

## Playing NoaNoa with Sampo

### Introduction

The piece NoaNoa is written for flute and live-electronics.

This means that the sound of the flute is transformed by the computer and, additionally, the computer plays pre-recorded sound files. To simplify things, not only the sound files, but also the path of the changes of effects are usually pre-recorded.

When the flutist is playing with the computer, it is thus necessary to « trigger » these changes. Most of the time, there is another person to manage the computer environment and trigger the events. An event could be, for instance:

- Change reverb from 0 to 100 and start playing the first sound

The following event could be:

- Change reverb from 100 to 0

However, most of the time, the performer does not really know what is happening when an event is triggered and is therefore not able to act in consequence. This is sometimes addressed by giving the performer an On/Off type pedal for triggering the events themselves. Yet this doesn't guarantee good understanding of what is really happening with the sound, and the performer cannot really influence the execution of the effects. This is even more true when using a contact microphone, placed directly on the instrument. Imagine we want to inject more sound (energy) into the effect at a given time, and then less the moment after. We need to be able to move closer to the microphone and then further away again.

### Sampo

With the Sampo, we will no longer simply trigger events, but we are going to actually play the desired effects as indicated by the composer in the score.

To do this, we need to understand what the composer wants and how to obtain these effects using the pedals.

We are talking about a transcription, and not the execution of the original computer program. This transcription helps the performer understand and control the effects, the same way they understand and control the sound of their instrument.

Once we understand how to obtain the effects using pedals, we simply need to know at which moments to play the effects, and we will be able to perform them again and possibly adjust the effects according to the space e.g.

The piece NoaNoa uses 3 effects:

- Infinite Reverb
- Speech Reverb
- Harmonizer

Additionally, there are sound files to trigger.

In short, there are only two types of reverb used throughout the piece, and the harmonizer effect is only used once, at the end of the piece.

The score for NoaNoa indicates the numbers of events just beneath the staves, including sometimes additional explanations:

Example 1: Effect – start of reverberation

Example 2: Effect – end of reverberation

It is indicated here (Example 1) that event number 17 will start the reverb which should continue until measure 53. Then the example 2 (measure 53 precisely) indicates that the event will stop the previously triggered reverb.

Example 3: Play a sound file

Here it is indicated that event number 8 will trigger a file with pre-recorded flute sound.

## Preparing the piece

We are now going to learn to play the three effects and trigger and manage the sound files.

### Assignment of the pedals

Pedal number	Effect	Function
2	InLev	Lets the flute sound into the effects
3	Decay	Determines the duration of reverberation
4	TpLevel	Volume of played sound files
5	TpPlay	Triggering and control of sound files
6	Transp	Transposition
7	-	not used
8	-	not used

### Starting position for the pedals

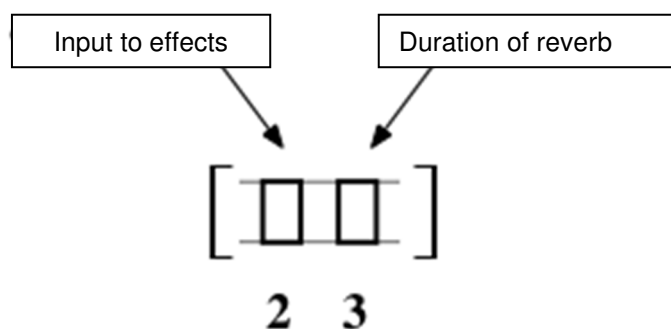
To start the piece, you should place the pedals in a particular position.



## Learning to play the effects in NoaNoa

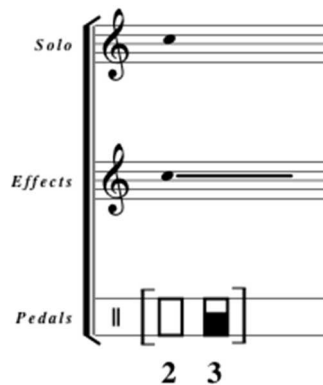
### A. Reverberation

The two types of reverb can be obtained with the first two pedals:



To test the effect, prepare the pedals as in the following example.

