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The realization of L*+H pitch accent in Greek

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We experimentally examined the realization of the L*+H pitch accent in Greek, in several positions and environments. In the literature, L*+H is described as a rise from an L at the consonant onset of the stressed syllable, to an H in the post-stress syllable (Arvaniti et al. 2006, 2000, 1998; Arvaniti & Baltazani 2005). L*+H is described in GRTToBI (Arvaniti & Baltazani 2005) as a pre-nuclear accent in statements and polar questions and the nuclear accent in wh-questions and negations. Experiment 1 (production) used 36 statements varying in the number of syllables (0, 1, or 2) between the L*+H accents and replicated the alignment results in the literature for the L and H targets, showing that the inter-accent distance influences this alignment. Experiment 2 (production and perception) compared the pre-nuclear stretch in polar questions and affirmatives. We used 60 sentences to test the hypothesis that these two types of utterance are indistinguishable in the pre-nuclear stretch since both have an L*+H pre-nuclear accent. We found that listeners could not discriminate statements from polar questions until they heard the nuclear part of the utterance. Experiment 3 (production) used 60 wh-questions and negations with 0, 1, or 2 syllables between accents. The results suggest that under pressure the H aligns with the nuclear vowel, but when there is no such pressure it aligns with the first post-nuclear vowel.

1. GENERAL INTRODUCTION

This paper reports the phonetic realization of the L*+H pitch accent in Greek in a variety of environments. For our analysis we followed the auto-segmental metrical theory and in particular GRTToBI, a system based on ToBI and adapted for Greek by Arvaniti & Baltazani (2005). Specifically, the autosegmental theory assumes that intonation contours consist phonologically of specific points realized as tonal targets. There are two types of tonal events, pitch accents and phrasal tones. Pitch accents phonologically associate with stressed syllables and align with them (Arvaniti et al. 1998, 2000). Phrasal tones are divided into phrase accents and boundary tones.

The most frequently occurring pitch accent in Greek is the bitonal accent L*+H, i.e. an accent with a stable low “starred tone” aligned with the onset of the stressed syllable and an High “trailing one” in the post-stressed syllable (Arvaniti 2001; Arvaniti et al. 1998). The realization of the L*+H pitch accent is compressed in tonal crowding contexts, but remains stable once tones are more than two syllables apart (Arvaniti & Ladd 1995; Arvaniti et al. 1998, 2000, 2006a). In the present study, we set out to examine the behavior of L*+H in different types of utterances, namely: statements, polar and wh-questions and negatives, since this pitch accent, according to GRTToBI, is found in the pre-nuclear position in all of the above utterance types and moreover, it is the nuclear pitch accent in wh-questions and negatives. Our aim was to determine whether this pitch accent has the same phonetic realization in all the above positions.

In what follows, we present three pilot experiments with L*+H in different positions and environments. For each experiment we recorded three or four native speakers of Greek, different for each experiment (in total 10 speakers). In the first pilot experiment, we used statements with the L*+H pitch accent in the pre-nuclear position. The second one had two parts: a production task where we compared the realization of the pre-nuclear L*+H in polar questions with that in statements and a perception one, where we tested the discriminability

between polar L*+H and statement L*+H. In the third pilot experiment, we examine the L*+H pitch accent as the nuclear accent in wh-questions and negatives.

2. FIRST EXPERIMENT: L*+H IN STATEMENTS

The first pilot production experiment was designed to replicate literature results on the phonetic realization of the L*+H pitch accent in Greek as a pre-nuclear pitch accent in statements. In the literature, the L*+H is described as a rise from an L at the consonant onset of the stressed syllable, to an H in the post-stress syllable (Arvaniti et al. 2006a, 2000, 1998; Arvaniti & Baltazani 2005).

2.1. Aim

The aim of this study was to examine the exact realization of an L*+H pre-nuclear pitch accent in Greek, and also to examine the anchoring of the L and the H target and the factors which affect this realization.

2.2. Method

We recorded four native speakers of Greek, between the ages of 23 and 27 (two males and two females). The phonetic materials were analyzed in Praat (Boesma & Weenink 2009) using the guidelines of GRTobI.

We measured the frequency and alignment of the lowest point at the syllable onset as the L(ow) target of each L*+H pitch accent and the highest point in the post-stress syllable as the H target. We also measured the lowest point after the H(igh) target of the pitch accent. For the alignment, we measured the distance in m/s between the Low and the High targets and the anchoring of the L and the H targets to the segmental material.

2.3. Materials

The 36 statements we used were divided in three groups. In the first group there were two L*+H pre-nuclear pitch accents with two unstressed syllables between them (1). In the literature, two or more unstressed interval syllables represent the canonical conditions of the realization of the pitch accent. The second group contained statements with two L*+H pre-nuclear pitch accents having unstressed interval distance (2). The last one contained two pre-nuclear pitch accents under tonal crowding conditions, that is, with no unstressed syllables between them (3).

- (1) /ie'leni mi'la metoma'noli/
“Helen speaks with Manolis.”
- (2) /ima'ma ma'loni tope'ði/
“Mother scolds the child.”
- (3) /ima'ma 'malose tope'ði/
“Mother scolded the child.”

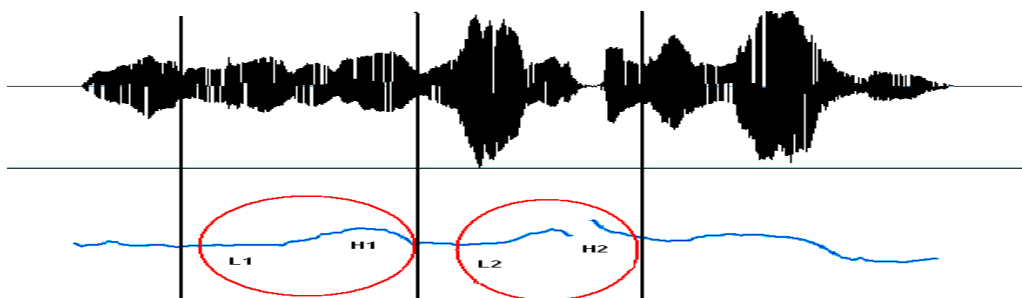
2.4. Results

Under canonical conditions, that is, with two or more unstressed interval syllables between two pitch accents, this pitch accent is realized with the L tone at the onset of the stressed

syllable and the H tone at the consonant or the beginning of the vowel of the following syllables (Arvaniti et al. 1998, 2000).

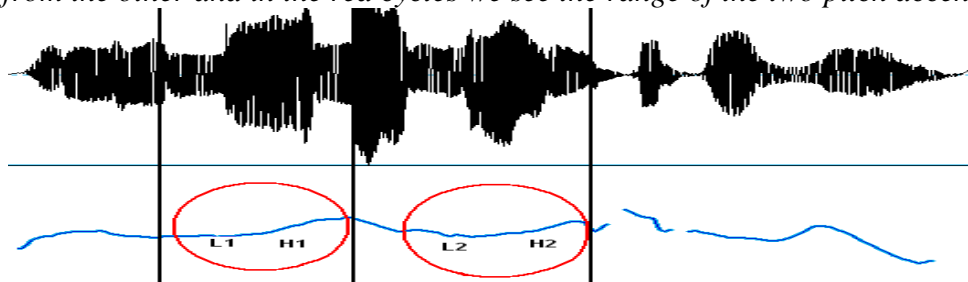
In Figure 1 we can see an example of two unstressed syllables' distance between the two L*+H pitch accents. For both, the L target of the first pitch accent aligns with the consonant of the stressed syllable and the H one with the end of the first post accentual syllable, as is described in the literature (Arvaniti et al. 1998, 2000).

(Figure 1) *Spectrogram and f0 contour of the utterance /ie'leni mi'la metoma'noli/, with two interval syllables between the two pitch accents. Vertical black lines distinct each pre-nuclear pitch accent from the other and in the red cycles we see the range of the two pitch accents*



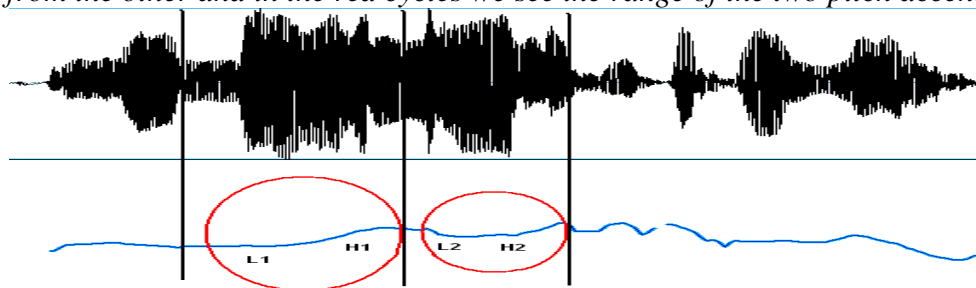
In Figure 2 there is only one unstressed syllable between the pitch accents. As we can see the first pitch accent, due to tonal crowding, is realized earlier. That is, the H target aligns with the consonant of the first post-stressed syllable. Replicating the literature, we found that in a series of two L*+H accents the realization of the first one is affected by the second one under conditions of tonal crowding.

(Figure 2) *Spectrogram and f0 contour of the utterance /ima'ma ma'loni tope'di/, with one interval syllable between the two pitch accents. Vertical black lines distinct each pre-nuclear pitch accent from the other and in the red cycles we see the range of the two pitch accents*



In Figure 3, we can see the phenomenon of tonal crowding in the most extreme form, since there are no interval syllables between the two pitch accents. We can see the pressure of the first pitch accent to the second one, due to the lack of an unstressed interval syllable. The second pitch accent occurs earlier, compared to what happens in the previous occasions. The H point of the second pitch accent occurs at the end of the stressed syllable. Also, the L target of the second pitch accent is scaled higher, and this is another effect of tonal crowding.

(Figure 3) *Spectrogram and f0 contour of the utterance /ima'ma 'malose tope'di/, with no interval syllables between the two pitch accents. Vertical black lines distinct each pre-nuclear pitch accent from the other and in the red circles we see the range of the two pitch accents*



Finally, to sum up, our first experiment replicated the alignment results in the literature for the L and H targets. We found that the inter-accent distance influences this alignment. With two unstressed interval syllables, the L tone appears in its canonical position at the consonant onset of the stressed syllable and the H tone at the post stress vowel. Shorter inter-accent distances compress the alignment of the H target of the first pitch accent and the L target of the second one.

3. SECOND EXPERIMENT: COMPARISON OF L*+H IN STATEMENTS AND POLAR QUESTIONS

The second experiment compares the production and perception of the intonation of polar (yes/no) questions and statements in Modern Greek, in the pre-nuclear pitch accent position (L*+H). Studies of the intonation system of Greek show that the most frequently used pre-nuclear pitch accent is L*+H across all utterance types (Arvaniti et al. 1998; Arvaniti & Baltazani 2005). As Arvaniti et al (2006a) point out, polar questions in Greek, as in some other European languages such as Spanish and Italian, can be string identical to statements. Our study shows that, despite the fact that the two types of sentences differ pragmatically, they present similar contour (rise-fall) at the pre-nuclear pitch accents (L*+H) (see also Arvaniti et al. 2006b). The most characteristic difference that we located in both types of sentences lies in their ends: the statement ends in an Low plateau, while the question shows a characteristic bell-shaped end, something shared by all polar questions in Greek. Furthermore, in the structure of the polar question intonation the interaction between the location of lexical stress and the location of the utterance nucleus play a crucial role in the realization of the tune (for details see Arvaniti et al. 2006b).

