Another look at right-detached NPs

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Another look at… right detached NPs

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1. INTRODUCTION

This paper[1] proposes an analysis of right-detached NPs constructions in Jaminjung, a language of Northern Australia, in which right-detached NPs serve different discourse functions, either as reactivated topics or as afterthoughts, a distinction established formally principally on prosodic criteria with some clues from morpho-syntax.

We analyse prosodic sentences made of at least two intonation units (IUs) separated by a pause in which the first IU corresponds to a syntactic clause, and the second to a non-clausal element, here an NP that is either a reactivated topic or an afterthought. The former involves the restating of a given-inactive topic, a strategy commonly used by Jaminjung speakers as given topics are often elided in the main clauses; they help solve potentially unclear referents; they also maintain continuity as they are often the topic referent for the succeeding sentence. Afterthoughts, for their part, supply additional information after a sentence is completed (Auer 1996), it is reported in the literature that they are 'conveyed with a brief additional focus' (Chafe 1994). That these functions can be clearly identified suggests that they are part of grammar. Findings such as these - echoing those found in other languages, including English (McCarthy & Carter 2002) - contribute greatly to our understanding of the place of prosody in grammar, precisely because they are based on a language that does not have a written form that could potentially obscure its role.

The paper is organised as follows: section 2 introduces the Jaminjung language, the constructions under investigation, an overview of the prosodic model used for this analysis and the informational structural notions of Topics and Afterthoughts. Section 3 is an instrumental analysis of the prosodic correlates of the selected datasets, including mean pitch, excursion size, duration, and velocity (rate of change in pitch) of the representative tokens for each subtype of construction. Section 4 will discuss the results of the quantitative analysis and section 5 will conclude the paper, highlighting the significance of our findings to language documentation, and to prosodic syntactic theory.

[1] Work realised as part of the documentation of Jaminjung, funded by the DoBeS programme 'documentation of the linguistic and cultural knowledge of the languages of the Victoria River district'.

2. BACKGROUND

2.1. Jaminjung

The Australian language Jaminjung is part of a small western branch of the geographically discontinuous Mirndi family (Chadwick 1997, Harvey 2008), a member of the diverse non-Pama-Nyungan group. It is severely endangered, the remaining speakers, only a few dozen, are mostly elderly. The traditional country of the Jaminjung people is located around Timber Creek in the Northern Territory.

As for many other Australian languages, Jaminjung is said to have 'free word order' in the sense that word order is not used to distinguish the grammatical roles of arguments, but is rather conditioned by information structure at the discourse pragmatic level (Schultze-Berndt 2000). This leads to lexical arguments being freely omitted –argument roles are indicated by bound pronominals which attach to the verbs as prefixes and by case markers which are suffixed to constituents of noun phrases. Like many other languages of the area (McGregor 2004, Dixon 2002 *inter alia*), Jaminjung has complex predicates made up of two distinct categories of verbs: the inflecting verbs, which form a closed class of around thirty members, and a non-inflecting category, referred to as 'coverbs', which typically bear the semantic load (Schultze-Berndt 2000).

2.2. Theoretical frameworks

In the framework of functional linguistics, it is accepted that internal structures can be shaped by forces arising out of discourse. Indeed, grammar is viewed as a set of speech patterns established in the course of frequent use in daily talk, the same speech patterns being motivated/constrained by cognitive and communicative factors (Ono & Thompson 1995). This paper analyses prosodic sentences made of at least two IUs where the first IU corresponds to a syntactic clause, and the second to a non-clausal element, here an NP, and notes the following information:

- Its discourse-pragmatic status, that is, the information status of the referent, whether it is i) new, given or accessible; ii) topical or not. Hence, the NPs in question are functionally either REACTIVATED TOPICS or as AFTERTHOUGHTS.
- Intonational, the NP is the second IU is preceded by a pause i) whether it is part of the intonation contour of the main clause and ii) the degree of stress accorded to the second IU.

The background model to the prosodic analysis is the Parallel Encoding and Target Approximation (PENTA) model (Xu 2005) which defines intonation components in terms of function rather than form. It is based on two basic assumptions. First, speech melody is produced by an articulatory system whose physical properties impose various constraints on the way acoustic forms are generated. Second, multiple communicative functions are concurrently conveyed through speech, and as they can be perceptually distinguished, they must be encoded separately. Thus, individual communicative functions control their prosodic implementation through distinctive *encoding schemes* that specify the values of the melodic primitives, which

include local pitch target, pitch range, and articulatory strength. In this way, the PENTA model both describes and explains pitch contours (F0 patterns) in utterances.

