

Overcoming distances – the usage of calling contours to initiate dialogues*

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Abstract

Based on the behaviour of calling contours (CC) in interaction with response particles such as *yes/no*, it will be shown here that intonation stripped off of any phonetic strings of word forms may convey propositional meaning, that they involve a great deal of compositionality and that they thus can be most accurately analysed as non sentential utterances along the lines of [Ginzburg \(2012\)](#): As such they are (i) sensitive to the speaker's (private) assumptions about the addressee's situation and (ii) sensitive to previously (publicly) established facts and that hence their semantics can only be understood if their interactive nature in dialogues as is fully acknowledged. Thus it will be demonstrated that a formalization of these intonation contours as construction-like phrasal signs which take names or definite descriptions as daughters, or as in the case of 'routine' calls, a whole range of utterance types. Such an analysis is necessary for other stylized intonation such as the Children's Chant and for languages in which illocutionary forced is largely determined by intonation. The analysis will be formulated within the *Type Theory with Records* ([Cooper, 2005a,b](#)) and *Conversation oriented Semantics* frame work ([Ginzburg, 2012](#)), which provide the required tools capable to account for any aspect of the behaviour of CC in discourse.

1 Introduction

Various languages have specific intonational means to attract the attention of a referent who is not engaged into the conversation with the speaker yet, such as Polish ([Arvanati et al., 2016](#)), Hungarian ([Varga, 2008](#)), French ([Fagyal, 1997](#)), Catalan

([Borràs-Comes et al., 2015](#)), Bengali ([Hayes and Lahiri, 1992](#)) and even some languages with lexical tone, such as Tianjin Mandarin ([Zhang, 2018](#)). This is typically done by calling the addressee's name, which involves in most (Indo-)European languages the use of a distinctive intonation contour. Such patterns are known as calling contours (alternative names: vocative chant, minor third, down-stepped level terminal contour/DLT).

Just as greetings they serve as initial moves to invite an addressee referent to engage into a communication. Despite the fact they are very brief, they involve a whole range of phonological and semantic idiosyncrasies.

They have received a vast amount of attention from phonetic ([Ladefoged and Johnson 2011](#), 126–127 and [Niebuhr 2013](#)) and phonological perspective ([Liberman 1975](#), 30–32, [Gibbon 1976](#), 274–287, [Ladd 1978](#), 520–524, [Pierrehumbert and Hirschberg 1990](#), 293–294 and many more), but their precise effects and requirements in dialogues have not been addressed in a systematic way yet; the previous semantic studies by [Truckenbrodt \(2012, 2045–2048\)](#) and [Condoravdi and Sunwoo \(2017, 2018\)](#) restrict themselves on a small number of possible utterance types. This paper will provide an analysis that explains the semantic behaviour in dialogues of the complete range of known CC, including interrogative CC.

The Viennese variety of German provides an particularly interesting case, as it has contours which appear not to be present in other languages. It is highly likely that many aspects of the analysis sketched below can be applied to other (Indo-) European languages as well, but probably not all of them.

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2 Calling contours

In this paper, two major types of CC will be distinguished: Attention request calls (1), and interrogative calls (2). Apart from that there are also exclamations of surprise or disapproval, which are related to that phenomena, but exhibiting different effects on the discourse (3): The examples below demonstrate situations of the type in which the speaker calls the name *Friederike*.

In *Autosegmental Metrical Theory* developed by Ladd (2008, 116–119), calling contours are the paradigmatic case for the down-stepped boundary tone !H-%. *German ToBi (GToBi)* authored by Grice et al. 2005 favours this approach departing from original *ToBi* advocated by Pierrehumbert and Hirschberg (1990) and others, which only assumes two distinctive tonal levels for pitch accents and boundary tones: L and H. Likewise the non-canonical assumption of the complex boundary tone L-H% is motivated by Grice et al. (2005, 68–69) in their *GToBi* system for final fall-rise contours preceded by H tones. The analysis sketched here is neutral with respect to these two schools of thoughts, but for the sake of consistency Ladd's standard *GToBi* will be employed.

- (1) a. frii. də. 'rii. kə
L+H* !H-%
(i) ... I am calling you!
- b. frii. də. 'rii. kə
L+H* L-%
(i) ... Be careful!
- (2) a. frii. də. 'rii. kə
H+L* H-%
(i) ... Is it you?
(ii) ... May I talk to you now?
- b. frii. də. 'rii. kə
L*+H L-H%
(i) ... Will you stop doing that?
- (3) a. frii. də. 'rii. kə
%H H*+H L-%
(i) ... I am so surprised to see you here!
- b. frii. də. 'rii. kə
%H !H* L-%
(i) ... What have you done!

Starting with Ladd (1978, 520–524), the patterns of the type in (1-a) have been dubbed 'routine' calls (RCC), as they are limited to utterance situations which involve a certain familiarity between the participants and the situation and it has been attested in varieties of languages as diverse as Tianjin Man-

darin (Zhang, 2018), a language with lexical tone, and Bengali (Hayes and Lahiri, 1992). Quiroz and Żygis (2017, 1211) noted that there are calls specific to situations in which the speaker has more urgent message to deliver (1-b) and others in which the nature of the call is more 'stern' and which they analyse as L*+H L-H% (2-b).