3.1. Aim

Our aim has been to see whether there are any differences in the phonetic realization of these rise-fall movements, and if so, whether the differences are perceptually relevant.

3.2. Method (production experiment)

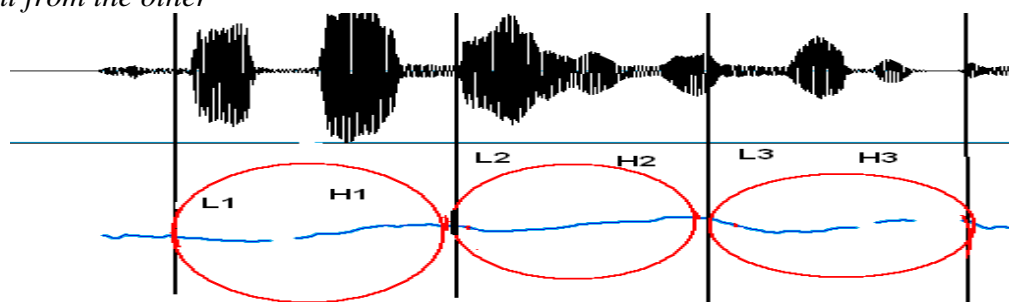
In order to explore the possibility that both types of sentence have the same realization in the pre-nuclear stretch, we designed a pilot production experiment. We built a corpus of twenty sentences (ten polar questions and ten statements), which were string identical. A characteristic example is the sentence “mother only scolds Melina” which in Greek, when it is a statement, is /ima'ma ma'loni timeli'na/, and when it is a polar question, is /ima'ma ma'loni timeli'na/ with the nucleus in both sentences on Melina. The utterances were designed to have three or four pitch accents, two pre-nuclear or three pre-nuclear, followed by one nuclear. Our informants were three female native speakers of Modern Greek in their twenties, who were given explicit instructions about the position where the focus (nuclear word) of each sentence

is. We divided the results of the production experiment in two categories. The first category is when two or three unaccented syllables intercede between two pre-nuclear pitch accents (L*+H), and the second category is when only one unaccented syllable intercedes. We made this distinction in order to see if tonal crowding plays some role in this comparison. The recordings were made and analyzed in Praat (Boesma & Weenink 2009).

In the relevant literature, it is assumed that the type of pre-nuclear pitch accent is the same across polars and statements, and this is L*+H. The phonetic realization of the Greek L*+H has been described as a gradual rise from a Low point (the L tone) to a peak (the H tone) (cf. Arvaniti et al. 1998). However there have also been reports of fine phonetic differences in the realization of L*+H between statements and polar questions (Baltazani 2006b). Therefore, according to our initial hypothesis, which is based in relevant studies for Greek, we do not expect to find any big differences in the part of pre-nuclear accents for both types of sentences.

In this production experiment we took the following measurements. First, scaling of High and Low point of the three pre-nuclear pitch accents was measured in order to detect possible differences between statements and polars. Second, for alignment differences we took two measurements, the point where the Low and the High point of the three pre-nuclear pitch accents align with the segmental material.

(Figure 4) *Here we have three pre-nuclear pitch accents lima'ma ma'loni mo'no/ in the statement lima'ma ma'loni mo'no timeli'na/. Vertical black lines distinct each pre-nuclear pitch accent from the other*



3.3. Results (production experiment)

The results of our production experiment show that there is a difference in the realization of the L*+H pitch accent in statements and polar questions. We found differences in scaling of the High point but we also found systematic differences in alignment. More specifically, the results on the alignment showed that on the one hand, there are no consistent differences between polar questions and statements at the Low point. The alignment of Low point is almost identical for both types of sentences at the beginning of the stressed syllable.

However, on the other hand, there are differences in the alignment of the High point between the two types of sentences. The High point aligned on average 25 m/s earlier in statements than in string identical polars at the first unstressed vowel. Our results show that the H is aligned earlier in statements than in polars across stress conditions. In other words, both in normal and in tonal crowding conditions the H is aligned earlier in statements than in polars. It should also be pointed out that the earlier alignment of High point in statements appears across all three pre-nuclear pitch accents.

(Table 1) *The numbers in the table are averages across stress conditions. Firstly we present the distance from the start of the low elbow until the time which aligns the lowest point (L1, L2, L3). After we present the distance from the start of High until the peak of it (H1, H2, H3)*

STATEMENTS			POLARS		
L1	L2	L3	L1	L2	L3
3ms	4ms	4ms	4ms	4ms	4ms
H1	H2	H3	H1	H2	H3
6ms	4ms	8ms	29ms	30ms	31ms

As for the scaling results, we observe that our informants show no difference for the L tones across sentence types, but on the other hand they showed a tendency to realize the High tones higher in polar questions.

(Table 2) *Average scaling results across stress conditions*

L TONES		H TONES	
Statement	Polar	Statement	Polar
171.5 Hz	171 Hz	235.5 Hz	260.5 Hz

3.4. Method (perception experiment)

In order to test the hypothesis that pre-nuclear pitch accents are similar in statements and in polar questions we also conducted a perception experiment. Our initial hypothesis was that in utterances with a number of pre-nuclear pitch accents preceding a Late nucleus listeners would have to wait for the nucleus to be uttered before they can determine whether the utterance they are processing is a statement or a question. We used sixty sentences half of which were polar questions and the other half statements. The polar questions were string identical with statements. The material used comes from the sentences uttered in the production experiment. The number of participants was 30 and their ages range from 17 to 35. Each of the 60 sentences was cut into three parts (when there were two pre-nuclear accents) or four (when there were three pre-nuclear accents), and presented to the listeners incrementally. The participants were told that they would hear progressively fragments of a statement or a question and that their task was to decide for each fragment whether it was a statement or a question. The listeners recorded their answer in a printed out questionnaire. In all cases statements and polar questions were presented in random order.

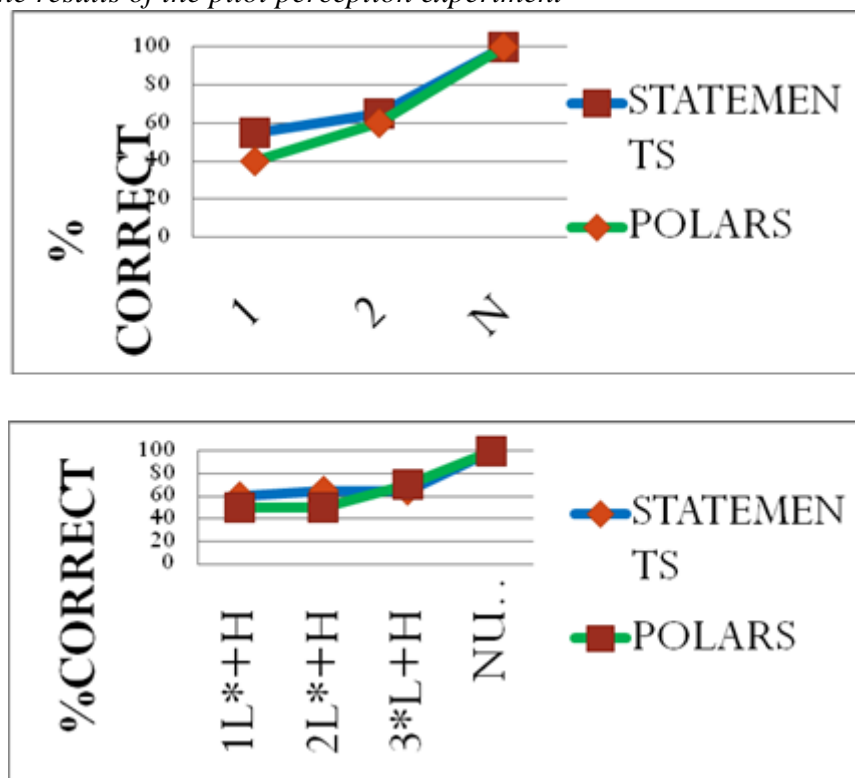
As is known from the literature, each sentence type has an acoustically distinct tonal structure, characterized in Greek by the type and location of tonal prominence (nucleus) and boundary tone (Baltazani 2002; Botinis et al. 2000).

3.5. Results (perception experiment)

The results of this pilot perception experiment show that it is not easy for the listeners to distinguish between the pre-nuclear pitch accents for the statements and for the polar questions (Figure 5). In Figure 5 below, the vertical axis shows percentages of correct

identification of utterance and the horizontal axis shows the points at which the listeners were asked to identify the type of utterance, that is, after they heard the first fragment, the second fragment and the nucleus for the top graph. The bottom graph shows the results for the longer sentences, which contained four fragments. The correct identification rates for the statements are shown in blue, those for polars in green. We see that for the pre-nuclear stretch the listeners' performance was very near the 50% chance level. However, there is a small tendency for easier recognition in statements in both graphs. Furthermore, identification got a little better as listeners heard more of the utterance, especially for the long polar utterances.

(Figure 5) *The results of the pilot perception experiment*



At this point we must say that in the grammar of Greek the nucleus in neutral polar questions is located on the verb. Interrogativity is signaled by means of intonation alone and the verb, as the head of its prosodic phrase, carries the intonational marker (an L* nuclear pitch accent) in polar questions (Baltazani 2006a). Also it is more common in questions for the verb to be located at the beginning of the utterance. Many participants admitted that they did not expect to hear three pre-nuclear pitch accents at the beginning of a polar question. This might have played a role in the problem with correct identification of polar questions in the experiment. For this reason, our next goal is to conduct the same pilot perception experiment using a 'low pass filter' to eliminate the interference of listeners' grammaticality judgments.

Summing up, the results of the production experiment suggest that there are differences in the realization of L*+H between statements and polars. On the other hand, in this perception experiment at least, listeners could not always distinguish between the pre-nuclear pitch accents in statements and those in polar questions. It remains to test this through more perception experiments. If the listeners remain unable to understand the difference between the two types of sentence through more experiments then the different realizations of the L*+H must be merely phonetic 'allotones' of the same tonal category (see also Baltazani 2006a).

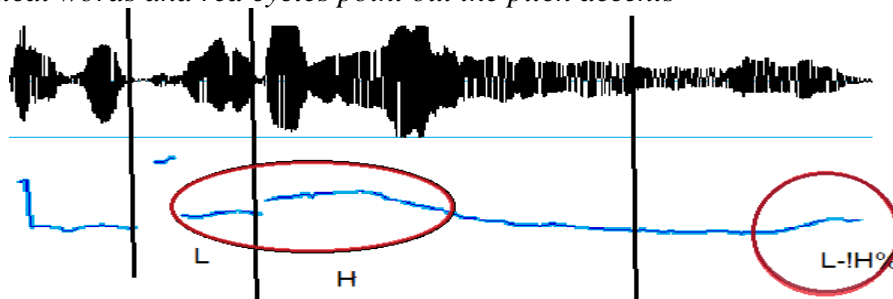
4. THIRD EXPERIMENT: L*+H IN WH-QUESTIONS AND NEGATIONS

The third experiment focused on the realization of L*+H in wh-questions and negations in Greek. We examined the realization of L*+H both in wh-questions and negations in the same experiment because they share the same melody (Baltazani 2002; Arvaniti & Baltazani 2005). According to the literature, wh-questions and negations in Greek consist of a rise-fall contour followed by a Low plateau and a rise in the end of the utterance, that is, an L*+H L-!H% melody. In general, L*+H appears in the utterance initial position and it is the nuclear pitch accent. The nuclear pitch accent – the prominent stressed syllable – aligns with the wh-word in wh-questions and the negative particle [*ðen*] in negations followed by a de-accented low plateau. This low plateau has been attributed to the presence of a Low phrase accent, L-, which spreads from the right edge leftwards over the de-accented material. It is claimed (Grice et al. 2000) that the phrase accent seeks to associate with metrically prominent syllables rather than being manifested phonetically at the edge of the phrase. Our hypothesis is that various factors can affect the scaling and the alignment of the intonational targets such as tonal crowding, the length of the utterance, the introduction of information in the phrase, the number of the syllables of the wh-word or the negative particle and the length of the word following the particles.

