The effects of word order on prosodic phrasing in Breton

This paper provides a preliminary phonological analysis of prosodic phrasing in Breton (*brezhoneg*), an endangered Celtic language spoken in Brittany, France. Unlike other Celtic languages, which show a predominantly VSO word order, Breton has a canonical verb-second (V2) word order but also allows verb-initial word order in certain contexts (Jouitteau & Torres-Tamarit 2023). In this study, we investigate prosodic phrasing in declarative sentences with a variety of verb-initial and verb-second word orders. In addition, we systematically vary the length of the subject and object (noun vs. noun-adjective), in order to account for possible effects of binarity on prosodic phrasing. In this preliminary report, we describe the patterns of prosodic phrasing and the distribution of an LH* pitch accent for two native speakers of Breton, HG and JS, and consider the relationship between word order and prosodic phrasing.

The two speakers, HG, and JS, are familiar to the third author who conducted all fieldwork. Both speakers are over 70 years old and are experienced in the exercise of elicitation and reading Breton. They each speak two Breton varieties: their native local Breton and a standardized variety. The two traditional varieties represented, East-Kerne for HG and Treger for JS, are fairly close dialects which are part of the set of dialects known as KLT (Kerne, Leon, Treger). Both speakers were asked to rewrite the sentences given to them in their local variety, then record the sentences as naturally as possible.

Each of the two speakers produced at least three repetitions of 14 possible sentences, including 8 tokens of the two transitive sentence types (Table 1) and 6 tokens of the four intransitive sentence types (Table 2). The sentences were elicited in a context designed to trigger a neutral (broad focus, all-new) information reading; any sentences with a clear narrow focus on one of the lexical items were not included in the present analysis (see Jouitteau 2007 for further discussion of semantic focus for subjects). The F0 contours of the recordings were analysed qualitatively using Praat (Boersma & Weenink 2022) and annotated by the first two authors, comparing the two speakers, assuming the autosegmental-metrical model of intonation (Pierrehumbert 1980; Ladd 2008 [1996]). No quantitative analysis was performed at this stage.

The annotated speech of both speakers showed a regular pattern of rising pitch accents (LH*) on lexical words (i.e. verbs, nouns and adjectives). In terms of timing, the peak of the rising accent occurs on the stressed (penultimate) syllable (see Figure 1). For SVO transitive sentences (Type 1), we observe that pitch accents occur on each lexical word (S, V, and O) if S and O are short (i.e. a bare noun). If the noun is modified by an adjective, then only the rightmost element in the phrase receives a pitch accent, i.e. (N_{LH*}) vs. (NA_{LH*}). Auxiliary verbs (Type 2) were not marked with an LH* pitch accent. In the three sentence types with copula verbs (Types 3-5), the copula was consistently marked with an LH* pitch accent by both speakers only when it was found in sentence-initial position (Type 4), regardless of the length of the subject. In Types 3 and 5, where the copula occurred following either the subject or the verb, we found some variation between the two speakers: JS consistently left the copula unaccented in sentence-medial position, while HG variably accented the copula, but only if the subject was non-binary (i.e. an unmodified noun).

We propose that the LH* pitch accent marks the right edge of a phonological phrase, and is placed on the stressed syllable of the prosodic word (ω) closest to the right edge of this phrase. In most cases, each of the main components of the sentence (V, S, and O) each receive a pitch accent, suggesting that each ω is parsed as its own phonological phrase (φ) (see Tables 1 and 2). In Breton, lexical (prosodic) words are marked with a single primary stress, so when a syntactic phrase includes two lexical words, only the stressed syllable in the rightmost word will be marked with an LH* pitch accent. Auxiliary verbs and copulas differ from lexical verbs by not being parsed as ωs in neutral (broad focus) sentences, and thus do not contain a primary stressed syllable capable of bearing the LH* pitch accent. Thus, when the auxiliary or copula verb is in non-initial position in the sentence, it is preferentially encliticized onto the preceding lexical item, whether this is a verb or a subject (N or NA). In Type 4 sentences, where the copula occurs in sentence-initial position, it cannot be encliticized onto a preceding lexical word (since it is utterance-initial), and thus is pronounced as a full ω and is marked with an LH* pitch accent, indicating that it is also parsed as its own φ. Note that the copula takes the form *zo* in second position after a noun (Type 3) but *emañ* in Types 4 and 5, which is disyllabic. This difference in lexical realization does not seem to affect the prosodic realization of the copula when it is produced

in non-initial position (Types 3 and 5), as both forms either variably encliticize (short subjects) or obligatorily encliticize (long subjects) onto the preceding lexical word (as shown in Table 2).

This study provides a first look at how word order can affect prosodic phrasing in Breton. Future work will consider additional sentence types, and will further probe the relationship between syntactic structure and prosodic phrasing in this language. We also plan to consider additional speakers, and will further investigate boundary tones (both medial and final) and the interpolation/scaling between LH* pitch accents in order to provide a more complete picture of intonational marking in Breton.

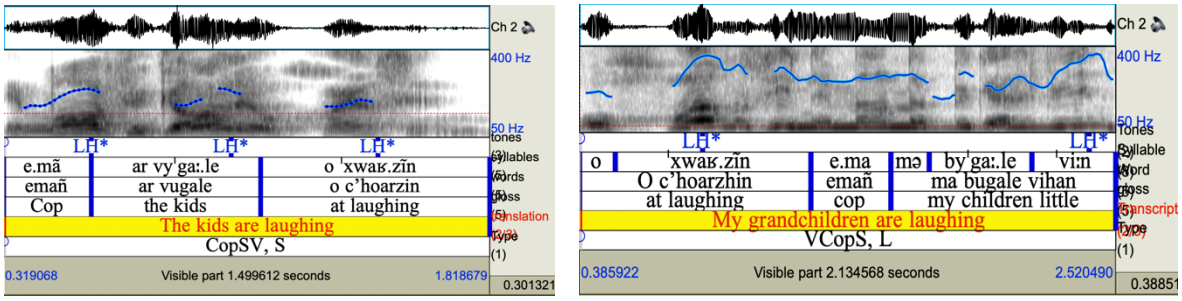

Figure 1: *F0 contours for JS (Type 4a) and HG (Type 5b)*

Table 1: *Transitive sentence types (S=short, L=long).*

Type 1	Sentence	Prosodic Phrasing	Type 2	Sentence	Prosodic Phrasing
SVO, SS	[N]V[N]	(N)(V)(N)	VAuxSO, SS	VAux[N][N]	(VAux)(N)(N)
SVO, LS	[NA]V[N]	(NA)(V)(N)	VAuxSO, LS	VAux[NA][N]	(VAux)(NA)(N)
SVO, SL	[N]V[NA]	(N)(V)(NA)	VAuxSO, SL	VAux[N][NA]	(VAux)(N)(NA)
SVO, LL	[NA]V[NA]	(NA)(V)(NA)	VAuxSO, LL	VAux[NA][NA]	(VAux)(NA)(NA)

Table 2: *Intransitive sentence types (S=short, L=long).*

	Type	Sentence	Prosodic Phrasing
Type 3	SCopV, S	[N]CopV	(NCop)(V) ~ (N)(Cop)(V)
	SCopV, L	[NA]CopV	(NACop)(V)
Type 4	CopSV, S	Cop[N]V	(Cop)(N)(V)
	CopSV, L	Cop[NA]V	(Cop)(NA)(V)
Type 5	VCopS, S	VCop[N]	(VCop)(N) ~ (V)(Cop)(N)
	VCopS, L	VCop[NA]	(VCop)(NA)

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