

# Concepts of theoretical semantics for the understanding of prosodic imitation

Antoine Tholly

*Sorbonne Université (STIH)*

More of the project, audio examples: [tholly.net/project1](http://tholly.net/project1)

*Imitative prosody* (prosody miming word meanings) is an emerging field of study: associations between prosodic features and meanings is now well attested (Nygaard & al 2009, Perlman & Cain 2014), and some theoretical explanations are given in terms of gestures (Fónagy 1983, Perlman & al 2015), metaphors (Nygaard & al 2009), or blending (Auchlin 2013). In Tholly 2022 (doctoral dissertation), we propose both a theoretical and empirical study of this prosodic function (to listen to French examples by professional actors [English examples to come], classified in 30 imitative meanings and 10 domains, see website above).

With the following theoretical tools for classification, we are working on the integration of the imitative function into the general prosodic system, the syntagmatic analysis of utterances, and theoretical linguistics (at this stage, mainly analogical and structural linguistics). In particular, we introduce semantic features, isotopy and polysemy in the prosodic field.

[I]. Morphosemanticism / [II]. Paradigmatic onomasiology  
[III]. Syntagmatic onomasiology / [IV]. Paradigmatic  
semasiology / [V.]. Syntagmatic semasiology.

# Glossary

- **morphosemantism**: patterns of association between the form and meaning of a sign, or phonological features and semantic features of a sign (and paradigms of signs). In particular, non-arbitrary (i.e. motivated) patterns.
- **onomasiology**: semantic approach, taking meanings as the starting point and (meaningful) form-units as the end point. In particular, the study of paradigms and isotopies.
- **semasiology**: semantic approach, taking (meaningful) form-units as the starting point and meanings as the end point. The study of homophony and polysemy.
- **paradigmatic**: semantic relations seen through the prism of sign associations in paradigms (linguistic categories). Paradigmatic onomasiology explores the paradigms used to classify the meanings of signs belonging to a given code, while paradigmatic semasiology explores the classification of homophones and polysemes into paradigms.
- **syntagmatic**: semantic relations seen through the prism of associations in an utterance. The syntagmatic onomasiology section explores the link between imitated verbal content and imitating prosodic content (syntagmatic *isotopy* relations enable the reiteration of the same concepts, creating "resemblance"). The syntagmatic semasiology section explores how a polysemous prosodic sign resolves, when inserted in an utterance, the selection between its different potential profiles.
- **isotopy**: when several signs establish a semantic connection in an utterance, due to the repetition of the same concept (or semantic feature).
- **dimension/domain/taxeme**: different levels of paradigmatic organization.

# [I]. Morphosemanticism.

Unlike words, gestures or drawings, the morphological capabilities of prosody (phonological features) are not rich enough to evoke complex concepts (such as a lexical word with multiple semantic features). They are limited to evoking a few simple concepts, which are also found in other prosodic signs (grammatical, modal), with the result that the imitative function is context-dependent, and intertwined with general considerations on prosody, starting with motivation (indexicality and iconicity).

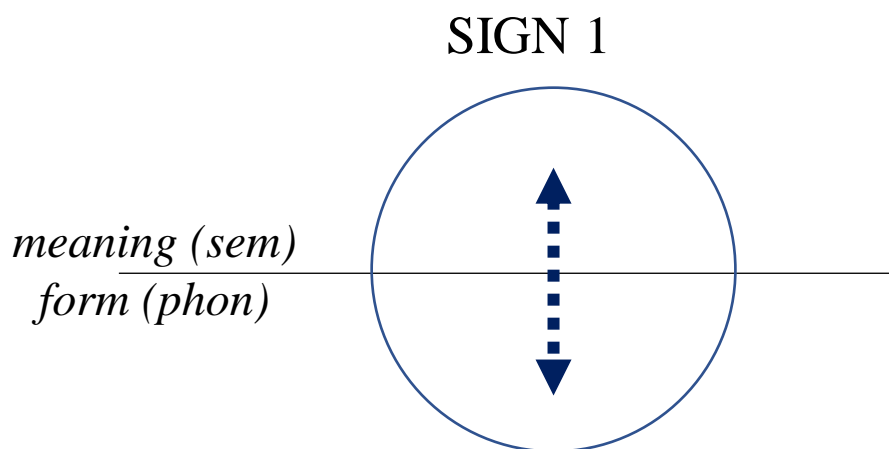
## [I.1]. Indexicality.

An **indexical** relation between form and meaning is **necessary and sometimes physical**, while an iconic relation is an unnecessary **suggestive resemblance**. (cf. Peirce/Jakobson/Monneret)

Ohala/Gussenhoven prosodic **biological codes** → a tendency towards a motivated relation between part of the form and part of the meaning of multiple prosodic signs, due to physiological constraints (= indexicality).

<b>respiration code</b>	newness, continuation prosodic signs	/melodic excursion/
<b>respir.code</b>	termination prosod. signs	/melodic fall/
<b>effort code</b>	word highlighting, high arousal emotions pr. signs	/melodic excursion/ /loudness increase/
<b>frequency code</b>	positive affects, uncertainty pr. signs	/high melody/
<b>frequency code</b>	negative affects, authoritativeness pr.signs	/low melody/

## [I.2]. Imagic iconicity.



Form-meaning resemblance for a particular sign.

