Soundpainting Grammar

# Introduction

This document aims at listing rules and preliminary formalizations of the soundpainting grammar and to raise the accurate questions relevant to its general formalization, for instance as a generative grammar, and algorithmic implementation.

A minimalistic implementation of this grammar will be used in Arthur Parmentier’s master thesis, for use with the GeKiPe tool (IRCAM & HEM Geneva).

The numbered list used in this document will be used to number all identified rules applicable to soundpainting (or one of its mode) :

1. Rule 1
2. Rule 2
3. Rule 3…

By “sign”, I am referring to a gesture that has been conventionally linked to a symbol (or a meaning, and idea) by the soundpainting system (as in oral languages, we have a serie of phonemes that are linked to a word). It is therefore different of gestures that can be, in general, any voluntary movement.

# Identified soundpainting grammatical rules

The soundpainting language incorporates signs of the following categories[[1]](#footnote-0):

* WHO
* WHAT
* PREPOSITION[[2]](#footnote-1)
* HOW
* WHEN
* MODE
* PROBLEM

*My hypothesis is that all gestures that are executed during a soundpainting performance either*

* *correspond to one of these categories*
* *are encapsulated inside the frame of a MODE*

It is important to notice that the significance of one gesture can be overloaded: depending on the context, a single gesture can have different meanings.

We will be able to see that the most important concepts to define the soundpainting grammar are the modes that each encapsulate a set of rules to understand the signs and form requests (let’s call this their internal grammar), default parameters and define who should perform, what and when (by using WHO, WHAT, HOW, WHEN signs or not).

## Default mode (internal grammar)

Let’s first assume that we are performing inside the “default” mode. We will see later what it means, but we can simply say for now that in this mode, we can create requests by standing with feet together. We can think of these requests as a “buffer” of signs of any size (in practice, a reasonable - memorizable size) that form a sentence - the request. However, whenever we detach our feet one from the other and enter one foot in a virtual “box” (usually in front of the soundpainter), while using a WHEN sign, the request (what was in the “buffer” + WHEN sign) is executed by the performer. In other words, in that default mode, you can create complex requests and ask the performers to execute them at the specific moment of the WHEN sign that ends the request.

Inside that mode, we have the following rules and sign categories:

WHO signs define “who” is asked to perform the following indications.

1. The semantic scope[[3]](#footnote-2) of a WHO sign is defined by the interval between its execution and ....

WHAT signs define the type of content that is to be performed.

1. A WHAT sign must be (directly or indirectly) anticipated by a WHO sign.

HOW signs define the implicit parameters of the content that is to be performed.

1. A HOW sign must be (directly or indirectly) anticipated by an indication of content (WHAT or MODE signs).
2. Any HOW sign can be omitted to leave the choice of this parameter open to the performer.
3. The semantic scope of (WHAT HOW)[[4]](#footnote-3) signs is the defined by the interval between their execution and the next WHEN sign.
4. Any HOW sign can be replaced by (HOW HOW) signs.

WHEN signs define the temporal parameters of the execution of the requested content[[5]](#footnote-4).

1. A WHEN sign must be (directly or indirectly) anticipated by an indication of content (WHAT or MODE signs, see the discussion in the following parts).
2. The semantic scope of a WHEN sign is defined by the interval between its execution and the next WHEN sign.

A minimal grammatically correct soundpainting request would use those signs in the following order: WHO WHAT HOW WHEN. It is in practice however often the case that one or some of these indications are used in other contexts, for instance: WHO WHAT add WHAT HOW WHEN.

1. Any (WHAT HOW) signs can be replaced by a series of different (WHAT HOW) signs related with a PREPOSITION sign.

We have also seen with [this rule](#bookmark=id.3x6xapfo51lk) that the scope of a WHO sign lasts until the next one, therefore we can omit the repetition of a WHO sign. In that case, the following WHAT sign is “indirectly” anticipated by the WHO sign (cf [this rule](#bookmark=id.s35xon2apmb0)), for instance in the sentence WHO WHAT WHEN WHAT WHEN.

We will see later that these rules are specific rules of a more “general” grammar that is specified in each mode by an internal grammar.

## General grammar

We can present some of the rules of the “general” grammar of soundpainting (cf idea of “universal grammar” in Chomsky's work):

1. An indication of who is asked to perform is required before or at the same time of any indication of the content or temporality of the request.
2. An indication of the content is required before or at the same time of any indication of the temporality of the request.
3. A required indication can be omitted by setting default parameters defining this indication.
4. The semantic scope of the default parameters is always exceeded by the semantic scope of other indications on the same parameters.
5. ...

# Modes

In general, we can say that a MODE is a single sign that encapsulates at least one of the following concepts

1. a rule for who should perform
2. what is the requested content and its implicit parameters
3. when the content should be performed (a temporal rule or indication)

combined within **its own internal grammar** (how the signs are combined to form a valid request). *WARNING: the points 1, 2, 3 refer to indications of who, what and when that could take any form, and not just instances of the WHO, WHAT, WHEN categories.*

Entering a new mode requires a MODE sign to be executed. This entering sign is always associated with its “exit” counterpart sign that can be executed to exit the mode. The “exit” sign is also a MODE sign, in the sense that it reverts the actual mode to the default (or sometimes previous?) mode.

For instance, (“entering the box”, “exiting the box”) can be considered as a pair of MODE signs corresponding to a single mode (that we could call the “launch mode” - everything request that is signed inside the box or previously should be executed - launched - directly).

Another example is the “scan” mode, which is composed of 2 MODE signs: (“scan & enter the box”; arm and hand straight while putting a foot in front of the other - entering the box, “exiting the box”), the first one being the indicator that we enter the scan, the other that we quit the scanning.  
It is interesting to provide however a second interpretation of the scan. One could indeed sign “whole group, scan - and scan movements -, play” in the default mode. This leads us to interpret the scan as a content with its own temporal parameters and not a mode.

Many modes are entered with a specific sign and exited with the generic sign “tear” (like someone tearing a piece of paper).

To be continued...

1. (((Whether a WHAT, HOW or WHEN sign needs to be directly or indirectly anticipated by a WHO sign is determined by the MODE of the soundpainting language at the moment of the execution of the sign.)))

1. It is interesting to take a look at the categorisation proposed by Walter Thompson in his workbooks, and to try to explicit why this categorisation appears relevant to him and may be irrelevant for a linguistic approach (or no, but I am starting my research thinking that we need to define the categories of signs with the explicitation of the set of rules that the soundpainters internalize during their practice). [↑](#footnote-ref-0)
2. In the WB 2, Walter writes about what I call “prepositions” in a very different way. Basically, he categorizes the “with”, “without”, “morph”... signs as what and sometimes who signs. I think that there is clearly a mapping to be made here with the oral languages and that those signs really act as connectors between terms that have independent meanings. [↑](#footnote-ref-1)
3. By “semantic scope”, I mean the scope (usually in the time dimension) in which this sign is implicitly considered in a request and their actualisations (in conjunction with other signs or absence of signs).   
   By actualisation, I mean that the performer, even while performing, permanently actualises the requests he is being sent and their meaning, the most common request being the implicit “continue” when no request with a WHO sign referring to him is being sent. [↑](#footnote-ref-2)
4. Here we use the brackets to signify the conjunction of two signs from these categories [↑](#footnote-ref-3)
5. It is important to note that the WHEN signs really define when the request should be executed, rather than the temporal parameters of the content itself, that are defined with the what and how signs. [↑](#footnote-ref-4)