

TOMMASO ROSATI  
SOUND ART

MUSIC?

THE  
BOOK IS  
NOW  
AVAILABLE!

# PLAY WITH SOUND

MANUAL FOR ELECTRONIC  
MUSICIANS AND OTHER SOUND  
EXPLORERS



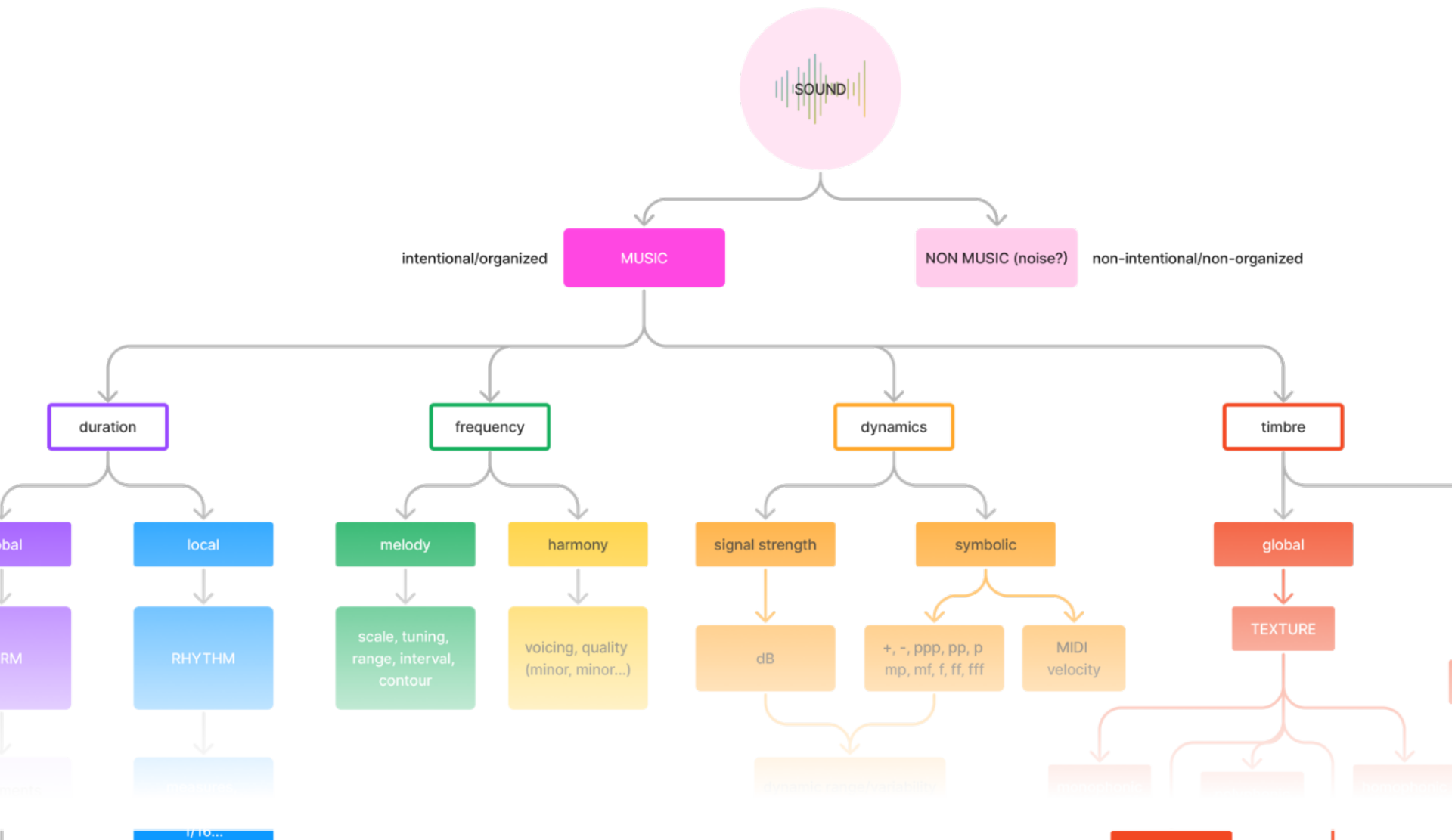