Unlike Quiroz and Żygis (2017), we will classify the latter 'stern' type as belonging to the class of interrogative calls. The first type of interrogative calls expressed by a H+L* H-% contour in (2-a) is reminiscent of reprise fragments (Ginzburg, 2012): they can either be requests to confirm the identity of the addressee (henceforth identity confirmation request calling contour, ICRCC), or they can be interpreted as requests for the addressee's availability to engage into a conversation with the speaker (henceforth, availability request calling contours ARCC). As indicated by the high boundary tone H-%, which is typical of polar questions in German and which serves often among other means to differentiate between questions and assertions (cf. Grice et al. 2005, 70–74, Peters 2018, 95), the most likely interpretation of the pattern in (2-b) is an interrogative one, as a request to receive the addressee's attention, a short answer interpretation is not possible, as the presence of the named referent is presupposed. As will be shown in Section 2.2.2, H-% boundary tones tend to signal the incompleteness of an utterance. The contour of (3-a) is an expression of a happy surprise and the one in (3-b) an expression of a disapproval of an act the addressee committed.

In what follows below, it will be demonstrated how intonation contours can occur as independent linguistic constructions with a specific content for the discourse supporting the analyses developed in (Beyssade and Marandin, 2006) and Portes et al. (2014) for different assertion contours. For reasons of space, exclamation contours will not be addressed here, as well as urgent calls, which are the least complex and whose analysis follows readily from what will be sketched below.

2.1 Phonological properties

As observed by Ladd (1978, 518), Hayes and Lahiri (1992, 78), CC in English may involve optional considerable lengthening of the chanted syllables. Hayes and Lahiri (1992, 81–83) point out that even short vowels may be exceptionally lengthened in English, too. A similar situation obtains

with German vowels. There are three different classes of vowels: Tensed, lax and reduced vowels. The latter two sets can under no condition be lengthened in canonical illocutions, such as assertions or questions (cf. Wiese 1996, 19–22, Eisenberg 2013, 89–95). However, in CC even reduced vowels in mono-moraic syllables can be lengthened, which cannot bear word stress under canonical conditions. Moreover, there are barely any contours in German which do not have either a high boundary tone H-% or a low boundary tone L-%. The RCC is one of the few instances which is considered to involve a down-stepped boundary tone !H-% (Grice et al., 2005, 74), other researcher such as (Peters, 2018, 89–90) postulate even an entirely new boundary tone level 0, called *level contours* in order to accommodate this contour.

The emergence of an intonation which is phonologically so distinct from the canonical contours is obvious: the lengthening of short vowels is necessary as vowels are the most audible sounds and the longer they are stretched the more their pronunciation is likely to attract attention. Likewise, the outstanding intonation pattern serves as a sort of alert for all the referents in space who are not engaged in a conversation with the caller yet. This would be much more difficult if the caller used standard intonation, which could just be part of a conversation they are leading with somebody else.

2.2 Semantic interpretation

2.2.1 The addressee's attention, beneficial information and expectations

Ever since Pike (1945, 71–72), the down-stepped L+H* !H-% was associated with an utterance used to call a speech participant from a distance. The most detailed analysis is the one put forth by Gibson (1976, 274–287), who shows that this contour does not only apply to names or definite descriptions but also to assertions. Based on experimental data, Condoravdi and Sunwoo (2017, 2018) observe some types of imperatives bearing that contour, in particular well-wishes and mnemonic requests – whereas it is not compatible with orders. This is applicable to German, too, as shown in (5). Furthermore, the L+H* !H-% contour can be applied to German *wh*-questions in highly restricted contexts (6), but it appears to be less felicitous with most polar questions or echo questions (7), but not not with all of them (8)

Finally, this contour is found with some verb-

less, non-sentential utterances as in *hallo* in (8) or (9) and (10).

- (4) (das) Essen ist fertig!
L+H* !H-%
'Food is ready!'
- (5) Grüß mir die Oma!
L+H* !H-%
'Send my regards to grandma!'
- (6) Wer will noch Vanillekipferl?
L+H* !H-%
'Who wants more vanilla-flavored crescent cookies!?'
- (7) *Will wer noch Vanillekipferl?
L+H* !H-%
'Does anybody want more vanilla-flavored crescent cookies!?'
- (8) Hallo! Ist da jemand!?
L+H* !H-% L+H* !H-%
'Hello! Is there anybody?'
- (9) Vanillekipferl!
L+H* !H-%
'(I have) vanilla-flavored crescent cookies (to share) !?'
- (10) Ab ins Bett!
L+H* !H-%
'(go) in your bed'

However, as shown by Ladd (1978, 520–524): the usage of the L+H* !H-% contour is subject to much stricter limitations, as it would not proper to employ it in the contexts of emergencies such as given below:

- (11) #Look out for the crevasse!
- (12) #Daddy fell downstairs!
- (13) #Help!/Fire!/Rape!

Moreover, he refers to contexts in which the addressee is in close proximity. He then concludes that these utterances imply a reference of some sort of routine actions rather than being calls.

All the examples discussed in the literature, including (4)–(6), have three things in common: (i) the speaker is not sure whether they (still) have the attention of the addressee, (ii) the utterance bearing the L+H* !H-% refers to some expectation that was either implicitly or explicitly addressed between the discussing parties and (iii) the encoded message implies some benefit for the addressee.

Aspect (ii) is not so obvious in example (8), which can be uttered in any space, in which the

speaker expects there to be some addressee with whom they have some familiarity. However, it would be out of place to utter this call in a governmental office or some authority. This pattern appears to be most natural in spaces in which the speaker is looking for somebody to solve an issue that was opened in a previous conversation. And it signals, too, that the speaker has no intention to cause any harm or worry to the addressee.

In contrast to claims made in previous research, no routine needs to be involved as the following example illustrated. At the 2006 election of the Austrian parliament the conservative right radical government lost its majority. There had not been any previous edition of that coalition. Nevertheless, it was possible then for somebody in favour of the opposition to pronounce the utterance (14) to some addressee whose attention they were not sure of. Might have been in a beer parlour at close proximity or not.

