Intonation contours as morphemes – the case of calls and addressess

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This presentation proposes an analysis for calls and addresses and their complex interaction with intonation and discourse structure. Most Indo-European languages may make use of an intonation contour to attract the addressee's attention, such as in Germanic (cf. Pike 1945: 71–72, Liberman 1975: 30–32, Ladd 1978, ... for English and Gibbon 1976: 274–287, Niebuhr 2013 for German), Slavic (cf. Arvanati, Żygis, and Jaskuła 2016) and Romance (cf. I. Fónagy, Bérard, and J. Fónagy 1983, Fagyal 1997 for French, Borràs-Comes, Sichel-Bazin, and Prieto 2015 for Catalan and Prieto, Borràs-Comes, and Roseano 2010 for all Romance languages). This strategy is also found in Hungarian (cf. Varga 2008) and some languages outside Europe such as Bengali (cf. Hayes and Lahiri 1992) and Tianjin Mandarin (cf. Zhang 2018). The pattern is illustrated below for German and Portuguese (1):

(1) MOTHER: [friː. də. ˈriː. kə] / [mɐ. ɾi. nɐ][1]
L+H* !H-% L+H* !H-%
DAUGHTER: [jɑː. ɑː] / [sĩ. ĩ]
L+H* !H-% L+H* !H-%

There are some details which merit closer inspection. On the one hand, the intonation contour L+H*!H involves downstepped high tone !H, which is in most Indo-European languages a fairly marked tone with rather restricted usage. On the other hand, this call shows puzzling pragmatic properties. As pointed out by Ginzburg (2012: 69) and Krifka (2013), response particles such as *yes* or *no* serve as means to detect a *question under discussion* (QUD) which was introduced into discourse with the latest move. The big question in the example (1) is what is the QUD which is confirmed by *ja* or *sim*?

In a similar discussion, Truckenbrodt (2012: 2045–2048) suggests that the pitch accent H* can refer to salient propositions provided by the utterance context, as for the above illustrated calling contours he assumes that the content of this proposition is 'I am talking to you'. However, this cannot be the QUD's content, as the addressee does not confirm the fact that the speaker is talking to them, when saying 'yes'. Rather the salient proposition expresses a QUD like 'are you ready to cooperate with respect to the content of the message?'

Apart from that, these calling contours impose further requirements on the context in order to be felicitous. (i) Ever since Pike (1945: 71–72), Liberman (1975: 30) and Pierrehumbert and Hirschberg (1990: 293–294), it has been noticed that the speaker is not sure whether they have the addressee's attention. (ii) There is a reference to some unresolved issue between the addressee and speaker or some expectation that was either implicitly or explicitly addressed between the discussing parties ('familiarity, routine'). (iii) There is some information which is either beneficial to the speaker or to the addressee. As there is both a broad typological and intralinguistic variety of addresses, it is necessary to draw a clear line between their pragmatic semantic function as addresses and calls and their morphological form as vocatives. As regards to the former, Zwicky (1974: 787) proposed that there are utterance initial calls and other non-initial addresses. Turning to the form Daniel and Spencer (2009:628–631), observed different strategies to express addresses and calls as vocative case, particles or prosodic/intonational means.

The most well studied materialisation of vocatives are case-like suffixes, as still found most in many Slavic languages, in particular Czech, in Latin, Ancient Greek, Kati (Indo-Aryan) and Georgian, as illustrated below:

(2) TOMAS: Barboro.
Barbora.VOC
'Barbora!' CZECH

BARBORA: jo$^{H-\%}$/ ano$^{H-\%}$/ tady$^{H-\%}$/
yes yes here
slyším$^{H-\%}$/ prosím$^{H-\%}$/ Co je$^{L-\%}$
listen.1S beg.1S what is
'Yes$^{H-\%}$/I am listening$^{H-\%}$/Please$^{H-\%}$/What are you disturbing me?'

