

# L2 PROSODIC STUDIES AND INTERFACE PHENOMENA: THE CASE OF TOPIC PHRASES

Elisabeth DELAIS-ROUSSARIE  
CNRS / Université Paris-Diderot

UMR 7110 – Laboratoire de Linguistique Formelle



# INTRODUCTION 1

---

Informational categories are expressed through different means in world languages.

- Morphological units
- Word order
- Prosody, and among the prosodic features, we may mention
  - Accent
  - Phrasing
  - Tunes

The number of studies on the relation between form and function in prosody greatly developed over the last 30 years, in particular with the AM Model (intonational meaning, phrasing and phonology/ Syntax interface). This paradigm also allows working on phonetic implementation, in particular in terms of alignment (see Post et al 2007 for an overview).

# INTRODUCTION 2

---

Note however, as mentioned by Post et al 2007, that intonational facts are generally not easy to analyze / encode for at least two reasons:

- distinct formal phonological categories (i.e pitch accents) can be used to convey paralinguistic differences in meaning
- the prosodic parameters and other phonetic cues interact in a very complex way, which isnt still well understood. (laryngealisation in conjunction with other cues, role of speaking rate in signaling modality, etc.)

⇒ Studying L2 prosody may shed new lights on these issues and help analyzing the prosodic / phonological functioning of a target language (L1).

# OUTLINE OF THE TALK

---

- Research in L2 prosody: overview
  - Issue on cross-linguistic interference (CLI)
  - L2 acquisition and suprasegmental features
  - From L2 to L1 prosodic/ intonational analysis
- Topic phrase and L2 acquisition
  - Cross-linguistic perspective on intonational patterns and expression of contrastive topic
  - Non contrastive Topic phrase in L2 French: a corpus based approach
- Conclusion and perspectives

# L2 PROSODY QUESTIONS AT ISSUE

---

# L2 ACQUISITION: TRANSFER AND CROSS LINGUISTIC INFLUENCE (CLI) (1)

- Describing and explaining the influence that a speaker's languages can have on one another has emerged as one of the central issues in any empirical research on second language acquisition, even in the early 1950s.
    - A model such as *Contrastive Analysis Hypothesis* (Lado 1957) focused almost exclusively on the influence a speaker's first language can exert on the production and perception of a second language (negative transfer)
    - The possibility of prior linguistic knowledge to have a positive influence was first suggested by Odlin (1989).
- ⇒ L1 transfer is still considered as crucial, and often as playing such a negative influence.

# L2 ACQUISITION: TRANSFER AND CROSS LINGUISTIC INFLUENCE (2)

---

The scope of research on cross-linguistic influence has expanded enormously, not only taking into account all directions of influence between a speaker's languages and all linguistic levels, but also conceptualising CLI as comprising both overt language structures in production, as well as language comprehension and psycholinguistic processes, such as avoidance and preferences, hypercorrections and overproductions (see overviews e.g. in Gass 1996, Jarvis & Pavlenko 2008: 14, 22-23, Odlin & Yu 2015: 1-16).

# L2 ACQUISITION: TRANSFER AND CROSS LINGUISTIC INFLUENCE (3)

---

- Even if the term *cross-linguistic influence* has been preferred over *transfer*, being more theory-neutral, it remains very vague. In many cases, no clear difference was made between the various languages at play.
- many of the studies that have investigated CLI so far do not distinguish between bilingual and multilingual speakers, i.e. when studying first language (L1) influence on a target language, further languages spoken by the participants are disregarded;
- By treating bilingual and multilingual speakers as one group, however, researchers risk the “danger of generalizing research findings that instead should be confined to a given subset of learners” (De Angelis 2007: 10).

# L2 AQUISITION: TRANSFER AND CROSS LINGUISTIC INFLUENCE (4)

---

- Recent research try to investigate the mutual influence of various languages a speaker masters in order to analyse the way they interact;
- In addition, internal and external factors in language development are taken into account;
- A theoretical paradigm such as Dynamic Systems Theory (DST) is has recently been put forward to explain language acquisition as a dynamic process and its variability within and across learners (e.g. Larsen-Freeman 1997, 2002; de Bot, Lowie & Verspoor 2007).

# L2 ACQUISITION: SUPRASEGMENTAL FEATURES (1)

---

- Despite the important amount of research on the acquisition of phonology in a foreign language, most of them focused on segmental acquisition such that the field of L2 speech learning has gained a fairly good understanding of segmental aspects of language differentiation.
  - ⇒ Models that have been developed to account for the acquisition of L2 phonology focused mostly on segmental features (see Flege's SLM (Flege 1995, *speech learning model* and Best & Tyler 2007, Perceptual Assimilation model)
- Mastering foreign language intonation and rhythm appear to be highly problematic
  - ⇒ why so little research on that aspect of language acquisition ?

## L2 ACQUISITION: SUPRASEGMENTAL FEATURES (2)

---

- Difficulty to establish similarity and dissimilarity between L1/L2/L3 sounds, but this problem is even more acute for intonation.
  - Phonological / phonetic status of intonational/ prosodic events.

Since intonation cues multiple functions, it is particularly difficult to establish whether certain intonation differences are categorical or gradient in nature, more so than in the segmental domain (Gussenhoven 2006). In fact, it has long been debated whether intonation actually involves a categorical structure and, if so, what its structural elements are (Ladd 1996).
  - Interaction with the various prosodic components : phrasing, tones/tunes and accentuation
  - Interaction with high linguistic levels (phonology / syntax interface, informational structure, etc.)

# L2 ACQUISITION: SUPRASEGMENTAL FEATURES (3)

---

- As pointed out by Mennen (2014), the AM model can be considered as a tool to help analyzing similarity and dissimilarity between languages.
- Mennen provides in the LILT model (*L2 Intonation Learning Theory*) 4 dimensions that have to be taken into account to evaluate the similarity/ dissimilarity between languages
  - The systemic dimension (inventory and distribution of categorical elements)
  - The phonetic dimension (phonetic implementation of the phonological category)
  - The semantic dimension (i.e the functionality of the categorical elements)
  - The frequency dimension

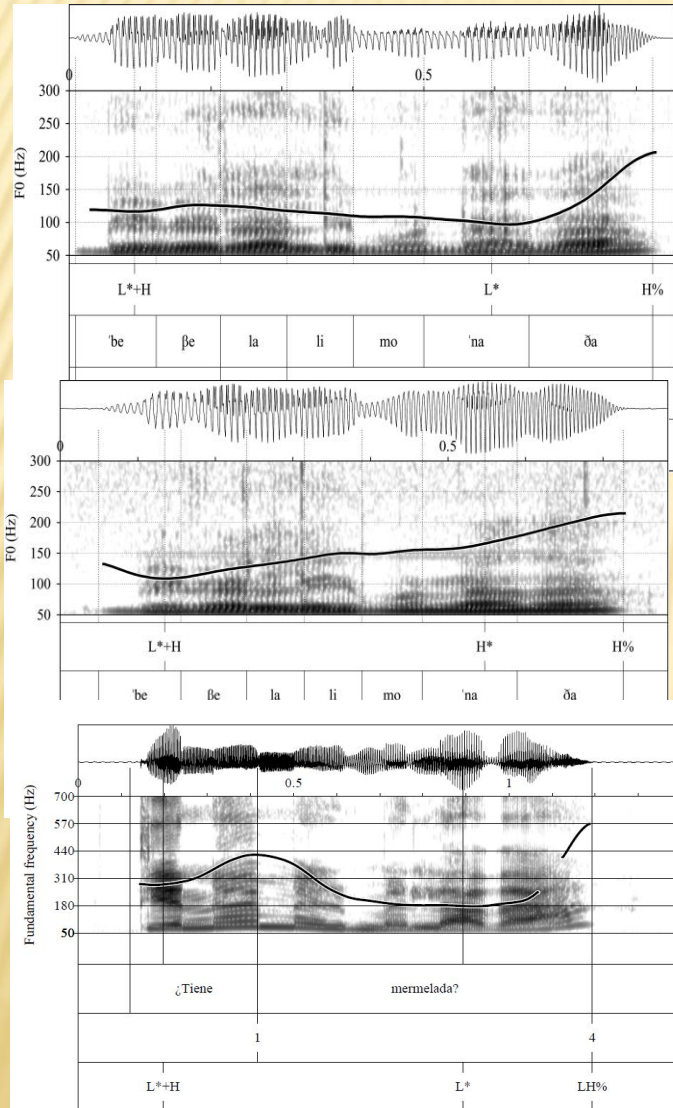
# DESCRIBING L2 PROSODY TO UNDERSTAND HOW L1 CATEGORIES ARE REALIZED / USED (1)