Sign-internal	(inherent)	for all profiles of the sign
Sign-peripheral	(contextual)	for a contextually triggered profile of the sign

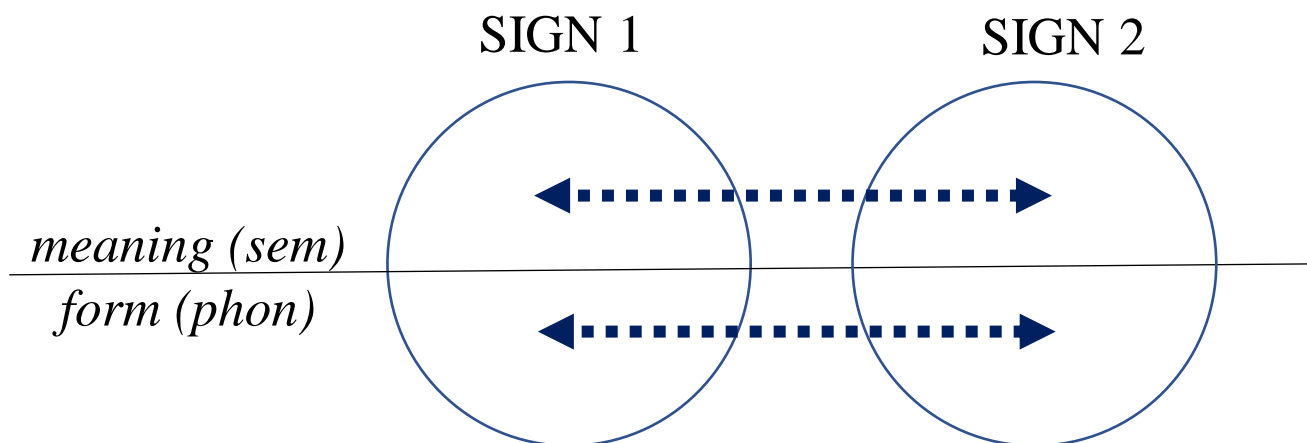
Example for emphasis:

- *sign-internal*: the intense form reflects the intense meaning shared by all the contextual meanings of emphasis (all its profiles).\*

- *sign-peripheral*: semantic features of the emphasis other than /+intense/ need context. For example, the large form of emphasis can suggest 'big size' (/intense/ in the size domain), but only if a word such as "large" is present\*\*.

\* a meaning recognized in all contexts of the sign (such as /+intense/ for emphasis) does not imply that the sign itself (with this part of meaning) is recognized in all contexts (cf. homophony). \*\* the word "large" being both the source for interpretation (trigger) and the target of the prosodic meaning (imitation).

## [I.3]. Diagrammatic iconicity.



When for two (or more) signs in relation (notably in a same paradigm), the relation between (part of) the two forms is reminiscent of the relation between (part of) the two meanings.

Equative	=/=	Phon= ↔ Phon= ≈ Sem= ↔ Sem=
Privative	∅/+	Phon∅ ↔ Phon+ ≈ Sem∅ ↔ Sem+
Scalar	+/++	Phon+ ↔ Phon++ ≈ Sem+ ↔ Sem++
Polar	-/+	Phon- ↔ Phon+ ≈ Sem- ↔ Sem+

Example for emphasis:

- *equative*: a /+intense/ phonological feature shared by several different prosodic signs with a /+intense/ meaning (emphasis, but also focus accents or high arousal emotions).
- *privative*: emphasis vs. absence of emphasis in the French accentual group scheme (cf. “accent d’insistance”).
- *scalar*: relative to degrees of emphasis (expressive emphasis sign [“GOAL”], vs. more extreme emphasis sign [“GOOOAAAL”])
- *polar*: emphasis vs. attenuation, for the imitative function only (“BIIIG” vs. “small”)

# [II]. Paradigmatic onomasiology.

## [II.1] Rastier's levels of paradigms

*Taxemes*: small, closed classes of signs that **immediately oppose each other** as possibilities of choice in a particular context. For example, 'spoon', 'knife', 'fork' in the lexical paradigm of tableware, or 'this', 'that', 'these', 'those' in the grammatical paradigm of demonstratives.

Lexical signs can also be classified into thematic *domains*: e.g. 'spoon' in the //food// domain → 'spoon' and 'cook' belong to the same *domain* paradigm, but not the same *taxeme* paradigm (do not immediately oppose each other).

Lexical and grammatical signs can also be classified in classes of higher generality, for grammatical oppositions or implications, i.e. *dimensions*. For example, 'spoon' is //concrete// (like 'tree'), and 'these' is //plural// (like '-s').

### Prosodic classification into levels of paradigms:

- prosodic research has established what we call *taxeme* (paradigms of sentence modalities, paragraph onsets, focus accents, major and minor boundaries, etc.).
- these grammatical elements do not belong to any thematic *domain* (they have no value in representing the "world")
- contrary *dimensions* cut across prosodic taxemes, and can be associated with Gussenhoven's biological codes.