(4) and (5) below and Figures 6 and 7 show a wh-question and a negation respectively with the location of the L and the H tones of the L*+H pitch accent marked on them.

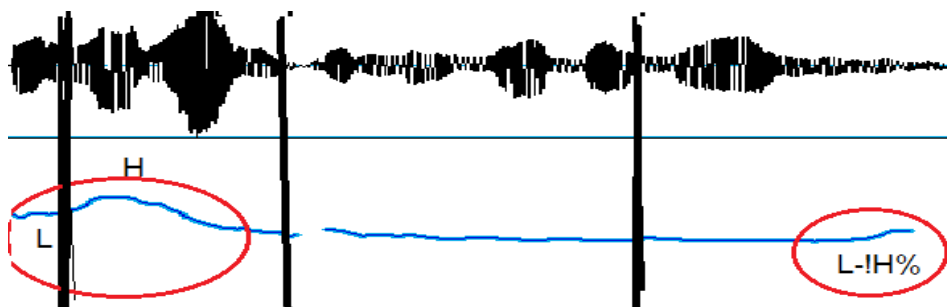
- (4) /apo'pu peri'menume 'minima/
 “Where are we waiting a message from?”

(Figure 6) *Spectrogram and F0 contour of the wh-question /apo'pu peri'menume 'minima/ “Where are we waiting a message from?” Vertical black lines show a clear difference between lexical words and red cycles point out the pitch accents*



- (5) /ðe ma'loni ti'lina oma'nolis/
 “Manolis doesn’t tell Lina off”

(Figure 7) *Spectrogram and F0 contour of the negation /ðe ma'loni ti 'lina oma'nolis/ “Manolis doesn’t tell Lina off”. Vertical black lines show a clear difference between lexical words and red cycles point out the pitch accents*



In the general case for these types of sentences, there are no pre-nuclear accents since the nuclei, the wh-word and the negative particle, are in the utterance initial position. Also, as we have already mentioned, there is general agreement in the literature that there are also no post-nuclear pitch accents (Arvaniti & Baltazani 2005; Grice et al. 2000).

4.1. Aim

The aim of the study was to examine the effect of post-nuclear lexical stresses on the realization of the L*+H nuclear pitch accent.

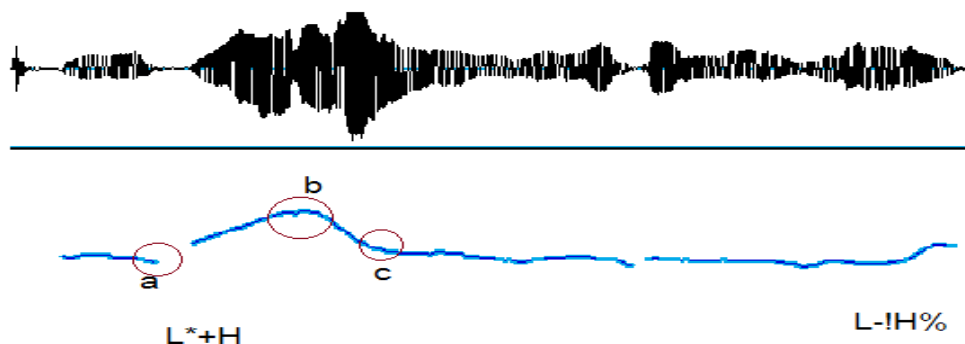
4.2. Method

Our study was based on the acoustic analysis of speech materials by three female native speakers of Greek. They were all 25. The materials consist of 10 wh-questions and 10 negations. The sentences were read from cards. In the data sets, the following parameters varied in a controlled manner: there were zero (9 sentences), one (12 sentences) or two (9 sentences) unstressed syllables in between the stressed syllable of the wh-word or the negation particle and the first post nuclear lexically stressed syllable (henceforth INTERSTRESS INTERVAL).

Our analysis was based on the scaling and the alignment of the following points (using Praat, Boesma & Weenink 2009):

- a) Initial Low, defined as the f0 level (in Hz) at the onset of the nuclear vowel, i.e. the stressed vowel of the wh-word or the negative particle marked ‘a’.
- b) The scaling of the first peak, defined as the highest f0 point (in Hz) in the vicinity of the wh-word’s or negative particle’s stressed syllable marked ‘b’.
- c) The scaling of the onset of the low plateau (first elbow), defined as the point that showed a clear change in slope between the fall after the nuclear peak and the low plateau marked ‘c’.
- d) The distance (in ms) between the onset of the nuclear vowel and the peak.
- e) The duration of the first lexically stressed post-nuclear vowel.
- f) The distance (in ms) between the H peak and the onset of the first lexically stressed post-nuclear vowel.
- g) The distance (in ms) between the onsets of the first lexically stressed post-nuclear vowel and the onset of the low plateau.

(Figure 8) Spectrogram and F0 contour of the wh-question /me 'ti are'oni i'lina to 'miɣma/ “What is Lina diluting the blend with?”. Red cycles indicate the measured points of the contours



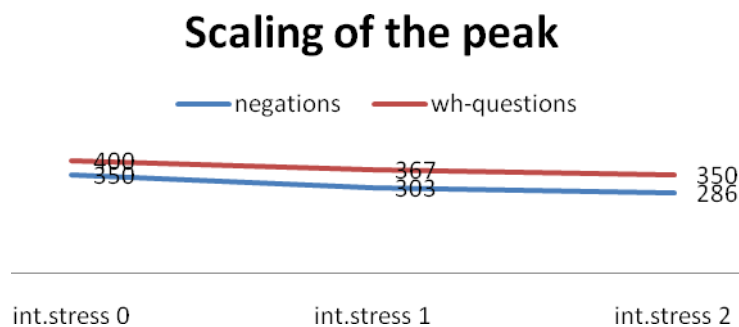
4.3. Results

4.3.1. Scaling

The scaling results show that the position of the first post-nuclear lexical stress affects the realization of the H tone in wh-questions and negations, which is higher when the following stress is closer.

Figure 9 shows the effect of the proximity of the stress following the nucleus. When there is no interstress interval the peak is scaled higher for both wh-questions and negations than the other two conditions in which there are one or two interval unstressed syllables.

(Figure 9) *Scaling of the peak (in Hz)*

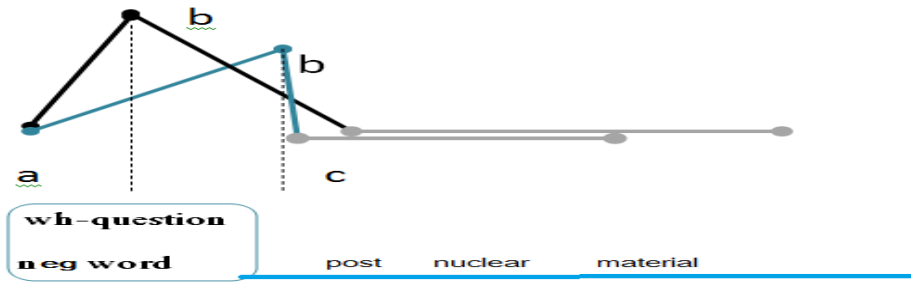


4.3.2. Alignment

Systematic differences were found in the alignment of the H tone. We expected the peak to align with the first post-nuclear vowel following the wh-word. The peak shows late alignment in many cases, as has been reported (Arvaniti et al. 1998), but also early alignment; but our results suggest moreover that its exact position can be influenced by the interstress interval and also, in some cases, by the boundary tone.

Figure 10 shows the two different alignments for the peak of wh-questions and negations. Table 3 shows that across sentence type, there were 20 instances of alignment within the stressed syllable of the wh-word or the negative particle (early alignment) and 40 instances of alignment after the stressed syllable of the wh-word or the negative particle (late alignment). The overwhelming majority of early alignment (18/20) occurred when the interstress interval was 0 or 1 syllables, that is, in cases of tonal crowding. On the other hand, late alignment was almost equally distributed in tonal crowding and non-tonal crowding conditions. Finally, across sentence type, late alignment was observed 2/3 of the times, for 40 out of the 60 experimental utterances. In the canonical stress interval condition, late alignment constituted the overwhelming majority (16/18 cases); more interestingly, as it turned out, in the tonal crowding condition, where we were expecting to find mostly early alignment, we found slightly more late than early alignment cases—18 early and 24 late alignment cases across negations and wh-questions. This unexpected result suggests that other factors might influence the peak alignment. We will return to this point later.

(Figure 10) Alignment (in ms) of peak H

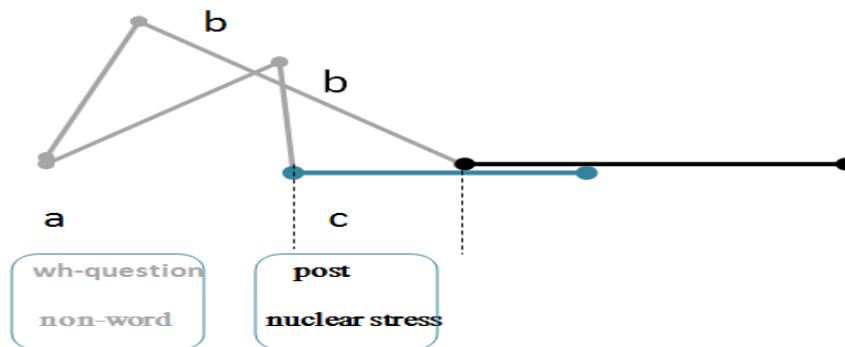


(Table 3) Number of sentences in the alignment of the peak in each condition

Interstress interval	Negative		Wh-questions		Total
	0, 1 syll	2 syll	0, 1 syll	2 syll	
Within stressed syll	8	1	10	1	20
After stressed syll	13	8	11	8	40

Figure 11 shows the alignment of the low plateau when there are unstressed syllables between the nucleus and the stress of the following word. The low plateau starts in or slightly before the stressed syllable when the interstress interval is 2 syllables for 17 out of 34 sentences. In contrast, when the interstress interval is zero or one unaccented syllable (the black line), the low plateau starts after the stressed syllable for 24 out of 26 sentences.

(Figure 11) The alignment of the low plateau (in ms)



(Table 4) *Number of sentences in the alignment of the low plateau in each condition*

Interstress interval	Negative		Wh-questions		Total
	0, 1 syll	2 syll	0, 1 syll	2 syll	
In/before stressed syll	7	7	11	9	34
After stressed syll	14	2	10	0	26

Our initial hypothesis for the alignment of the peak of the nuclear pitch accent was partially confirmed. However, the results were more complex than anticipated, as shown in Table 3 above. We saw that the two different patterns of alignment, early versus late, could not be explained as phonetic results of tonal crowding since we found many cases of late alignment even under tonal crowding. An alternative explanation is that we are dealing with two different pitch accents, L*+H (late alignment) and L+H* (early alignment). These results need to be studied further with a more extensive list of data.

5. GENERAL DISCUSSION

This paper has presented an examination of the realization of the L*+H and the factors that affect it.

In the three pilot experiments we conducted, we saw that the phonetic realization of L*+H is influenced by the distance from neighboring pitch accents. When there are two or more syllables between pitch accents, L and H appear in their canonical positions. In contrast, when there are fewer than two unstressed syllables intervening, the scaling and alignment of the H tone are affected.