- (14) Schwarz-Blau hat keine Mehrheit mehr!
 L+H* !H-%
 'The black blue coalition (conservative-right extreme government) no longer holds the majority of its seats anymore!'

This is a clear indicator that this calling contour is to be understood as a request for the addressee's attention, (cf. [Pierrehumbert and Hirschberg 1990](#), 293–294 for a similar observation in English, and less explicitly [Lieberman 1975](#), 30) and at the same time the request refers to information, which is sensitive to previously established information in the discourse. This explains also why the L+H* !H-% always comes with some flavour of a routine, which can also be deconstructed as some sort of information that has entered the context of the two speech participants at some earlier point. In similar vein, [Pierrehumbert and Hirschberg \(1990, 298\)](#) argues that H* succeeded by L (in our analysis !H) usually expresses that the information is not new but it can be deduced from the shared beliefs of the interlocutors.

A further reason why examples (11)–(13) sound odd is that the L+H* !H-% contour may present the message bearing the contour as some sort of good news or the fulfilment of a wish or hope. For instance, example (14) would sound very cynical if it were uttered by a supporter of the conservative party or by the fascists.¹

¹The reason why the example discussed by [Condoravdi](#)

In contrast, the urgent type of calling contour is not subject to the requirement (ii).

As already mentioned above, the contour L*+H L-H% described in (2-b) will be considered as interrogative request for attention. *Pace* the cautious assumption of [Quiroz and Žygis \(2017, 1211\)](#), this pattern is not restricted to female speakers at least in Austria, although it is very common in conversation between mothers and their children. The presence of the high boundary tone H-% suggests that it may be some sort of polar question, as this particular tone is only found in interrogative illocutions.

It is often seen as a sign of the speaker that they have not yet finished their turn. In Viennese German the pattern L*+H L-H% is actually ambiguous between a less pronounced and less frequent neutral request for attention: in this use it could be paraphrased as *Friederike, may I have your attention? I want to tell/ask you something*, but it is highly informal and it requires a certain amount of familiarity. The second more frequent interpretation is typically used when a parent catches their children doing something, they had been told not to do. So it is more a reprimand in disguise of a question as *Friederike, can you listen please? Stop doing that.*, henceforth reprimanding question calling contour (RepQCC). Just as with the RCC this contour makes reference to some previously established agreements, but here it is more a previously uttered wish of the speaker that the addressee should not do a certain thing.

2.2.2 Calling contours in dialogical interaction

So far we were able to identify three large ingredients to the semantic interpretation of these various CC, yet, we could not formulate the precise rules of interpretation. In other words, we do not know their semantic status and if they should be considered as belonging to a semantic type or not.

Some preliminary pioneer work in that field was put forward by [Truckenbrodt \(2012, 2045–2048\)](#), who assumes that vocatives introduce a proposition salient from contexts with the content 'I am talking

and [Sunwoo \(2017\)](#) signals a negative perlocutionary effect may be due to cynical or sarcastic undertones, too.

- (i) You can try. But he's not going to hear you. H* !H-L% (=15, [Condoravdi and Sunwoo 2017](#))

Alternatively, it is possible that the calling contours do not convey exactly the same meaning in English and German.

to you'. Inspired by [Pierrehumbert and Hirschberg \(1990, 293\)](#), he then concludes that an H* pitch accent on vocatives means that the new information (the proposition salient from context) should be added to the common ground.

[Truckenbrodt's \(2012\)](#) approach is appealing but it faces some challenges. As pointed out by [Ginzburg \(2012, 69\)](#) and [Krifka \(2013\)](#), response particles such as *yes* or *no* involve a reference to a previously uttered or queried proposition, which will be accessible as question under discussion.

Despite the fact that CCs just come along with simple nouns or calls like *hallo* and occur discourse initially at the same time, they surprisingly are a licit target for *ja* and *nein* responses in German.

It deserves special attention that the usage of these particles with their canonical intonation to react to standard polar questions is not felicitous cf. (15)–(16). Moreover it appears that there are more options for affirmative response particles than for negative response particles.

- | | |
|------------------------|--------------------------|
| (15) #Ja
H+L* L-% | (16) #Nein
H+L* L-% |
| (17) Ja-a!
L+H*!H-% | (18) Nei-en!
L+H*!H-% |
| (19) Ja
L*H- ^H% | (20) #Nein
L*H- ^H% |

For the sake of simplicity, we are restricting ourselves here first to CCs with names. If the addressee is not sure either whether they have the attention of the original speaker, they would typically use *ja* with RCC to confirm the readiness to listen or to cooperate and *nein* with RCC to express that they confirm the reception of the message but that they are not ready to fulfill the speaker's intended perlocutionary act. Finally a rising *ja* appears to be the appropriate choice if the former addressee is certain to have the attention of the former speaker.

Despite the fact that rising *ja* is usually transcribed in everyday language as being a polar question *ja?*, there are serious doubts whether it can indeed be a polar question. The meaning of polar questions is to under-specify a proposition with respect to its truth value and to invite the addressee to tell whether the proposition is true or false. Querying a response particle would not result in any plausible interpretation, it would amount to a scenario where the former addressee asks the speaker: *Am I confirming the proposition you classified as question under discussion?*

However, a high IP boundary tone H-% is not only limited to polar questions but it can occasion-

ally signal incompleteness of the utterance, such as the speaker's readiness and expectation for a reaction ([Peters, 2018, 95](#)). In their analysis of boundary tones in English, [Pierrehumbert and Hirschberg \(1990, 305–307\)](#) show that all observed instances of H-% boundary tones make reference to a subsequent utterance, which can be either uttered by the same speaker or the addressee, depending on the utterance type.