## [II.2] Particularity of imitative taxemes

Prosodic imitation happens in domains ("lexical"-thematic), but on the basis of distinctive semantic features that are not specific to imitation (grammatical-modal dimensions, such as /+intense/ or /positive/). In particular:

- positive valence vs. negative valence taxeme
- high arousal/activation vs. low arousal/activation taxeme
- emphasis vs. attenuation taxeme

→ these pairs of prosodic signs each constitutes a minimal paradigm (taxeme), whose distinctive semantic features are morphosemantically motivated (cf. motivated dimensions).

As a consequence of this motivation (inherent interpretation of a form-meaning relation), these antonymic signs (in a taxeme) can be partly interpreted independently of the domains in which they will be projected for imitation (e.g. high vs. low arousal prosodic signs are already interpreted before they acquire specific meanings in certain imitative domains. For example, the imitation of opposite speeds in the domain of movement).

[II.3] Imitative prosodic signs classified into domains, sometimes by the intermediary of taxemes.

Domains	Prosodic signs in the domain paradigm
movement	<b>activation-arousal taxeme</b> [lively movement vs. stillness] ; <b>orientation taxeme</b> [upward vs. downward motion] ; initial accent [movement departure ] ; <b>final extension</b> [forward movement]
strength	<b>activation-arousal taxeme</b> [brute strength vs. calm] ; solemnity-gravity prosodem [for a solemn-imposing content] ; <b>emphasis-attenuation taxeme</b> [strength-prestige vs. fragility]
quantity	<b>emphasis-attenuation taxeme</b> [high quantity/heavy vs. low quantity/lightness]
size	<b>emphasis-attenuation taxeme</b> [largeness vs. smallness] ; <b>final extension</b> [enlargement/opening] ; <b>final extension</b> [elongated form]
sonority	<b>emphasis-attenuation taxeme</b> [loud vs. soft sounds]
presence	<b>emphasis-attenuation taxeme</b> [strong presence/appearance vs. weak presence/disappearance]
resistance	<b>emphasis-attenuation taxeme</b> [rigidity/contraction vs. relaxation]
spatial position	<b>orientation taxeme</b> [upward vs. downward position] ; pause [spatial separation] ; acceleration [spatial grouping] ; <b>final extension</b> [in the distance]
temporality	<b>final extension</b> [long duration]
valence	valence taxeme [positive vs. negative]

*In color, polysemy (sometimes at the taxeme level).*



# [III]. Syntagmatic onomasiology.

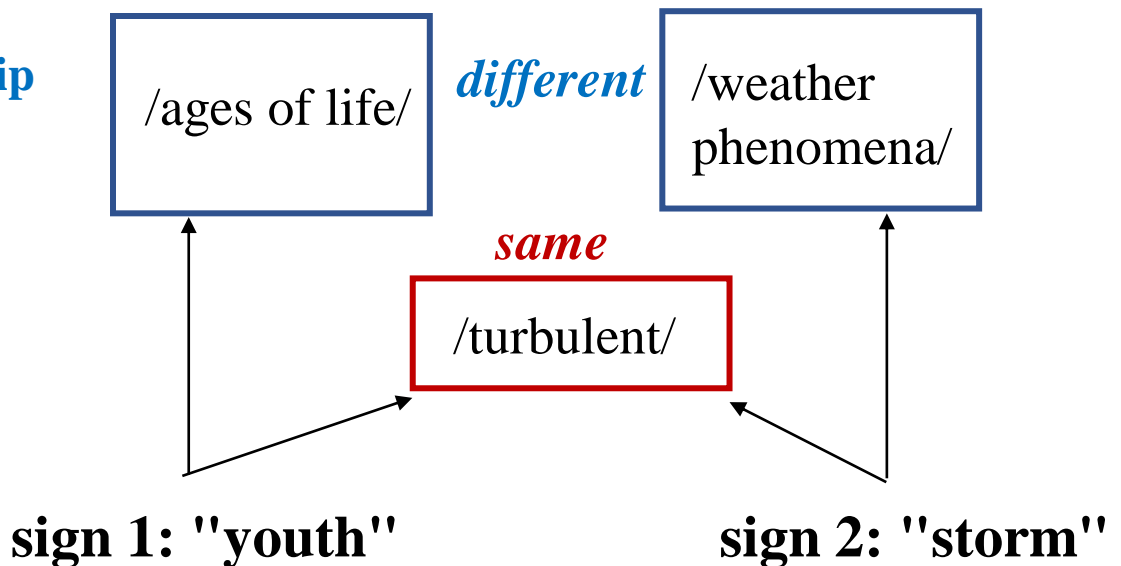
## [III.1]. Comparative vs. imitative connection between two uttered signs.