Furthermore, our results suggest that the L*+H has a different phonetic realization in statements and polar questions. Our production data on the pre-nuclear pitch accents of Greek polar questions and statements have shown scale and alignment differences between them. On the other hand, in the perception experiment, results showed that listeners did not always discriminate between polars and statements during the pre-nuclear pitch stretch.

Finally, as far as wh-questions and negations are concerned, the distance between lexical stresses has been found to be one of the factors affecting the realization of the L*+H. Specifically, in conditions of tonal crowding we found that the nuclear accent peak often aligns earlier and is scaled higher than in canonical conditions. These results however were not consistent, suggesting the interplay of more factors regulating the alignment of this peak, a question that we leave open for further research.

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Eimi and the adjectival participle in Ancient Greek*

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In this paper, I discuss constructions of the Ancient Greek verb *eimi* ‘I am’ with present and perfect participle. I focus on those uses where the participle has a so-called ‘adjectival’ function. The two main goals are: (a) to give a unified semantic description of this phenomenon, and (b) to clarify whether the adjectival participle is also categorially adjectival. I argue that adjectival periphrasis typically involves the predication of properties, and that the constructions under analysis should be located on an intracategorical continuum.

1. INTRODUCTION

The participle was much favoured in Ancient, especially Classical, Greek. Not only did it have a large number of forms, its uses were diverse, ranging from modification to reference and predication. In this paper, I discuss one type of predicative use, commonly known as ‘adjectival periphrasis’. This term is mostly used for combinations of the verb *eimi* ‘I am’ with the present participle, as in (1). It has been noted, however, that the perfect and even the aorist participle can have a similar adjectival function, as illustrated in Examples (2) and (3).

- (1) *houtoi ge mainomenoi eisin* (Plato, *Protagoras* 350b)¹
[they at:least raging (PRES.) are]
‘they at least are mad’
- (2) *hoi de alloi ... ekpeplēgmenoi ēsan tōi pragmati* (Xenophon, *Cyropaedia* 6.3.15)
[the PTC others ... astonished (PERF.) were by:the matter]
‘the others were astonished by the matter’
- (3) *oute gar thrasus out’ oun prodeisas eimi tōi ge nun logōi* (Sophocles, *Oedipus Tyrannus* 89-90)
[neither for bold nor PTC fearing:prematurely (AOR.) I:am by:the at:least now speech]
‘for I am neither bold nor fearing prematurely by your present words’

My focus here is on the use of the perfect and especially the present participle. More particularly, I address the following two interrelated questions: (a) ‘What semantic characterisation can be given to adjectival periphrasis?’, and (b) ‘What is the categorial status of the adjectival participle?’. Although diachrony is an important factor, it will not be of primary interest here. Rather, I concentrate on the linguistic situation in Classical Greek (5-4 c. B.C.), and to a lesser extent on that in Archaic Greek (9-6 c. B.C.).²

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¹ The Greek text and translation are taken from the Loeb series, the latter sometimes slightly modified to highlight the periphrastic construction. For the sake of clarity, periphrastic forms are underlined. I have also added a word-by-word translation of my own for readers not familiar with Ancient Greek.

² My corpus consists of the data collected by the major studies on verbal periphrasis in Ancient Greek, most importantly Björck (1940) and Aerts (1965).

2. SEMANTIC ANALYSIS

Let us start with the first point on the agenda, the semantic characterisation of adjectival periphrasis. Here, it will be helpful to have a closer look at the system of predication in Ancient Greek, which I have sketched in Table 1. Please note that this overview is not exhaustive, but merely serves to illustrate the function of the present and perfect participle when combined with *eimi*.

(Table 1) <i>Predication in Ancient Greek: synthetic verbs versus combinations with eimi</i>			
ACTION	Synthetic verb <i>paideuei</i> : ‘he educates’	<i>eimi</i> + participle <i>didaskōn esti</i> (PRES.): ‘he is teaching’ <i>akēkoōs esti</i> (PERF.): ‘he has heard’	∅
PROPERTY	Synthetic verb <i>ploutei</i> : ‘he is rich’	<i>eimi</i> + participle <i>khlōrizon esti</i> (PRES.): ‘it is green’ <i>tethneōs esti</i> (PERF.): ‘he is dead’	<i>eimi</i> + adjective <i>kakos esti</i> : ‘he is evil’
OBJECT	Synthetic verb <i>basileuei</i> : ‘he is king’	<i>eimi</i> + participle <i>arkhōn esti</i> (PRES.): ‘he is a ruler’ <i>hōrismenon esti</i> (PERF.): ‘it is something specific’	<i>eimi</i> + noun <i>patēr esti</i> : ‘he is a father’

In this overview, I make a threefold distinction between ‘actions’, ‘properties’ and ‘objects’ (cf. Croft 2001, ch.2). Constructions with a participle occur next to synthetic verbs and combinations of *eimi* with a noun or an adjective. Clearly, what characterises constructions with an adjectival participle such as *khlōrizon esti* ‘it is green’ and *tethneōs esti* ‘he is dead’ is the fact that they predicate properties, and not actions or objects. This is not a new insight: it was formulated in similar terms more than a century ago by Kühner & Gerth (1898-1904: 1.39) among others.

Previous studies, however, did not go beyond observing the fact that constructions of *eimi* with an adjectival participle typically predicate properties. In my view, there is much more to say about this matter. Three observations seem essential. Firstly, I argue that adjectival periphrasis can best be described at the sentence level in terms of what may be called a ‘property reading’. I use this term because it highlights the fact that adjectival periphrasis involves properties, but others may prefer to speak of an ‘imperfective’ or ‘stative’ reading or construal. I contrast this ‘property reading’ with an ‘actual occurrence reading’, and characterise it as lowly, or non-agentive, and time-stable. The advantage of such an approach is that it allows for ambiguity, an issue not addressed in previous studies. Secondly, I think we can make a basic distinction between those cases where a property reading constitutes the default construal and others where it does not. As we will see, some predicates are more naturally inclined towards a property reading than others. Thirdly, I argue that adjectival periphrasis can be characterised by a particular kind of constructional integration between the verb *eimi* and the participle, which distinguishes periphrastic constructions from synthetic constructions predicating properties. More specifically, only one representative component state of *eimi* is elaborated by the participle, resembling the integration of *eimi* with a regular adjective (cf. Langacker 2008: 397 for a schematic representation).

I will not pursue this third, more technical, observation here. Rather, I would like to give an overview of the main types of adjectival periphrasis with the present and perfect participle.

2. 1. A property reading as default construal

As I have already noted, some predicates are more naturally inclined towards a property reading than others. In such cases, we may speak of a property reading as the default construal. In my overview here, I distinguish between constructions with the present and the perfect participle.

With regard to the present participle, some frequently occurring predicates are grouped in predicate classes in Table 2. As you will notice, the predicates listed here are commonly considered ‘stative’ (Vendler 1957). Certainly the most important predicate class is the first one, containing ‘verbs of being’. Following Fanning (1990: 135), these predicates may also be called ‘verbs with lexicalised predication of properties’. Obviously, when verbs of this class are combined with *eimi*, a property reading comes naturally, as they denote time-stable properties, and their subject is not or lowly agentive.

(Table 2) *Predicate classes with the present participle* (after Fanning 1990)

‘Verbs of being (predication of qualities, conditions, or attributes)’	<i>eu phroneō</i> ‘I think rightly’, <i>zaō</i> ‘I am alive’, <i>prepei</i> ‘it is fitting’
‘Verbs of existence, identity or class-membership’	<i>perieimi</i> ‘I remain’, <i>apeimi</i> ‘I am absent’, <i>huparkhō</i> ‘I exist’
‘Verbs of passive or inert possession’	<i>ekhō</i> ‘I have’
‘Verbs of passive attitude, cognition, state’	<i>homologeō</i> ‘I agree upon’, <i>thelō</i> ‘I want’, <i>protiō</i> ‘I prefer in honour’
‘Verbs of passive perception’	<i>blepō</i> ‘I see’
‘Verbs of location and corporeal position’	<i>menō</i> ‘I stay’

Predicates of the last class, containing ‘verbs of location and corporeal position’, are the least evident when it comes to a property reading as default construal. That this class of predicates does not always have a property reading, is shown in (4), where the verb *thakeō* ‘I sit’ is used with a progressive meaning (‘was sitting’). What is crucial, but often neglected, is the sentential context. Consider Example (5). A verb such as *menō* ‘I stay’ does not naturally invite a property reading. Only when we take into account the oblique argument, *en tōi tēs politeias ēthei* ‘in the spirit of the constitution’, is it clear that a time-stable situation with a non-agentive subject is meant. This is also indicated by the co-ordination with the adjective *sōphrones* ‘wise’. Because of this important role of the context, some scholars may prefer to discuss examples of this type under the heading of ‘a property reading as non-default construal’.

(4) *all’ hostis ēn thakōn atarbēs tēs theas, hod’ an legoi* (Sophocles, *Trachiniae* 22-3)
[but whoever was sitting (PRES.) fearless of:the sight, he PTC could:say]

‘... whoever was sitting there not terrified by the sight, he could tell you’

(5) *idiai d’ houtō sōphrones ēsan kai sphodr’ en tōi tēs politeias ēthei menontes*
(Demosthenes, *Olynthiaca* 3, 26)

[in:private PTC so modest they:were and very in the of:the constitution spirit staying (PRES.)]

‘Yet in private they were so modest and very careful to obey the spirit of the constitution...’

Concerning the perfect participle, a property reading can be considered the default with one particular use commonly known as ‘resultative’. In Table 3, some of the predicates used for this construction are grouped in classes.

(Table 3) *Predicate classes with the perfect participle* (after Fanning 1990)

‘Durative verbs with bounded effected or abolished object’	<i>kataskeuazō</i> ‘I construct’, <i>sullegō</i> ‘I gather’, <i>diaphtheirō</i> ‘I utterly destroy’
‘Other durative verbs with bounded lexical meaning’	<i>homalizō</i> ‘I make even’, <i>hoplizō</i> ‘I arm’, <i>emplekō</i> ‘I entwine’
‘Verbs denoting an instantaneous transition of the subject or object’	<i>peithō</i> ‘I convince’, <i>aphikneomai</i> ‘I arrive’, <i>podizō</i> ‘I bind the feet’
‘Verbs with object-complement constructions denoting an instantaneous naming, appointing, ...’	<i>kathistēmi</i> ‘I appoint’

The predicates listed in Table 3 are commonly called ‘accomplishments’ and ‘achievements’, which are both telic. Here, the property expressed by the perfect participle corresponds to the resultant state of the event denoted by the predicate (cf. Langacker 2008: 121). In an example such as (6), where the verb *skeuazō* ‘I equip’ is used, this concerns the fact that the Arians are now equipped with Median bows.

- (6) *Arioi de toksoisi men eskeuasmēnoi ēsan Mēdikōisi* (Herodotus, *Historiae* 7.66.1)
 [Arians PTC with:bows PTC equipped (PERF.) were Median]
 ‘The Arians were equipped with Median bows’

2.2. A property reading as non-default construal

I close this brief overview with those cases where a property reading does not constitute the default construal. Not surprisingly, here we find predicates that are not normally interpreted as stative. Some examples are listed in Table 4.