---

- Comparing the systems at play along the four dimensions mentioned by Mennen 2014 is not always an easy task.
    - L2 intonation can thus be of interest not only to understand how a specific feature is acquired in an L2, but also to get more details on the realization / use of a category in the L1.
- ⇒ Brief recall of the results obtained in the study we carried with Fabian Santiago (Santiago & Delais-Roussarie 2014)

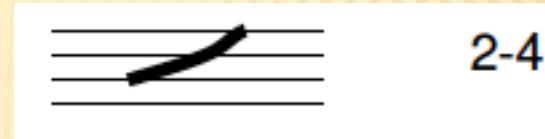
# DESCRIBING L2 PROSODY TO UNDERSTAND HOW L1 CATEGORIES ARE REALIZED / USED (2)

## SPANISH / MEXICAN SPANISH

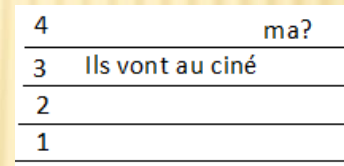


## FRENCH

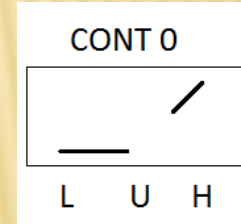
Delattre (1966)



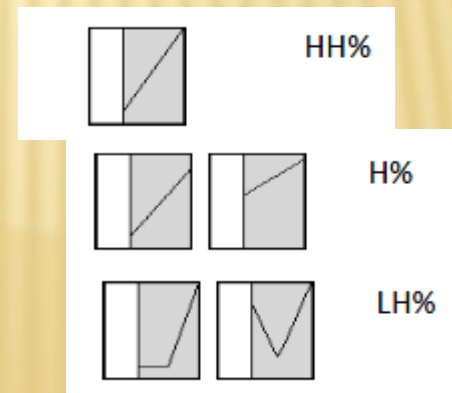
Callamand (1976)

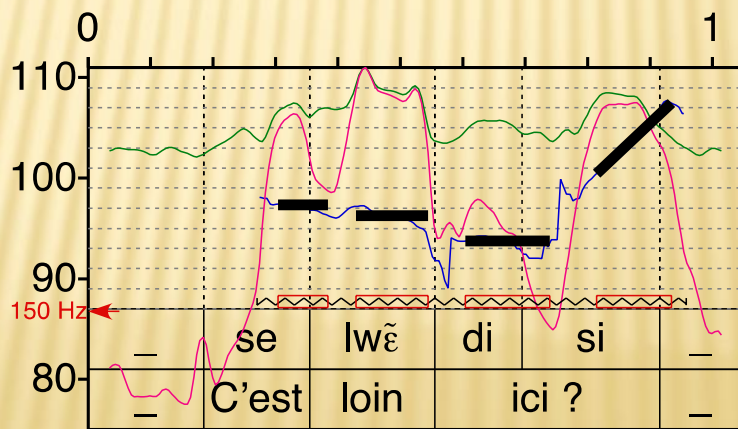
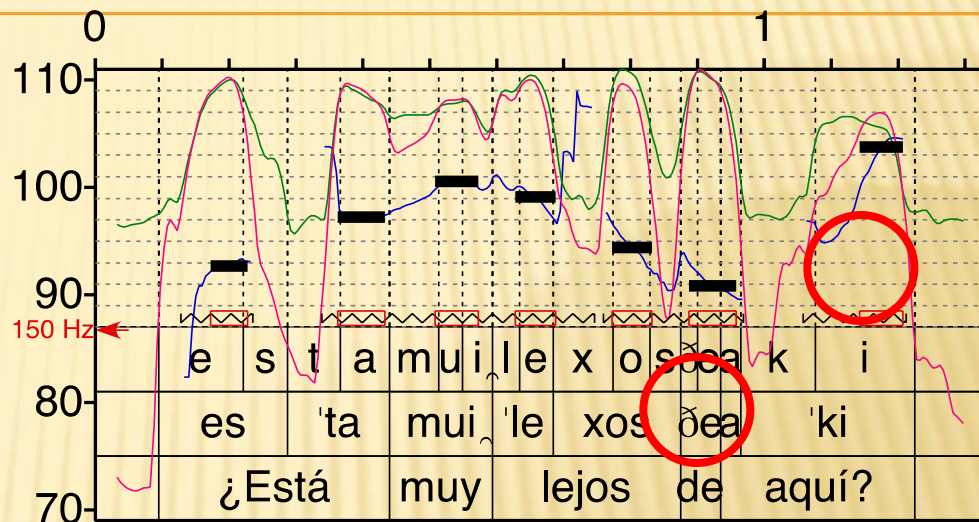
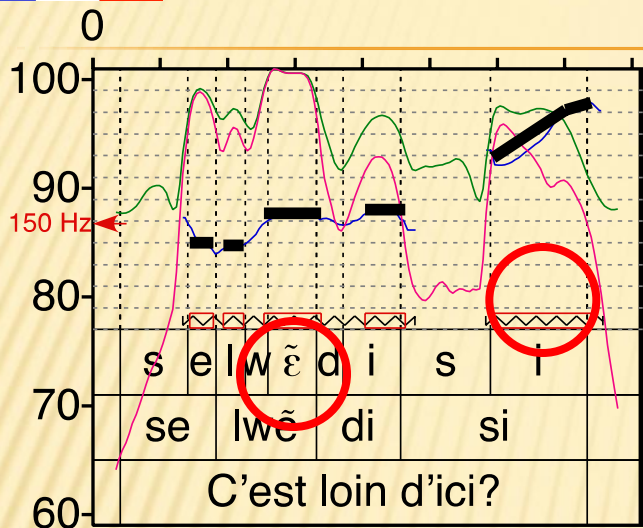


Di Cristo (2010)



De la Mota, Butragueño & Prieto (2010):