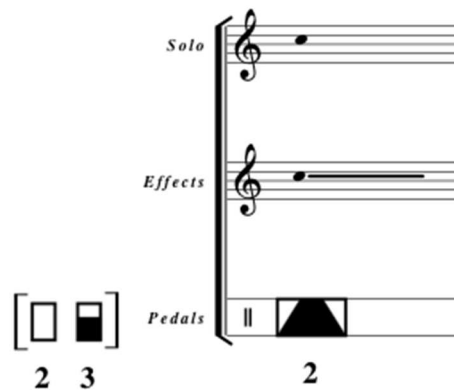
The square brackets indicate that the pedals should already be in this position before you start playing.



Play any note and at the same time move closer to the microphone.

You will not hear any effect, because the pedal 2 is closed and the sound isn't going into the effects.

Now try to open the pedal 2 while you are playing the note.



The graphic indication shows that you should open then close the input level pedal (number 2) relatively fast while playing the note.

Try different positions, closer and farther from the microphone, while paying attention to the general levels (the three bars at the very right of the screen indicating input and output levels) to avoid distorting the sound – you should always listen to the sound result and adapt your playing in consequence.

There are in fact several parameters to control:

- Volume of the flute that you are playing
- Distance of the flute from the microphone
- The movement of the input level pedal (pedal nb 2)

Each of these three parameters modifies the final result. Therefore, you need to experiment and listen to the result.

If you leave the input into effects open (you don't close pedal nb 2), you will have reverb on every note you play.

The diagram shows three staves: Solo, Effects, and Pedals. The Solo staff has a treble clef and a single note with a staccato mark. The Effects staff has a treble clef and a note with a staccato mark. The Pedals staff has a double bar line, a black square, and a double bar line. To the left of the Pedals staff are two boxes labeled 2 and 3, both containing black squares.

To stop the reverb, there are two possibilities:

→ Either you close the input level into effects:

The diagram shows three staves: Solo, Effects, and Pedals. The Solo staff has a treble clef and two notes with staccato marks. The Effects staff has a treble clef and a note with a staccato mark. The Pedals staff has a double bar line, a black square, a double bar line, a white square, and a double bar line. To the left of the Pedals staff are two boxes labeled 2 and 3, both containing white squares.

Once the input level is closed, the sound of your instrument will no longer enter the effects and the reverb will no longer be added.

→ Or you close the reverb itself:

The diagram shows three staves: Solo, Effects, and Pedals. The Solo staff has a treble clef and two notes with staccato marks. The Effects staff has a treble clef and a note with a staccato mark. The Pedals staff has a double bar line, a black square, a double bar line, a white square, and a double bar line. To the left of the Pedals staff are two boxes labeled 2 and 3, both containing white squares.

The result is the same, but in this case the duration of reverberation is brought down to minimum.

Try both examples and compare them.

### Change of reverberation duration

Now that we can change the duration of reverb using pedal nb 3 and control the input level into effects, we can try changing the reverb.

Prepare the two pedals as indicated below and open the pedal 2 as before:

The diagram shows three staves: Solo, Effects, and Pedals. The Solo staff has a single note. The Effects staff has a long horizontal line. The Pedals staff shows pedal 2 as a black triangle that rises and then slowly decays. To the left, a legend shows pedal 2 as an open square and pedal 3 as a solid black square.

You can hear that the duration of reverb becomes very long.

To stop it, you can simply close pedal 3 which acts on the duration. When closing this pedal, you will change the duration to 0, that is, no reverberation. Here is an example:

The diagram shows three staves: Solo, Effects, and Pedals. The Solo staff has a single note. The Effects staff has a long horizontal line. The Pedals staff shows pedal 2 as a black triangle that rises and then slowly decays, and pedal 3 as a black triangle that rises and then falls sharply. To the left, a legend shows pedal 2 as an open square and pedal 3 as a solid black square.

According to the initial conditions, the note will hold for more or less time. Again, experiment with the three parameters: flute volume, distance to the microphone and movement of the pedals, to find the way to obtain the desired sound result.

