The Musical Grammar of Bach´s Suite n°1:
an Optimality Theory Approach.

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ABSTRACT

Music is also a language and in this article we describe"Bach´s Suite n°1 Musical Grammar" in an Optimality Theory Approach (Lerdhal&Jackendoff , 1983).

The Prosody in "Bach´s Music".

When we speak we don´t produce isolated segments. Just as in languages, music is also hierarchically divided into structural domains (Schreuder, 2006).

Based on linguistcs` models such as "The Prosodic Phonology" (Nespor&Vogel, 1986), we propose a "Modal Musical Model" so that we will be able describe the "grammatical hierarchy" that exists in music:

<div align="center">

The Intonational Musical Phrase (IMP)
The Musical Phrase (MPΦ)
The Musical Word (Mω)
The Musical Foot (MΣ)
The Musical Syllable (Mσ)
The Musical Note (♫)
The Harmonics` Geometry (♪)

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We present below our analyses of the first measure of "Bach´s Suite n°1 (Prelude) from a guitar transcription (Thorlaksson, 2000).

Just as a "phoneme inventory" that exists in languages, music also has its own "musical note inventory", that is, the cromatic scale To account for this analyses we have named the "downbeat notes" as consonants and the "upbeat notes" as vowels.
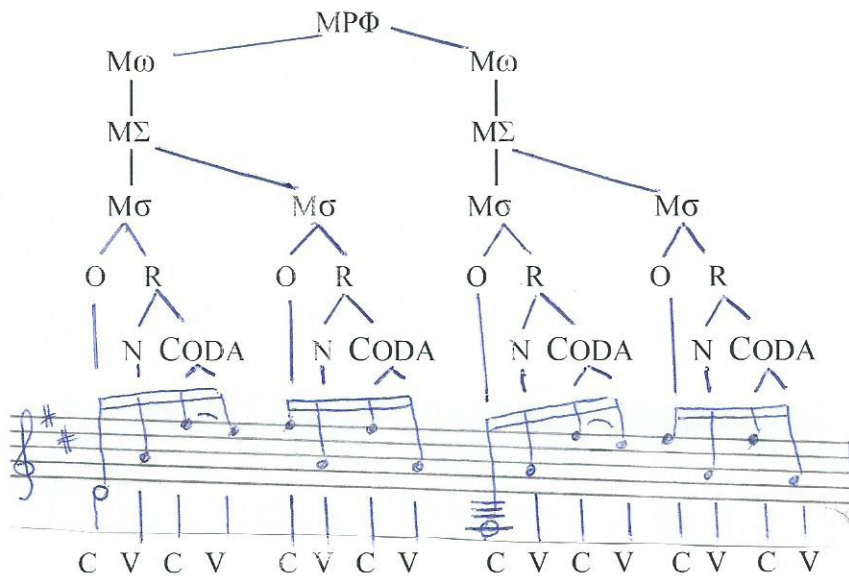
As we can see above this musical phrase (MPΦ) is formed by two melodical musical words (Mω). These two musical words are then formed by two binary trochaic feet (FT-BIN). Each metrical foot groups together two musical syllables (Mσ).

This same grammatical musical conception above can be represented on the musical model of Optimality Theory (Lerdhal&Jackendoff, 1983) as follows:

Constraints:

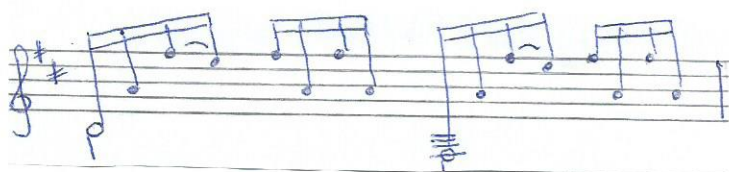NUCLEUS: syllables must have a *nucleus*.

FT-BIN: metrical feet are binary.

IDENT-IO (Rythm): *Input* and *Output* are equal for rythm (Faithfuness).

IDENT-IO (Melody): *Input* and *Output* are equal for melody (Faithfuness).