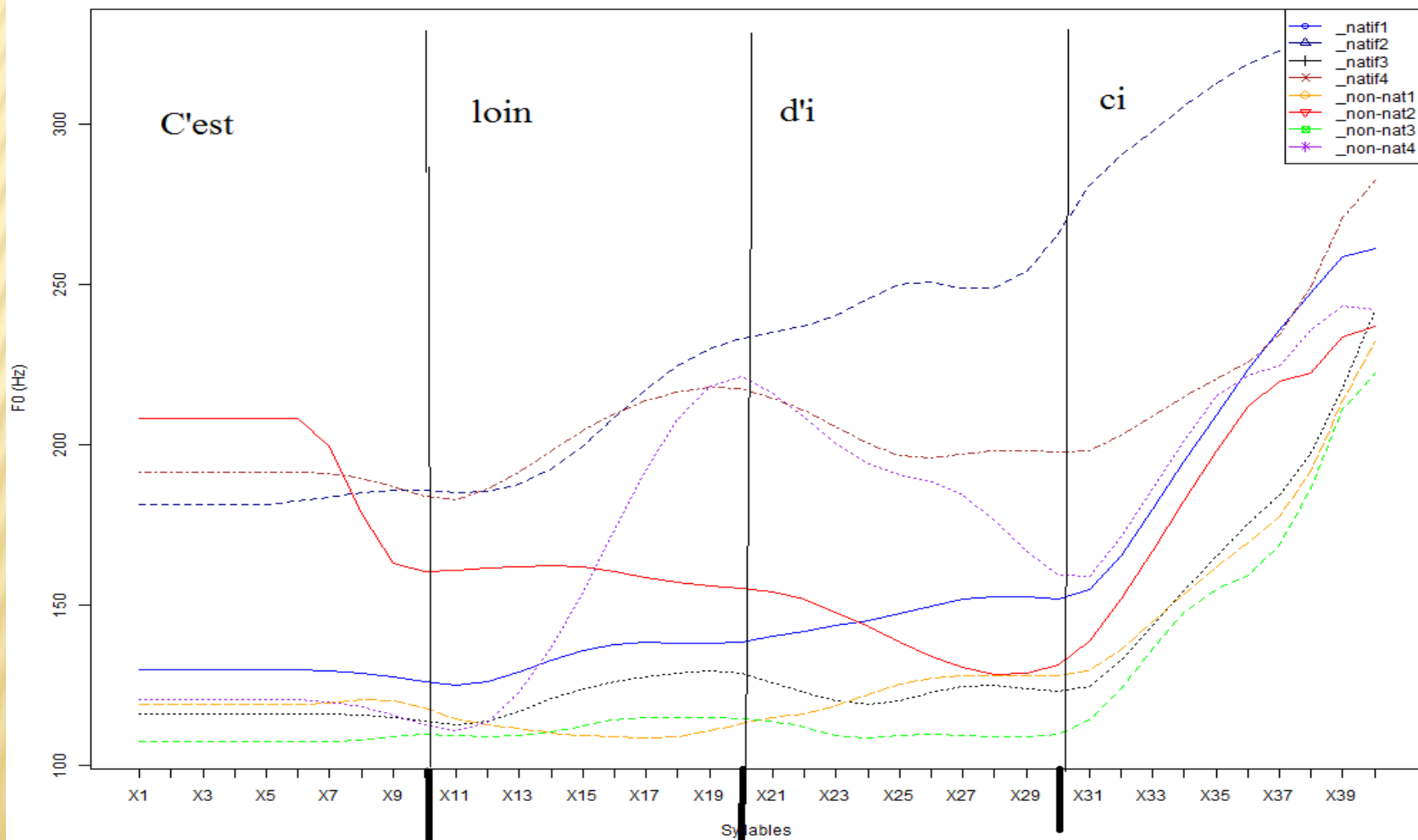




Diana

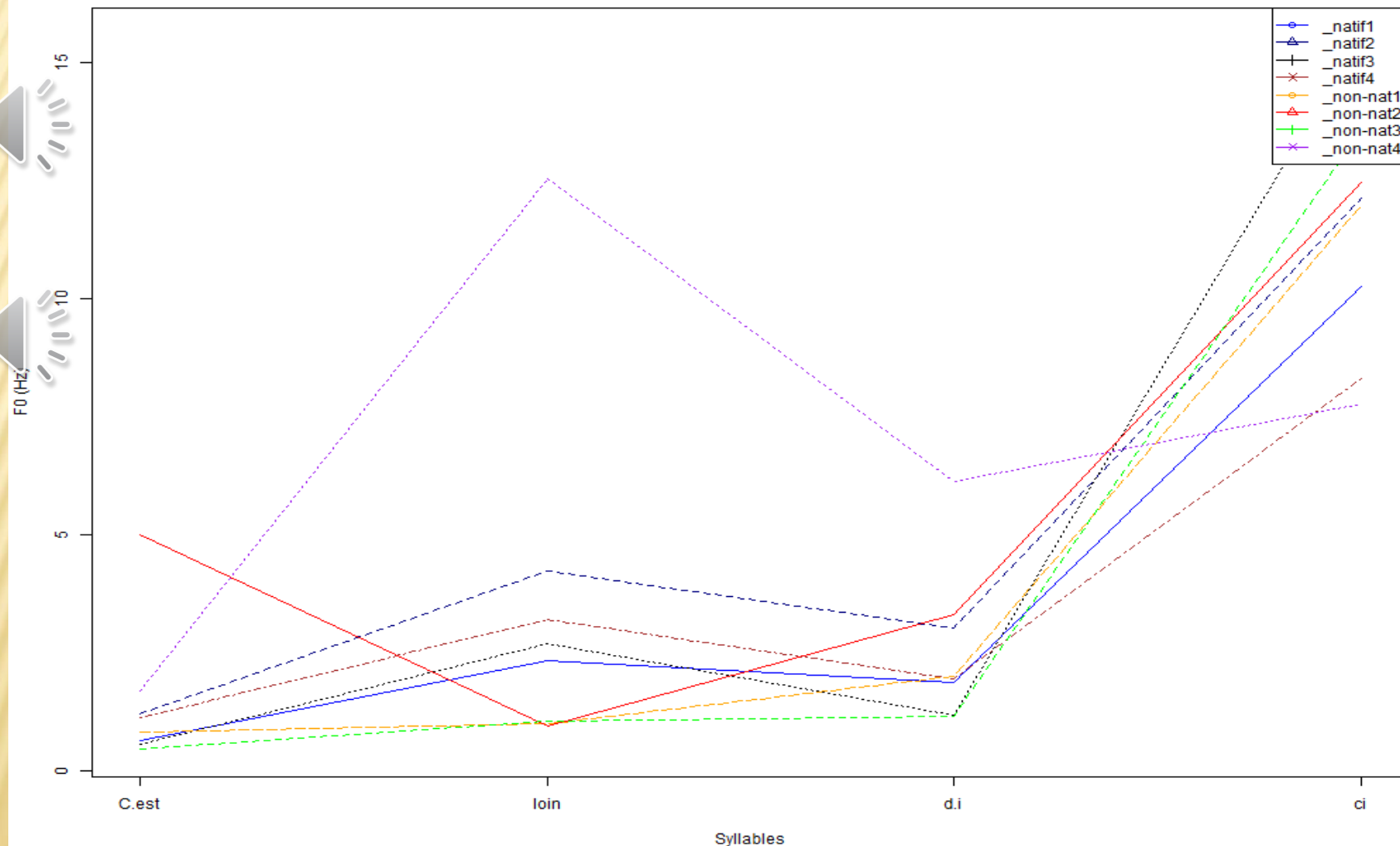
# DESCRIBING L2 PROSODY TO UNDERSTAND HOW L1 CATEGORIES ARE REALIZED / USED (3)

Cross-speaker F0 comparison of time-normalized syllables.



# DESCRIBING L2 PROSODY TO UNDERSTAND HOW L1 CATEGORIES ARE REALIZED / USED (4)

Cross-speaker F0 comparison of time-normalized syllables.



# L2 PROSODY

## TOPIC

---

# TOPIC, CONTRAST AND L2 PROSODY

(FROM TURCO & DELAIS-ROUSSARIE 2014)

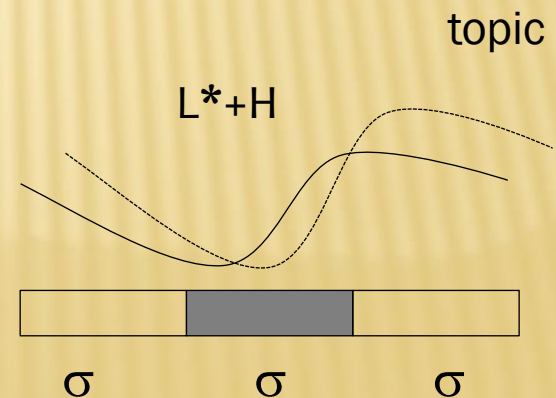
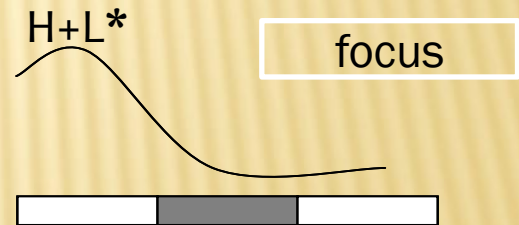
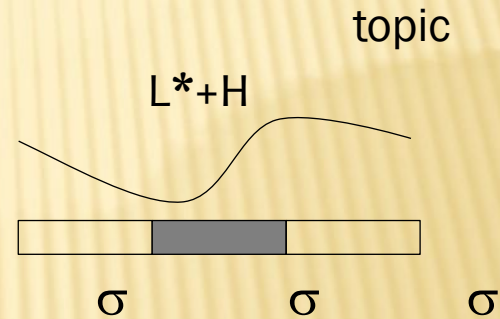
---

# L2 PROSODY AND CONTRASTIVE TOPIC (1)

Languages have different ways to convey pragmatic meanings

In German, different pitch accents are associated with different informational status

In the case of topic, different scaling and alignment of the low and high tonal targets can signal whether those topics are contrastive (later and higher peak) or not (see, among other Braun 2006)



## L2 PROSODY AND CONTRASTIVE TOPIC (2)

---

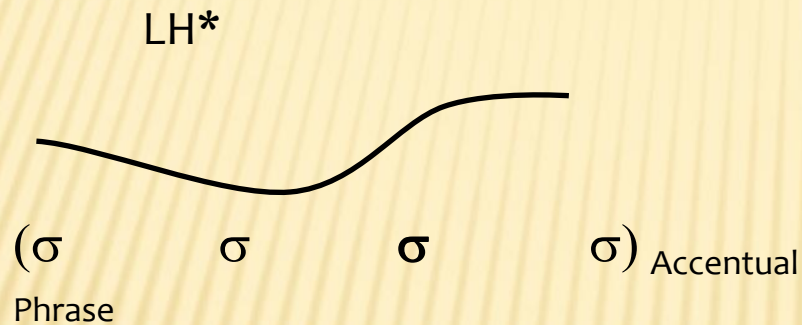
In a language like French, where stress is specified not at a lexical level but at a phrasal level (typically referred to as accentual phrase), accents are generally not regarded as