In other words, rising *ja* signals the former addressee's receipt of the message and their readiness to listen to more. That's exactly the reason why rising *nein* is not felicitous, as it conveys conflicting information on lexical level it signals a lack of readiness to cooperate where as the intonation invites for more contributions.

Proceeding to RepQCCs, the most plausible answer would be rising *ja*, whereas RCC *ja* would be interpreted as sarcasm signaling reluctance. As for availability requests as in (2-a-ii), rising *ja* is the most plausible response, as they are usually employed in a situation where the speaker is has their attention already on the addressee, which the addressee would know by the time of their response.

At this point we are finally in a position to identify the content of the proposition to which responsive particles are referring, when used with CC on names: RCC and RepQCC query a proposition like *Are you ready to cooperate with respect to the content a certain message?*. This applies even for RCCs with *hallo*, as exemplified in (8). In contrast, ICRCC query a proposition like *Are you <name>?* and ARCC query propositions like *Are you available to join a conversation with me?*

Turning to RCC with more complex utterances, it turns out that the conveyed proposition is the same as with RCC on names. A *ja* response to an well wishing imperative (5) refers to question like: *are you ready to cooperate with respect to the content of the directive?*. Moving on to declaratives, in some cases a *ja* response would be straight forward as in (4), meaning that the addressee acknowledged that the food was ready or they would be preparing to come. However this declarative comes with a very strong perlocutionary effect. With more canonical declaratives such as (14), the use of RCC *ja* is more limited, as there is obviously an interference with the propositional content of the sentence, when it comes to the question what is going to be question under discussion. A RCC *ja*-response would somehow entail that the transmission of the

message would entail the addressee to carry out another action. Likewise, *wh*-questions as in example (6) specify another proposition as QUD, that is why RCC *ja* sounds less felicitous.. But an affirmative response is not totally excluded under conditions, if it is immediately followed by a short answer referring to the focused *wh*-phrase, like *Ja-a, i-ich!*. Note that this option is not at all available for *wh*-question with the canonical H*L-% intonation.

3 Analysis

There is a whole range of phenomena for which a successful analysis should be able to account. One of the most essential aspects is the question how it is possible that each sub-type of calling contours has a couple of semantic contributions which are present with all its realisations across utterance types: as shown above RCC are only felicitous if (i) the addressee has not confirmed their engagement, (ii) there is some unresolved issue between hearer and speaker (iii) if there is some information which is either beneficial to the hearer or to the addressee and (iv) they all convey the same QUD ‘are you ready to cooperate with respect to the content of the directive?’ (except with cases in which a further QUD is introduced and ranked higher on the QUD list).

The first approach could be to assume that the intonation contour itself contributes meaning to a under-specified illocution. Secondly, one could assume that the interpretation is somehow enriched by some socio-cultural factors from the utterance context by some sort of implicature in the Gricean sense (cf. Grice 1975). As we couldn’t find any case, in which the aspects of meaning (i)–(iv) may be canceled, we conclude that they must be conveyed by the intonation it self. Note that intonation manifests itself as perceivable event and comes into consideration as a sign.

There are two more pieces of evidence which are in favour of the assumption that intonation contours can act as phrasal signs in languages of the Indo-European type. In extreme cases, RCC can convey the three aspects of meaning (i)–(iv) described even in cases in which the precise segmental phonetic form does not matter. Imagine a situation in which a group of people is taking a walk in a forest and suddenly they hear from afar somebody uttering the intonation contour (L+)H*!H-%. Even if the phonetic signal is too blurred in order to identify the precise phoneme segments, the group of hikers

will immediately know that there is somebody who tries to catch somebody’s attention, and that there is some degree of familiarity between the two of them. Sometimes the RCC can be articulated by whistling and its meaning would still be recognizable. Related, but more distinctive intonation contours like the taunting children’s chant can alternatively be uttered as a repetitive sequence of meaningless syllables most typically as nə.nə.nə.nə.nə.nə or be applied to declarative sentences or imperatives (cf. Pike 1945, 71–72, Liberman 1975, 32–42).

If intonation contours can contribute meaning to existing utterances, the question arises how the meaning provided by that contour interacts with the meaning of the utterance to which the calling contour is applied? One strategy would be to assume that calling contours may override the phonological and semantic/pragmatic specification of the existing utterance, inspired by the analysis in terms of *composition by amendment* as proposed by (Zeevat, 2019). Alternatively, one could assume that there is a linguistic level in which utterances are under-specified with respect to their intonation on the one hand and under-specified with respect to their illocutionary force. Objects of the type *Locutionary Proposition* (*LocProp*) are a possible candidate to model these abstract linguistic objects as they involve a description of their semantic and phonological properties (cf. Ginzburg 2012, 172–175). A precise formulation of such an analysis will be left to future research.

There is independent necessity for such an analysis that mediates between the specification of intonation contours and the meaning of utterances, as there are various languages in which the distinction between specific illocutionary acts is merely expressed by differences in the intonation, such as the distinction between Russian declarative clauses vs. polar questions.²In similar vein, intonation plays a distinctive role in the formation of polar questions in some lexical tone languages from the Benue sub-branch such as Igbo (Uchechukwu 2008, Amaechi 2018) and Èdó (Ọmọrúyí 1988, 1989).