TOMMASO ROSATI  
TIMOTHY HSU

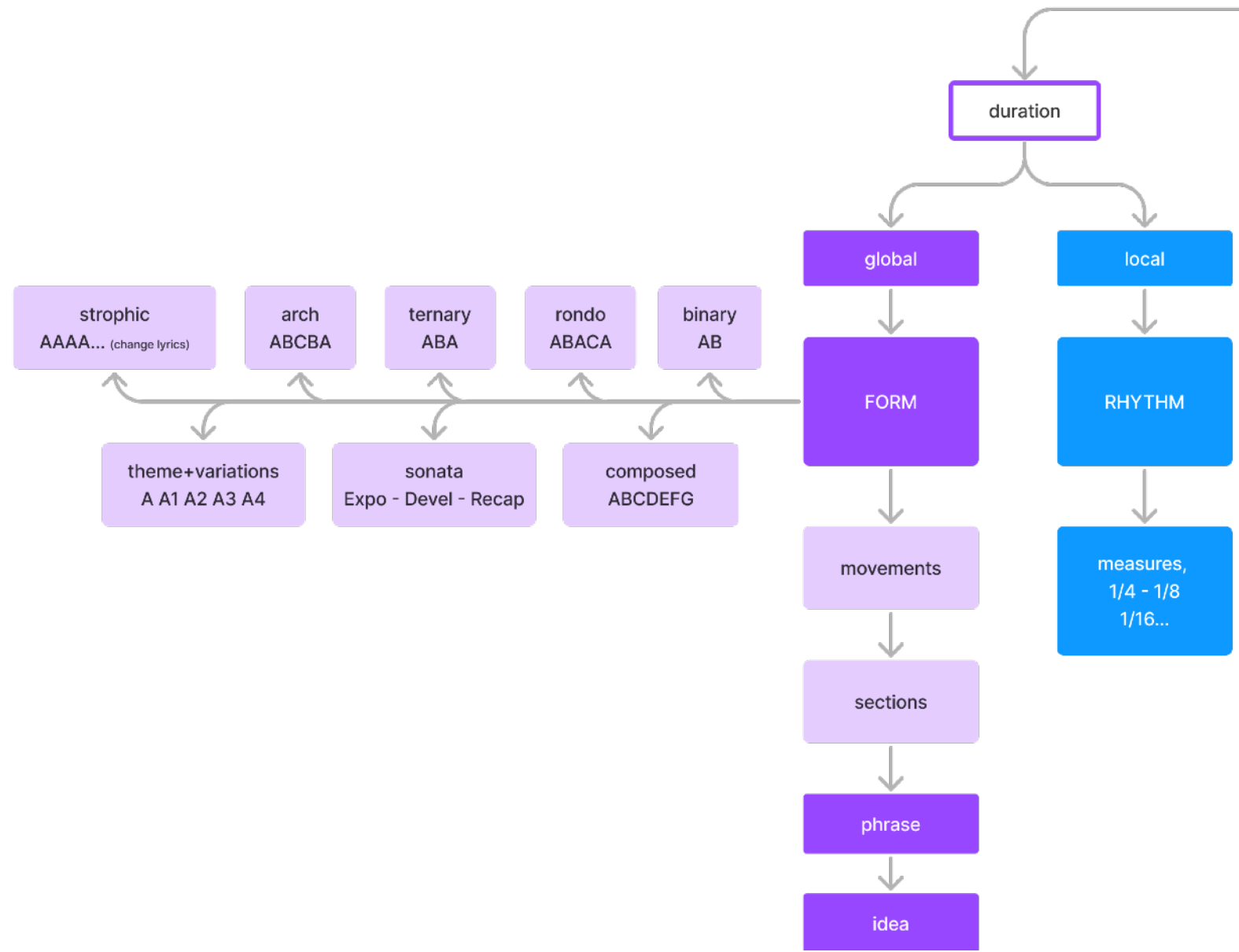
A Focal Press Book

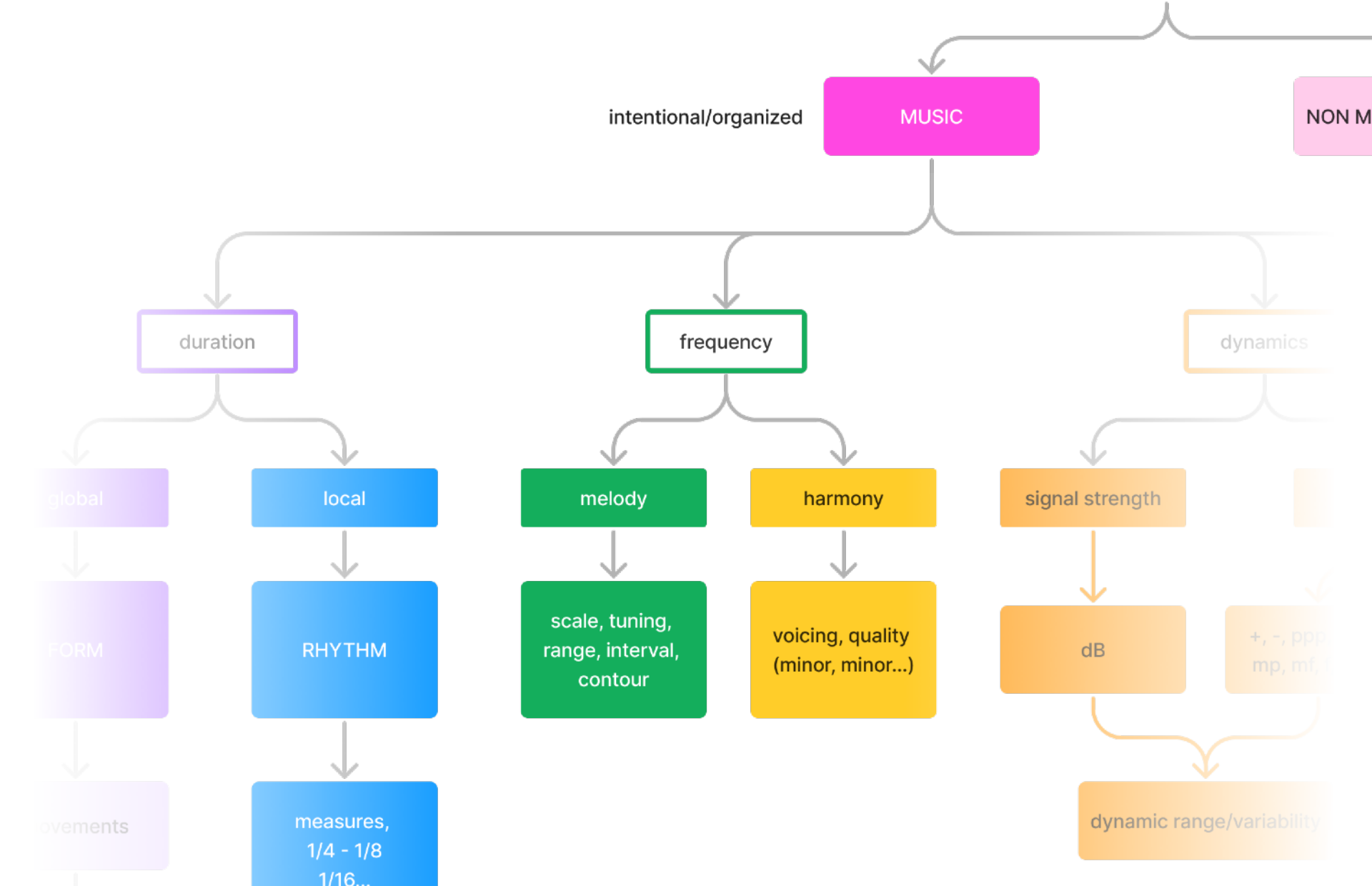
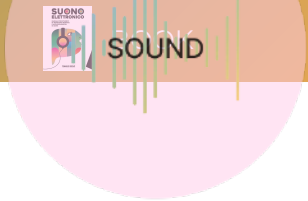