Importantly, PENTA does not specify the encoding schemes for a specific language; these need to be discovered through empirical investigations in which potential contributors to surface F0 contours are systematically controlled (Xu 2005: 246), this informs our methodological decisions. In a first step, communicative functions (e.g. information structure categories) are defined, then clear examples of their instantiation are selected, and finally the parameters used in their encodings are sought out by prosodic measurements.

The main advantages of the model are that, first, it recognises that the encoding of one function can overlay another; so surface F0 (fundamental frequency/pitch) must be interpreted with caution. Second, the model does not consider only pitch (F0), other parameters also taken into account (duration, pitch range, etc.). Third, the PENTA model makes it possible to apply quantitative methods usually reserved for larger corpora to relatively limited datasets and thus makes patterns more easily discernable and verifiable.

We also posit that the basic unit of analysis of spoken language is the INTONATION UNIT (IU) following Chafe (1987, 1994) and Mettouchi et al (2008), each of which expresses a single focus of consciousness and are often congruent with a clause, but not necessarily, they can also correspond to noun phrases or to interjections. Note that in Jaminjung, IUs cannot be identified by means of morpho-syntactic markers such as the occurrence of a given particle in final position, as reported, for example, for Dolakha Newar (Genetti 2007). We also recognise successions of IUs which form a semantically coherent larger unit, for which we will use the term PROSODIC SENTENCE (PS) following Chafe (1994) and Genetti (2007), in preference to other terms used in the literature, such as 'utterance' (Prosodic Hierarchy theory, Selkirk 1986), 'paratone' (British tradition, see e.g. Crystal 2003: 336), or 'prosodic cluster' (Ewing 2005)[2]. In Jaminjung, PS are bounded by pauses and set off by substantial pitch resets which are significantly higher than those between other individual IUs (see Simard 2010: 160). At the right boundary, they are lengthened and subject to final lowering which may provoke creaky phonation (Simard 2010: 140-170). In grammatical terms, PS variously correspond to a succession of independent main verbal clauses, a main clause and a subordinate clause or a 'pragmatically dependent predicate' (Schultze-Berndt 2000); or a main clause followed by a prosodically detached noun phrase[3]; the latter is the subtype which we will discuss here.

The discourse-pragmatic analysis makes use of the categories of *Information Structure (IS)* which refers to the organisation of the constituents of the sentence according to the demands of the communicative situation (Chafe 1976). It assumes that sentences are composed of two parts:

- something is said - the COMMENT

[2] These may vary slightly in their definitions.

[3] Prosodic sentences may also correspond to a combination of direct speech and a reporting verb, or an interjection (forming its own intonation unit) and a main clause.

- about something - the TOPIC

Before embarking on defining the IS category of topic, it is useful to clarify the relation between COMMENT and FOCUS. We follow Lambrecht (1994: 207) in defining focus as '... that portion of a proposition which cannot be taken for granted at the time of speech. It is the unpredictable or pragmatically non-recoverable element in an utterance'. A semantically grounded definition of focus refers to that constituent which evokes alternatives that are relevant for its interpretation, i.e. which evokes an implicit question; the focused item is the candidate selected for filling the variable in the question (e.g. Roberts 1996/2012; Rooth 1992; Dik 1997: 328; Krifka 2007: 18; Zimmermann & Onea 2011).

TOPIC is not used here in the sense of discourse topic, what part of a discourse is about, but rather in the sense of sentence topic, the entity which is predicated about in a sentence (Lambrecht 1994: 117; Krifka 2007). Gundel (1985: 86) defines topics in this way: 'an entity, E, is the topic of a sentence, S, if in using S the speaker intends to increase the addressee's knowledge about, request information about, or otherwise get the addressee to act with respect to E'.

Topics may have different functions and different degrees of integration into the sentence, as shown in example (1), ranging from a) full integration, where they have a grammatical function in the main clause; to b) partial integration, where they are realised outside the clause, but co-indexed with one of its elements; to c) no integration, where they are neither within nor co-indexed to one of its elements (see in particular Maslova and Bernini 2006).

(1) (a) [My dog_{TOP}] was playing with the ball.
(b) [That other dog_{TOP}], it came from the other side and stole it.
(c) [As to that $walk_{TOP}$], there is no point in continuing.

A sentence can have more than one topic or, as is very relevant in the case of Jaminjung, sentences can lack an overt topic, in which case they are either comments on an implicit (discourse-given) topic or sentences in which all elements are focused (thetic sentences). Such cases have led to the distinction between 'topic expression', the linguistic expression of a topic; and 'topic referent' which refers to what it stands for, its denotatum (see Lambrecht 1994: 127-131, Krifka 2006: 5-6).