For the sake of space, the analysis focuses on RCC, as they involve the highest degree of complexity, the analysis for the remaining types follows from the former. A successful semantic analysis of CC has to be able to tackle the following puzzles: (i) Which type of illocutionary force do these calls

²For this insight I am indebted to Henk Zeevat (pers. commun.)

convey? Are they assertions? Questions? Directives/outcomes? Or an entirely new type on their own? (ii) How can semantic representations of ‘empty’ intonation contours be modeled? (iii) How can the positive undertone common to all RCC be represented? (iv) How can one model the flavour of routine/familiarity common to RCC? (v) How can one explain the fact that RCC can be applied to a big range of utterance types, conveying different effects in each case? (vi) How can the circumstance be expressed that the speaker is not sure whether the addressee has their awareness? (vii) What is the actual propositional content of calls that only contain names? To what do the interlocutors say *yes* or *no* if they respond to a call of a name?

The analysis presented here consists of two major components: On the one hand, there are lexicon entries which model CC as phrasal signs that turn existing noun phrases or other utterance types in CCs. Secondly, there are conversational rules which license the use of CCs in conversations and which manage the updates of the dialogue game board, as suggested by Larsson (2002), Traum and Larsson (2003, 328) or Ginzburg (2012).

The format of the lexicon entries can be sketched as follows. Addressing (i), we tentatively drew the cautious conclusions that all the considered CCs are interrogatives, based on the discussion of the data in Section 2.2. As regards the aspects (ii)–(vii), *Type Theory with Records* (TTR) and *Conversation oriented Semantics* (KoS), as developed by Cooper (2005a,b), Cooper and Ginzburg (2015) and Ginzburg (2012) provides the right tools to account for all the desiderata mentioned above: CC can most accurately be analysed adopting Ginzburg’s (2012) analysis for non-sentential utterances (NSU) as phrasal signs. The main assumption is that the *phon*-field of the mother node specifies the type of intonation contour and it inherits the precise phonological content (string of phonemes, prosodic structure) from its daughter, which can either be a name or definite description (cf. Figure 3) or a more complex type of utterance, as demonstrated in examples (4)–(14) (cf. Figure 4). It is plausible that the separate entries for daughters that are names and daughters that are more complex utterances could be unified in future research.

The *phon*-field will be considered as list of the type phonological word, inspired by the feature geometry employed by Klein (2000) and Bildhauer

phonological word =_{def}

segs	:	list(phon)
pitch accent	:	Tone
boundary tone	:	Tone
utterance	:	Alignment
intonation phrase	:	Alignment
phonological phrase	:	Alignment

Figure 1: Type definition: phonological word

(2007, 161–186), as illustrated in Figure 1. The most relevant fields for the purpose here are pitch accent and boundary tone, which determine the intonation contour of the phrasal sign, the remaining fields will be inherited from the daughter’s *phon*-field.

The fact that RCCs convey propositional content is reflected by the *cont*-field, which states the query whether the addressee is ready to cooperate with respect to a given message *m*. In cases where the daughter contains sentential utterances, *m* corresponds to the content of the proposition they introduce, in cases, where the daughter is a name, the content *m* is salient from the context. The complex type *m-ben* states that *m* is of benefit to the addressee and *m-exp* says that the addressee and/or the speaker expected *m* to happen at some point of time. And finally, the circumstance that the speaker is not sure whether they have the attention of the addressee is reflected by the fact that the *moves*-list is empty, which indicates that the interlocutors have not engaged into any conversation yet.

Note that A RCC does not have to be the first utterance of the speaker’s turn but it has to be the speaker’s first turn before it is even clear whether the addressee engages into the speaker’s invitation or not. This can be seen from the authentic corpus example uttered by Farin Urlaub, a punk rock singer born in Berlin in 1963, during a reading of the cartoon *Didi & Stulle* in June 2020. In the scene under discussion, Angela Merkel just won the governmental elections and happens to see some random guy she beliefs to be David Bowie and tries to hit on him:

- (21) Ey Bowie!! Lange nich jesehn und doch
 hey Bowie long NEG see.PPP and yet
 wiedaerkannt, wa? Rate ma wer
 recognize.PPP QTAG guess.IMP PAR who
 gerade die [_{L+H}*!H-% Wahl] jewonn
 just the elections win.PPP

hat!!³
has

‘Hey Bowie! Long time no see. Guess who just won the elections!!’

As can be seen from example (21), the RCC is not restricted to dialogue initial utterances as long as they occur in the first turn. Assuming that the addressee only starts to ground the utterances once they commit themselves to the conversation, the restriction of RCCs to occur in the first turn is modelled by an empty *Moves* list. Following Ginzburg (2012, 175–189), we suggest that utterances which are not grounded yet are stored in the pending list. Note that it is not really felicitous to respond with *ja* to the imperative (21), unlike it is the case with the imperative (5), as the speaker expect the addressee to fulfil the directive immediately by giving him a response. Interestingly the RCC is incompatible with both calls like (*h*)ey and names which follow (*h*)ey.

The corresponding conversational rule for RCCs is outlined in Figure 2. Just like with greetings, RCCs occur discourse initially, as a consequence their conversational rule resembles much to the format of greetings as suggested by Ginzburg (2012, 76).

The fact that the addressee has not committed to the dialogue yet is expressed by the empty *moves*-list, the fact that there is an open issue between speaker and addressee originating in an earlier conversation can be accommodated in the *issue*-list, which is meant to keep record of unsolved global QUD, as suggested by Cooper et al. (2000) and Larsson (2002, 163–164).

One of the reviewers wondered, whether the QUD which is introduced with calling contours could have entered the dialogue game board by accommodation. However, there is a crucial difference between the accommodation of unraised questions and the type of QUD introduced along with calling contours. Following Cooper et al. (2000) and Larsson (2002, 153–164), the scenario for accommodation of questions is characterised by a dialogue participant *A* who asks some question q_1 and dialogue participant *B* who responds with a relevant answer p_1 and at the same time with a second answer p_2 for which *A* has not explicitly raised a question. In such a scenario, the question

q_2 , which was not explicitly asked by *A*, has to be accommodated by *A*.