If you close pedal 3 sharply, you will immediately stop the reverb:

The diagram shows three staves: Solo, Effects, and Pedals. The Solo staff has a single note. The Effects staff has a long horizontal line. The Pedals staff shows pedal 2 as a black triangle that rises and then slowly decays, and pedal 3 as a black triangle that rises and then falls sharply. A dashed arrow points upwards from the end of pedal 3's decay towards the Effects staff. To the left, a legend shows pedal 2 as an open square and pedal 3 as a solid black square.

We will use these two types of reverb to create the desired reverb effects in NoaNoa.

## The two types of reverb in the piece

### Rev.

This is a rather short reverb, just to change dimension, but the goal is to clearly hear the played notes.

To play it, you should put the pedal nb 3 in middle position and listen to the result:

You can already experiment this reverb in the piece:

As you can see, you are going to add this reverb every time that voice is added to the instrument. The reverb here aims to transform the voice in order to make it less present and more dispersed. It is the flute that is speaking, and it is speaking in a strange manner, with its own voice.

Once you finish, you should close the input level with pedal number 2:

You can now start working this reverb type for the whole piece. Start playing the score and add this reverb every time you speak with the flute:

## Measures

22 to end of 28

35 during speech

48 to end of 53

71 to end of 76 (you can start closing the input level during measure 76)

94 to end of 100 (but you can just as well start at the end of 93)

125 to end of 131

Listen carefully to the sound result and modify when needed the duration of the reverb, as well as your distance to the microphone. Try to find a specific sound to achieve an effect particular to this way of playing: sound of flute + sound of voice => both mixed together thanks to the reverb.

## Infinite rev. (Inf.rev.)

The second type of reverb effect is « infinite reverb ». Prepare the two pedals as shown in the following score and then try to « pick up » the E note that you are playing sfz. The sfz is there also to put enough energy into the effect to let it play as long as possible.

The image shows a musical score for Flute in 3/4 time, marked 'Intenso, poco agitato tempo I (♩ = c.72)'. The score includes dynamics *sfz*, *mf*, and *p*, and a glissando. Below the staff is a pedal diagram with two pedals, 2 and 3. Pedal 2 is shown as a black triangle that starts at the beginning of the first measure and ends at the end of the first measure. Pedal 3 is shown as a black rectangle that starts at the beginning of the first measure and ends at the end of the first measure. The diagram is labeled '1 infinite rev.'.

As you are immediately closing the input level after the E, the notes that follow will not « enter » the reverberation. The goal is to create a held note.

When you want to finish the held note, just close the reverb (pedal nb 3) to bring its duration to 0 and thus end the note.

The image shows a musical score for Flute in 3/4 time, marked 'Intenso, poco agitato tempo I (♩ = c.72)'. The score includes dynamics *mf* and *p*, and a glissando. Below the staff is a pedal diagram with two pedals, 2 and 3. Pedal 2 is shown as a black triangle that starts at the beginning of the first measure and ends at the end of the first measure. Pedal 3 is shown as a black rectangle that starts at the beginning of the first measure and ends at the end of the first measure. The diagram is labeled '35 inf. rev.' and '36 stop rev.'.

You need to practice opening the input level (pedal nb 2) at the right moment. You also need to pay attention to the distance from the microphone. When playing *sfz*, be careful not to get into red (bars on right of screen) to avoid distorting the sound, but still get enough energy to hold the note as long as possible. You can also experiment opening the pedal 2 for more or less time to accumulate energy into the effect.



You need to understand properly how the different steps work. For instance, if you leave reverb at a maximum, you can add new notes to the reverb. You will accumulate sound, but be careful! Too much accumulated energy could distort the sound. To avoid this, you should leave some safety margin.

Once you master the effect – start and stop – here is the accumulation of effect during measures 88 to 92. Each measure has one note that you should place and « freeze » into the effect.