2.3. Reactivated topics and Afterthoughts

The right edge of a sentence is typically associated with given topics which may be separated by a pause, resulting in the sentence being made up of two IUs. Terminological distinctions need to be made between *antitopics, right dislocations, and detached topics*; both right dislocations and antitopics *(*Lambrecht 2001: 1043 and 1994: 118) refer to NPs at the right edge of the sentence with a co-referent pro-form inside the IU. Right dislocations tend to be well-established topics and, in English at least, are not accented. Functionally, these NPs serve to reactivate referents present in the discourse situation but not mentioned for some time, or to mark the referent of the right-peripheral NP as the subject for the following discourse segment. For Chafe (1976), they

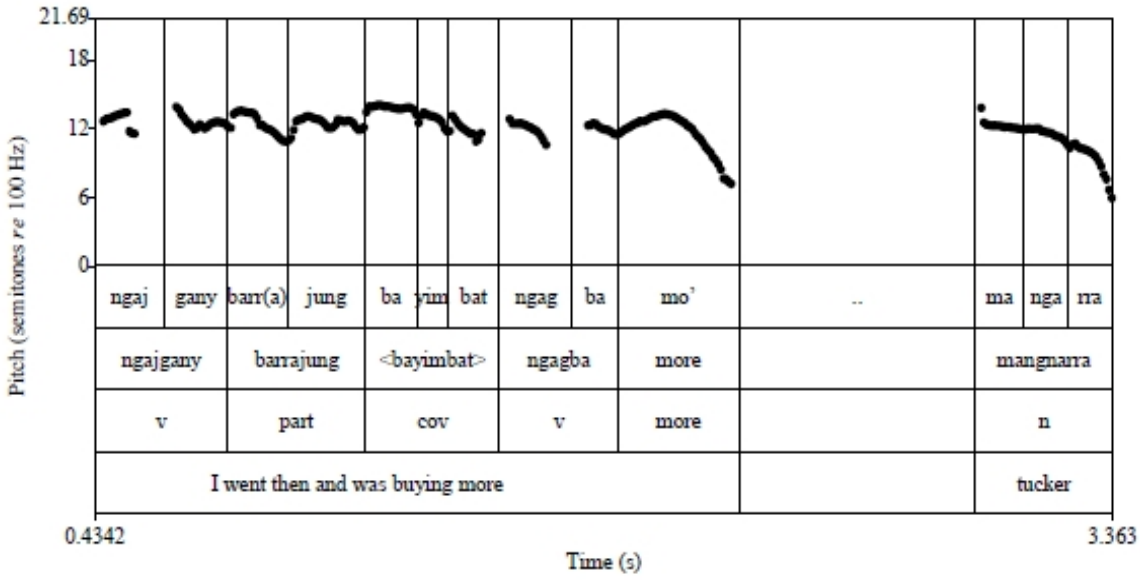
are a pragmatic category which functions to 'confirm established information', and frequently occur at the right periphery. Antitopics differ in that the propositional information is put on hold temporarily until the referent is fully named; the referent is accessible although not yet an established topic: the presuppositional structure of the antitopic construction involves a signal that the not-yet-active topic referent is going to be named at the end of the sentence (Lambrecht 1994). This does not correspond to the constructions in this analysis, in which the first IU is an independent, 'complete' clause, after which the speaker decides to reiterate the topical referent. Although they are functionally similar to the right dislocations mentioned above, we choose to call them REACTIVATED TOPICS as Jaminjung does not make use of pro-forms. Restating the topic is a fairly common strategy used by Jaminjung speakers, possibly to avoid a lack of clarity brought about by the frequent topic elision in the main clauses. This is a well attested strategy in many other Australian languages[4].

An example is shown in (2), where the speaker is remonstrating with someone who wishes to borrow money from her, saying she uses hers to buy food for her children. At this stage, she has been talking about how much food she has bought, food is the topic but it is not overtly expressed in the first IU, it is restated as the sentence topic at the end, with *mangarra*.

(2) *nga-jga-ny* *barrajung* *<buyimbat>* *nga-gba* *<more>,* *mangarra*
1sg-go-PST further:RESTR buy:TR:CONT 1sg-be.PST more plant.food
'I went then and was buying more, tucker' [ES96_A08_02.122: IP]

[4] See Ross (2011) for a review.

Figure 1
The pitch track of the example example 2.