(Table 4) *Predicate classes with the present participle* (after Fanning 1990)

‘Verbs denoting a gradable transition’	<i>epauksanō</i> ‘I increase’
‘Verbs of active cognition, mental attitude or emotional state’	<i>amphibēteō</i> ‘I dispute’
‘Verbs denoting an instantaneous transition of the subject or object’	<i>ekplēssō</i> ‘I shock’, <i>parakaleō</i> ‘I invite’
‘Verbs of instantaneous “receiving/giving” or “getting/losing”’	<i>anadechomai</i> ‘I take upon myself’
‘Transitive or intransitive verbs with unbounded meaning’	<i>kakourgeō</i> ‘I do evil’

Consider Example (7), which both Björck (1940: 16) and Aerts (1965: 17) consider ‘adjectival’. Here the lexically perfective verb *parakaleō* ‘I summon’ is used. Under ‘normal’ circumstances, we would expect the combination of the verb *eimi* with the present participle

parakalōn to express an actual occurrence reading, with a progressive meaning of ‘he/it is summoning’. In this particular case, however, the construction *estin ... parakalōn* ‘It (the speech) summons’ is used to clarify the content of a speech which was written prior to the time of speaking. When the speaker says that the speech summons the Greeks, he is not speaking about a particular instance, but rather about the properties of the speech. Some recent studies would describe examples such as this in terms of ‘coercion’, denoting that an alternative construal is explicitly required or ‘coerced’ by the context.

- (7) *Estin de tous men Hellēnas parakalōn epi tēn tōn barbarōn strateian ...* (Isocrates, *Antidosis* 57)
 [it:is PTC the PTC Greeks summoning (PRES.) to the of:the barbarians campaign]
 ‘It (the speech) summons the Greeks to a campaign against the barbarians ...’

Next to the description of the content of a speech, another use I came across in Post-Classical narrative texts is the description of a person’s character, as illustrated in (8), where the verb *eutelizō* ‘I disparage’ is used. Such cases are quite fascinating, and it would be most interesting to further research the interaction of the discourse context with a property reading and an actual occurrence reading respectively. Three contextual elements which ‘facilitate’, so to speak, a property reading, are (a) the use of an inanimate subject, (b) co-ordination with a true adjective, and (c) the use of the present tense.

- (8) *ēn de tapeinophrōn agan kai heauton eutelizōn* (*Historia monachorum in Aegypto*, Vita 4)
 [he:was PTC humble very and himself deprecating (PRES.)]
 ‘He was very humble and deprecating himself’

3. THE CATEGORIAL STATUS OF THE PRESENT PARTICIPLE

3.1. Adjectivisation of the present participle?

In the second part of this paper, I want to take a closer look at the categorial status of the adjectival participle. In the past, it has been repeatedly suggested that the adjectival present participle not only functions as an adjective but should be considered categorially adjectival or ‘adjectivised’. As a consequence, it is stressed that we cannot speak of true periphrasis in these cases. Not surprisingly, this primarily concerns constructions with lexically imperfective verbs, especially those where the participle is derived from an impersonal and intransitive content verb, e.g. *prepon* ‘becoming’, *prosēkon* ‘fitting’ and *sumpheron* ‘convenient’, which occur most frequently. Björck (1940) calls these, together with a number of other participles, “Daueradjektivierungen”, which he opposes to less frequently occurring “Gelegenheitsadjektivierungen”. The most vehement opposition against these considerations has come from Porter (1989: 454), according to whom the fact that a participle functions like an adjective does not mean that it really is an adjective.

Although Porter’s view seems to me mostly a matter of principle, it is a fact that very few scholars arguing for the adjectival status of the present participle have backed up their claims with formal arguments. An overview of such arguments is given in Table 5. In my view, none of these makes a convincing case for the complete adjectivisation of the present participle. Obviously, it cannot be my intention here to discuss these criteria in great detail, so I limit myself to giving some comments on the three most important criteria, namely adverbial formation, syntactic co-ordination with true adjectives and loss of argument structure. I also pay attention to differences and similarities between Björck’s *Daueradjektivierungen* and *Gelegenheitsadjektivierungen*.

(Table 5) *Formal criteria proposed for adjectivisation of the (present) participle*

Phonological criteria	Morphological Criteria	Syntactic criteria
Phonological reduction of the participle (Amenta 2003: 32)	Adverbial formation (Björck 1940: 17)	Combination with adverbs of degree (Karleen 1980: 120)
Verbal stem no longer recognisable (Amenta 2003: 32)	Formation of comparative and superlative degrees (Björck 1940: 17)	Frequent use in attributive position (Aerts 1965: 17)
		Syntactic coordination with true adjectives (Boyer 1984: 168)
		Loss of argument structure (Kahn 1973: 136)

Adverbial formation is probably the most fruitful argument for adjectivisation of the present participle. In his landmark study, Björck (1940: 17) has drawn attention to the fact that many adjectival participles can be used as adverbs, especially those which he calls *Daueradjektivierungen*. Some examples are given in (9). It is not clear, however, whether adverbial formation of a large part of the *Daueradjektivierungen* is a sufficient argument to generalise that all adjectival present participles are adjectivised, as Björck (1940:24) seems to imply when he notes that “ein prinzipieller Unterscheid, so dass die Gelegenheitsperiphrasen etwa mehr ‘verbal’ wären, kommt also nicht in Frage”.

- (9) *arkōn* > *arkountōs* ‘abundantly’; *diapherōn* > *diapherontōs* ‘differently’; *lusitelōn* > *lusitelountōs* ‘profitably’; *prepōn* > *prepontōs* ‘fitly’; *prosēkōn* > *prosēkontōs* ‘suitably’; *sumpherōn* > *sumpherontōs* ‘expedient’

Scholars take the co-ordination of a participle with one or more adjectives as a clear sign of its adjectival status, under the assumption that conjuncts are of the same category. In (10), for example, the lexically imperfective participle *deomena* ‘needing’ is co-ordinated with the true adjective *phobera* ‘formidable’. If *deomena* is fully adjectival, however, it is difficult to explain why it retains its argument structure, taking the argument *pronoias kai phulakēs pollēs* ‘much vigilance and precaution’. In my opinion, such co-ordination indicates functional likeness, rather than categorial likeness *sensu stricto*. This is also indicated by the fact that Classical Greek has examples where an aorist participle is co-ordinated with an adjective (cf. Example (3), where the aorist *prodeisas* is co-ordinated with the adjective *thrasus*).

- (10) *tauta men estin phobera kai pronoias kai phulakēs pollēs deomena* (Demosthenes, *De falsa legatione* 294)
[these:things PTC is formidable and vigilance and precaution much needing (PRES.)]
‘Yes, these are formidable offences, and in need of the utmost vigilance and precaution’

Loss of argument structure is a good indication of whether a participle is still felt to be related to a content verb. Contrary to what one would expect, the adjectival participle keeps its argument structure in most cases, as for example in (11). This observation not only concerns *Gelegenheitsadjektivierungen*, but also *Daueradjektivierungen*, even those which have an attested adverb. Björck (1940:20) admits that one could interpret this as a sign of the verbal

nature of his *Daueradjektivierungen*, but he refutes the argument on the basis of two fixed expressions where the participle is adverbialised together with its accusative object (*noun ekhōn* > *noun ekhontōs* ‘sensibly’; *logon ekhōn* > *logon ekhontōs* ‘reasonably’). Of course, such expressions are rare, and it is not clear whether they can also account for participles with a genitive object (as in (10)).

- (11) *esti de tauta tina dunamin ekhonta*; (Isocrates, *Antidosis* 117)
[is PTC that what power having (PRES.)?]
‘What power do these things have?’

I hope to have shown on the basis of these few remarks that complete adjectivisation of the adjectival present participle is not self-evident. One additional weakness of previous studies is that they do not deal with the adjectival perfect and aorist participle. While few scholars would argue that the aorist participle is fully adjectival, it has been suggested that the perfect participle is “strongly adjectival” (Aerts 1965: 13).

3. 2. The intracategorical continuum

The alternative I would like to propose is to locate the adjectival participle on an intracategorical continuum with a more adjective-like and a more verb-like side, a view which is in accordance with recent research of Pompei (2006) on the Ancient Greek conjunct participle. In doing so, we explicitly recognise that time-stability and low agentivity, the defining features of a property reading, are not an ‘all-or-nothing affair’.

In accordance with the semantic analysis presented above, the present participle is most complex in terms of the intracategorical continuum. While the adjectival perfect participle, which has a property reading as its default construal when combined with *eimi*, tends towards the ‘adjectival’ side of the continuum, constructions with the present participle occupy a more diverse range of positions along the continuum. More specifically, for the present participle I propose to distinguish between three main groups on the basis of formal and semantic criteria, each of which is illustrated in Table 6.

(Table 6) *Three groups of adjectival constructions (with the present participle)*

GROUP 1	GROUP 2	GROUP 3
<i>prepon esti</i> ‘it is fitting’	<i>ēn akmazousa</i> ‘she was flourishing’	<i>esti parakalōn</i> ‘it is inviting’
<i>sumpheron esti</i> ‘it is convenient’	<i>ēn zōn</i> ‘he was alive’	<i>estin anadechomenos</i> ‘he is taking upon himself’
<i>deon esti</i> ‘it is necessary’	<i>eisin orgizomenoi</i> ‘they are angry’	<i>estin amphisbētōn</i> ‘it is disputing’
<i>eksarkoun esti</i> ‘it is sufficient’	<i>eisi mainomenoi</i> ‘they are mad’	<i>esti kakourgousa</i> ‘it is doing injury’

Semantically, these three groups are much reminiscent of my discussion of the adjectival present participle: the first two groups correspond to those cases where a property reading can be considered the default construal, and the third one to that where it does not. Not surprisingly, the third group is least time-stable and most agentive, as it occurs with predicates that are lexically perfective, and take an object. Although the first and the second group, where the content verb is lexically imperfective, are both time-stable, we can make a rough semantic distinction between the two on the basis of Givón’s overview of adjectival properties

(2001: 82-3), which is essentially based on the parameter of time-stability. Participles of the first group mostly have an evaluative meaning, while those of the second group in general express transitory states or states of living, as shown in Table 7. It should be noted, however, that some combinations, mostly with the verb *ekhō*, cannot be easily classified as such (e.g. in Example (11) *dunamin ekhonta* ‘having power’).

(Table 7) *Present participles expressing adjective-like properties* (after Givón 2001)³

	Prototypical		Less prototypical
Size	<i>(huperballōn</i> ‘excessive’)	Evaluative	<i>arkōn</i> ‘sufficient’, <i>areskōn</i> ‘pleasant’, <i>endekhomenos</i> ‘possible’ ...
Color	<i>apastraptōn/eksastraptōn</i> ‘shining’, <i>khlorizōn</i> ‘green’	Transitory states	<i>aganaktōn</i> ‘angry’, <i>eunoōn</i> ‘well inclined with’, <i>katheudōn</i> ‘asleep’ ...
Auditory qualities	?	States of living	<i>eirēneuōn</i> ‘living in peace’, <i>eupathōn</i> ‘prosperous’, <i>hugiainōn</i> ‘healthy’ ...
Shape	<i>proekhōn</i> ‘jutting out, projecting’		
Taste	?		
Tactile	<i>apekhōn</i> ‘far from’, <i>eggizōn</i> ‘nearby’		

The formal characteristics of these three groups are shown in Table 8. Constructions of the first group are formed with participles whose content verb is often intransitive and impersonal, such as *prepei* ‘it is fitting’. They are more often used in pre-finite position than those of the second and the third group. This first group consists of a small number of frequently occurring members, which explains why they are used for adverbial formation. In comparison with those of the first group, participles of the second group are less entrenched, and thus less often used for adverbial formation. Constructions in this group are formed with participles whose content verb is personal and often intransitive, for example *akmazō* ‘I flourish’. This group also contains, however, a few participles from transitive content verbs. As already noted, the pre-finite position is less often attested here. The third group is in general well recognisable by the fact that its constructions are formed with participles from lexically perfective content verbs. Participles in this third group are even less entrenched than those of the second group. Accordingly, there are no attested adverbial formations. They are formed with participles whose content verb is personal and mostly transitive, for example *parakaleō* ‘I summon’. Here, the participle occurs least often in pre-finite position.

