sustained sounds of noise with specific colorations.

When Section 3) starts, the game-system starts by playing slowly progressing waves of sound, that are fading in and out. These sounds consist alternately of spectral freezes, and the actual recording of the material. It is important to note that also the spectral freezes reveal characteristics of the specific material, however, in practice, it is much easier to identify the sound based on the actual recording.

Once a player knocked, the material based sounds are faded out and a synthetic sound comes in (which is, in fact, also based on the spectrums of the spectral freezes). The player who knocked is prompted to register the material and then to play it. An evaluation follows and the result is marked with a sound. If this result is negative (wrong material and wrong group identified) a long rumbling sound will occur. If the group was identified correctly but the wrong material was chosen, both knockers will knock once and a short rumble will occur. If the result was correct, the knockers will play the following rhythmic cell:



After a short delay this cycle of events then restarts. Several rounds are performed until the following condition is met:

If one of the two players gained at least 3 points in this section, and one player gained more points than the other one in this section, the next section will follow. Typically 3-4 rounds will be played in Section 3a).

Depending on the context, either Section 2b), Section 4) or one of the E Sections will follow Section 3a).

### **Section 3b)**

This section comes close to the end of the piece (either as last or second-last section). It is the only section in which video is used. For this section the performers stand up and face the screen. What is displayed on the screen is a fast succession of zoomed in photographs of the nine materials that have been used in this piece. Like in Section 3a), the task is to identify the material that is played by the game-system. The game-system thus plays a succession of spectral freezes and actual recordings, identically as in Section 3a), only with shorter fade-in/out times.

Instead of answering to the game-system by playing the material that has been identified, in this section the performers have to knock on their table in the moment they think they see on the video screen the material that is being played through the speakers. The moment they knocked, the succession of the materials slows down and stop at the material when the knock occurred.

Following the knock, and during the process of slowing down the film, a single synthetic pitch is generated and the material-based sound texture (consisting of the freezes and the recordings) is faded out. As soon as the film comes to a halt, the evaluation will take place. Similarly as in Section 3a) three different outcomes are possible, but they are linked to different sounds:

If this result is negative (wrong material and wrong group identified) a sustained rumbling sound will occur. If the group was identified correctly but the wrong material was chosen, the sustained low rumbling sound will be played in addition to a sustained synthesized chord. If the result was correct, only a sustained synthesized chord will be heard. This synthesized chord is based on the spectrum of one of the spectral freezes that were obtained with this material.

It is important to note that all of these sounds do not stop by themselves until the next round is started. The musicians start the next round by knocking on the table again. They decide on musical grounds whether they want to do this swiftly or whether they deliberately delay the next round in order to let the sounds, that came out as a result of the evaluation, ring on for longer.

Several rounds are performed until the following condition is met:

If one of the two players gained at least 3 points in this section, and one player gained more points than the other one in this section, the next section will follow (or the piece will end, if this is the last section of the piece). Typically 3-5 rounds will be played in Section 3b).

If Section 3b) is not the last section of the performance, Section Eb) will follow, independently on how the players performed.

#### Section 4)

This section is related to Sections 2a) and 2b). The piece could be described as a condensed accumulation of "Knocker-Duels". Therefore it is essential that the performers respond correctly to the patterns played by the game system. Here are the patterns again (identical to the ones used in Sections 2a) and 2b)):

1)                      2)                      3)                      4)

**Game System:**

**Response:**

Three rounds are played in this section. Player<sub>0</sub> and Player<sub>1</sub> are simultaneously performing duels with their knockers independently of each other. During the first two sections the tempo of one player will be in a 3:2 ratio to the tempo of the other player. The player who leads the total score gets the faster tempo first.

Again the players have to respond correctly to the patterns that were selected by the game system. Their performance is monitored and scores will be added or subtracted accordingly.

After each duel, a solo played by the knockers will take place, which is based on the scores that have been achieved in this section. The solos are always started with 4 x Pattern 1), which the players don't need to respond to. After that, the knockers are playing ongoing 6-tuplets with varying accent structures.

Here is the composition of the patterns that the performers have to respond to:

During the first round the rhythmic succession is composed as follows:

In the slower tempo it starts with 2 x Pattern 1), followed by a random succession of the following elements: 4 x Pattern 1), 3 x Pattern 2), 3 x Pattern 3) and 2 x Pattern 4).

In the faster tempo it starts with 3 x Pattern 1), followed by a random succession of the following elements: 6 x Pattern 1), 5 x Pattern 2), 4 x Pattern 3) and 3 x Pattern 4).

Both rhythmic successions have exactly the same duration, hence both players start and end simultaneously.

During the second round, which is slightly faster, the player who previously had the faster tempo will now have the slower tempo, and vice versa.

The rhythmic succession is composed as follows:

In the slower tempo it starts with 2 x Pattern 2), followed by the same random succession as in the first round.

In the faster tempo it starts with 3 x Pattern 2), followed by the same random succession as in the first round.

During the third round, which is again slightly faster, both player will play in the faster tempo.

The rhythmic succession is composed as follows:

It starts with the succession Pattern 2) - Pattern 1) - Pattern 2) and Pattern<sub>1</sub>, followed by a random succession of the following elements: 12 x Pattern 1), 10 x Pattern 2), 8 x Pattern 3) and 6 x Pattern 4).

The winner of all three rounds gets 2 points. The looser's score depends on the performance. If it was relatively close to the performance of the winner, she also gets 1 point.

However, if the performance mediocre she gets no point. If the performance was very weak, she is punished by getting a point deducted.

After three rounds the section always moves on. Depending on the context either Sections 3a) or 3b), or one of the E) Sections follows.

### **Section Ea) and Eb)**

The Sections Ea) and Eb) are electronic solos. The performers do not interact with it in any way.

They are short algorithmically generated sections using dense synthesized sounds. The outcome of the sections is based on the current total score of the players. Therefore – inevitably – the sections will differ from each other, since they occur in different places in the piece where different scores will have been achieved. In addition, a difference between Ea) and Eb) is that the latter has amplitude modulations applied to the synthesized sounds.

The durations of the sections are not predetermined, although they usually last between 60 and 90 seconds.

The E Sections are the only ones that can be followed by any other section, except for Section 1), which is always the first one.