Another frequent strategy to express calls are vocative particles as being employed prenominally in Albanian, Scots Gaelic and Portuguese (cf. de Barros 1540:10–17); Mallory and Adams (2006:359–360), Janson (2013:224) assume that this particle **o* was present already at Proto-Indo-European time. Vocative particles are also attested in Arabic, Zulu (cf. Doke 1961), Ewe (Atlantic-Congo cf. Ameka, 1998:193–201), which has a large variety of pre- and postnominal particles.

(3) MARINA: ó doutor Luís.
VOC doctor Luís
'Doctor Luís!' PORTUGUESE
DR. LUÍS: diga$^{H-\%}$/ diz$^{H-\%}$/
say.IMP.3S say.IMP.2S
sim$^{H-\%}$
yes
'Please$^{H-\%}$ /yes$^{H-\%}$.'

The third widely used form is vocative prosody or intonation, as was already illustrated in example (1). Yorùbá (Atlantic-Congo) also makes uses on intonational means employing a higher pitch register for vocatives. Many among these different materialisation of vocative markers have fairly specific conditions on the context which specify the relation and situation between the speaker and the addressee.

Note some of the vocative forms can only be applied to noun phrases which refer to plausible addressees. But there are also forms that may apply to other types of utterances, such as the Germanic (L+)H*!H intonation contour which can combine with declarative sentences, imperatives and interrogatives (cf. Gibbon 1976: 274–287, Ladd 1978: 520–524, Condoravdi and Sunwoo 2017, 2018 for similar observations):

(4) (das) Essen (ist) fertig!
L+H* !H-%
'Food is ready!'

(5) Have a nice trip![2]
H* !H-L%

(6) Hallo! Ist da jemand!?
L+H*!H-% L+H* !H-%
'Hello! Is there anybody here?'

(7) Ab ins Bett mit euch!
L+H* !H-%
'(go) in your bed'

Moreover, there is a whole range of similar types of addresses with very different specifications of meanings, such as stern or reprimanding calls used to warn mostly children (cf. Féry 1993: 91–93, 96, Quiroz and Żygis 2017: 1211) to mention one. Czech uses a particular type of vocative suffix *-ne*/*-no* to express such meanings.

Based on the variety of different grammatical means which can materialise calls and addresses, it is suggested to develop a unified analysis where all the vocative markers including intonation contours. Such an approach is supported by the findings presented in Sóskuthy and Roettger (2020:150–153), which demonstrate the narrow link between vocative case and intonation contours. A widespread assumption is even more explicit in considering pitch accents and boundary tones to be abstract morphemes (cf. Bolinger 1957,1989; Gussenhoven 1984; Pierrehumbert and Hirschberg 1990; Bartels 1999: 72–77; Truckenbrodt 2012:2043,2051). If vocative intonation is considered to be a morpheme, one could assume that in cases in which it has scope over an entire independent sentential utterance (cf. 4–7) rather than a name, it only represent a more grammaticalised counterpart of the original use.

Because the wide array of resources to model discourse relations necessary, the analysis presented here is spelled out in *conversation oriented semantics* (*KoS*) within the framework of *Type Theory with Records* (*TTR*) as suggested by Ginzburg (2012) and Cooper (2023). It builds on three ingredients: (i) a type hierarchy of prosodic constituents inspired by Klein (2000), (ii) binary phrasal schemes which model the speech act type address/call and (iii) a conversational rule which licenses the use of calls.

When talking about the materialisation of calls as intonation contours, the first question which arises is how to align the contour with the prosodic constituent structure. Klein (2000:190) proposed a type hierarchy including phonological words and metrical

[1] Portuguese data retrieved from Prieto, Borràs-Comes, and Roseano (2010).

[2] As quoted in Condoravdi and Sunwoo (2017:4) (=ex. 2b).

trees, in which the attribute DOM means 'prosodic domain' determining the elements that belong to the current prosodic constituent and DTE (designated terminal element) specifies the most prominent element of that constituent. The hierarchy used here is more explicit in dividing the type *metrical tree* into two subtypes *phonological phrase* (*PhonPhrase*) and *intonation phrase* (*IntPhrase*), as shown in Figure 1. Following Klein (2000:173) and Nespor and Vogel (2007:187), it is assumed here that pitch accents and boundary tones are specified only at the level of the intonation phrase.