(Table 8) *Formal characteristics of the three groups*

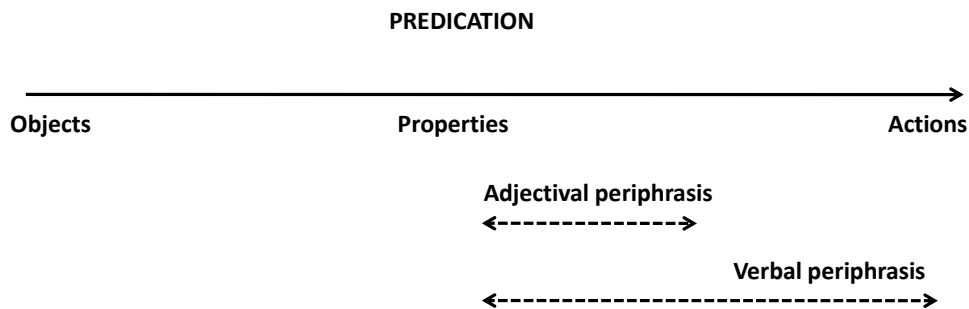
	Total	Prefinite	Intransitive	Impersonal	Inanimate
Group 1	69 ex.	45 %	94 %	19 %	88%
Group 2	28 ex.	36 %	61 %	3 %	36%
Group 3	10 ex.	30 %	10 %	0 %	80%

³ In order to verify whether the gaps observed in this overview are consistently motivated, I included examples taken from a corpus of Post-Classical and Early Medieval biographic and hagiographic texts. Though it cannot be excluded that technical treatises may fill up some of the gaps, there is a clear tendency towards the expression of less prototypical properties.

3.3. Theoretical implications

Let me conclude with a brief note on the theoretical implications of my proposal. The categorial status of the adjectival participle has important consequences for the periphrasticity of the examples. In the past, it has been repeatedly emphasised that adjectival present participles do not form true periphrastics, as they are adjectives ('adjectivised'). With the continuum-view I propose, however, such a generalisation can no longer be maintained. Constructions with the adjectival perfect participle — which are, to a large extent, paradigmatically integrated — raise the same question: how can the notions of adjectival and verbal periphrasis be related to each other? What I would like to suggest, is to view 'adjectival' and 'verbal' periphrasis as non-exclusive terms, whereby the former denotes periphrastic constructions with an adjectival character, and the latter periphrastic constructions per se (based on semantic, syntactic and paradigmatic criteria), as shown in figure 1 on the handout. Constructions with an adjectivised participle are then categorised as instances of the construction *eimi* with adjective.

(Figure 1) *Adjectival and verbal periphrasis as non-exclusive terms*



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Relative Constructions in Maltese

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Maltese has a number of formal types of relative constructions (RCs) related with different sorts of relational RCs, including restrictive RCs (RRCs), non-restrictive/appositive RCs (NRRCs/ARCs), and fused/free RCs (FRCs). Among the formal differences across Maltese RCs is the type of relativisation strategy they employ, such that for example, in the Standard variety, non-RRCs are restricted to complementiser-introducing strategies, unless preposition-fronting is involved, in which case a restricted set of *wh*-pronouns is allowed. FRCs, on the other hand, are introduced by a special set of *wh*-pronouns which narrowly overlaps with the set of *wh*-pronouns used in preposition-fronted RCs. Another formal difference which exists in Maltese RCs is the nature of the in-clause function, which could be either a GAP, or a *pro* with a resumptive status. The description of Maltese RCs is followed by a syntactic analysis whereby for each formal type of RC, constituent- and feature-structures are constructed within a Lexical Functional Grammar approach.

1. INTRODUCTION

This paper documents and introduces a description of Maltese relative constructions (hereafter referred to as RCs). Maltese is a mixed language (Aquilina 1959), belonging to the Semitic family. What descriptions are available for the language, which deal with the constructions under discussion here, namely Borg & Azzopardi-Alexander (1997), provide a very limited description of one type of RC. For this reason, this paper aims to contribute more to the description of these constructions in the language, whilst formalising this within an introductory analysis in Lexical Functional Grammar (LFG) (Dalrymple, 2001). The RCs in Maltese, which are essentially externally-headed and postnominal, as is the case with other head-adjunct constructions, will be described and analysed according to how they fare along two distinct parameters from the set of typological RC-related parameters posited in de Vries (2001). Section 2 looks at the relational-type parameter and discusses three types of RCs in the language, while in section 3, the focus will be on the relativisation strategy employed by these different types of RCs, which is then followed by a theoretical analysis within the LFG framework. Section 4 concludes the discussion.

2. RELATIONAL RCs IN MALTESE

In this section, three types of relational RCs shall be discussed for Maltese: Restrictive RCs (RRCs), Non-Restrictive/Appositive RCs (NRRCs/ARCs), and Fused/Free RCs (FRCs). While the focus on these three types does not entail that these are the only RCs available in the language, up to now these are the only ones which have been described and/or researched: Borg & Azzopardi-Alexander (1997) present a brief description of RRCs, Camilleri & Sadler (to appear) present a study on NRRCs/ARCs, while Camilleri (2010) provides a general discussion on all these three types of RCs. Each RC is here presented with a description of its idiosyncratic properties, and some theoretical considerations are presented that will affect the analysis in section (3).

2.1. Restrictive RCs

RRCs, by Murelli's (2008: 2) definition, function as attributes which qualify heads, restricting that same head's denotation whilst delimiting and narrowing down potential reference. In other words, RRCs modify their hosts (Fabb 1990: 57). An illustration of a regular RRC used in the Standard variety is given in (1).

- (1) *It-tifel* *li* *raj-t* *barra*
 DEF-boy that see-PERF.1.SG outside
 'The boy that I saw outside'

2.2. Non-Restrictive/Appositive RCs

In the literature, these RCs are referred to as *non-restrictive* or *appositive*, interchangeably, and are best understood when contrasted with RRCs. They are referred to as *non-restrictive* because while RRCs restrict reference, NRRCs do not. The term *appositive*, on the other hand, correlates with what Huddleston (2002: 1064) refers to as 'supplementary' relatives, which are used as a means by which a narrative may develop, while at the same time also providing more background information needed on the head within the discourse context. NRRCs/ARCs differ from RRCs in the following ways:

2.2.1. Prosody

NRRCs/ARCs, unlike RRCs, form a separate intonational unit, and are not prosodically integrated with their antecedents. In speech, this is conceived through a 'break' in the speech flow prosodically characterised by a small pause which separates the antecedent/head from the rest of the clause. Orthographically, this is shown through a (,), as in (2) below.

- (2) *It-tifel,* *li* *raj-t=u* *ilbieraħ*
 DEF-boy that see-PERF.1.SG=3.SG.M yesterday
 'The boy, who I saw yesterday'

2.2.2. Modification vs. Specification of information

As introduced in the beginning of this sub-section, while RRCs are used to help restrict reference, NRRCs/ARCs function as a means by which more information on the head is specified. As a result, a NRRC/ARC may never be used to act as an 'intersective modifier', since the head of this type of RC can only be interpreted in its 'totality' (Arnold, 2004). This in turn explains why (3) is an infelicitous construction. Since the ARC's head *il-kotba* 'DEF-book-PL' is interpreted as a whole, without any potential set interpretation, the additional statement which refers to *l-oħrajn* 'DEF-other.PL' is infelicitous.

- (3) *Il-kotba,* *li* *xtraj-t* *ilbieraħ,* *tajbin.* *#L-oħrajn*
 DEF-book.PL that buy-1.SG yesterday good.PL DEF-other.PL

mhux *hazin.*
 COP.3.SG.M.NEG bad.3.SG.M
 'The books, which I bought yesterday, are good. #The others, not quite'

As a consequence of the NRRC/ARC having a specificational function, instead of a restricting/modificational one, it may optionally be omitted. A RRC is always required whenever it occurs, as it allows access to the necessary reference. In relation to this

specificational vs. modificational function between RRCs and NRRCs/ARCs, as expected, there are several differences between the potential set of antecedents which these two types of RCs can take. The contrast in (4a-b) illustrates how a proper noun cannot head a RRC, as the ungrammaticality of (4a) shows, since the proper noun's 'reference is independently established' (Manninen 2002: 2), and hence does not need to be restricted in any way. By virtue of being endowed with its own reference, a proper noun, on the other hand, can head a NRRC/ARC. A similar observation can be shown in the contrast between (5a-b), where a non-clitic fully-fledged pronominal element can head a NRRC/ARC, but not a RRC. The examples in (6a-b) illustrate how since a temporal DP head does in itself have reference, this too cannot head a RRC.

- (4a) *Pawlu li j-oqghod ħdej=na (RRC)
 Paul that 3sg-live near=1.PL
 Lit: 'Paul that lives near us'
- (b) Pawlu, li joqghod ħdejna (NRRC/ARC)
- (5a) *Lilha li n-af=ha sew ... (RRC)
 Her that 1.SG-know=3.SG.F well ...
 Lit: 'Her that I know well ...'
- (b) Lilha, li nafha sew ... (NRRC/ARC)
- (6a) *Il-ġimġha d-diehl-a li se t-kun vaganza (RRC)
 DEF-week DEF-entering-SG.F that FUT 3.SG.F-be holiday
 Lit: 'The next week that will be a holiday'
- b. Il-ġimġha d-diehla, li se tkun vaganza (NRRC/ARC)

(7a-b) on the other hand illustrate the opposite effect with quantifier phrases (QPs). Since these are non-referential and non-specific, a NRRC/ARC cannot specify information on something which is not *anchored*, i.e. not having had its reference established as yet, unlike the case with RRCs, which can actually take such QPs as their heads.

- (7a) Ħadd li n-af jien (RRC)
 No one that 1.SG-know I
 'No one that I know'
- (b) *M'hemm ħadd, li n-af jien (ARC)
 NEG.EXIST no one that 1.SG-know I
 Lit: 'There is no one, that I know'

Another interesting distinction between RRCs and NRRC/ARCs is their linear ordering with respect to each other. As shown in (8) below, a RRC always precedes an NRRC/ARC when this is present. Furthermore, while NRRCs/ARCs can be stacked, as illustrated in the three consecutive NRRCs/ARCs in (8), this is not possible with RRCs.

- (8) It-tifel [RRC] li n-af jien, [ARC] soltu nara=h
 DEF-boy that 1.SG-know I that usually 1.SG-see=3.SG.M
 l-iskola, [ARC] li j-kun liebes dejjem pulit, [ARC] li
 DEF-school that 3-be dressing.SG.M always nice.SG.M that

n-af 'l omm=u]]]]
 1.SG-know ACC.mother=3.SG.M
 'The boy that I know, whom I usually see at school, who is always dressed nicely,
 whose mother I know'

2.2. Fused/Free RCs

The use of the term *fused* to refer to these RCs, which is the term which shall be adopted here following Huddleston (2002), is indicative of the function of the *wh*-pronouns such as *min* 'who' and *l min* 'whom' as used in (9). (Refer to section 3.3 for more detail on *wh*-pronouns in Maltese.)