# What is music?

## Many things.







intentional/organized

MUSIC

NON MUSIC (noise?)

non-intentional/non-organized

frequency

dynamics

timbre

melody

harmony

signal strength

symbolic

global

pitch, tuning,  
rhythm, interval,  
contour

voicing, quality  
(minor, minor...)

dB

+, -, ppp, pp, p  
mp, mf, f, ff, fff

MIDI  
velocity

TEXTURE

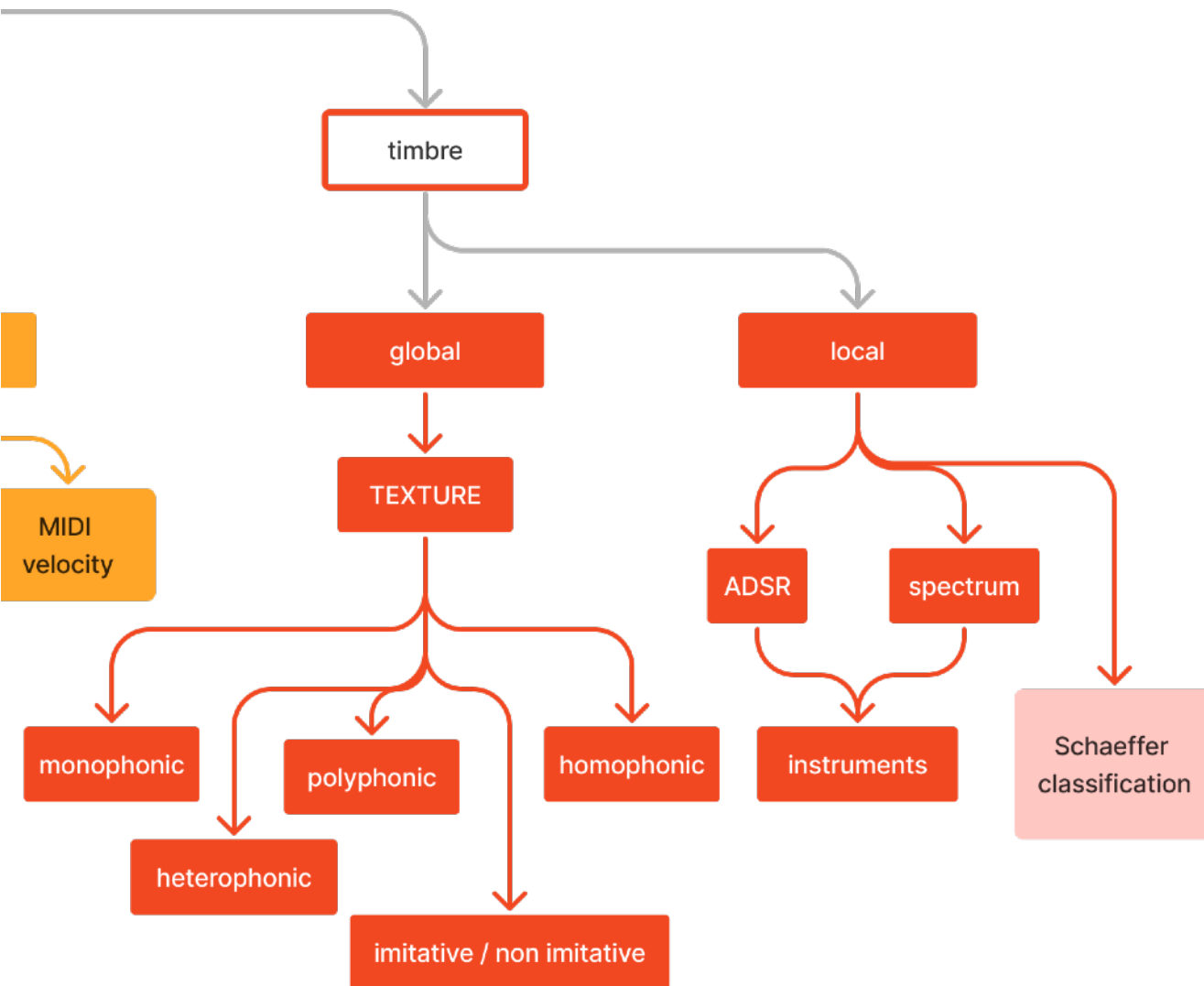
dynamic range/variability

monophonic

polyphonic

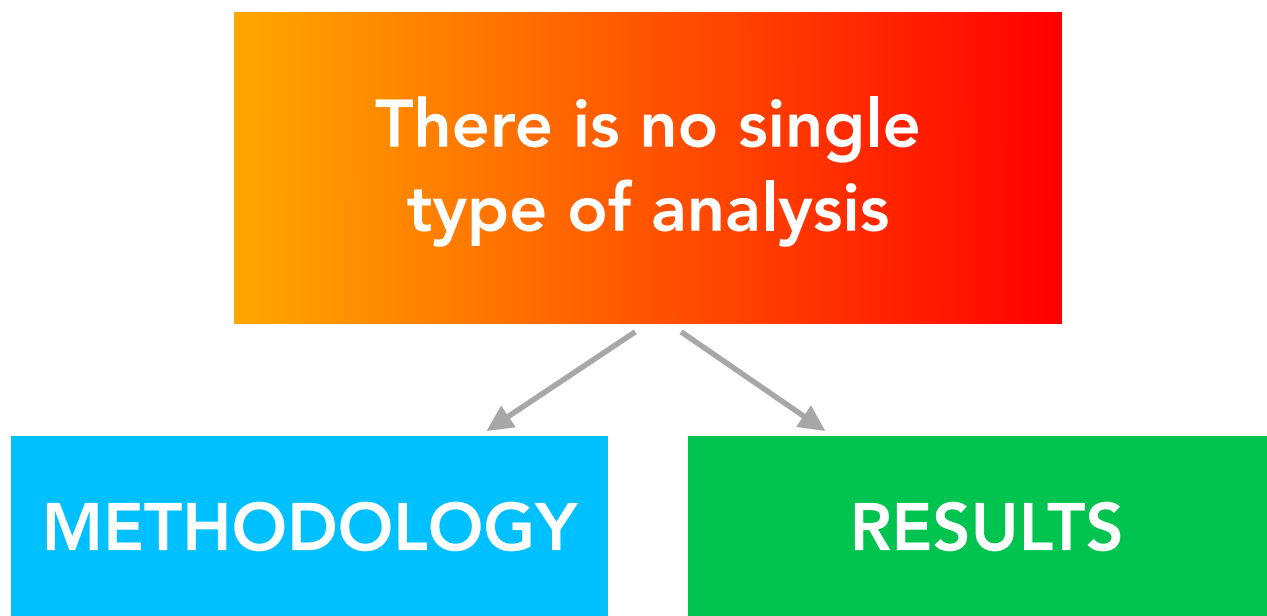
heterophonic

imitative / non imitative



# Analysis

**Musical analysis** is the discipline that investigates individual musical works in terms of their form, their internal structure, the compositional techniques employed, or the relationship between these aspects and narrative and dramatic aspects.



Lady Gaga - **Just Dance** (2008)

Xenakis - **Diamorphoses** (1957)

