

When pitch accents also are boundary tones: Insights from French intonational phonology

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Contrary to its closely related neighbour languages Spanish and Catalan, French did not preserve the lexical stress pattern originally found in Latin. Within Autosegmental Metrical phonology (AM) it is well established that French represents a language with phrasal prominence which is marked with a pitch accent at the right edge [1, 2, 3, 4, 5]. Due to the reduced inventory of pitch accents, even in detailed acoustic studies, dialectal variation in French intonation has proved to be difficult to detect [6]. This has led to the assumption that French has a relatively homogenous intonation system across varieties [4]. In French, the edges of prosodic constituents are acoustically salient and pitch accents and boundary tones conflate [7, 8]. I argue that intonational variation will emerge at the level of phonetic encoding in relation to phrasing due to prosodic typological characteristics of edge-prominent languages. Support for this hypothesis comes from a study on Korean, a language with phrasal prominence marking, like French. It was found that phonetic differences at the level of phrasing, and not the composition of pitch accents, are indicators of dialectal variation [9].

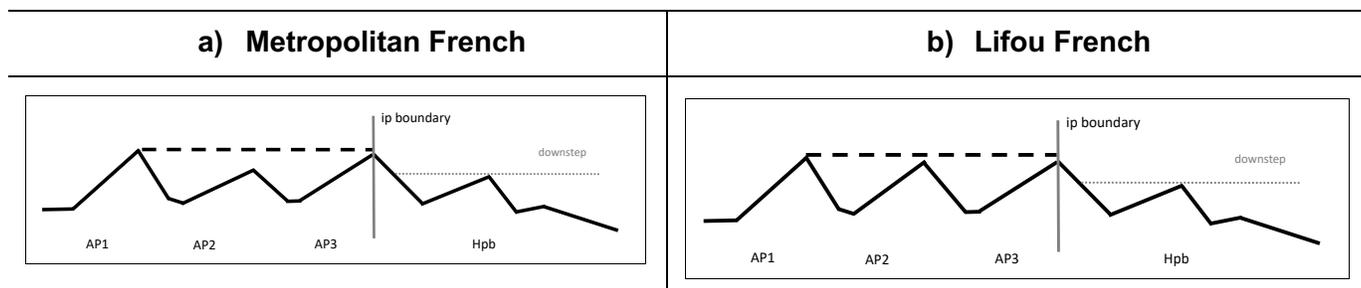
This talk presents a phonetic study of Lifou French (LF), a previously undocumented variety from the South Pacific. Two controlled production experiments conducted in New Caledonia (French Overseas Territory) are presented here. Experiments are motivated by previous work on French intonational phonology and aim to investigate three levels of the prosodic hierarchy, the Accentual Phrase (AP), the intermediate phrase (ip), and the Intonation Phrase (IP). Experiment I aimed at examining tonal targets of the AP in the speech production of five adult female speakers. Materials were taken from a study on tonal alignment [5] and make a direct comparison between the Metropolitan variety (MF) and LF possible. Recordings were orthographically transcribed, force aligned using WebMAUS [10], and manually corrected in Praat [11]. Tokens were tonally labelled according to the current intonational model of French by Jun and Fougeron [1, 3]. Acoustic and durational measurements were queried and analysed using the emuR package in R [12, 13]. To investigate tonal alignment, stepwise regression analyses were performed, together with a cross-validation technique. Results show that tonal targets and patterns used in LF are comparable to those previously described for MF.

Based on results from Experiment I, it could be predicted that LF speakers would produce a high tone (H*) at the right edge of APs. Experiment II, inspired by [8], focuses on processes of pitch scaling, of the H* peak, which are related to the demarcation of the ip. More precisely, the use of fundamental frequency and AP-final syllable duration as phonetic cues to prosodic constituency are examined. Experiment II included two conditions (APs positioned at two different syntactic breaks, see below), and used a rate manipulation paradigm. The speech production of 21 speakers (12 female) was analysed and same procedures as described above were used. Results show that F0 is significantly affected by the position of the AP which is related to a syntactic break. Evidence is found that for the marking of the ip, scaling is used in a different way than in MF. Figure 1 shows scaling processes involved in the two varieties; whereas in MF complete pitch reset is used, in LF downstep blocking is found. Additionally, in LF the use of syllable duration below the level of the IP does not conform to that reported in studies on MF [7, 8]. Data suggest that, at least in short APs, there is no lengthening of the AP final syllable. Prepausal pitch expansion of LH* is found which seems to be related to a break to a higher prosodic level. In this case, the expanded rise intonation is realised together with prepausal final lengthening and represents a high IP-boundary tone (H%). These results are stable across speech rates. Hence, the results of two studies show that although in LF tonal targets of the AP are the same as in MF, there is variation in how pitch is scaled and the way duration patterns are used in phrasing. Data suggest that fine grained phonetic variation of fundamental frequency is a prosodic factor distinguishing between MF and LF. This study confirms that tonal targets in the French intonational structure are stable across varieties. It shows that duration patterns are more variable and could be more susceptible to influences related to regional variation. Finally, this study adds to our understanding of prosodic typology, as well as to the research body on French dialectal variation of prosody.

Experiment II

2 AP condition	3 AP condition
$[[\text{NP}]^1 [\text{PP}]^{\text{Fs}}] \mid \text{syntactic break} [\text{VP}]^{\text{Hpb}}$ $[[\text{AP}]^1 [\text{AP}]^{\text{Fs}}] \mid \text{prosodic break} [\text{AP}]^{\text{Hpb}}$	$[[\text{NP}]^1 [\text{PP}]^2 [\text{PP}]^{\text{Fl}}] \mid \text{syntactic break} [\text{VP}]^{\text{Hpb}}$ $[[\text{AP}]^1 [\text{AP}]^2 [\text{AP}]^{\text{Fl}}] \mid \text{prosodic break} [\text{AP}]^{\text{Hpb}}$
(1) [La mamie] ¹ [de Rémy] ^{Fs} [demandait] ^{Hpb} Bruno. ‘Remy’s grandma asked for Bruno.’	(2) [La mamie] ¹ [des amis] ² [de Rémy] ^{Fl} [demandait] ^{Hpb} Bruno. ‘Remy’s friend’s grandma asked for Bruno.’

Figure 1. Schematic representation of scaling of F0 demarcating the right boundary of the ip in the 3 AP condition



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