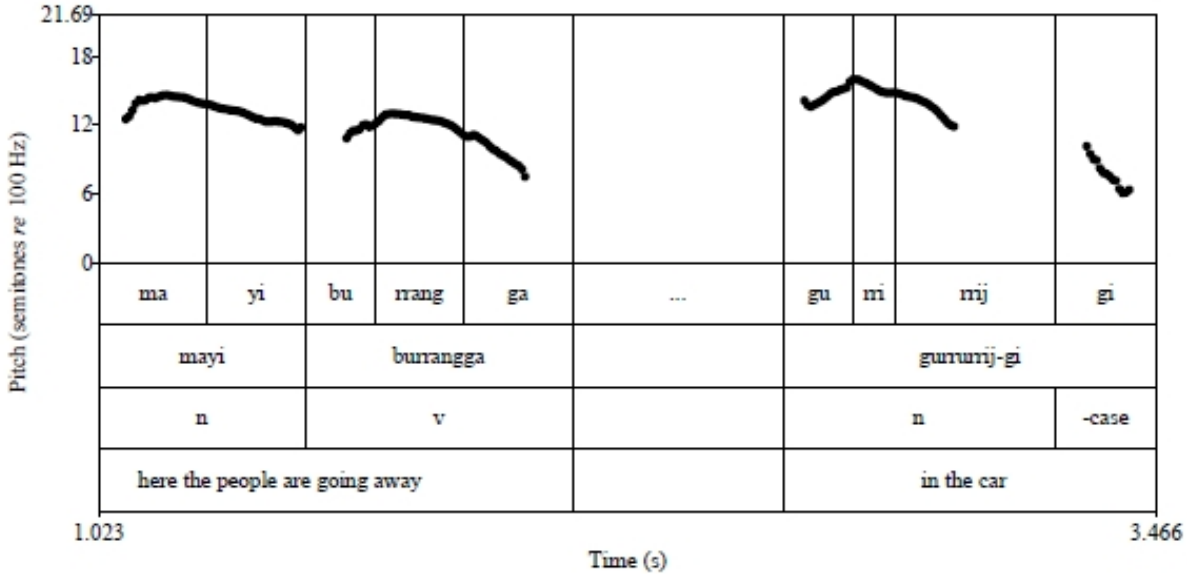


It is assumed that all languages make use of AFTERTHOUGHTS as a repair mechanism in unplanned speech. Afterthoughts are usually non-verbal elements, such as NPs or adverbials, used to supply additional information. We follow Auer (1996) for whom they are structures in which something is added after a sentence is completed as addition or modification, and Chafe (1994: 142), who states that 'it is common for speakers to complete the scanning of a centre of interest, indicating completion by falling pitch, and then supplement the information already conveyed with a brief additional focus'. The interpretation of NPs as afterthought is to a large extent dependent on the linguistic and extra-linguistic context – afterthoughts are often treated as the result of lapses in speech planning (Shibatani 1990). NPs interpreted as afterthoughts in the prosodic sentences analysed in this dataset are always preceded by a pause, never topical, and often circumstantial elements. Example (3) is from a picture-based elicitation session. The speaker is describing a picture showing a car driving off with a group of people.

(3)	*mayi*	*burr-anga*	*gurrirrij-gi*
	person	3pl-go.PRS	car-LOC

The people are going away, in the car' [cs07_a065_01:JoJ)

Figure 2
The pitch track of example 3.



3. DATASETS AND MEASUREMENTS

The datasets are made of spontaneous - or at least unread - speech, collected during fieldwork conducted between 1993 and 2009[5]. They comprise narratives consisting of personal anecdotes and mythological stories, picture-prompt narratives based on more widely used materials such as the Frog Story (Mayer 1969), some of the tasks from the Questionnaire for Information Structure (QUIS) materials developed as part of the SFB 632 Information Structure research project (Skopeteas et al 2006), and data recorded in the course of the documentation of the ethnobiological knowledge of the speakers. The recordings usually involved more than one speaker, tokens from 9 speakers are used in this analysis.

3.1. Measurements

All utterances are transferred into PRAAT[6] textgrids. The F0 contour of the tokens is calculated and visualized with the help of Praat. The speech signal and the spectrogram are used to confirm boundaries and parse the tokens into syllables. Syllables are measured from consonant onset to vowel/consonant end, from the beginning of the stop closure or the beginning of first formants in nasals and laterals. The end of a syllable, when there is no pause, is the onset of the next syllable (closure of a following stop, etc.). In the case of a following pause, the end of the coda is counted as the end of the speaker's oral noise. When the unit ends in a creak, the unit is measured to the

[5] Much of the data collection is the result of Eva Schultze-Berndt fieldwork.