**The analysis method is influenced by:**

- The historic period of the opera
- The style of the opera
- The analyst

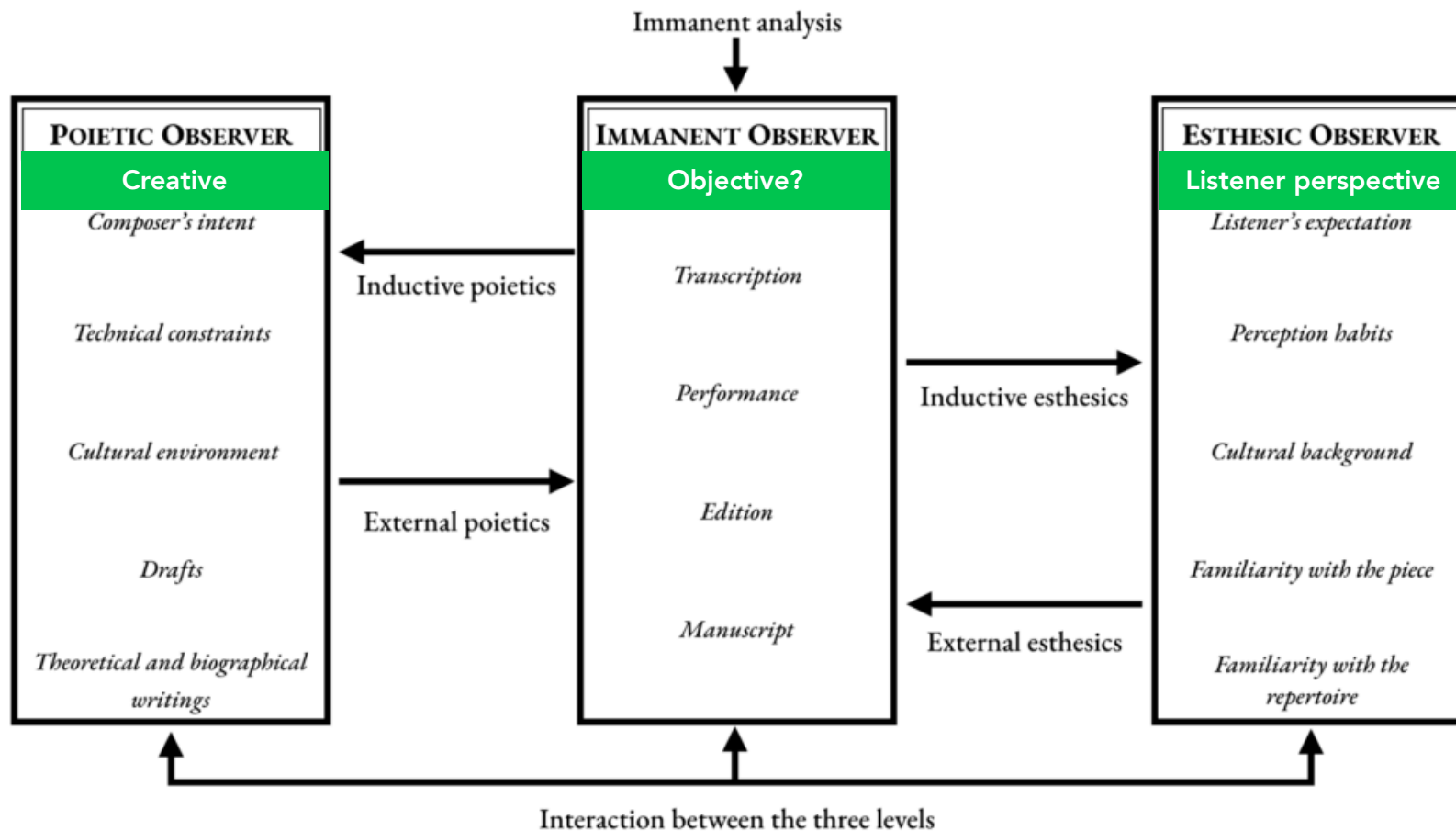


**Analysis is always  
both an  
interpretation  
and a  
systematic  
approach.**



Nattiez focuses on 3 layers of investigation in music analysis:

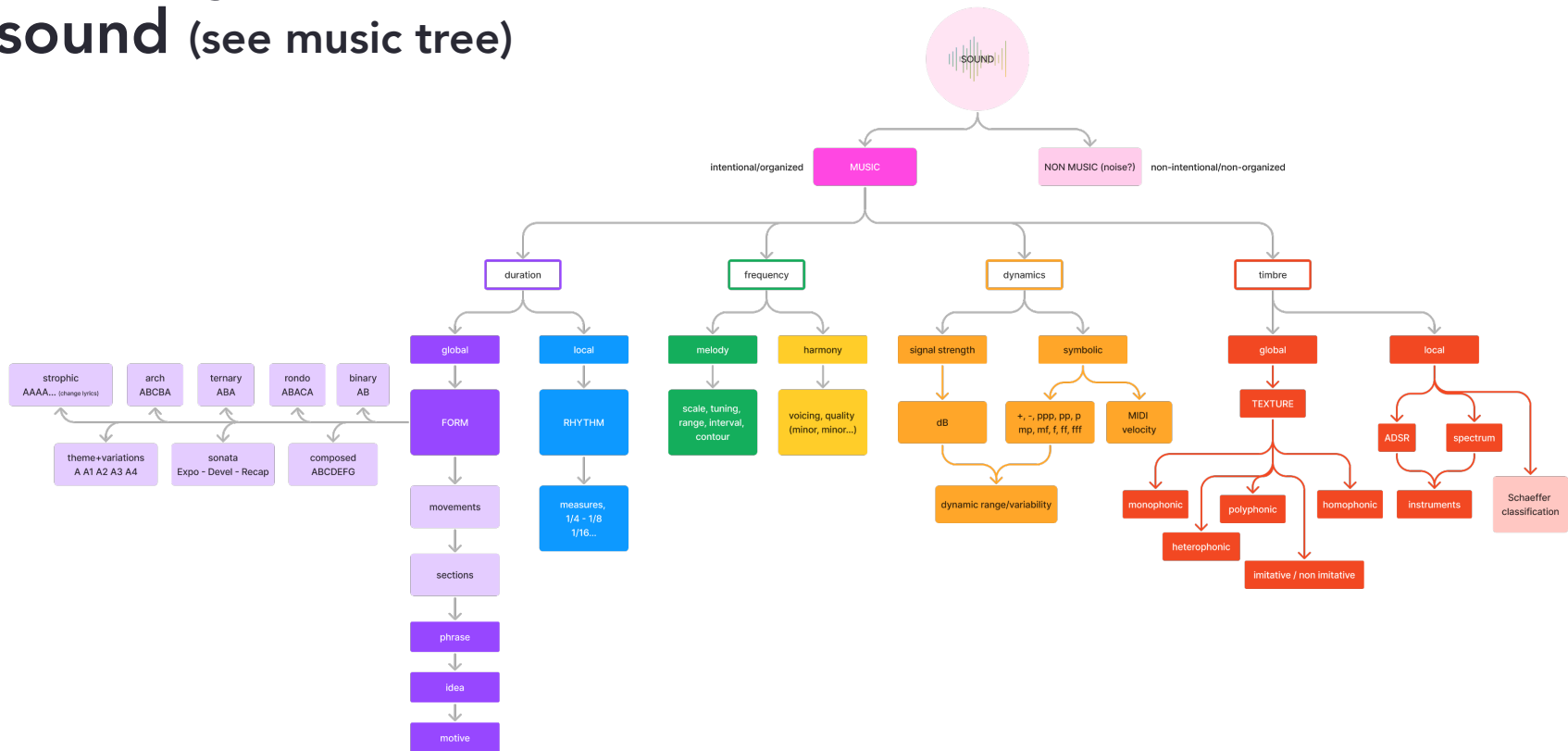
- **poietic**: all determinants of its production: cultural environment, technical constraints, author's intent...
- **aesthetic**: all determinants of its reception by listeners, its interpretation by musicologists, critics, and (even) performers.
- **neutral/immanent**: the methodological artifact called a neutral level that makes it possible for the aesthetic interpreter to hypothesize a repertory of syntactic relationships from which, in a second step, elements of poietic and/or aesthetic relevance.