- Being part of a tonal inventory of pitch accents conveying meaning
- and not having ‘prominence-lending’ properties (like the pitch accents in language like German)

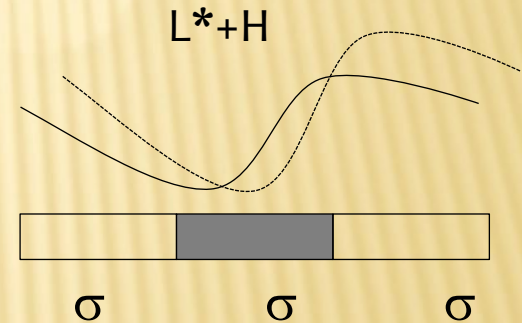
⇒ We could however see whether different realizations for the rising pattern associated with APs are related to the expression of contrast

# L2 PROSODY AND CONTRASTIVE TOPIC (3)

## French



## German



In French, it is still an open issue whether a different alignment of the Low and High tonal targets in French rises conveys pragmatic meaning differences. Some French authors have observed that rises with 'late' timings of the dip sound more assertive than rises with 'early' alignment of the dip.

## L2 PROSODY AND CONTRASTIVE TOPIC (4)

---

- In order to work on such an issue, we analyzed in production data the distribution of French rises elicited in a contrastive context by French natives and French non-natives with German as mother-tongue
- A tonal analysis on utterance-initial phrases “In my picture”... (i.e. Sur mon image...) which contained a contrastive topic was performed.
- The phrases were extracted from a corpus of semi-spontaneous speech collected by using a picture-difference task which was designed for other purposes than the ones addressed here.

# L2 PROSODY AND CONTRASTIVE TOPIC (5)

- French natives and French non-natives (German as L1)  
Data are extracted from Turco et al. (2013)

What happens in the picture?



Baseline picture



Sur mon image...

confederate



participant



## L2 PROSODY AND CONTRASTIVE TOPIC (6)

---

The results presented here come from Turco & Delais-Roussarie 2014

- The tonal pattern associated with the AP is as LHiLH\*, which contains both an initial (LHi) and a final rise (LH\*)
- Allophonic variants of the full tonal pattern can either contain an initial rise (i.e. LHiH\*, LHi) or a final rise (i.e. LH\*, LLH\*, L2H\*).
- Within final patterns, a distinction should be made between final rises with early alignment of the dip (i.e. LH\*) and those ones with a late dip (i.e. LLH\*, L2H\*) -

# L2 PROSODY AND CONTRASTIVE TOPIC (7)






Tonal pattern		French native <i>M % (SD)</i>	Stylized contours
Patterns with initial rise (on <i>mon</i> )	LHiLH*	5.4 (14.0)	 Sur mon image
	LHiH*	0.0	 Sur mon image
Patterns with final rise only, and late dip (on <i>image</i> )	L2H*	55.7 (15.6)	 Sur mon image
	LLH*	37.0 (19.0)	 Sur mon image
Patterns with final rise only, and early dip (on <i>image</i> )	LH*	1.9 (3.0)	 Sur mon image
<i>Total</i>		<i>100.0</i>	

Table 1: Average in % (over speakers), standard deviation, and stylized contours of tonal patterns produced by French natives on the phrase 'Sur mon image' ... ("In my picture...").

The distribution of the tonal patterns produced by French natives shows that :

- No initial rise is realized on *mon* to express contrast
- the late dip may be a cue for expressing contrast (see other distribution in previous studies, Welby 2006, Jun & Fougeron 2002, and Michelas & d'Imperio 2012).

# L2 PROSODY AND CONTRASTIVE TOPIC (8)

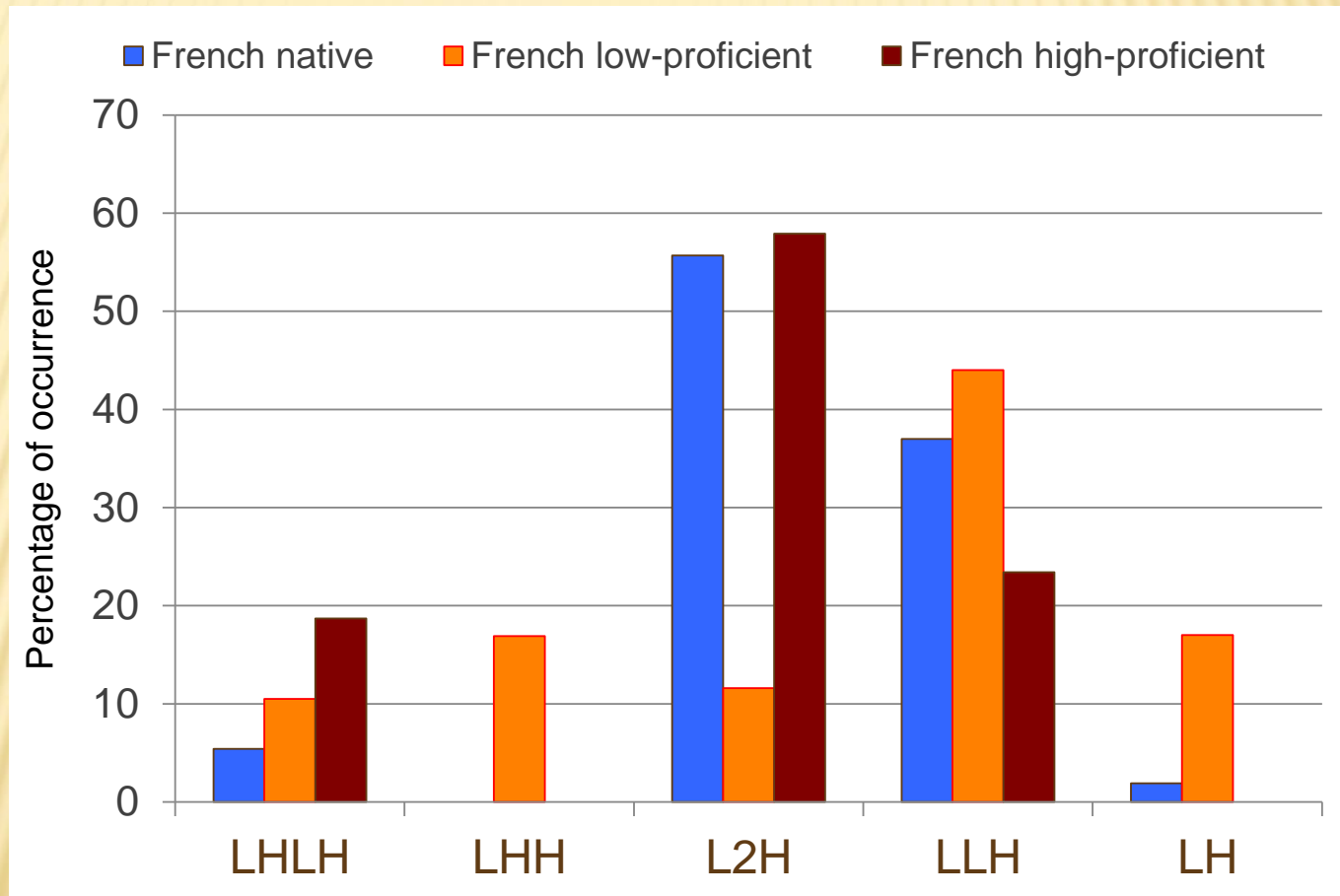
Tonal pattern		Low-proficient M% (SD)	High-proficient M%(SD)
Pattern with initial rise (on <i>mon</i> )	LHiLH*	10.5 (16.8)	18.7 (28.8)
	LHiH*	16.9 (23.6)	0.0 (0.0)
Pattern with final rise only, and late dip (on <i>image</i> )	L2H*	11.6 (8.4)	57.9 (34.8)
	LLH*	44.0 (30.9)	23.4 (19.9)
Pattern with final rise only, and early dip (on <i>image</i> )	LH*	17.0 (18.9)	0.0 (0.0)
<i>Total</i>		<i>100.0</i>	<i>100.0</i>

Table 2: Average in % (over speakers), standard deviation of the tonal patterns produced by L2 French low- and high proficient speakers on the contrastive topic phrase 'Sur mon image'.