[6] PRAAT is a programme especially developed and designed for speech analysis by P. Boersma and D. Weenink at the Phonetic Sciences Department of the University of Amsterdam (http://www.fon.hum.uva.nl/praat/).

end of audible phonation. These markings are based on the discussion of methodological issues associated with segmental duration in prosodic research in Turk et al. (2006). Once the utterances are segmented into syllables, measurements are effected, including duration, pitch, and velocity. Intensity is no less interesting a correlate, but it must be excluded from the analysis because of the uncontrolled nature of the recording conditions during fieldwork. The ProsodyPRO script [7] is then run through the resulting Praat textgrids. The following measurements are used:

Mean F0 — Average of all F0 values in a syllable, in Hz.

Excursion size — Difference between the max F0 and min F0 expressed in semitones for each syllable.

Final velocity — Velocity is a measure of the instantaneous rates of F0 change expressed in semitones per second, taken at a point earlier than the interval (syllable) offset (here 30ms). It is an indicator of the slope of the underlying target of the interval.

Duration — Time interval between the onset and offset of the syllable, in ms.

The raw data are then transferred into the statistics analysis package SPSS, in order to make qualitative and quantitative comparisons. The descriptive statistics presented here are based on the raw measures. More coding is done in SPSS, including the number of words in each token and their positions in the IU, the number of syllables and the position of each syllable in a word[8], speaker, and text genre.

3.2. Preliminary tests

The pitch range of each speaker included in the dataset is calculated, that is to say, the interval between the lowest and highest pitch levels reached during a text. Statistical tests show that the variations between speakers are not significant. Multifactor ANOVA tests with 'IU length' and 'genre' show a not significant interaction with for any of the correlates. These tests ensure that the tokens form a fairly comparable set.

3.3. Second IUs

The measurements of the correlates in second IUs consisting of NPs are compared, according to their functional subtypes, afterthoughts or reactivated topics, with the aim of establishing whether they receive distinctive prosodic encodings.

The results of the measurements are shown in Table 1. The results of the mean F0 in reactivated topics is lower throughout the IU. Of note is the higher mean pitch in the initial syllables of the afterthoughts, which averages 193Hz while the reactivated topics have values of 183.18Hz and 166.41Hz. Altogether, afterthoughts are uttered with a higher pitch register.

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[7] Downloaded from Yi Xu's website http://www.phon.ucl.ac.uk/home/yi/tools.html

[8] Given the conditions of our data collection, it was not possible to control the segmental composition of syllables

All subtypes have similar pitch excursions in their initial syllables, between 3.8st and 2.2st for reactivated topics and 3.1st and 2.9st and 2.7 for the afterthoughts. The excursions in reactivated topics are much less salient in the second syllable, but remain very high in afterthoughts. At the right periphery, it is interesting to note the difference in the excursions of the penultimate syllables, which are very slight in reactivated topics, 1.6st. and are much greater in afterthoughts at 4st. The measurements suggest a steeper falling movement in the final syllables of afterthoughts in which the fall is initiated in the penultimate syllable.