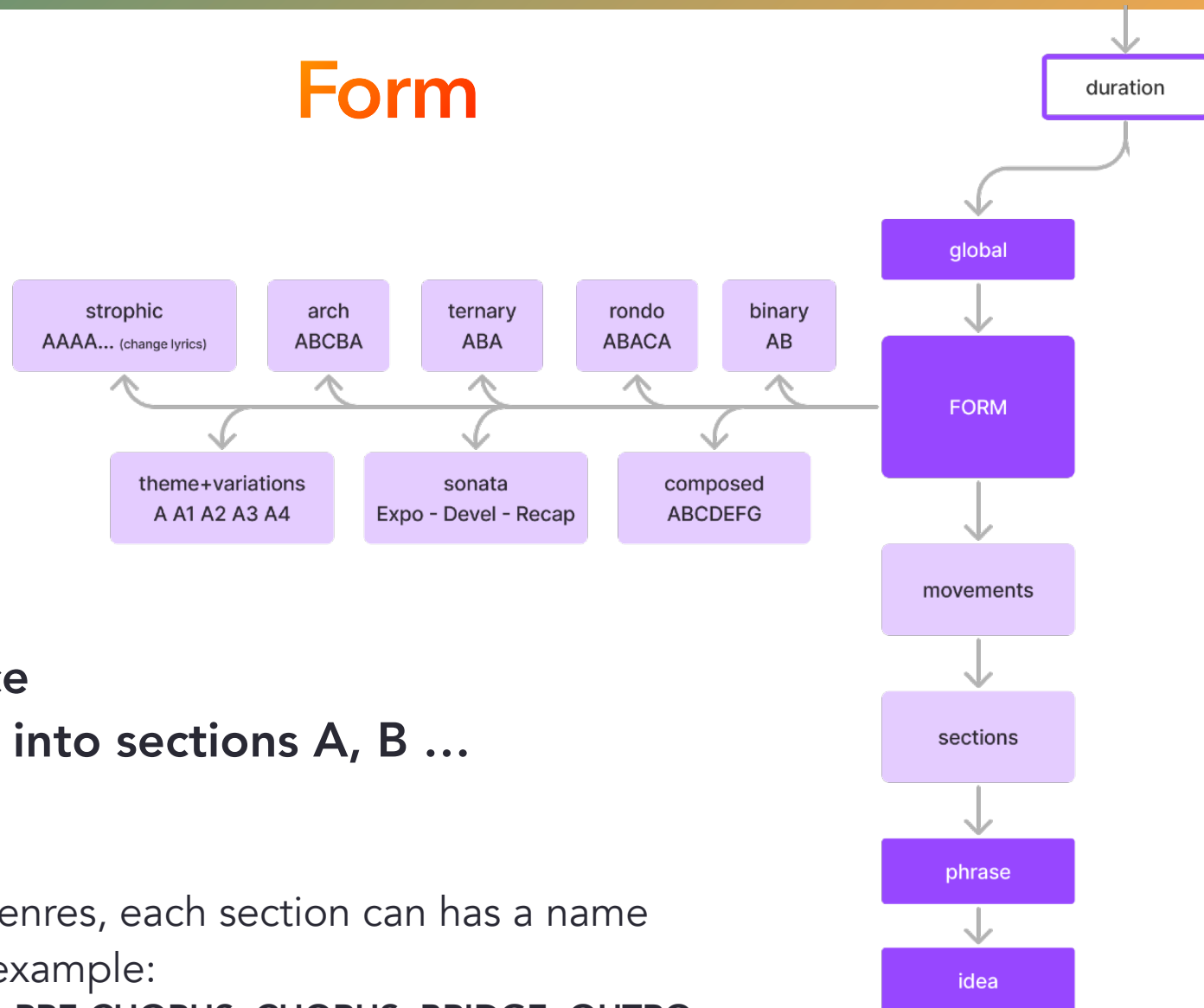
The tripartition of the analytical observer (Nattiez 1990: 135–36)  
 This tripartition of musical relationships is taken from the writings of J. Molino

ARTICLE

# Analysis can be focused on many aspects of sound (see music tree)



# Form



1. Take a piece

2. Segment it into sections A, B ...

In different genres, each section can have a name

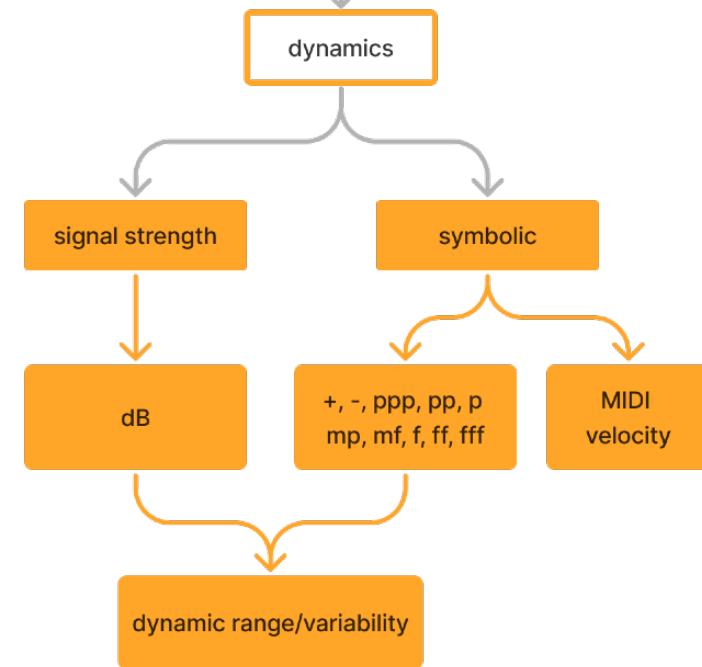
In songs for example:

**INTRO, VERSE, PRE-CHORUS, CHORUS, BRIDGE, OUTRO**

[LINK](#)