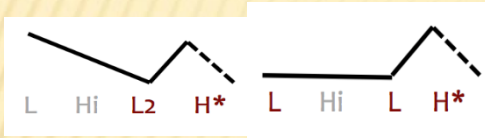
The distribution of the tonal patterns produced by L2 speakers shows that :

- The different forms are used by low proficient learners;
- the patterns with late dip are used in 81,3 % of the cases... but the pattern with an initial rise is still used.

# L2 PROSODY AND CONTRASTIVE TOPIC (9)



# L2 PROSODY AND CONTRASTIVE TOPIC (10)

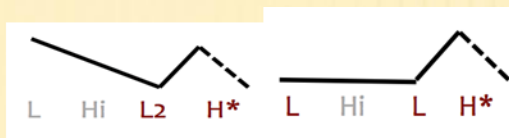


- slope of the final rises
- timing of the dip (in sec) from the beginning of the stressed vowel *a* of the word *image*

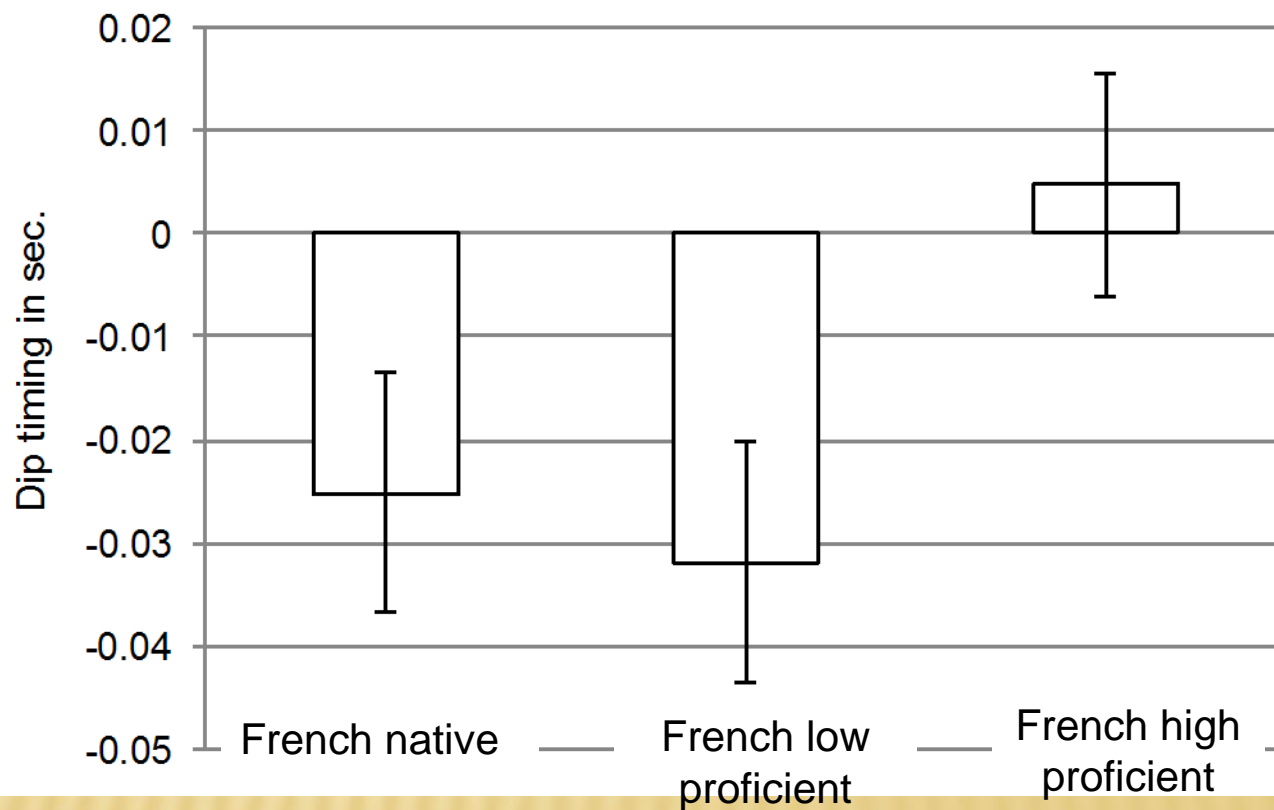
*Sur mon image...*

# L2 PROSODY AND CONTRASTIVE TOPIC (11)

TIMING of the DIP

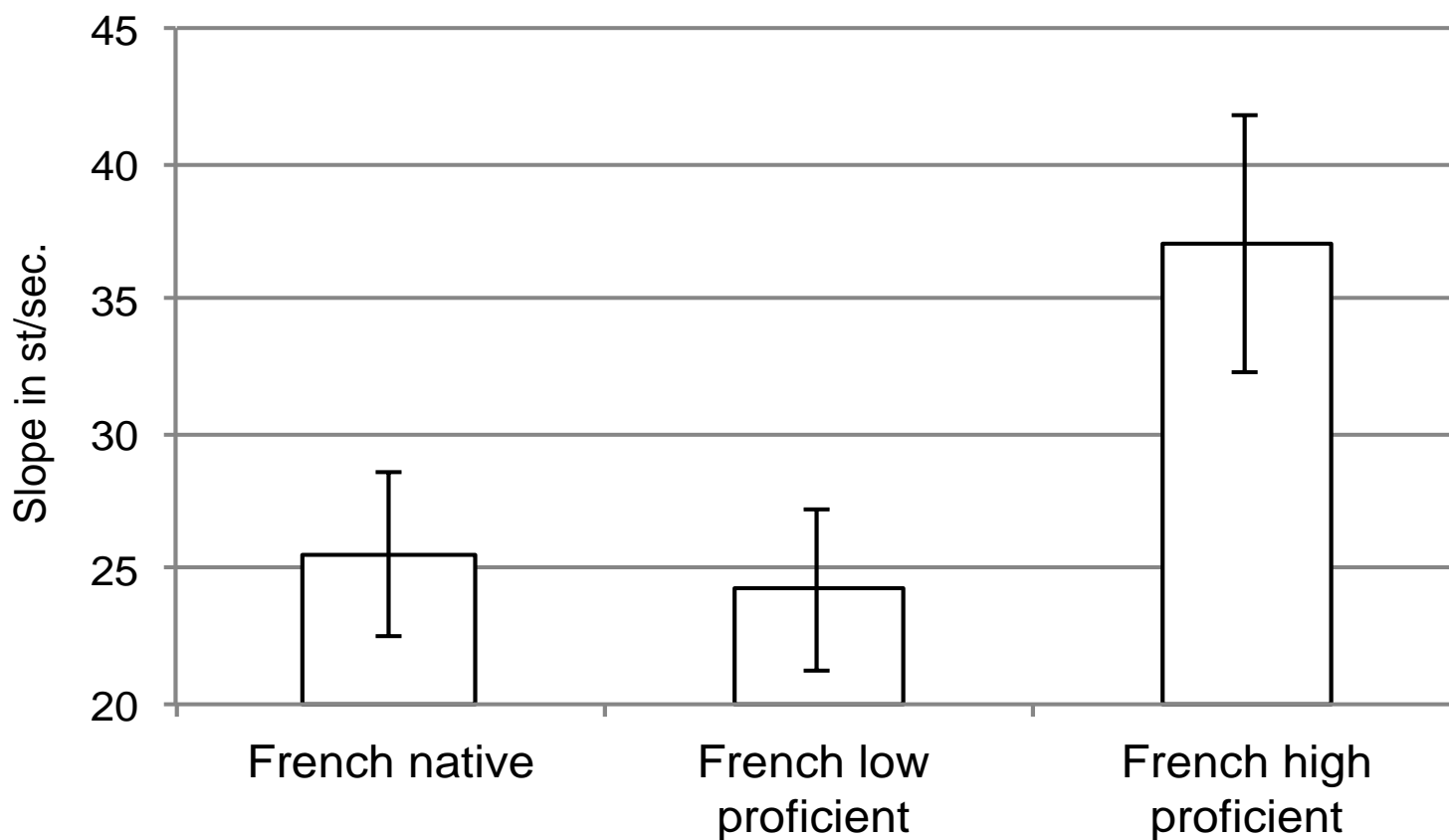
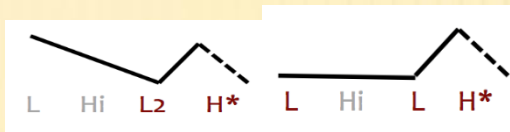


Sur mon image...