### METAPHOR/COMPARISON

“*My youth was nothing but a dark storm*” (Baudelaire)

paradigm  
membership  
semantic  
features

distinctive  
semantic  
features

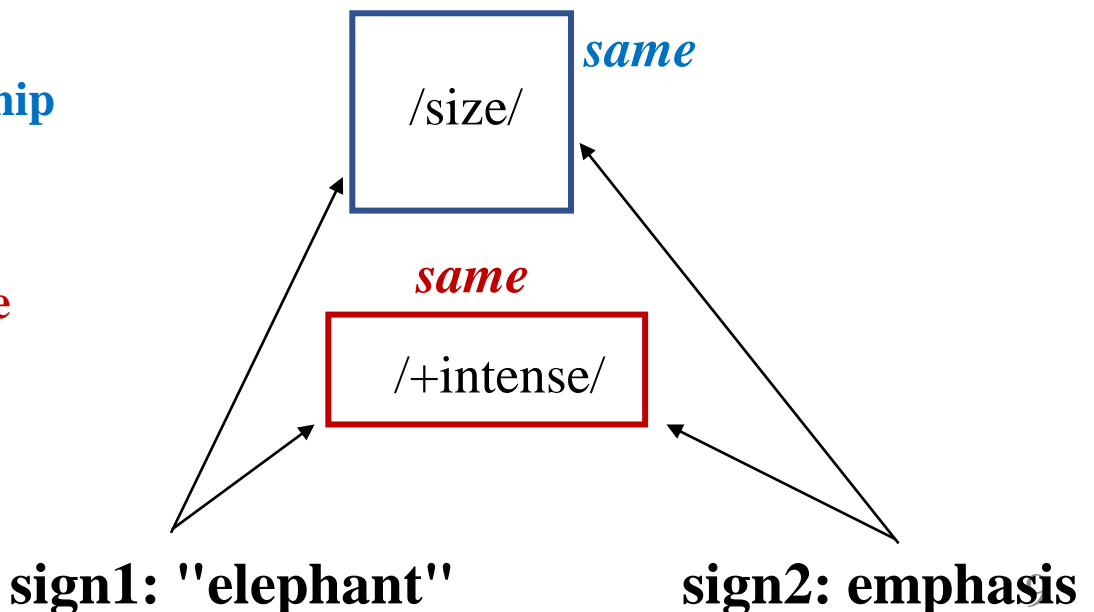


"an ELEPHAAANT"

### IMITATION

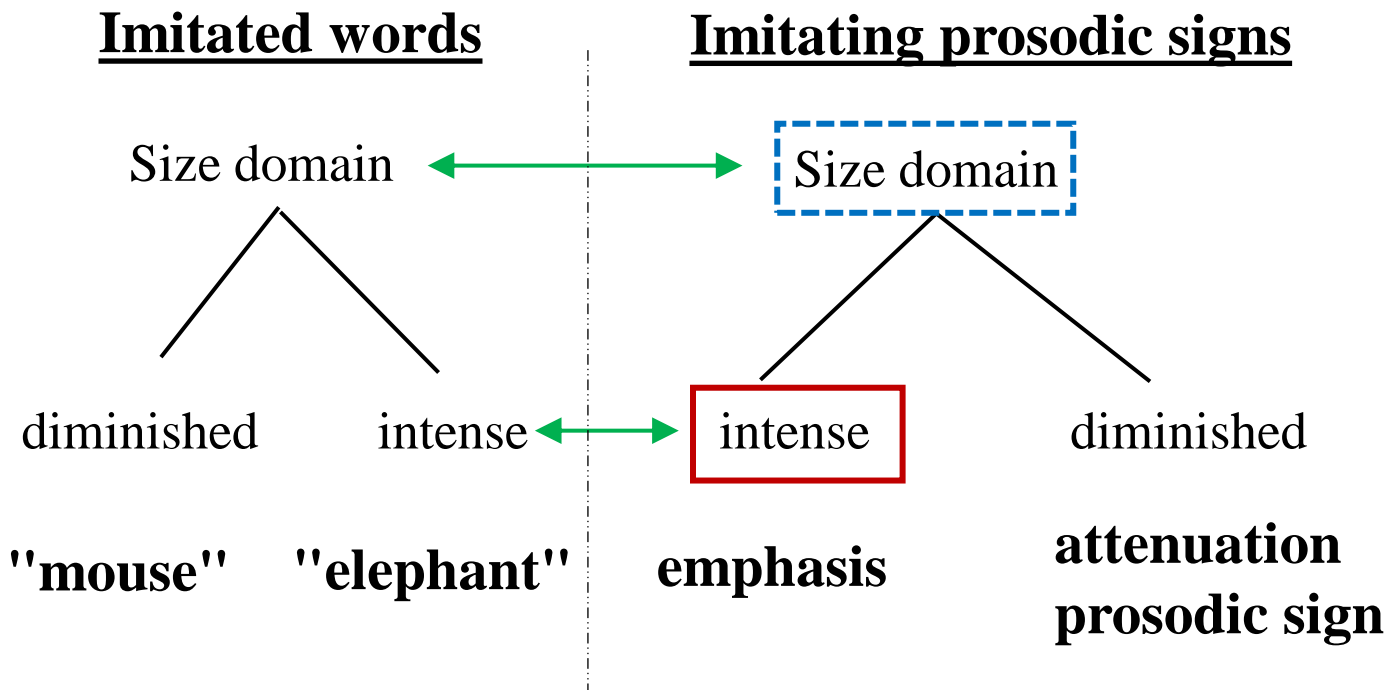
paradigm  
membership  
semantic  
features

distinctive  
semantic  
features



[III.2.]. Context-dependence activation of distinctive semantic features and paradigmatic-membership semantic features.