The second question, which is closely related to the first one, is how does one account for the fact that the canonical intonation appears overruled in those cases where the calling contour appears with declarative clauses, directives and polar questions (4–7). It is assumed here that intonation contours are only determined at the level of intonation phrases which in the most common case coincides with syntactic clauses. The consequence would be that there are two types of the polar interrogative *Ist da jemand?* illustrated in (6): When used as a canonical polar question, it is associated with the common raising question intonation L* H-ˆH% (cf. Grice, Baumann, and Benzmüller 2005:70–74), when used as a call it bears the calling contour L+H* !H-% conveying the semantic and pragmatic information of a call. This precise association of the intonation with the syntactic constituents is achieved by the phrasal schemes for speech acts.

The second ingredient is a binary branching top level phrasal scheme, which models the speech act of addresses and calls. Precisely speaking there are several variants according to their forms (vocative case, particle, intonation), their scope (name, sentential utterances) and their semantics (routine calling contours, reprimanding calling contours,...). The basic idea is that the vocative morpheme is the head and the name-NP or the associated sentential utterance the complement daughter, as demonstrated in Figure 2 for routine calling contours of the latter type.

The intonation morpheme contributing the calling contour is represented as the head daughter on the right side. It's *phon* value is only specified for the pitch accent and the boundary tones, the remaining values are not relevant because the intonation contour has no segmental substance. The pragmatic restrictions imposed on the context are determined in the *dialogue game board*, such as *i*, which is some open issue from a previous conversation; *m* the content of the message relevant to that open issue, which has not been uttered yet by the speaker; *relevant(m,i)* states that the content of the message is relevant to the open issue; *m-ben* states that *m* is of benefit to the addressee (or the speaker); the empty *moves*-list signals that interlocutors were not engaged into any conversation yet; the propositional content the call coveys is reflected by the *cont*-field and equals to the QUD calls contribute to the discourse. The sentential utterance is represented as the complement daughter in the left branch. The *phon*-value contains the sequence of prosodic constituents (*dom*) and the designated terminal element (*dte*), which carries the nuclear stress. The mother's *phon* attribute inherits the type of pitch-accent and boundary from the head daughter, its *dom*-value is calculated via the function **mkmtr**() proposed by Klein (2000:190–193). The mother's *dgb* value is the union of the daugthers' *dgb*-values, as suggested by Ginzburg (2012:126).

The major benefit of having binary phrasal scheme is that such an approach allows for an unified analysis of all types of vocatives. The slot for the vocative morpheme can host the different forms of the vocative: case-like suffix, particle or intonation morpheme. Moreover, a binary phrasal scheme can be applied to all the different semantic and pragmatic variations of calls, whether routine calls, reprimanding calls and other. Alternatively, one could use a unary phrasal scheme, where the meaning contributed by the head daughter is fully integrated into the mother node. However, the consequence would be that for each different vocative form combined with all the possible meaning variation a separate unary phrasal scheme would be needed.

Finally, a conversational rule is needed to license the use of calls and addresses in discourse as given in Figure 3. Being discourse initial, calls are licensed by a conversational rule which resembles much the ones for greetings, as proposed by Ginzburg (2012:74–48). The make-up is kept as simple as possible in order to be applicable for as many types of calls and other discourse initial addresses. The main function is to promote the salient proposition *ia* provided by the call into QUD. As stated above *m* is a message with respect to which the speaker expects the addressee to cooperate. In calls that contain a sentential utterance, *m* is identical to the propositional content and as such it can under certain circumstances be rejected or confirmed by response particles. As it seems then, there can be a set of two propositions in QUD then.