# L2 PROSODY AND CONTRASTIVE TOPIC (12)

SLOPE



# L2 PROSODY AND CONTRASTIVE TOPIC (13)

High-proficient:

- distribution of tonal patterns similar to natives
- but different phonetic implementation of L2H\* and LLH\*

Low-proficient:

- Use of several tonal patterns (in particular, LHiH\*)
- phonetic implementation of L2H\* and LLH\* closer to natives?
- learners “do less” when reprogramming new text-to-tune associations in L2?



Sur mon image



Sur mon image

# NON CONTRASTIVE TOPIC AND L2 PROSODY

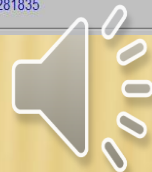
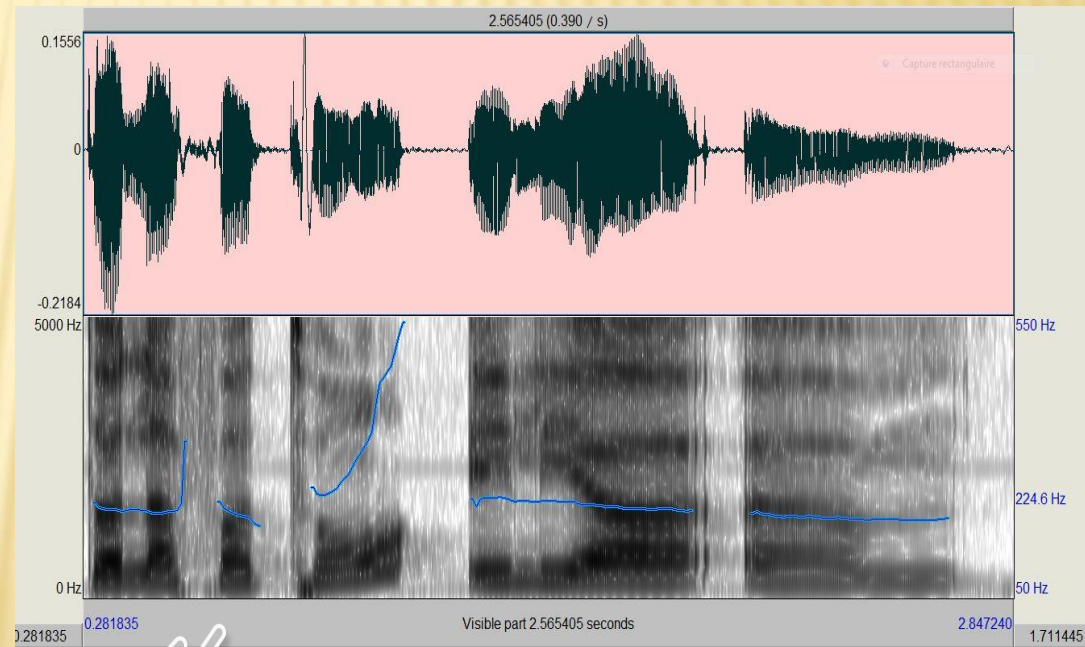
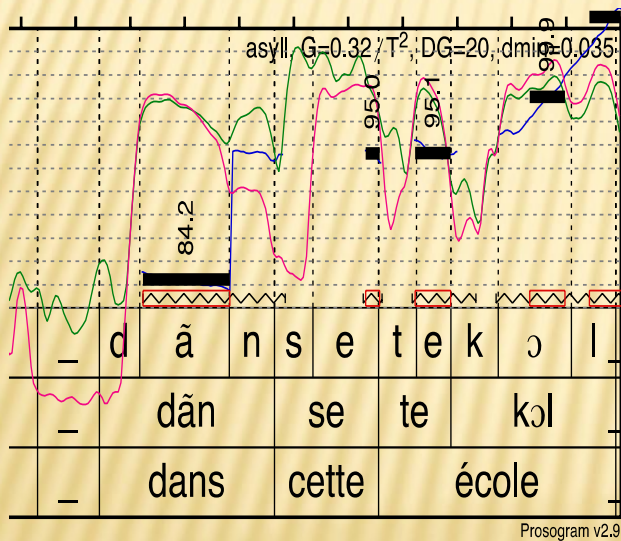
---

# NON CONTRASTIVE TOPIC AND L2 PROSODY (1)

- In this section, we will investigate the realization of frame setters XP
  - a. *Sur cette photo, il y a un oiseau*
  - b. *Auf diesem Bild befindet sich fünf Menschen.*
- In French, these elements are usually described as being phrased separately, ending with a rising contour.
- A parallel with other left peripheral topic element such as dislocated NP can be made.
- Note however that the nature of the prosodic boundary realized at the end of the adverbial phrase/ dislocated NP remains an open issue: intonational phrase, intermediate phrase, and even accentual phrase (in question), see Delais-Roussarie & Feldhausen 2014.

# NON CONTRASTIVE TOPIC AND L2 PROSODY (2)

- The investigation of L2 extra-sentential elements was achieved by Santiago & Delais-Roussarie 2015 in order to evaluate what motivate the occurrence of specific form often observed in learner productions.



# NON CONTRASTIVE TOPIC AND L2 PROSODY (3)

- Adverbials were extracted from a learner corpus containing L1, L2 and G1 data.
- The data were elicited using the COREIL Protocol (Delais-Roussarie & Yoo 2011)

## 1. Reading tasks

*Ma sœur a une peur bleue de l'obscurité. Elle refuse absolument de sortir seule dès qu'il fait nuit.*

## 2. Interactive Speech (Interview)



## 3. Unprepared Speech (Narrative)



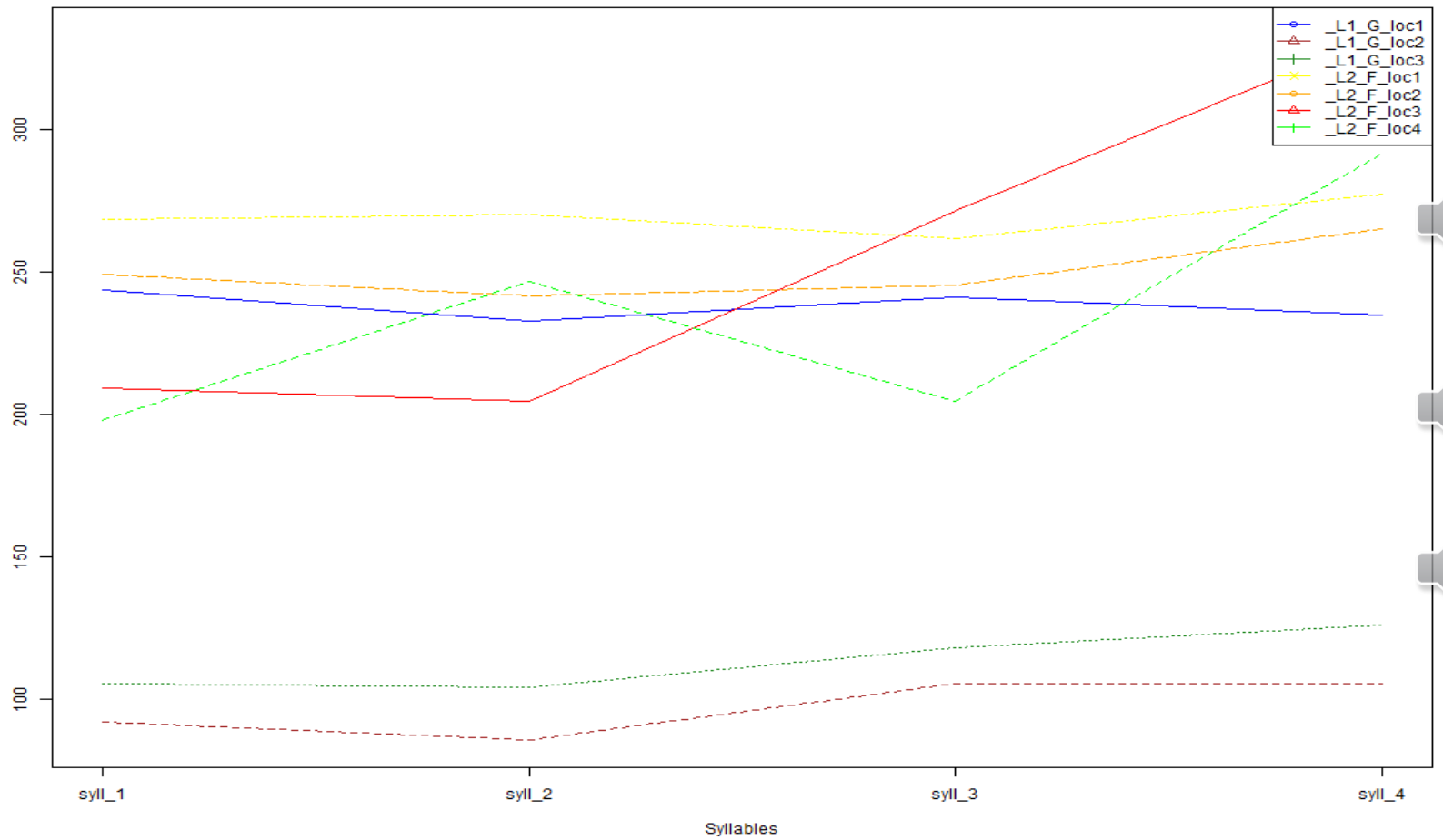
# NON CONTRASTIVE TOPIC AND L2 PROSODY (4)