e.g. for an emphasis imitating the word "elephant"



↔ isotopy (connection by the same semantic feature)

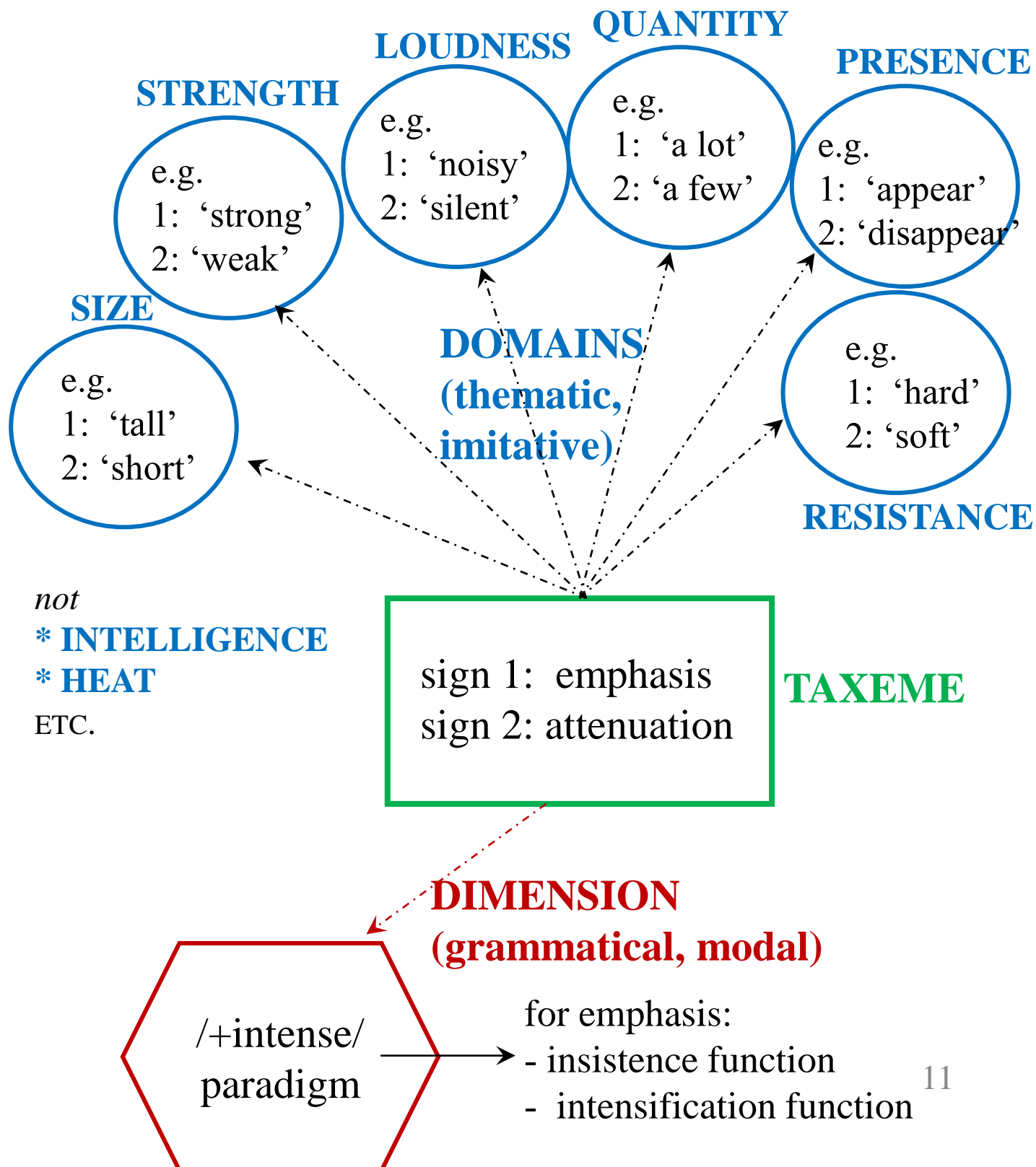
▭ interpreted in all contexts (*inherent*)

▭ interpreted in the context of an isotopy (*connotation*)

Unlike distinctive features, auto-interpreted by the prosodic sign (cf. dimension motivation), domain features require a contextual relation with the imitated verbal sign. This relation is coded at the domain level (cf. domain typology), and is established because a distinctive (dimension-like) isotopy has first been interpreted (i.e. a /+intense/ isotopy).