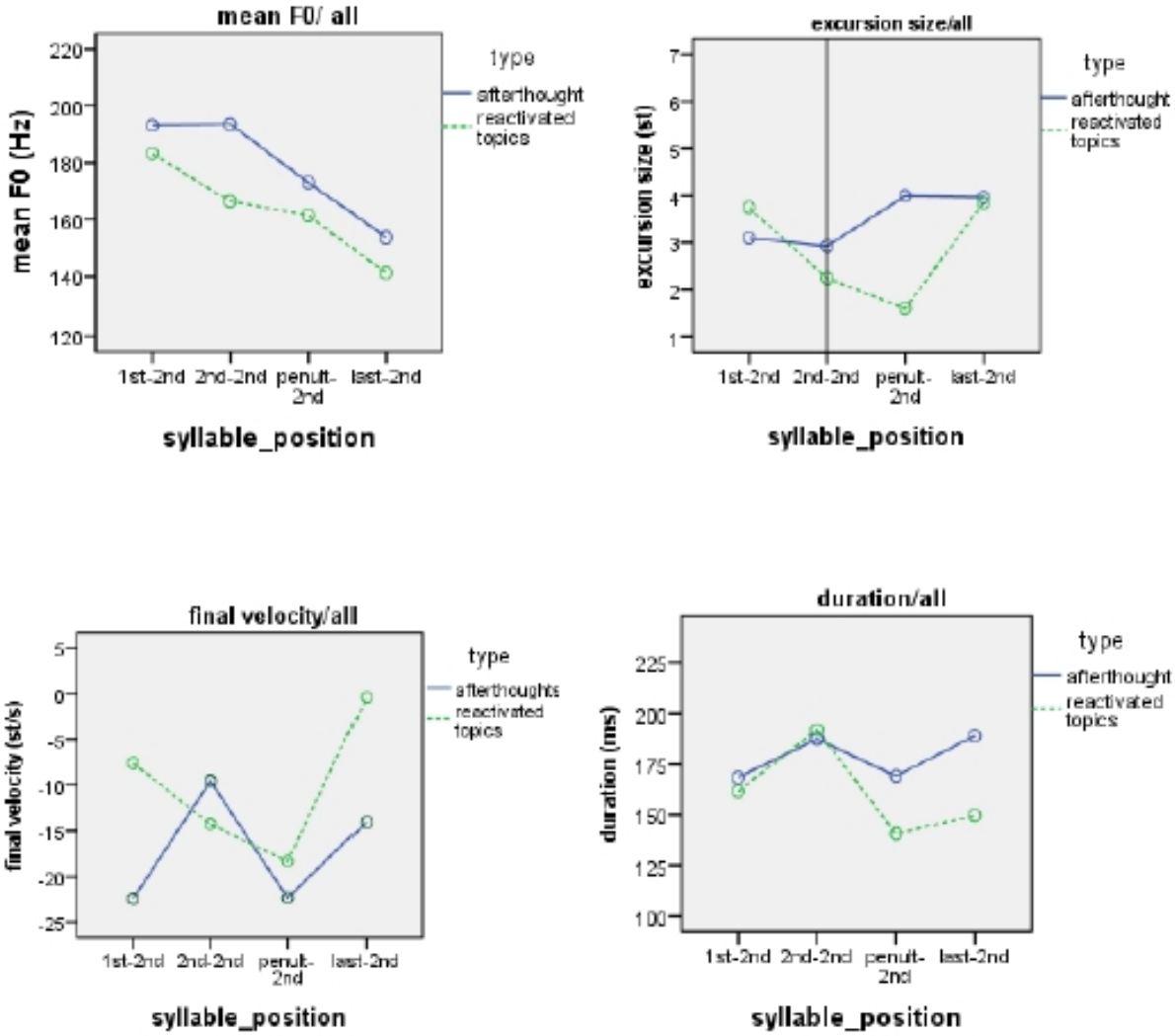
As to final velocity, at the left edge, the reactivated topics have values of -7.6st/s in the first syllable followed by a dip in the second syllables, which is consistent with the encoding of topics with an initial [high] target reported in Simard (2010). Afterthoughts have values -22.4st/s and -10st/s in the second syllables, which would be consistent with the values associated with the [fall] targets of focused syllables (Simard 2010). At the right edge, the pattern in all IUs is that of a general rise towards zero in the final syllable, which suggests a [low] underlying target.

The correlate of duration does not yield statistically significant difference between the subtypes tested. The syllables at the left periphery have very similar values; as to the right boundary, afterthoughts have longer durations with values of 169.01ms and 188.84ms to 140.55ms and 149.5ms for reactivated topics. Final lengthening is apparent in both subtypes. It is calculated as a ratio of the duration of the final to the penultimate syllable, the results are shown in Figure 3. Afterthoughts have a ratio of 1.12 and reactivated topics 1.06.

Of interest is also the measure of the average length of the pause preceding the second IUs, that preceding afterthought is 820.2ms, and that before reactivated topics being much shorter with 570.2ms, thus signalling its closer syntactic integration with the previous clause.