---

- The adverbials were extracted from the unprepared speech that consisted of describing a picture and a drawing.
- The number of adverbials that could be compared was limited due to :
  - Syntactic differences
  - Different accentual patterns (in German)
  - Difference in the internal prosodic structure

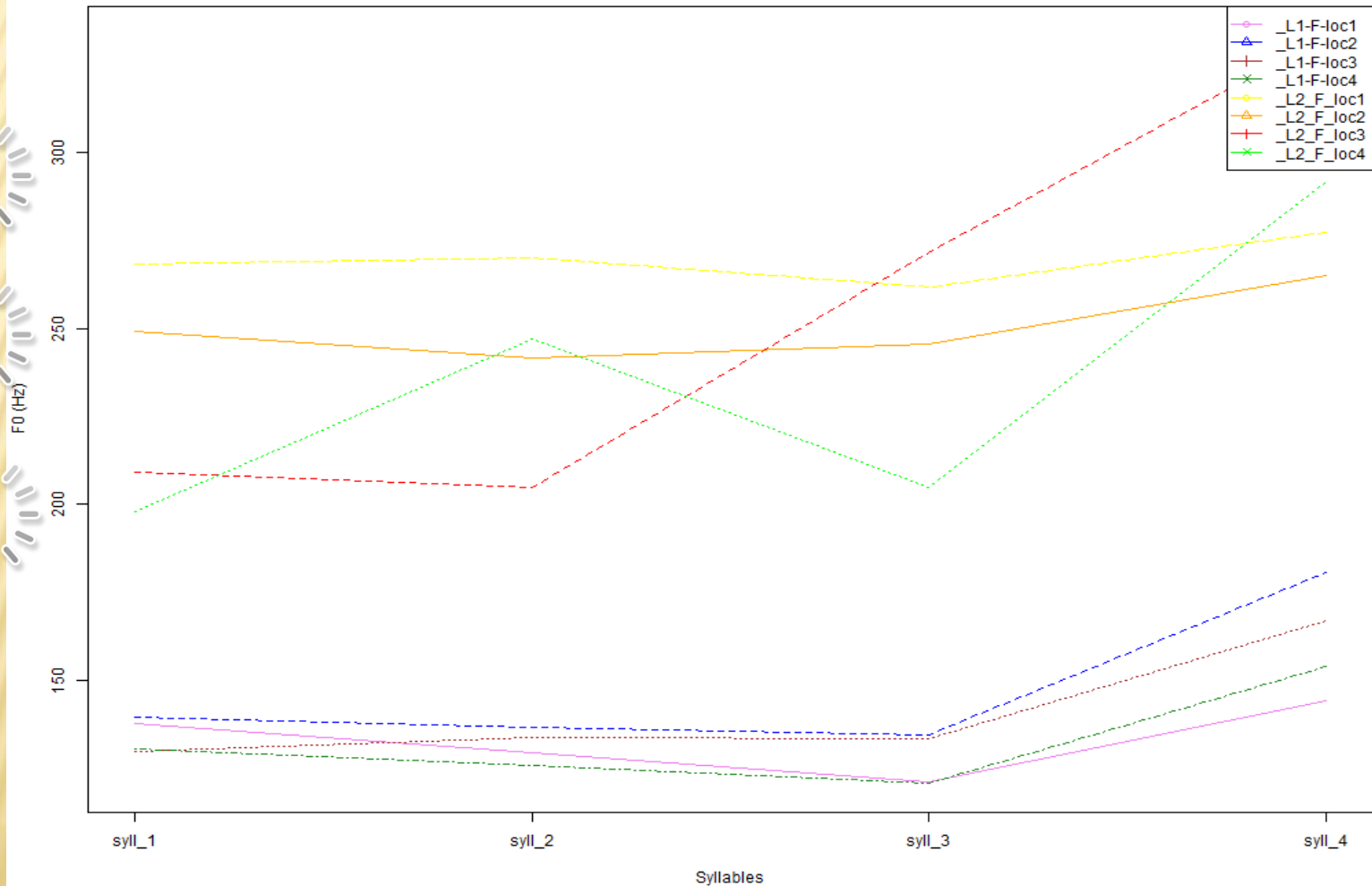
# NON CONTRASTIVE TOPIC AND L2 PROSODY (5)

Cross-speaker F0 comparison of time-normalized syllables.



# NON CONTRASTIVE TOPIC AND L2 PROSODY (6)

Cross-speaker F0 comparison of time-normalized syllables.



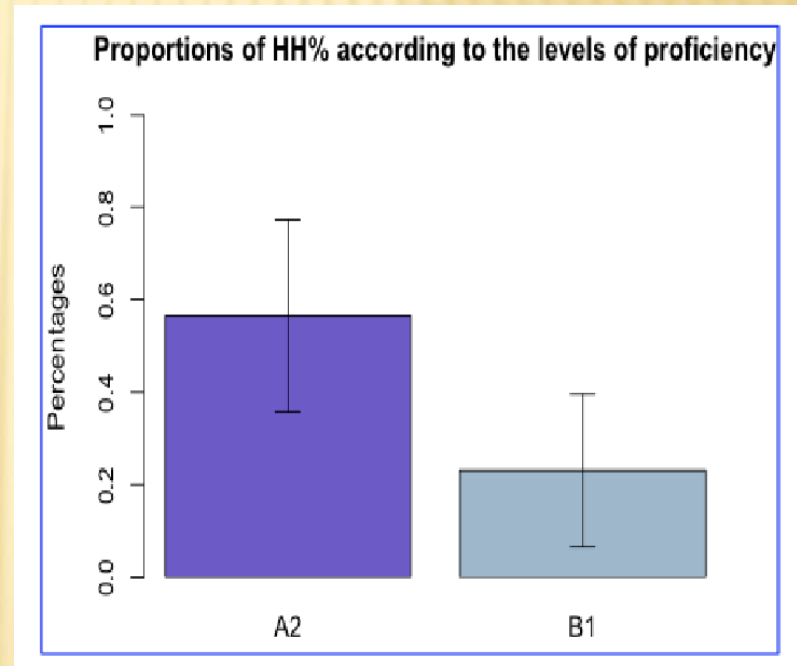
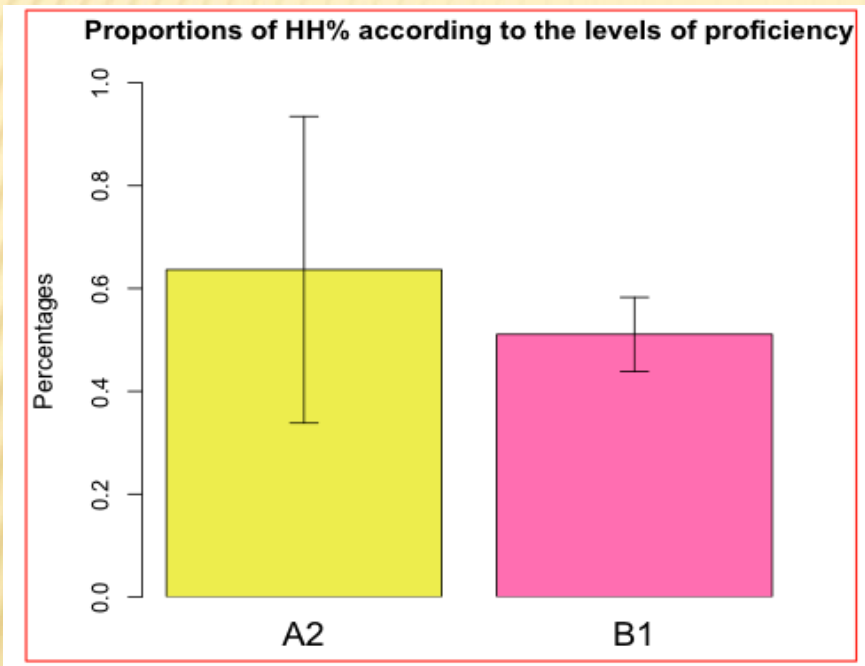
# NON CONTRASTIVE TOPIC AND L2 PROSODY (7)