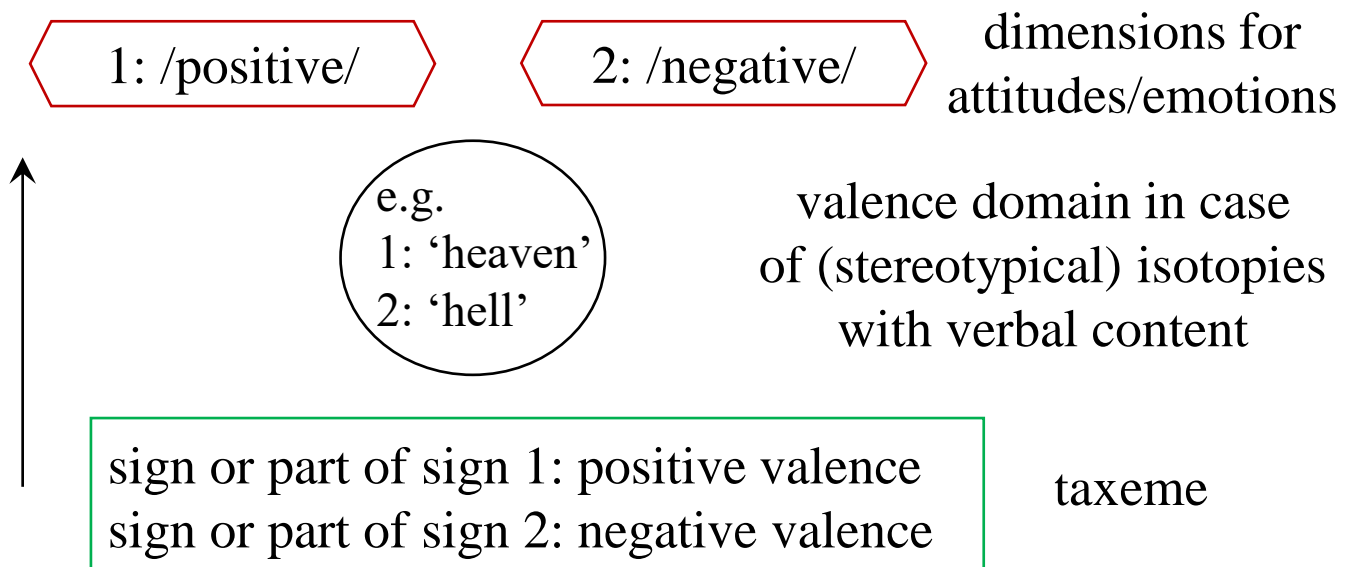
# [IV]. Paradigmatic semasiology.

## [IV.1]. Polysemy of the emphasis.



[IV.2]. An interpretative shift from dimensional (grammatical-modal) to domain features (thematic).

- Valence imitation (positive and negative)



- Arousal/activation imitation: same principle

Highly activated emotions/attitudes all share the same phonological traits, as do low activation attitudes/emotions with the inverse phonological traits (cf. Bänzinger & Scherer). This is coded as /+intense/ and /-intense/ dimensions, and the two signs (or parts of signs) can also be regarded as constituting a taxeme.

Through an imitative connection with certain words or phrases, these taxemic signs can also produce images in the domain of movement (velocity vs. slowness), or in the domain of strength (brutality vs. calm).

- ...to the most marginal cases, following this principle:

Prosodic grammar contains the dimensions /continuation/ and /termination/. For example, melodic rise of continuation vs. melodic fall of assertion. In the very special example, "he continues ↗ and he stops ↘", a thematic function imitative of the isotopic words is added to the grammatical function.

### [IV.3]. Polysemy, homophony and allomorphs.

The expressive emphasis works in an impressive way: the enlargement effect of the sound print can work through a mixture of melodic excursion, loudness increase, and deceleration (including syllabic lengthening). Not all phonological features are necessarily present = allomorphs.

*Difficulty*: how to combine both a phonic variation (allomorphism) and a semantic variation (polysemic profiles) of the assumed sign?

*First answer*: if the various allomorphs of the sign cannot be realized for a certain semantic profile of the polysemous sign, it should be considered that this "profile" of the sign is actually another sign (cf. the "long" example below).

- for the aforementioned polysemous sign (expressive emphasis, with grammatical and lexical meanings):

→ **the allomorph by lengthening and its homophones**:

- vs. final extension imitative prosodic sign. "loooong"  
\*LONG ; "go faaaar" \* "go FAR"  
= *a different imitative sign* (but amalgamated with a grammatical emphasis).