# Dynamics

**Dynamics** is the articulation of signal strength in a piece of music.



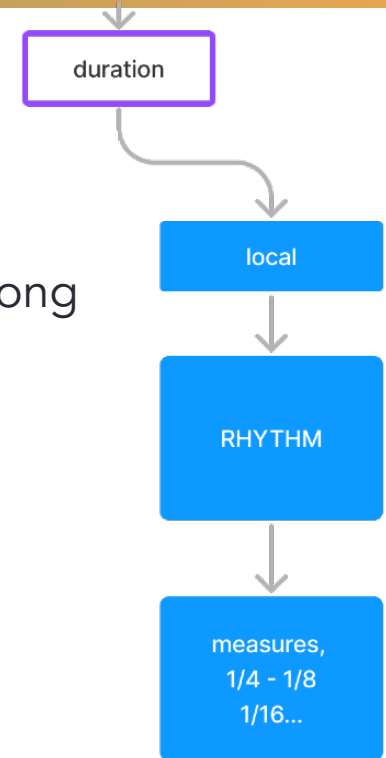
**Range:** the range of the dynamics

**Contour:** the trend of dynamics

C. Debussy - **Prélude à l'après-midi d'un faune** (1891)  
 Death - **Scavenger of Human Sorrow** (1998)  
 Alva Noto Sakamoto - **Microon III** (2011)

# Rhythm

**Rhythm** is the pattern of sound, silence, and emphasis in a song



Western music

**Time signature:** indicates the number of beats per measure

**Meter:** duple meter (where beats appear in groups of two), triple meter (of three), and quadruple meter (of four)

General concepts

**Tempo:** speed at which a piece of music is played

**Strong beats and weak beats**

**Syncopation:** do not align with the downbeats of individual measures

**Accents:** special emphasis on certain beats

**Polyrhythms:** layers one type of rhythm on top of another

[LINK](#)

Rhythm can be:

METRONOMIC

Algorithmic

NON-METRONOMIC

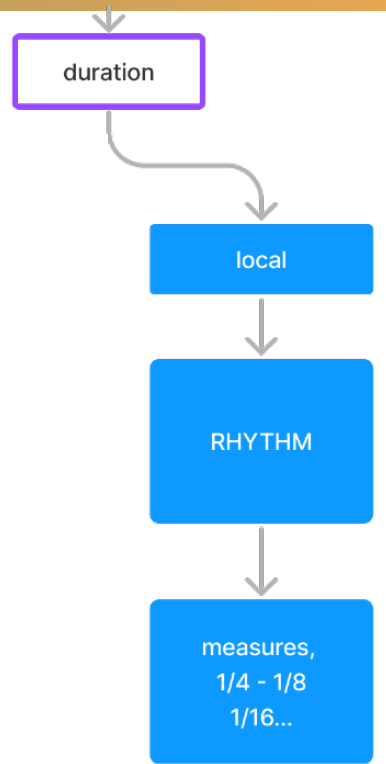
Interpreted

Alea  
Stochastic  
...

Director (human or not)

Performer

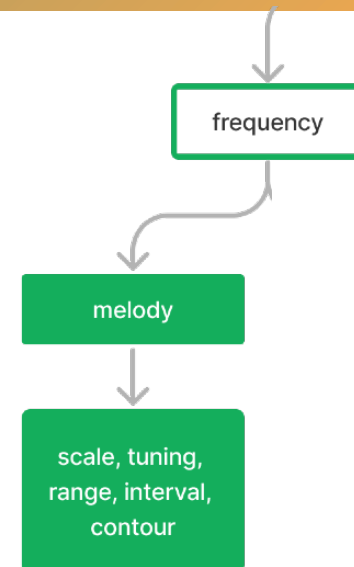
Machine



Kraftwerk - **The robots** (1978)  
 Boulez - **Répons** (1980)  
 Mark Fell - **Multistability 1-A** (2010)  
 Autechre - **Fold4,Wrap5** (1998)

# Melody HORIZONTAL

A **Melody** is a succession of single tones



**Tuning:** the process of adjusting the pitch of one or many tones from musical instruments to establish typical intervals between these tones

*Equal temperament, Microtonality...*

**Scale:** any set of contiguous musical notes

**Range:** the range of the notes

**Interval:** the distance between a note and the following

**Contour:** the trend of a melody

**Gliding:** the continuity between a pitch and the following

*Spectrogram*

Find the range

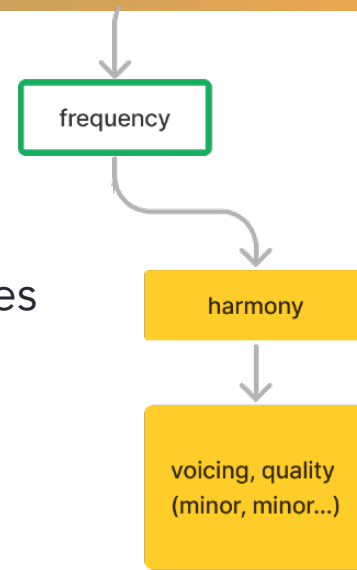
*Pitch detection*

Find the contour of some phrases

Chet Baker - **I fall in love too easily** (1980)

Baths - **Miasma Sky** (2013)

# Harmony VERTICAL



**An harmony** is the combination of simultaneously sounded notes

**Tuning:** the process of adjusting the pitch of one or many tones from musical instruments to establish typical intervals between these tones

**Chord:** the minimum part of a harmony. Composed of three or more notes in Western music

**Quality:** the qualities of the component intervals that define the chord

**Voicing:** the vertical order of the set of musical notes

**Range:** the range of the notes

**Articulation:** the micro-distance in time between the notes

**NB** we are still talking about the macro level but there's a superimpositions of sounds also at a micro level: timbre!