---

- In French
  - Rises at the end of IP are not very steep;
  - Timing of the rise is important
  - Late dip, at least for short APs
- In L2
  - Distinction between A2 and B1 level
  - Occurrence of forms that cannot be considered as related from the speaker's L1

# NON CONTRASTIVE TOPIC AND L2 PROSODY (8)

Distribution of H% and HH% across two different levels of proficiency in French as an L2



Results obtained in the analysis of German Learners' oral productions and Mexican Spanish learners' oral productions showed that:

**There is a correlation between Proficiency level motivate and the use of (L)H\*HH% ( $p < 0.05$ )**

# NON CONTRASTIVE TOPIC AND L2 PROSODY (9)

- The occurrence of extra-rising contours may be linked to a representation that learners have on French intonation
  - French intonation is characterized by a succession of rising contours that occur at the end of non-final prosodic constituents
  - In French, intonation, accentuation and phrasing are highly intertwined (see, among others, Post 2011);
- The problem could reside in difficulties in phonetic implementation for learners coming from certain L1 backgrounds:
  - For marking the right edge of certain prosodic constituents, lengthening (duration) is an important phonetic cue in French, in comparison to what is observed in both Spanish and German.
  - The important final lengthening observed in French could be an unfamiliar prosodic feature for Spanish and German learners, and thus could represent a difficulty. Hence the HH% could emerge as a phonetic compensation of the canonical lengthening.

# CONCLUSION (1)

---

- A distinction between phonological form and phonetic realization is crucial in order to understand how meaning is conveyed
  - ⇒ fine phonetic details may cue specific linguistic function
- The investigation of L2 data (even advanced learners) provides interesting information on phonetic implementation/ fine phonetic details.

# CONCLUSION (2)

---

- Intonational patterns associated with APs may convey meaning. Studies using controlled experimental data and corpus data need to be carried out in order to evaluate:
  - How the various patterns are distributed
  - How the movements are realized (timing and slop of the rises)
- Findings have to be tested/ validated through perception experiments.

**THANK YOU FOR YOUR ATTENTION**

---

# REFERENCES (1)

---

Best, C. T., and Tyler, M. (2007). Nonnative and second-language speech perception: Commonalities and complementarities. In O.-S Bohn & M. J. Munro, *Language Experience in Second Language Speech Learning: In Honor of James Emil Flege*, 13-34. Amsterdam: John Benjamins Publishing.

Braun, B. (2006). Phonetics and phonology of thematic contrast in German, *Language and Speech*, vol. 49, 451-493.

de Angelis, G. (2007). *Third or Additional Language Acquisition*. Clevedon, UK: Multilingual Matters.

de Bot, K., Lowie, W. & Verspoor, M. (2007). A Dynamic Systems Theory approach to second language acquisition. *Bilingualism: Language and Cognition* 10 (1), 7–21.

Delais-Roussarie, E. & H. Yoo. (2011). Learner corpora and prosody: from the COREIL corpus to principles on data collection and corpus design. *Poznań Studies in Contemporary PSCIL* 47, no. 47/1, 28-39.

Delais-Roussarie, E. & I. Feldhausen (2014). Variation in Boundary Strength in French. In *Proceedings of Speech Prosody 2014*. Dublin, Mai 2014.

# REFERENCES (2)

---

Flege, J. E. (1995). Second language speech learning: Theory, findings, and problems. In W. Strange (ed.), *Speech Perception and Linguistic Experience: Issues in Cross-Language Research*, 233-277. Timonium, Maryland: York Press.

Gass, S. (1996). Second language acquisition and linguistic theory: the role of language transfer. In: W. Ritchie & T. Bhatia (eds.), *Handbook of Second Language Acquisition*, 317-345, San Diego: Academic Press.

Gussenhoven, C. (2006). Experimental approaches to establishing discreteness of intonational contrasts. In S. Sudhoff, D. Lenertová, R. Meyer, S. Pappert, P. Augurzky, I. Mleinek, N. Richter & J. Schließer (eds) *Methods in Empirical Prosody Research*, pp. 321-334. Berlin, New York: De Gruyter.

Jarvis, S. & Pavlenko, A. (2008). *Crosslinguistic Influence in Language and Cognition*. New York: Routledge.

Jun, S.-A & C. Fougeron, (2002) "The Realizations of the Accentual Phrase in French Intonation," *Probus*, vol. a special issue on *Intonation in the Romance languages*, 142-172, 2002.

Ladd, D. R. (1996). *Intonational phonology*. Cambridge: Cambridge University Press.

# REFERENCES (3)

---

Lado, R. (1957) *Linguistics across cultures. Applied Linguistics for Language Teachers*. Ann Arbor: University of Michigan Press.

Larsen-Freeman, D. (1997). Chaos/complexity science and second language acquisition. *Applied Linguistics* 18 (2), 141–165.

Larsen-Freeman, D. (2002). Language acquisition and language use from a chaos/complexity theory perspective. In C. Kramsch (ed.), *Language Acquisition and Language Socialization: Ecological Perspectives*, 33-46, London: Continuum.

Mennen, I. (2014). Beyond segments: towards a L2 intonation learning theory (LILt). In E. Delais-Roussarie, M. Avanzi & S. Herment (eds.), *Prosody and Languages in Contact: L2 acquisition, Attrition, Languages in Multilingual Situations*, 243-269. New-York: Springer Verlag

Michelas, A. & M. D'Imperio (2012). When syntax meets prosody: Tonal and duration variability in French Accentual Phrases, *Journal of Phonetics*, vol. 40, 816-829.

Odlin, T. (1989). *Language Transfer. Cross-linguistic Influence in Language Learning*. Cambridge: Cambridge University Press.

# REFERENCES (4)

---

Odlin, T. & Yu, L. (2015). Introduction. In: L. Yu & T. Odlin (eds.), *New perspectives on transfer in second language learning* (pp. 1-16). Clevedon, UK: Multilingual Matters.

Post, B.; D'Imperio, M. & C. Gussenhoven (2007). Fine phonetic detail and intonational meaning. *Proceedings of ICPHS 2007*, Saarbrücken.  
<http://www.icphs2007.de/conference/Papers/1723/1723.pd>

Post, B. (2011). The multi-faceted relation between phrasing and intonation in French. Invited contribution to appear in C. Lleo & C. Gabriel, *Hamburger Studies in Multilingualism 10: Intonational Phrasing at the Interfaces: Cross-Linguistic and Bilingual Studies in Romance and Germanic*, 44-74. Amsterdam: John Benjamins.

Santiago, F. & Delais-Roussarie, E. (2014). The acquisition of question intonation by Mexican Spanish learners of French. In E. Delais-Roussarie, M. Avanzi & S. Herment (eds.), *Prosody and Languages in Contact: L2 acquisition, Attrition, Languages in Multilingual Situations*, 243-269. New-York: Springer Verlag

Santiago, F. & E. Delais-Roussarie (2015). *What motivates extra-rising patterns in L2 French: Acquisition factors or L1 Transfer ?* In *Proceedings of ICPHS 2015*. Glasgow, Août 2015

# REFERENCES (5)

---

Turco, G., Dimroth, C., Braun, B. (2013) Intonational means to mark verum focus in German and French. *Language and Speech* 56(4), 460-490.

Turco, G. & E. Delais-Roussarie (2014). A crosslinguistic and acquisitional perspective on intonational rises in French. In *Proceedings of Interspeech 2014*. Singapour, Sept 2014.

Welby, P. (2006). French intonational structure: Evidence from tonal alignment, *Journal of Phonetics*, vol. 34, 343-371.