The scenario with calling contours is very different. Because with what we are dealing here is not a situation in which a unraised question has to be reconstructed on the basis of an answer. Assume *B* is requesting the attention of *A*, a call for attention uttered by *B* is not a possible answer to a question *A* somehow planned to raise but they didn’t raise explicitly. Thus it appears to be more accurate to assume that with attention requests, the QUD is introduced in virtue of the relevant conversational rule.

RepQCC can be analysed in a parallel manner, cf. Figure 5. As they only apply to names, the option with more complex utterances is left out. The main difference here is that the DGB contains an outcome *o* and the speaker referent does not want the addressee to actualize *o*. Moreover, this prohibition is an already established fact known to both the speaker and the addressee and hence part of the common *facts*-list.

The representation of ARCC are almost identical to the one of RepQCC, the main difference is that they lack the reference to a previously established prohibition on the addressee and the content value of the mother would be slightly different as in *?available(dgb.addr, dgb.spkr, dgb.utt-time)*. Due to lack of space the precise phrasal structure will be omitted here.

ICRCC differ in essential aspects, as it is seen in Figure 6. Unlike with the previously discussed CCs, the referent of the name bearer defined in the *dgb-params*-field of the daughter has not yet directly been identified with the addressee referent within the DGB. It presupposes the existence of a referent for the addressee and queries whether the addressee is identical to the name bearer, which is done in the *cont*-field of the mother node.

4 Summary and Outlook

In this paper, it was shown that contours stripped off of any lexical content may convey propositional meaning in German and probably many Indo-European languages too. CCs are best accurately analysed as phrasal signs that select a proper name or in some instances a more complex phrases as their daughter. Moreover, they are combining with locutive propositions which are under-specified for their illocutionary force and for their intonation.

³youtube: *DIE ÄRZTE lesen für Berliner Liveclubs aus FILs „Didi & Stulle”*, <https://youtu.be/bbCGqFaNo-Q>, 32:40–50s; last access June 25 2020.

AttentionRequest = *def*

pre	:	moves= $\langle \rangle$:	IllocProp
		qud={ }	:	poset(Question)
		issues	:	poset(Question)
issues	:	poset(Question)		
effects	:	LatestMove=?ready-to-cooperate(addr,m)	:	IllocProp
		qud={ }	:	poset(Question)

Figure 2: Conversational rule for L+H* !H-% ‘routine’ calls

rout-call-name-ph = *def*

phon= \langle		segs	:	list(phon)
		PA= <i>low-high-star</i>	:	tone
		BT= <i>downstep</i>	:	tone
		\rangle		
\wedge_{merge} LIST1(PHONWORD)		:	list(Phonword)	
cat	:	head=V[+fin]	:	PoS
		spkr	:	Ind
		addr	:	Ind
dgb-params	:	m	:	IllocProp
		m-exp	:	expect(addr,m.prop)
		m-ben	:	benefit(addr,m.prop)
		Moves= $\langle \rangle$:	IllocProp
		QUD={}	:	Poset(Question)
cont=? <i>ready-to-cooperate</i> (dgb.addr,dgb.m)		:	Question	
dtr	:	LIST1(PHONWORD)	:	list(RecType)
		phon	:	LIST1(PHONWORD)
		cat	:	head=N : PoS
		dgb-params	:	y=cont.x=dgb.addr : Ind
			:	rest ^{facts} : Named(dgb.addr,'Name')
		cont	:	x : Ind

Figure 3: Lexicon entry of ‘routine’ calling contours with names

rout-call-sent-ph = *def*

phon= \langle	segs	:	list(phon)	\rangle
	PA= <i>low-high-star</i>	:	tone	
	BT= <i>downstep</i>	:	tone	
\wedge merge	LIST1(PHONWORD)	:	list(Phonword)	
cat		:	<div> <div>head=V[+fin]</div> <div>:</div> <div>PoS</div> </div>	
dgb-params		:	<div> <div>spkr</div> <div>:</div> <div>Ind</div> </div>]
		:	<div> <div>addr</div> <div>:</div> <div>Ind</div> </div>	
		:	<div> <div>m=dtr.cont</div> <div>:</div> <div>IllocProp</div> </div>	
		:	<div> <div>m-exp</div> <div>:</div> <div>expect(addr,m.prop)</div> </div>	
		:	<div> <div>m-ben</div> <div>:</div> <div>benefit(addr,m.prop)</div> </div>	
cont=? <i>ready-to-cooperate</i> (dgb.addr,dgb.m)		:	<div> <div>Moves=$\langle \rangle$</div> <div>:</div> <div>IllocProp</div> </div>]
		:	<div> <div>QUD={}</div> <div>:</div> <div>Poset(Question)</div> </div>	
		:	Question	
dtr	LIST1(PHONWORD)	:	list(RecType)]
	phon	:	LIST1(PHONWORD)	
	cat	:	<div> <div>head=V[fin+]</div> <div>:</div> <div>PoS</div> </div>	
	dgb-params	:	<div> <div>y=cont.x=dgb.addr</div> <div>:</div> <div>Ind</div> </div>	
		:	<div> <div>rest^{facts}</div> <div>:</div> <div>Named(dgb.addr,'Name')</div> </div>	
	cont	:	Prop \vee Wh-Question \vee Outcome	