(*Tableaux* on next page).
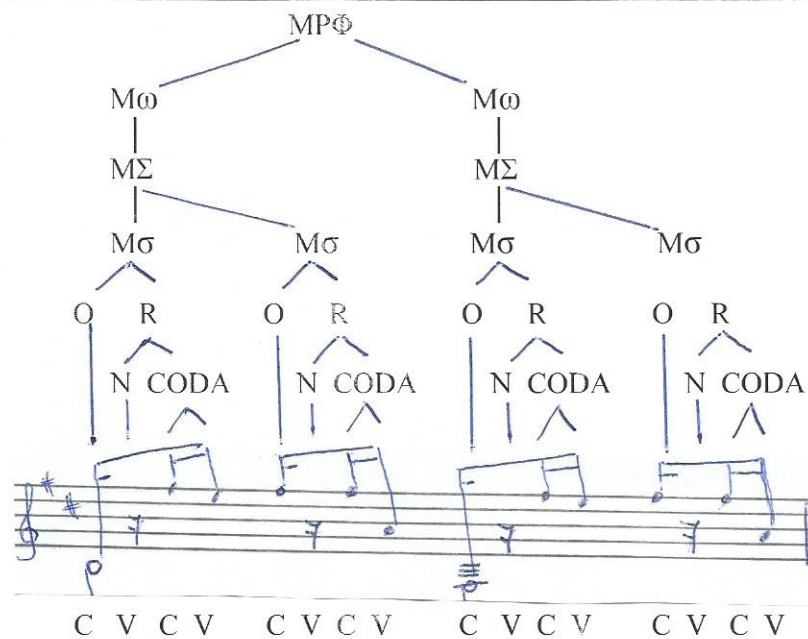
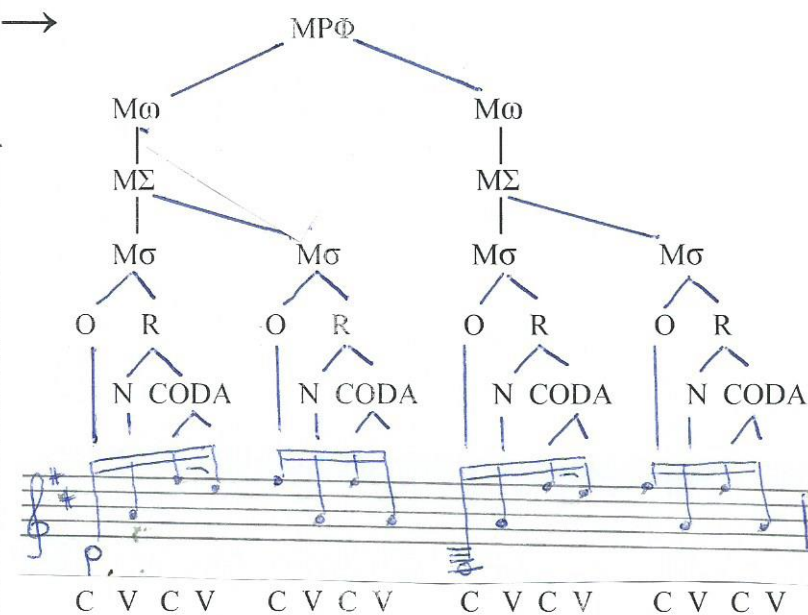| Input: The first MPΦ of Bach's Suite n°1.	NUCLEUS	FT-BIN	IO (Rythm)	IO (Melody)
	*!			*!
→				

The *output* (1) not having a *nucleus* on its syllable and neither being faithful to the relationship *input-output* or IDENT-IO (Melody) violates these two constraints while the ideal *output* (2) passes trough all the constraint ranking (the grammar) without any violations.

The first measure of "Bach´s Suite n°1 Musical Grammar" is then represented as:

[Mω – Mω]MPΦ: NUCLEUS>>FT-BIN>>IO(Rythm)>>IO(Melody).

REFERENCES

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NESPOR, M.&VOGEL, I. (1986). Prosodic Phonology. Foris, Dordrecht.

SCHREUDER, M. (2006). Thesis: Prosodic Processes in Language and Music. Print Partners Ipskamp: Enschede – Groningen.

THORLAKSSON, E. (2000). Bach, J. S. Suite n°1 - Guitar Solo (www.classicalguitarschool.net.).