The score shows five measures of music in 3/4 time. Each measure contains a single note with a glissando. The dynamics are: *fff* (31), *sfz* (32), *f* (33), *sfz* (34), *mp* (35), and *p* (36). Above the notes are markings for *furioso*, *calando*, and *gliss*. Below the staff are reverb pedal markings: pedal 2 (black triangle) for measures 31-35, and pedal 3 (white square) for measure 36. A legend at the bottom left shows pedal 2 as a black triangle and pedal 3 as a white square.

Once you finish the last note, simply close reverb time to 0 with pedal 3 and the sound will stop.

Be careful to pick up the sound in the beginning but not pick up the glissandi that follows. Also pay attention to the distance from the microphone! Indeed, the dynamic here is *fff* and you could very quickly saturate if you are too close to the microphone, especially when cumulation five times the same sound, even if the dynamics decrease every time. You should choose in the beginning a greater distance to the microphone, and then slowly move closer as the dynamic decreases.

Exactly the same situation appears in the beginning of the score:

The score is for Flute in 3/4 time. It starts with 'Intenso, poco agitato' and 'tempo I (♩ = c.72)'. The first measure has a note with *sfz* and '1 infinite rev.' below it. The second measure has a note with *mf* and *p* dynamics. The third measure has a note with *mp* and '2 inf. rev.' below it. The tempo changes to 'tempo II (♩ = c.54) calmo molto vibr.' and 'S.V.' (Sostenuto). The final note has *mp* and 'molto vibr.' markings. Reverb pedal markings are shown below the staff: pedal 2 (black triangle) for measures 1 and 2, and pedal 3 (white square) for measure 3. A legend at the bottom left shows pedal 2 as a black triangle and pedal 3 as a white square.

You should pick up the sound twice and hold it while you play other notes. You are making a sort of extension of your sound.

At the end of the stave, you stop the reverb using pedal nb 3 like this:

The score shows a short musical phrase in 3/4 time. The dynamics are *p*, *f*, *mp*, *mf*, and *p*. At the end of the staff, there is a marking 'stop rev. 3'. Below the staff are reverb pedal markings: pedal 2 (black triangle) for the first two measures, and pedal 3 (white square) for the final measure. A legend at the bottom left shows pedal 2 as a black triangle and pedal 3 as a white square.

Try to learn the picking up, accumulation and stopping of sound to be able to reproduce this during the piece.

We find this type of effect in practically every phrasing similar to the first measure and its variations during the piece. You should reproduce this effect every time the score indicates « **Inf. rev** » and stop it at the indication « **stop rev.** ». You need to be careful not to stop the effect before it is indicated! Here are the measures where it appears:

Measure 1 & 3	stop at end of measure 8
Measure 12	stop at beginning of measure 13
Measure 36	stop at beginning of measure 37
Measure 41	stop at beginning of measure 42
Measure 36	stop at beginning of measure 37
Measures 61, 62, 63	stop at beginning of measure 64
Measures 88, 89, 90, 91, 92	stop at beginning of measure 93
Measures 110, 111, 112, 113	stop at beginning of measure 114

Once you master the effect, you can start mixing the two reverbs together.

For example, you start the score. Prepare the two pedals for playing the **Inf. rev** effect. You pick up the sound twice and stop the effect at the end of measure 8. As you will play the same effect at measure 12, you need to place pedal 3 at maximum again and pick up the sound again at measure 12 and then stop it at the following measure.

Then, during measure 22, you need to prepare the pedal 3 on a middle position to produce the reverb for voice. You will then open pedal 2 and leave it open until measure 29 where you will close pedal 2 not to let any more sound into the effect.

This way you can play all the reverbs in the score.

### B. Processed flute sounds (Harmonizer)

The last effect is « harmonizer ». It is an effect where the sound will be transposed and possibly repeated and re-transposed.

You can manipulate the harmonizer effect with pedal nb 6. Like for reverb, you should first prepare the effect without letting in the sound (pedal 2 closed).

Here is an example in the score (measure 163):

The image shows a musical score for a flute part. The top staff is in 3/4 time and contains a melody with dynamics *p*, *mf*, and *p*. Above the staff, there are markings for *rubato* and *calmo*. Below the staff, there are two pedal indicators: a white square labeled '2' and a black square labeled '6'. A circled number '61' is placed below the staff, with a dashed line indicating the start of 'pre-recorded, filtered and processed flute sounds'.