(9a) *Min j-orqod ma j-aqbad=x* (Borg & Azzopardi-Alexander 1997:37)
 Who 3-sleep NEG 3-catch=NEG

ħut
 fish
 'Whoever sleeps does not catch fish' (Maltese Proverb)

(b) *Kellim-t l min raj-t*
 speak.PERF-1.SG ACC.who see.PERF-1.SG
 'I spoke to whomever I saw'

Using the terms *fused/free* RCs, rather than the other term used to refer to these constructions in the literature – *headless* constructions, which is also the term used by Borg & Azzopardi-Alexander (1997) when describing (9a) – is rooted in a controversial debate which seeks to see what the best analysis for constructions such as (9) should be. Pretheoretically, using the term *headless* to refer to these constructions is not justified, particularly when equating the constructions in (9), with (10). (10) exemplifies what one may want to treat as a *true* instance of a headless construction, where it is clear that no head precedes the element *li* which has so far, in the data in (1-8), followed the head and introduced the RC. The construction in (10) appears to have *no overt* head, and is hence *really* headless.

(10) [Li qed t-ghid=l=i], ġa n-af=u
 that PROG 2.SG-say=DAT=1.SG already 1SG-know=3.SG.M
 Lit: '(that) that you are saying, I know-IT already'
 'I already know (about that) that you are saying'

Theoretically, the proponents of the *headless*-RC treatment of instances like (9) account for these constructions through the complementiser approach, where FRCs are taken to be CPs that act as modifiers of null/empty heads (Grosu & Landman 1998: 127). The alternative account of FRCs is the one which is followed here, where the *wh*-pronoun is taken to be the head of the whole RC and is thus referred to as the *headed*-analysis (Citko, 2002) (Bresnan & Grimshaw, 1978). Taking the *wh*-element as the head implies that the whole FRC is an NP/DP, and that the *wh*-pronoun carries two θ -roles or grammatical functions (GFs); the GF of the matrix clause's predicate, and its within-clause function subcategorised for by the embedded clause's predicate (Ott, 2011). Evidence for this approach comes from the same FRCs' distribution, where in Maltese such constructions can occur in all main clause nominal GF positions available for the languages, which range from SUBJ position (9a) and OBJ position (9b), to adnominal POSS GF as in (11), as well as others.

- (11) Oht min ġab dal-ktieb, t-af=ni
 Sister who get.PERF.3.SG.M DEM.DEF-book 3.SG.F-knows.1.SG
 ‘The sister of whoever got this book, knows me’

Another piece of data supporting the headed-account vs. the complementiser one comes from the fact that the latter account will not be able to explain why it is the case that a FRC can be modified with a RRC, just like any other NP, as shown in (12).

- (12) Kulma qlajt għall-berdej [RRC]li
 All.what receive.PERF-1.SG for.DEF-birthday that
 m’ghogob=ni=x]
 NEG.3.SG.M.like.1.SG.NEG
 ‘Whatever (all that) I received for my birthday which I didn’t like’

Moreover, what (13) instantiates, although seemingly trivial perhaps, is the fact that when the FRC in (13a) is substituted with a RRC equivalent in (13b), it is both the head *dak* ‘DEM.SG.M’ and the RRC together that substitute the FRC, which in turn does not render the complementiser analysis plausible, since, if the FRC were truly a CP, the substitution would not have involved the RRC’s head.

- (13a) T-af li [FRC] qal=li (Borg & Azzopardi-Alexander 1997:37)
 2.SG-know that what.tell.PERF.3.SG.M=DAT.1.SG

koll-u nsej-t=u?
 all-SG.M forget.PERF-1.SG=3.SG.M
 ‘Do you know that I have forgotten whatever he said?’

- (b) T-af li [dak [RRC]li qal=li]
 2.SG.know that DEM.SG.M that tell.PERF.3.SG.M=DAT.1.SG

koll-u nsej-t=u?
 all-SG.M forget.PERF-1.SG=3.SG.M
 ‘Do you know that I have forgotten that which he told me?’

3. RELATIVISATION STRATEGIES

The relativisation strategy parameter looks at ways in which RCs are introduced, as well as what RC-internal strategies may be employed. Section 3.1 looks at the different complementiser strategies used in the language. Section 3.2, on the other hand, discusses the RC-internal GAP and resumptive pronoun (RP) strategy in Maltese, while the final subsection discusses the use of *wh*-pronouns. An LFG analysis of the data will follow for each section.

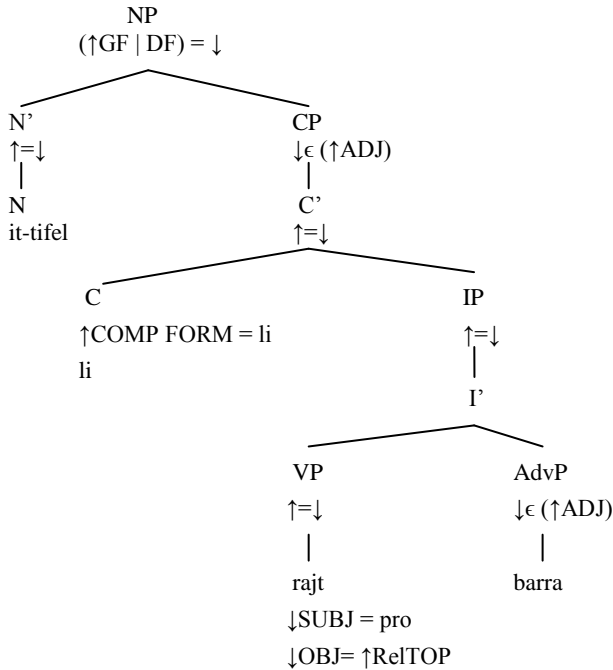
3.1. *Li* and partitive *milli*

Grouping RRCs and NRRCs/ARCs together, one of the possible relativisation strategies is that which equates to *that*-relatives in English (for a justification of this refer to Camilleri (2010), since space limitations restrict any further illustration here). Maltese makes use of the complementiser *li* ‘that’, which has developed from the *wh*-pronominal form *allađi* ‘who.3.SG.M’ and the rest of the paradigm in Standard Arabic. The language, however, also uses a variant form; *milli* ‘from which’, which is here treated as a *partitive complementiser*, which comes about through the fusion of *minn* ‘from’, out of which the partitive meaning is

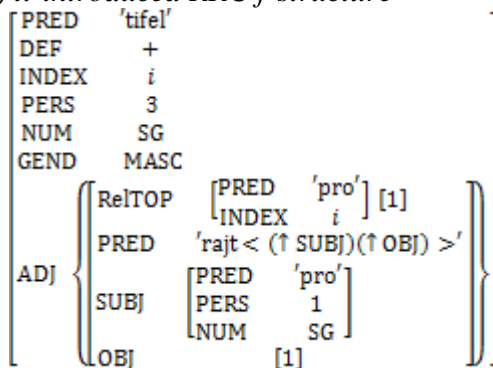
essentially projected, and the complementiser *li*. What follows is an LFG analysis of the *li*-introduced RRC in (1), which includes the constituent-structure (*c*-structure) in (14a) and the feature-structure (*f*-structure) in (14b). A NRRC/ARC LFG analysis is given in (17), which is illustrated with an example of a *milli*-introduced RC.

It-tifel li rajt barra

(14a) *Annotated c-structure*



(b) *li-introduced RRC f-structure*



From these structures one observes that LFG treats RCs as ADJuncts, and that the *f*-structure for RCs, as well as other unbounded-dependency constructions, is characterised by dependencies. Initially there is the dependency mentioned in Zaenen (1983: 486), which is anaphoric in nature and relates the RelTOP *pro* with the head of the RC via coindexation, which is captured by the index matching between the head and the RelTOP, in (14b). The other dependencies which may be present are more theoretically-driven. The dependency that is relevant to *li*-/*milli*-introduced RRCs and NRRCs/ARCs is that which exists between the RelTOP DF within the ADJ and the GF it occupies within the ADJ's *f*-structure, represented through [1], in (14b). This dependency comes about as a result of the Extended Coherence Condition (ECC), which states that:

- (15) “FOCUS and TOPIC [i.e. discourse functions (DFs)] must be linked to the semantic argument structure of the sentence in which they occur, either by functionally or by anaphorically binding an argument.” (Bresnan & Mchombo 1987: 746).

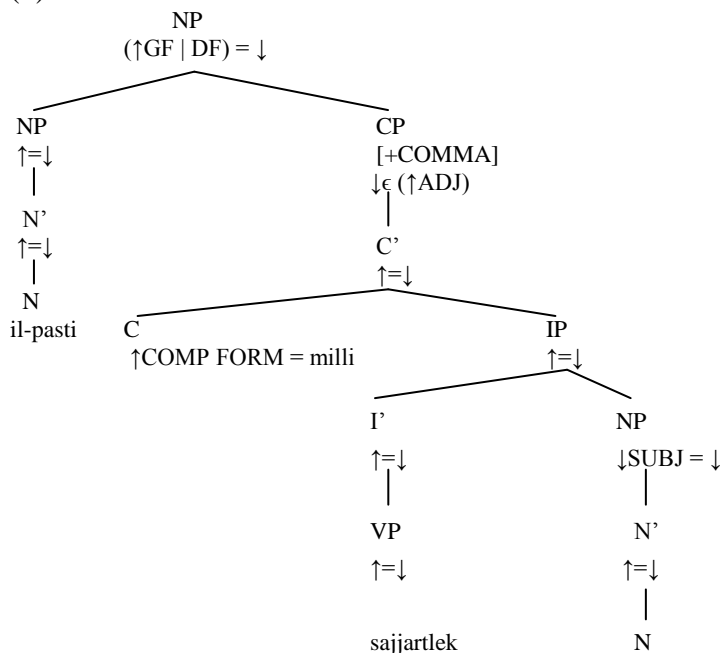
The ECC thus explains why dependencies need to come about, and hence results in the need for the RelTOP, which is a DF, to be functionally identical with a GF, which happens to be the OBJ in (14). A further intricacy which may also need to be understood is that this RC-analysis is what Falk (2010) calls *mediated*: that is, in the *f*-structure in (14b), it is assumed that in the case of non-*wh*-pronoun introduced RCs what exists is actually a non-overt *wh*-fronted pronoun. This in turn leads to another issue. How is a null *pro* RelTOP accounted for, if, as shown in the *c*-structure in (14a), there is no empty category being postulated? To account for both these facts, i.e. the absence of null elements in the *c*-structure, and the requirement to have a RelTOP in these constructions within the *f*-structure, is to use the ε device as proposed in Dalrymple, Dyvik & King (2004). Using ε does not imply ‘an empty category’, and thus has no effect on the *c*-structure, but rather it is stated as part of the phrase structure rules, and stipulates a PRED ‘pro’ value to a RelTOP DF. The DF is thus not related to any lexical entry and has no semantic content, and is only present when the RC is introduced by a complementiser strategy. The CP rule for complementiser-introduced RCs would look like (16):

- (16) CP \rightarrow ε C'
 \uparrow RelTOP = ‘pro’ $\uparrow=\downarrow$
 \uparrow RelTOP INDEX = (\uparrow GF| \uparrow DF) INDEX

What follows is the *c*-structure for a *milli*-introduced NRRC/ARC.¹

- (17a) Il-pasti, milli sajjar-t=l=ek jien
 DEF-buns from.that cook.CAUS-1.SG=DAT=2.SG I
 ‘The buns, from (the ones) I cooked (for you)’

(b) Annotated *c*-structure



¹ Due to space restrictions, the *f*-structure is not given: however, this analysis of NRRCs/ARCs parallels that of RRCs.