Maria Schneider - **Sputnik** (2020)

Olivier Messiaen - **Prelude 1: La colombe** (1928)

Radiohead - **The National Anthem** (2000)

# Timbre GLOBAL

## Texture

It's not only about timbre

**texture** is the local configuration that music takes on, moment by moment, generated by the values and structures of all musical parameters: pitches, durations, dynamics, timbres, spatial arrangement.

Western music

**Monophonic:** made of one-single melodic line

LINK

**Polyphonic:** consisting of two or more simultaneous melodic lines.

**Homophonic:** a main melodic line is supported by one or more additional musical lines that add harmonic support.

**Heterophonic:** created by simultaneously varying a single melody.

**Micropolyphonic:** many lines of dense canons moving at different tempos or rhythms, thus resulting in tone clusters vertically.

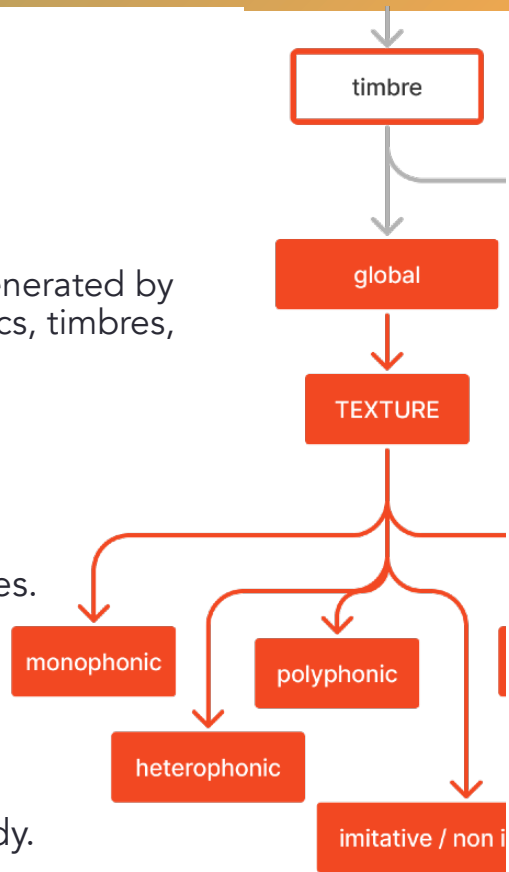
Ligeti...

General concepts

What if we focus on the timbres? A new classification?

The **spectromorphology** approach.

Article: "Spectromorphology: explaining sound-shapes" by Dennis Smalley



György Ligeti - **Atmosphères** (1961)  
 Autechre - **Caliper remote** (1998)  
 Fennesz - **Happy audio** (2001)

# <sup>1</sup>Balance approach

When we listen critically to music, it is always useful to try to mentally divide the various aspects of it. Compared to the historical period and musical genre the music analyzed refers to, some aspects are more innovative while others are more conservative. The composer's ability is to innovate but simultaneously remind the listener of something with which they are familiar. There are composers whose innovation is more prominent in one aspect of music than others in another. It is generally challenging to find innovative or conservative authors on all elements. Recognizing where the composer innovates and where he 'conserves' helps to understand better and contextualize what we are hearing.



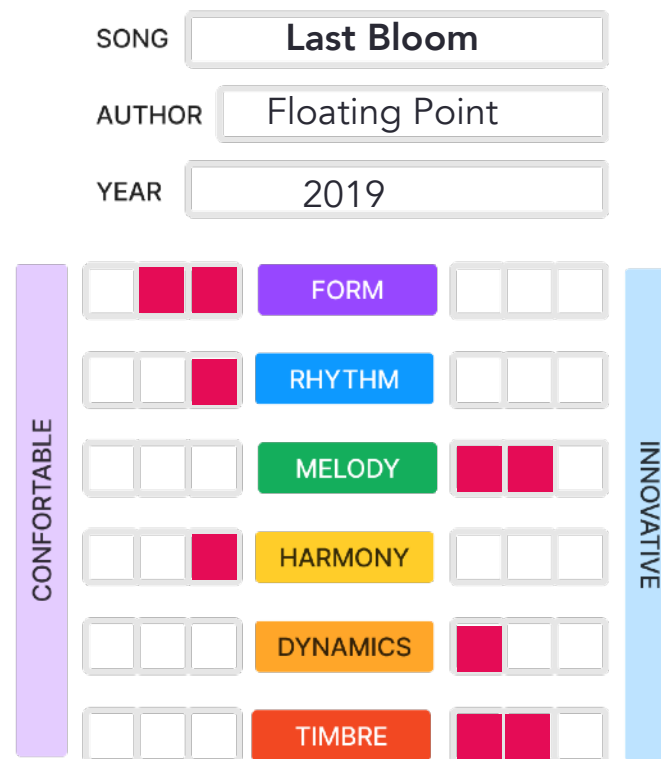
# 1 Balance approach

What is comfortable and what is innovative in a piece?

Interesting music tends to research a balance.

Valuations need to take account of:

- the historical period
- the artist's production
- the genre



## 2 Focus approach

What are the focuses of the author of a piece?

This approach starts by assessing the relevance of the aspects that make up a piece of music.

It helps us to analyze the piece and the author, his compositional techniques and style, contextualizing it to the period of composition and genre.

SONG

AUTHOR

YEAR

FORM

RHYTHM

MELODY

HARMONY

DYNAMICS

TIMBRE

fill 15 square

## 2 Focus approach

What are the focuses of the author of a piece?

SONG

AUTHOR

YEAR

FORM

RHYTHM

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TIMBRE

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