Figure 3

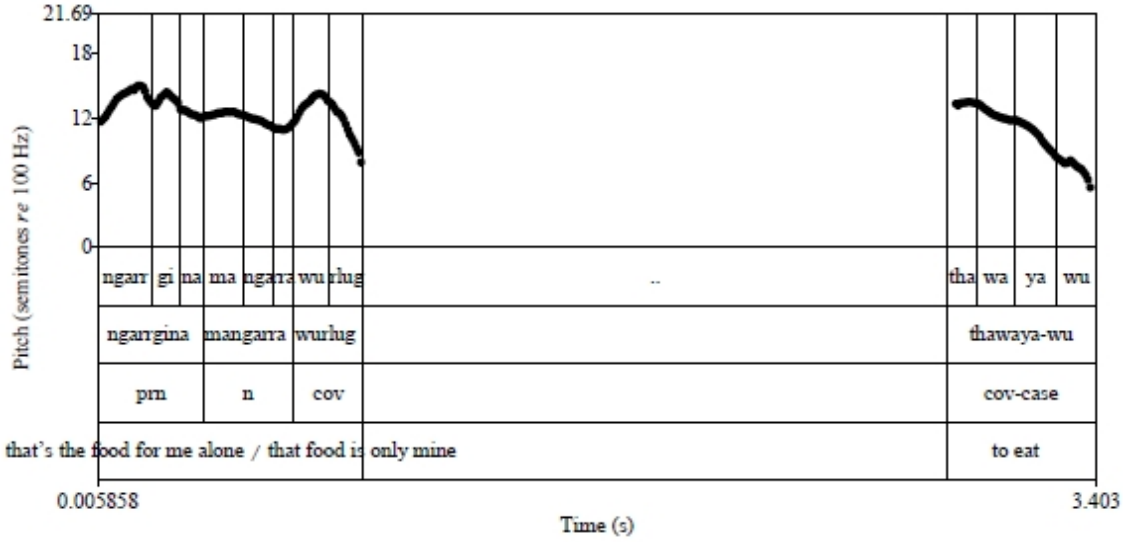
Comparison of the correlates of mean F0, excursion size, final velocity and duration in 2nd IUs consisting of NPs serving as afterthoughts and reactivated topics.



Finally, other elements can occur as 2nd IUs, for example verbal clauses, or non-finite predicates usually consisting of a lone coverb, a very frequent construction in Jaminjung. For the sake of completion, it is interesting to compare the results of the measurements for the NPs reported above with those of these other types of 2nd IUs. An example is shown in (4), in which the speaker adds information about the food mentioned in the first IU, in the form of the secondary predicate *thawaya-wu* 'to eat', after a long pause.

(4) *ngarrgina* *mangarra* *wurlug...* *thawaya-wu*
1SG:POSS plant_food alone eating-DAT
That's the food for me alone / that food is only mine, to eat.' [IP:ES96_08_02]

Figure 4
The pitch track of example 4.



The results of the measurements of NPs as afterthoughts resemble those of verbal clauses and non-final predicates: the measurements of the correlates of final velocity, excursion size and duration suggest a [fall] target in the first 2 syllables, a greater pitch excursion and duration throughout, all of which are consistent with the marking of *focus* (Simard 2010).

4. DISCUSSION

4.1. TWO CONSTRUCTIONS: AFTERTHOUGHTS AND TOPICS

Structurally, the NPs in second IUs are 'dependent' of the main clause, both morpho-syntactically and prosodically, in the sense that they could not function on their own, they are used either to delimit the event of the main predicate in time and space, or to specify one of the referents.

The measurements reflects semantic-pragmatic (information structural) considerations, namely that new information is conveyed with more salient prosodic encodings than old information. We propose that the distinctions in the prosodic encodings actually distinguish two constructions. NP afterthoughts bring in new information related either to an argument or to the

predicate of the main clause. Prosodically, they receive the marking of a focal accent, as noted above; they are also marked by higher pitch registers.

Reactivated topics do not contribute new information, instead the information they carry is being made accessible, reactivated from a pool of 'semi-active' information that is 'present in a person's peripheral consciousness' (Chafe 1987: 25); they are also referential. Prosodically, they form a separate IU, but do not bear any feature associated with focal accentuation. The syntactic integration of the second IUs is encoded in their prosody, as evidenced in the much shorter pauses that precede reactivated topics.

De Vries (2009: 236), in a study of Dutch dislocations, comes to similar conclusions, which he expresses in terms of 'backgrounding', where the right-dislocated topic is 'deaccented, whereas an afterthought, like many parentheticals, receives an additional intonation contour containing a pitch accent'. It seems that speakers intentionally create a system of prosodic units to emphasize relationships between semantically related sections of the discourse and to highlight some elements they judge important.

4.2. Theoretical and Typological perspectives

Elements at the clausal periphery may have received less attention in formal syntactic theory, particularly phenomena at the right periphery which are viewed as governed by 'stylistic rules', hence outside the remit of syntax proper. But functionalist approaches have sought to account for nonclausal elements. Dik (1997: 379-405), for example, states that Functional Grammar cannot ignore what he defines as 'Extra-clausal constituents' (ECCs), expressions preceding, interrupting or following the clause, which are loosely associated with the clausal constituents, if it is to achieve pragmatic adequacy for its linguistic description.