Figure 4: Lexicon entry of ‘routine’ calling contours with more complex utterances

reprim-interr-call =*def*

$\text{phon} = \left(\begin{array}{ll} \text{segs} & : \text{list}(\text{phon}) \\ \text{PA} = \text{low-star-high} & : \text{tone} \\ \text{BT} = \text{low-high} & : \text{tone} \end{array} \right)$	
$\wedge \text{merge}$	LIST1(PHONWORD) : list(Phonword)
cat	: $\left[\begin{array}{ll} \text{head} = \text{V}[+\text{fin}] & : \text{PoS} \end{array} \right]$
dgb-params	$\left[\begin{array}{ll} \text{spkr} & : \text{Ind} \\ \text{addr} & : \text{Ind} \\ \text{addr} = \text{cont.x} & : \text{Ind} \\ \text{rest} \text{facts} & : \text{Named}(\text{addr}, \text{'Name'}) \end{array} \right]$
	o : Outcome
	f=forbid(spkr,addr,o) : Prop
	Moves= $\langle \rangle$: IllocProp
	QUD={ } : Poset(Question)
	Facts : Set(Prop) $\cup f$
cont=?ready-to-cooperate(dgb.addr,dgb.spkr)	: Question
dtr	LIST1(PHONWORD) : list(RecType)
	phon : LIST1(PHONWORD)
	cat : $\left[\begin{array}{ll} \text{head} = \text{N} & : \text{PoS} \end{array} \right]$
	y=cont.x=dgb.addr : Ind
	rest facts : Named(dgb.addr,'Name')
	$\left[\begin{array}{ll} \text{x} & : \text{Ind} \end{array} \right]$

Figure 5: Lexicon entry of reprimanding question calling contours with names

identity-confirmation =*def*

$\text{phon} = \left(\begin{array}{ll} \text{segs} & : \text{list}(\text{phon}) \\ \text{PA} = \text{high-low-star} & : \text{tone} \\ \text{BT} = \text{high} & : \text{tone} \end{array} \right)$	
$\wedge \text{merge}$	LIST1(PHONWORD) : list(Phonword)
cat	: $\left[\begin{array}{ll} \text{head} = \text{V}[+\text{fin}] & : \text{PoS} \end{array} \right]$
dgb-params	$\left[\begin{array}{ll} \text{spkr} & : \text{Ind} \\ \text{addr} & : \text{Ind} \\ \text{addr} & : \text{Ind} \end{array} \right]$
	Moves= $\langle \rangle$: IllocProp
	QUD={ } : Poset(Question)
	Facts : Set(Prop) $\cup f$
cont=?identical(dgb.addr,dtr.cont.x)	: Question
dtr	LIST1(PHONWORD) : list(RecType)
	phon : LIST1(PHONWORD)
	cat : $\left[\begin{array}{ll} \text{head} = \text{N} & : \text{PoS} \end{array} \right]$
	y=cont.x : Ind
	rest facts : Named(y,'Name')
	$\left[\begin{array}{ll} \text{x} & : \text{Ind} \end{array} \right]$

Figure 6: Lexicon entry of the of the H+L* H-% identity confirmation request for names

Ever since Pike (1945, 71–72), Liberman (1975, 32–42), Fónagy et al. (1983, 155–157) and Di Cristo (1999, 215–216) related phenomena have been observed, in which the contour alone appears to express a rather rich degree of semantic information, such as the popular Children’s Chant to taunt others in a playful way. Or level contours in German, which consist of two tonal levels only flattening all curves and which signal a lack of interest in the performed utterance, as discussed by Wöllstein (2016, 123–125), Peters (2018, 98–99). But these will be left to future studies.