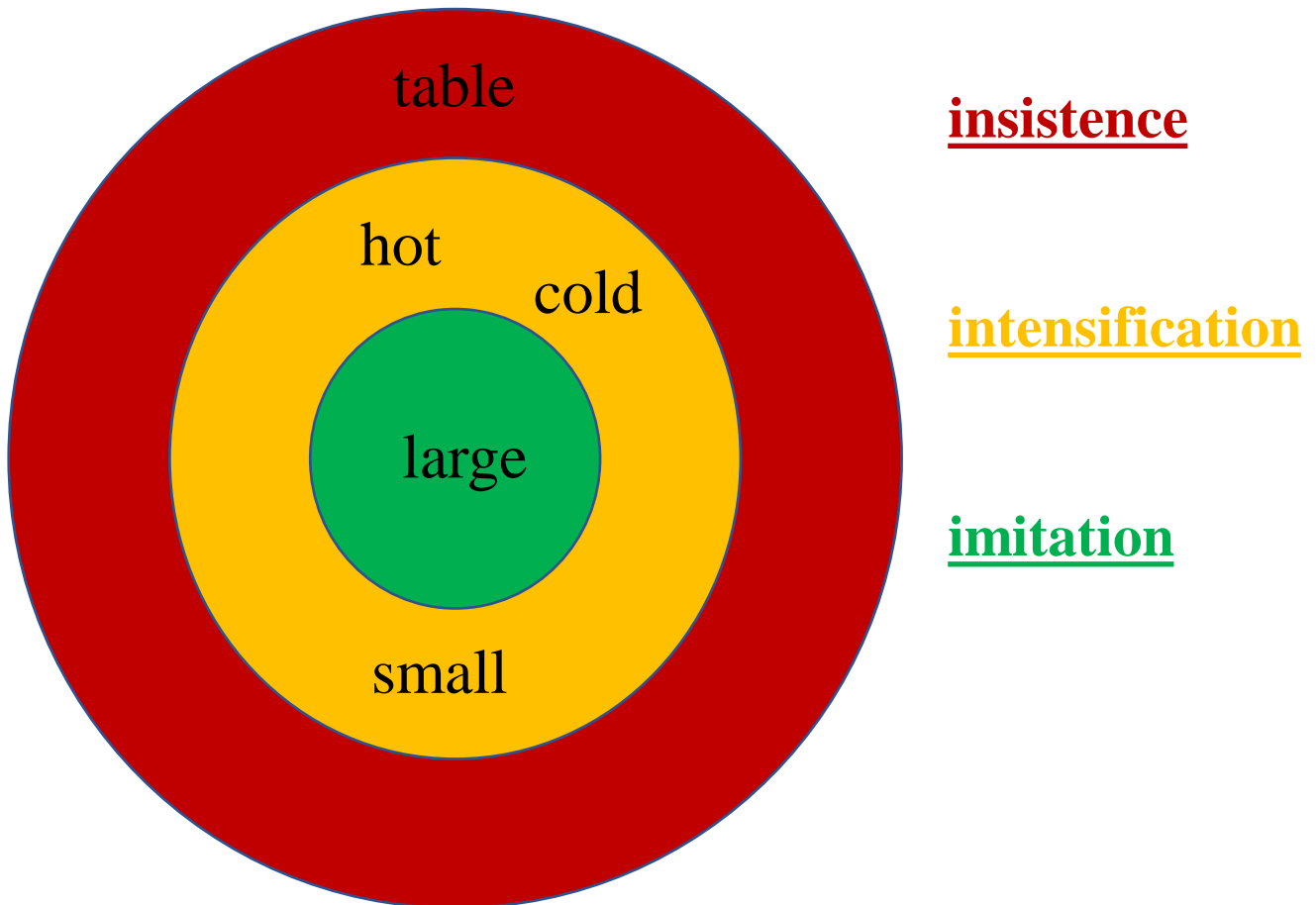
- vs. positive-lyrical prosodic sign "a poeeeeet"

- vs. phonological feature of a major prosodic boundary

- vs. hesitation mark

# [V.]. Syntagmatic semasiology.

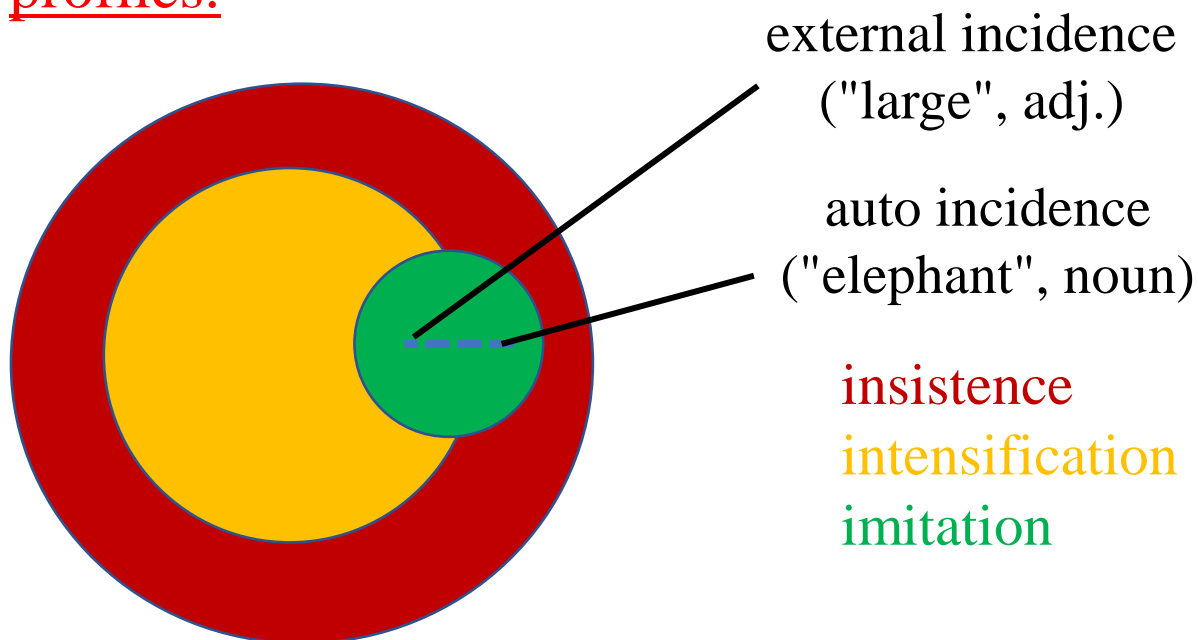
## [V.1]. Syntagmatic concomitance of polysemous profiles.