Be very careful not to go too fast, but not too slowly either. The pedal nb 2 should arrive at a maximum as fast as possible to let the multiphonic into the effect. When you want to stop the effect, simply close the input (pedal 2) just like for reverb.

Try to play this effect at measure 169 and stop it at the very beginning of measure 171:

The image shows a musical score snippet with two staves. The top staff is for the flute, and the bottom staff is for the piano. The flute part starts with a *rubato* and *dolcissimo* marking, followed by a *mf* dynamic. The piano part has a *mf* dynamic and includes trills marked 'f r s t s s t s'. Below the staves, there are two numbered annotations: (62) 'pre-recorded, filtered and processed flute sounds' and (63) 'pre-recorded, filtered and processed flute sounds'. A pedal indicator '2' is shown below the piano staff, with a box indicating it is active from measure 169 to the start of measure 171. The tempo changes from *rubato* to *tempo I* and then to *rit.*

The effect is used only once in the piece: measures 163 to 171.

### C. Playing sound files

In addition to the effects, you also need to play pre-recorded sound files. There is a total of 33 files to trigger during the piece.

Here are the numbers of the files with the corresponding numbers in the score:

<b>Sampo</b>	<b>Score</b>		
<i>file nb</i>	<i>measure</i>	<i>event nb</i>	<i>name</i>
<b>1</b>	33	8	sampled flute
<b>2</b>	35	10	noise
<b>3</b>	37	12	sampled flute
<b>4</b>	45	15	sampled flute
<b>5</b>	46	16	pre-recorded voice modulated by flute
<b>6</b>	55	19	belle fleur' (pre-recorded voice)
<b>7</b>	57	20	pre-recorded flute trills.
<b>8</b>	65	25	sampled flute
<b>9</b>	66	26	sampled flute
<b>10</b>	67	27	sampled flute
<b>11</b>	74	29	pre-recorded flute noises to bar 77
<b>12</b>	88	31	pre-recorded voice modulated by flute to bar 93
<b>13</b>	94	37	sampled flute
<b>14</b>	95	38	sampled flute
<b>15</b>	100	39	sampled flute
<b>16</b>	101	40	sampled flute
<b>17</b>	103	41	sampled flute
<b>18</b>	105	42	sampled flute
<b>19</b>	114	47	pre-recorded voice modulated by flute to bar 118
<b>20</b>	119	48	pre-recorded, filtered sounds to bar 124
<b>21</b>	128	50	pre-recorded filters
<b>22</b>	129	51	pre-recorded filters
<b>23</b>	130	52	pre-recorded filters
<b>24</b>	135	54	pre-recorded filters to bar 141

<b>25</b>	143	55	pre-recorded filters to bar 147
<b>26</b>	148	56	pre-recorded filters
<b>27</b>	149	57	pre-recorded filters
<b>28</b>	150	58	pre-recorded filters
<b>29</b>	152	59	pre-recorded filters
<b>30</b>	156	60	pre-recorded filters (voice) to bar 159
<b>31</b>	163	61	pre-recorded, filtered and sound processed flute sounds
<b>32</b>	169	62	pre-recorded, filtered and sound processed flute sounds
<b>33</b>	171	63	pre-recorded, filtered and sound processed flute sounds

The easiest is to note the file numbers in the score:

The image shows a musical score snippet for flute (Fl) and violin (v). The flute part begins at measure 148, marked with a circled '26' and the instruction 'sempre feroce' and 'ff'. The violin part has a circled '27' above it, marked with 'tr' and 'ffz'. Below the violin part, there are two circled numbers: '56 pre-recorded filters' and '57 pre-recorded filters'.

Before you start playing, always check the volume of the files! Trigger the first file using pedal nb 5, listen and adjust the volume with pedal nb 4. Test a few more sound files and once the volume is correct, leave pedal nb 4 in that position. You can always adjust the level afterwards if necessary.

Test also the balance between the sound files and your instrument to find the right mix of both sound sources.