References

- Mary Chimaobi Amaechi. 2018. Yes-no question formation in igbo: the phono-syntax interface. *Journal of West African Languages*, 45(1):78–87.
- Amalia Arvanati, Marzena Żygis, and Marek Jaskuła. 2016. The phonetics and phonology of the polish calling melodies. *Phonetica*, 73:338–361.
- Claire Beyssade and Jean-Marie Marandin. 2006. French intonation and attitude attribution. In *Proceedings of the 2004 Texas Linguistics Society Conference: Issues at the Semantics-Pragmatics Interface*, Somerville, Mass. Cascadilla Proceedings Project.
- Felix Bildhauer. 2007. *Representing Information Structure in an HPSG Grammar of Spanish*. Ph.D. thesis, Universität Bremen, Bremen.
- Joan Borràs-Comes, Rafèu Sichel-Bazin, and Pilar Prieto. 2015. Vocative intonation preferences are sensitive to politeness factors. *Language and Speech*, 58(1):68–83.
- Cleo Condoravdi and Jeong Sunwoo. 2017. Imperatives with the calling contour. In *Berkeley Linguistics Society (BLS) 43*, volume 1, pages 185–210, Somerville, Mass.: Cascadilla Proceedings Press.
- Cleo Condoravdi and Jeong Sunwoo. 2018. Imperatives and intonation: the case of the down-stepped level terminal contour. In *West Coast Conference on Formal Linguistics (WCCFL) 35*, pages 214–223, Somerville, Mass. Cascadilla Proceedings Press.
- Robin Cooper. 2005a. Austinian truth, attitudes and type theory. *Research on Language and Computation*, 3:333–362.
- Robin Cooper. 2005b. Records and record types in semantic theory. *Journal of Logic and Computation*, 15(2):99–112.
- Robin Cooper, Elisabet Engdahl, Staffan Larsson, and Stina Ericsson. 2000. Accommodation questions and the nature of qud. In *Proceedings of GötaLog 2000*, volume 5, pages 57–61, Gothenburg.
- Robin Cooper and Jonathan Ginzburg. 2015. Type theory with records for natural language semantics. In Shalom Lappin and Chris Fox, editors, *The Handbook of Contemporary Semantic Theory*, pages 375–407. John Wiley, Malden, MA.
- Albert Di Cristo. 1999. French. In Daniel Hirst and Albert Di Cristo, editors, *Intonation Systems. A survey of 20 languages*, pages 195–218. Cambridge University Press, Cambridge.
- Thomas O. Oromuyi. 1988. On the formation of questions in Edo. *Journal of African Languages and Linguistics*, 10:19–31.
- Thomas O. Oromuyi. 1989. Focus and question formation in Edo. *Studies in African Linguistics*, 20(3):281–300.
- Peter Eisenberg. 2013. *Grundriß der deutschen Grammatik: Das Wort*, 4 edition, volume 1. Metzler, Stuttgart. GB 1602 E36??
- Zsuzsanna Fagyal. 1997. Chanting intonation in french. *University of Pennsylvania Working Papers in Linguistics*, 4(2).
- Ivan. Fónagy, Eva. Bérard, and Judith Fónagy. 1983. Les clichés éلودiques du français parisien. *Folia Linguistica*, 17:153–185.
- Dafydd Gibbon. 1976. *Perspectives of intonation analysis*. Lang, Bern.
- Jonathan Ginzburg. 2012. *The interactive stance: meaning for conversation*. Oxford University Press.
- Martine Grice, Stefan Baumann, and Ralf Benzmlüller. 2005. German intonation in autosegmental-metrical phonology. In Sun-Ah Jun, editor, *Prosodic Typology: the Phonology of Intonation and Phrasing*, pages 55–83. Oxford University Press, Oxford.
- Paul H. Grice. 1975. Logic and conversation. In Peter Cole and Jerry L. Morgan, editors, *Syntax and Semantics, 3: Speech acts*. Academic Press.
- Bruce Hayes and Aditi Lahiri. 1992. Durationally specified intonation in english and bengali. In *Proceedings of the 1990 Wenner Gren Center Conference on Music, Language, Speech and the Brain*, pages 78–91, Houndsmill. Macmillian.
- Ewan Klein. 2000. Prosodic constituency in hpsg. In Ronnie Cann, Claire Grover, and Philip Miller, editors, *Grammatical Interfaces in HPSG*, volume 8 of *Studies in Constraint-Based Lexicalism*, pages 171–203. CSLI Publications, Stanford.
- Manfred Krifka. 2013. Response particles as propositional anaphors. In *Proceedings of SALT 23*, pages 1–18, Santa Cruz, CA.
- Robert D. Ladd. 1978. Stylized intonation. *Language*, 54(3):517–540.

- Robert D. Ladd. 2008. *Intonational Phonology*. Cambridge University Press.
- Peter Ladefoged and Keith Johnson. 2011. *A Course in Phonetics*, 6 edition. Wadsworth Cengage Learning, Boston, MA.
- Staffan Larsson. 2002. *Issue-based dialogue management*. Ph.D. thesis, Göteborg University, Göteborg.
- Mark Yoffe Liberman. 1975. *The intonational system of English*. Ph.D. thesis, Massachusetts Institute of Technology, Cambridge, Mass.
- Oliver Niebuhr. 2013. [Resistance is futile – the intonation between continuation rise and calling contour in german](#). In *Proceedings on the 14th Interspeech Conference*, Lyon, pages 225–229. ISCA.
- Jörg Peters. 2018. [Phonological and semantic aspects of german intonation](#). *Linguistik online*, 88(1/18):85–107.
- Janet Pierrehumbert and Julia Hirschberg. 1990. The meaning of intonational contours in the interpretation of discourse. In P. R. Cohen, J. Morgan, and M. E. Pollack, editors, *Intentions in Communications*, pages 271–311. MIT Press, Cambridge.
- Kenneth L. Pike. 1945. *The intonation of American English*. Ann Arbor, Don Mills.
- Cristel Portes, Claire Beyssade, Amandine Michelas, Jean-Marie Marandin, and Maud Champagne-Lavau. 2014. [The dialogical dimension of intonational meaning: Evidence from french](#). *Journal of Pragmatics*, 74:15–29.
- Sergio I. Quiroz and Marzena Żygis. 2017. [The vocative chant and beyond: German calling melodies under routine and urgent contexts](#). In *Proc. Interspeech 2017*, pages 1208–1212.
- David R. Traum and Staffan Larsson. 2003. The information state approach to dialogue management. In Jan van Kuppevelt and Ronnie W. Smith, editors, *Current and new directions in discourse and dialogue*, chapter 15, pages 325–353. Kluwer Academic Publishers, Dordrecht.
- Hubert Truckenbrodt. 2012. Semantics of intonation. In *Semantics. An International Handbook of Natural Language Meaning*, volume 3, pages 2039–2969. Walter de Gruyter, Berlin.
- Chinedu Uchechukwu. 2008. The modal system of the igbo language. In Werner Abraham and Elisabeth Leiss, editors, *Modality-Aspect Interfaces. Implications and Typological Solutions*, volume 79 of *Typological Studies in Language*, pages 241–276. Benjamins, Amsterdam.
- László Varga. 2008. [The calling contour in hungarian and english](#). *Phonology*, 25:469–497.
- Richard Wiese. 1996. *The phonology of German*. Phonology of the World’s languages. Oxford University Press.
- Angelika Wöllstein, editor. 2016. *Duden, die Grammatik: unentbehrlich für richtiges Deutsch*, 9 edition, volume 4 of *Der Duden*. Dudenverlag, Mannheim.
- Henk Zeevat. 2019. Superlative quantification particles. In *Questions in Discourse*, volume 1, pages 286–306, Leiden. Koninklijke Brill.
- Cong Zhang. 2018. [Chanted call tune in tianjin mandarin: Disyllabic calls](#). In *1th International Conference on Speech Prosody 2018*.