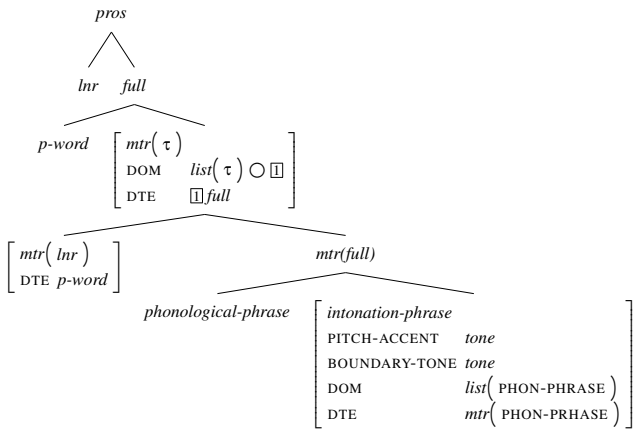

Figure 1: Type hierarchy for prosodic constituency with intonation phrases, inspired by Klein (2000:173,190)

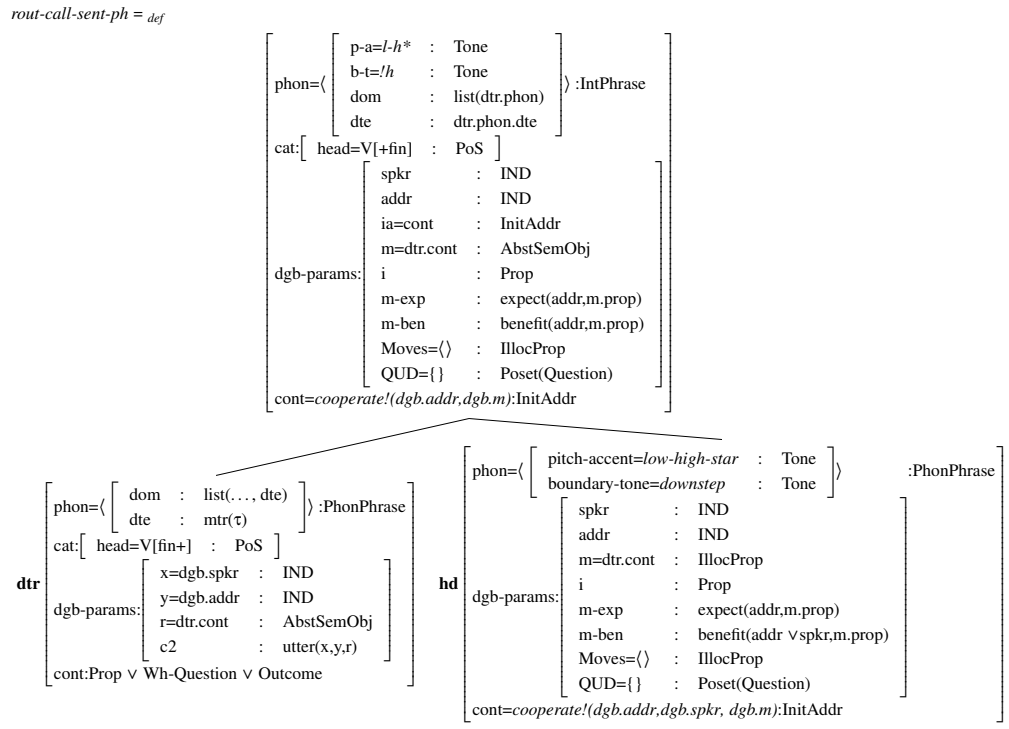

Figure 2: Binary phrasal scheme intonation morphemes which combine with sentential utterances

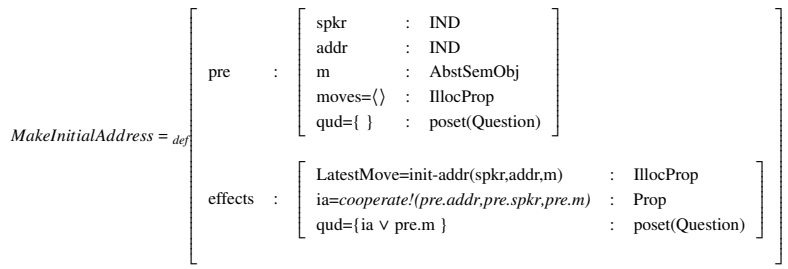

Figure 3: Conversational rule for L+H* !H-% 'routine' calls

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