The polysemous emphasis can have **amalgamated** several profiles (semantic syllepsis), grammatical and thematic-imitative, depending on the word it has targeted.

i.e. 'LAAARGE' is at the same time highlighted in the sentence, intensively modified ('very large') and imitated by the emphasis, unlike 'small' which receives the first two functions but not imitation. 'table' cannot be intensified or imitated.

## [V.2]. Syntagmatic competition of polysemous profiles.



For a word imitable by an emphasis (or high/low activation, or valence prosodic signs), thematic-imitative and modal-grammatical functions are amalgamated (cf. V.1). Which function is more prominent in the interpretation? (i.e. word "large" + emphasis: 'very large' vs. image of the concept?)

interpreted more as a intensive modifier (intensification, very X) *continuum* interpreted more as a stereotypical image (imitation)

a phonetically more amplified emphasis



prototypical nouns



prototypical adjectives



nominalized adjectives

nouns with generic determiners



adjectives with a stereotypical relation to the noun



# Bibliography

- AUCHLIN, Antoine. 2013. Prosodic iconicity and experiential blending. In Hancil S., Hirst D. (eds). *Prosody and Iconicity*. Amsterdam, John Benjamins, p. 1-31.
- BÄNZIGER, Tanja & SCHERER, Klaus R. The role of intonation in emotional expressions. *Speech communication*, 2005, vol. 46, no 3-4, p. 252-267.
- DELAIS-ROUSSARIE, Elizabeth, POST Brechetje, AVANZI, Mathieu, BUTHKE, Carolin, DI CRISTO, Albert, FELDHAUSEN, Ingo, JUN Sun-Ah, MARTIN, Philippe, MEISENBURG, Trudel, RIALLAND, Annie, SICHELBAZIN, Rafèu, YOO, Hi-Yon, Intonational Phonology of French: Developing a ToBI System for French. 2015. In: S. Frota, S., P. Prieto, P. (eds.), *Intonation in Romance*. Oxford, Oxford University Press, pp. 63–100.
- DEELEY, John. 1994. *The Collected Papers of Charles Sanders Peirce*. Electronic edition. (<https://colorysemiotica.files.wordpress.com/2014/08/peirce-collectedpapers.pdf> Accessed 19/03/2023)
- FÓNAGY, Ivan. 1983. *La vive voix : essais de psycho-phonétique*. Payot.
- JAKOBSON, Roman. 1965. Quest for the essence of language. *Diogenes*, vol. 13, No. 51, pp. 21-37.
- GUSSENHOVEN, Carlo. 2004. *The Phonology of Tone and Intonation*. Cambridge University Press.
- MONNERET, Philippe. 2014. L'iconicité comme problème analogique. *Le Français Moderne - Revue de linguistique française*, vol. 1, p. 46-77.
- NYGAARD, Lynne C., HEROLD, Debora S. & NAMY, Laura L. 2009. The semantics of prosody: Acoustic and perceptual evidence of prosodic correlates to word meaning. *Cognitive science*, vol. 33, No. 1, pp. 127-146.
- PERLMAN, Marcus & CAIN, Ashley. 2014. Iconicity in vocalization, comparisons with gesture, and implications for theories on the evolution of language. *Gesture*, vol. 14, No. 3, 320–350.
- PERLMAN, Marcus, CLARK, Nathaniel et JOHANSSON FALCK, Marlene. 2015. Iconic prosody in story reading. *Cognitive Science*, vol. 39, No. 6, pp. 1348-1368.
- PERLMAN, Marcus, PAUL, Jing et LUPYAN, Gary. 2022. Vocal communication of magnitude across language, age, and auditory experience. *Journal of Experimental Psychology: General*, 151(4), p. 885.
- RASTIER, François. 2015. Interpretative semantics. In: N.Riemer (ed.) *The Routledge Handbook of Semantics*. Routledge. p. 507-522.
- THOLLY, Antoine. 2022. Analyse sémantique de la prosodie imitative. Doctoral dissertation, Sorbonne Université. HAL (institutional archive): tel-03948396 (<https://hal.science/tel-03948396>).
- THOLLY, Antoine. 2023 (website). Project 1 for the description and documentation of imitative prosody. (<https://tholly.net/project1>)