Despite terminological differences and descriptive approaches, there appear to be some agreement as to the functional character of NPs as ECCs at the right periphery, to which our findings conform. I will refer to left and right dislocations, but with the same caveat as found in Dochler (2011: 50) on how these terms have their roots in a generativist tradition, 'which understands dislocated constructions as resulting from transformations applied to a basic clause structure, namely SVO for languages such as French or English (e.g. Ross 1967). This epistemological embeddedness of the notions of LD and RD has had profound repercussions on the way these constructions have been conceptualized in the literature - even far beyond the generativist tradition: LD and RD arc typically understood as "marked constructions", measured against the so-called canonical word order'. We further support her claims that such a view is not plausible cognitively and pragmatically and that it 'disregards the fundamental moment-by-moment temporal unfolding of talk, and hence its sequential character', thus allowing for the possibility that IUs may also be interactional units, not only informational units.

We will consider 'RDs, particularly relevant here, which have been described for many languages, including English. They can move complement sentences and any type of NPs to the right of the sentence, leaving a corresponding pronoun:

(5) (a) He's just bought a new car, my uncle.
(b) It's unbearable, the weather in Syracuse.
(c) It came as a surprise, John's resignation (McCawley 1988)

RDs, according to Lambrecht (2001), introduce familiar information in a position where a high informative content is expected, defined as 'a dislocation construction (also called detachment construction) is a sentence structure in which a referential constituent which could function as an argument or an adjunct within a predicate-argument structure occurs instead outside the boundaries of the clause containing the predicate, either to its left (…) or to its right (…)' (Lambrecht 1994:1050). Whether RD (as well as LD) should always be viewed as topic-marking constructions, however, is a matter of ongoing debate: Ziv and Grosz (1994) distinguish between RDs and repairs or afterthoughts on the basis of distinct syntactic and intonational properties. For them, afterthoughts are preceded by a pause and are stressed while RDs consist of a single intonation contour with no such pause and are de-stressed. They also posit that the two have different functions, afterthoughts being corrective, and RDs organizational; a similar description is made for Norwegian by Freithem (1994). Averintseva-Klisch (2006) suggests different discourse functions for the 'traditional right dislocation' construction in German. The first is a proper RD, used to mark the referent of the right-peripheral NP as especially important for the succeeding discourse. In this construction, the right-dislocated NP occupies a fixed position at the right periphery in the host sentence, takes morphological agreement with the clause-internal pro-form, does not allow subordinate clause insertion nor optional additions of any kind between host sentence and right dislocated NP, and is prosodically integrated into host sentence i.e. it continues the tone movement of the host sentence and thus does not build a prosodic unit of its own. The second is the afterthought, described as a strategy which enables the speaker to resolve a (pro)nominal reference that might be unclear to the hearer, it can vary its position in its host sentence, does not strictly require morphological agreement between NP and clause-internal pronoun, and allows various insertions between host sentence and the NP as afterthought, making it appear to be syntactically fairly free. Finally, it builds a prosodic unit which is optionally divided from the clause by a pause, with a 'tone movement and a clause-like accent of its own'.

As noted earlier, the notion of RD cannot be applied to the Jaminjung NPs such as those described in this analysis because Jaminjung does not meet with the definitional criterion of pronominal coindexation. Nevertheless, our findings do conform with other cross-linguistic observations that the right edge of the sentence can be used for global discourse strategies of information status marking.

For Jaminjung, based on the results reported in Section 3, two distinct constructions are identified on functional and prosodic criteria. Detached NPs can refer to a topic already mentioned, which may not be active in the speaker's and listener's memory and are thus 'reactivated topics'. These do form an IU of their own, but do not receive a focal accent. Other NPs add further, new information about the predicate of the main clause or one of its arguments,

and are ‘afterthoughts’. Congruent with their carrying new information, they receive a focal accent. That these constructions can be clearly identified suggests that they are part of grammar, rather than extra-linguistic.

5. CONCLUDING REMARKS

This paper has presented a quantified and statistically tested analysis of right detached NPs in Jaminjung, arguing that two separate constructions can de distinguished, serving different functions, differentiated by their prosody. The second section introduced Jaminjung and the theoretical frameworks used in the analysis, the third presented the instrumental analyses of the datasets, section 4 discussed the findings and positioned them within a typological perspective. Finally, while the difficulty of applying instrumental methods to the study of spontaneous speech data has to be acknowledged, we argue that this experimental study provides much needed empirical grounding for prosodic analysis, and that it benefits both our understanding of the grammar of jaminjung, and of the role of prosody in grammar.

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