↓OBJ= ↑RelTOP jien
 ↓DAT OBJ= pro

There exists a debate in the literature about how to best present the structure of NRRCs/ARCs, i.e. whether they should be treated as some kind of separate constituents, or as instances of embedded, syntactically-integrated constructions. Under the former approach, NRRCs/ARCs are treated as independent sentences having a completely distinct syntax from RRCs. On the other hand, evidence favouring a complementation or syntactically-integrated approach for these constructions in Maltese comes from word order cues. While an enclitic pronoun can be the final element in a main clause, this is not the case in RC contexts, which thus implies that RRCs and NRRCs/ARCs should both be considered to have the same embedded structure. When one looks at the *c*-structure in (17b), one notes that in fact, the CP is essentially the same as that suggested for RRCs, except that in NRRCs/ARCs this constituent is attached to an NP rather than to an N', following Arnold & Borsley (2008) and Arnold & Sadler (2010). What this shows is that the CP hosting this RC does not function as a modifier, unlike the case with RRCs, whose modifier interpretation comes by virtue of being in an ADJ position in relation to the NP head. The [+COMMA] feature added on the CP intends, on the other hand, to show that there exists a mapping between the *c*-structure and the prosodic structure, which would account for the comma interpretation of NRRCs/ARCs.

3.2. The GAP vs. Resumptive Strategy

(14b) above illustrated an instance of functional-identity between the RelTOP and the OBJ GF where the [1] index in the *f*-structure represented the fact that the dependency involved was a re-entrancy of the RelTOP in the OBJ GF position, since there was no PREDicate value related with the OBJ attribute. The internal-relativisation strategy employed in (14) (and (17)) is referred to as the GAP strategy. In a RP strategy, on the other hand, which in Maltese interacts with the complementiser strategy, an ordinary pronoun is present in an argument position and anaphorically-binds the RelTOP to it, in accordance with the ECC. For this reason, Asudeh (2004) calls constructions involving RPs as *binder-resumptive*. By employing a RP strategy, as in (18) below, the OBJ of *naf* '1.SG-know' is a pronominal enclitic. This implies that the ADJ OBJ has its own PRED value, as illustrated in (18b).

(18a) Tifel li n-af=u sew
 DEF-boy that 1.SG-know=3.SG.M well
 'A boy that I know very well'

(b) *f*-structure involving a RP Strategy in a li-introduced RRC

PRED	'tifel'		
DEF	-		
INDEX	i		
PERS	3		
NUM	SG		
ADJ	{	RelTOP	[
			PRED
			INDEX
			'pro'] _σ
			i
]σ
			PRED
			'naf < (↑ SUBJ)(↑ OBJ) >'
		SUBJ	[
			PRED
			'pro']
			PERS
			1
]σ
			NUM
			SG
		OBJ	[
			PRED
			'pro'] _σ
			PERS
			3
]σ
			NUM
			SG
			GEND
			MASC
]σ

As (18b) exemplifies, since a RP is present, the RelTOP-ADJ OBJ dependency cannot involve a re-entrancy. This is constrained from taking place by the *f*-structure's Uniqueness

Principle, which requires that there be only one PRED value for every given feature. Thus, instead of functional identity, anaphoric binding takes place between the RelTOP and the RP, and is represented though the use of the σ , which relates the f -structure to the semantic-structure. It is important to note that a distinction between the use of a GAP vs. a RP strategy comes about as a result of a number of constraints on the functional uncertainty paths which allow either functional or anaphoric dependencies to take place. While the distributions of the different strategies is not given here due to space restrictions, it should be kept in mind that the choice between these two strategies is constrained; it is not in a free distribution; and differs between RRCs and NRRCs/ARCs.

3.3. Wh-Pronoun Relativisation Strategy

The other type of relativisation strategy used in Maltese is that which involves *wh*-pronouns.² In section 3.3.1, *wh*-pronouns used in both RRCs and NRRCs/ARCs will be discussed, while 3.3.2 discusses the use of *wh*-pronouns in FRCs.

3.3.1. Wh-pronouns and non-FRCs

Wh-pronouns in the Standard variety are mainly used in preposition-fronted RCs. This very asymmetry in the use of the *wh*-strategy vs. the complementiser strategy in Maltese is in line with what seems to be a tendency for *wh*-pronouns only to be used in such preposition-fronted contexts crosslinguistically (Falk, 2010). The only *wh*-pronoun in the Standard variety which is not restricted to such contexts is *fejn* ‘where’, used with location-denoting heads. The two *wh*-pronouns restricted to preposition-fronted contexts are: *min* ‘who’, used with [+/-DEF] [+Human] heads (19a), and *xiex* ‘what’, used with [+/-DEF] [+Inanimate] heads (19b).

- | | | | | | |
|-------|--|---------------------|---------------------|------------------------------|------------|
| (19a) | It-tifel
DEF-boy
‘The boy next to whom I went’ | ħdejn
near | min
who | mor-t
went-1.SG | (RRC) |
| (b) | Martell,
hammer
‘A hammer with which I can hammer’ | b’xiex
with.what | n-ista’
1.SG-can | n-sammar
1.SG-hammer:CAUS | (NRRC/ARC) |

Since such pronouns function as OBJs of prepositions, the PP constituents in which they occur usually function as OBLs within the ADJ, and are only related with a GAP strategy. This means that the RelTOP DF, which involves an overt *pro* value in the RelTOP’s OBJ within the f -structure, is functionally identical with the OBL GF and is re-entered accordingly, as illustrated through the dependency represented as [1] in (20), which is the analysis of (19a). This suggests that in *wh*-introduced preposition-fronted RCs, only a GAPped in-clause strategy is found.

Following section 3.1, when a *wh*-pronoun is involved, an overt pronoun is situated in SpecCP position within the c -structure. The presence of an overt *wh*-pronoun explains why the f -structure in (20) involves the dependency represented with [2] between the RelTOP’s OBJ and the RelPRO, which is there to illustrate that the use of the *wh*-element functions as a relative pronoun (Dalrymple, 2001).

² The discussion of *wh*-pronouns in RCs will here be restricted to the ones found in the Standard variety, as the dialect uses *wh*-pronouns in rather different ways, apart from having two additional *wh*-pronouns in its inventory, (*l min* ‘whom’ and *ma* ‘which’). For more detail refer to Camilleri (2010).

(20) *f*-structure involving an overt *wh*-pronoun in a preposition-fronted RRC

PRED	'tifel'			
DEF	+			
INDEX	i			
PERS	3			
NUM	SG			
GEN	MASC			
ADJ	{	RelTOP	{	PRED 'hdejn < (↑ OBJ) >'
		OBJ	{	PRED 'pro'
			ANIM	+
			PRN TYPE	REL
				[2]
				[1]
		RelPRO	[2]	
		PRED	'mort < (↑ SUBJ)(↑ OBL) >'	
		SUBJ	{	PRED 'jien'
			PERS	1
			NUM	SG
		OBL	[1]	

3.3.2. *Wh*-pronouns and FRCs

The use of the *wh*-pronoun in FRCs, as discussed in section 2.3, differs from the cases discussed in section 3.3.1. To start with, the inventory of *wh*-pronouns used in FRCs is larger than, and distinct from, those used in non-FRCs, although there is a marginal overlap.³ However, apart from inventory distinctions, the very function of the *wh*-pronouns differs between the two constructions. While the *wh*-pronouns in (19) are relative pronouns, the ones found in FRCs are not (Kluck, 2007). This explains why in the *f*-structure analysis of (9b) (in section 2.3), given in (24) below, there is no RelTOP–RelPRO dependency. Moreover, as also mentioned in section 2.3, the *wh*-pronoun bears a GF assigned by the main clause PRED, apart from having its own GF in the ADJ *f*-structure. The assumption held here is that FRCs include a modifier clause, and hence involve an ADJ function. This finds proof in the fact that such constructions render themselves as modifiers of their *wh*-pronominal heads. Furthermore, following the approach upheld here, i.e. that the *wh*-pronoun in these constructions is a GF, it is required that the phrase structure rule has the necessary annotation stipulating the obligatory presence of a RC (Rooryck 1994), since *wh*-pronouns from the set of pronouns restricted to FRCs can never appear without being in juxtaposition with their modifying RC in Maltese. This stipulation is possible if the set of *wh*-pronouns used in FRCs is distinguished from those used in non-FRC contexts, i.e. by giving the former a PRN TYPE FREE feature-value in their lexical entry, which will distinguish them from the PRN TYPE REL set used in non-FRCs. This will also be a felicitous way with which to account for the fact that in Maltese, these two sets of pronouns are broadly characterised by distinct forms.

Following this treatment of *wh*-pronouns in FRCs, the next question to consider concerns how to account for the fact that such *wh*-pronouns are also functionally identical with a GF within the ADJ, if they are not treated as relative pronouns, but rather as regular GFs subcategorised for by the matrix PRED. If a sort of dependency such that on the DP in the phrase structure rule the annotation in (21) is formulated, which states that the constituent's GF or DF is functionally identical to a GF which is part of the ADJ modifying the same DP, a dependency which fulfils the ECC *can* take place. However, this dependency will result in a re-entrancy in the ADJ GF position, which will involve the whole matrix GF/DF's *f*-structure, including the same ADJ inside it, which is a bad construction that can in principle keep taking place endlessly. Before actually proceeding to the LFG analysis proposed here, a brief overview of the distinct LFG analyses in the literature is given.

(21) $\uparrow\text{GF}|\uparrow\text{DF} = (\downarrow\text{GF}e(\uparrow\text{ADJ}))$

³ Space reasons restrict a thorough description, but refer to Camilleri (2010).

3.3.2.1. Different LFG analyses to FRCs

Under the headed-analysis of FRCs in Bresnan & Grimshaw (1978) and Larson (1988), the FRC in (22) is analysed as follows:

(22) Whatever I see

PRED	'pro'																																
PRN TYPE	Free																																
PRN FORM	whatever																																
NUM	SG																																
PERS	3																																
ADJ	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'see < (↑ SUBJ)(↑ OBJ) >'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">SNT TYPE</td> <td style="padding-left: 5px;">DECLARATIVE</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN REL</td> <td style="padding-left: 5px;"> <table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'pro'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">ACC [1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN TYPE</td> <td style="padding-left: 5px;">REL</td> </tr> </table> </td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">RelTOP</td> <td style="padding-left: 5px;">[1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">SUBJ</td> <td style="padding-left: 5px;"> <table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'pro'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN TYPE</td> <td style="padding-left: 5px;">PERS</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN FORM</td> <td style="padding-left: 5px;">I</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PERS</td> <td style="padding-left: 5px;">1</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">NUM</td> <td style="padding-left: 5px;">SG</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">ANIM</td> <td style="padding-left: 5px;">+</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table> </td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">OBJ</td> <td style="padding-left: 5px;">[1]</td> </tr> </table>	PRED	'see < (↑ SUBJ)(↑ OBJ) >'	SNT TYPE	DECLARATIVE	PRN REL	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'pro'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">ACC [1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN TYPE</td> <td style="padding-left: 5px;">REL</td> </tr> </table>	PRED	'pro'	CASE	ACC [1]	PRN TYPE	REL	RelTOP	[1]	SUBJ	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'pro'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN TYPE</td> <td style="padding-left: 5px;">PERS</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN FORM</td> <td style="padding-left: 5px;">I</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PERS</td> <td style="padding-left: 5px;">1</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">NUM</td> <td style="padding-left: 5px;">SG</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">ANIM</td> <td style="padding-left: 5px;">+</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table>	PRED	'pro'	PRN TYPE	PERS	PRN FORM	I	PERS	1	NUM	SG	ANIM	+	CASE	NOM	OBJ	[1]
PRED	'see < (↑ SUBJ)(↑ OBJ) >'																																
SNT TYPE	DECLARATIVE																																
PRN REL	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'pro'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">ACC [1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRN TYPE</td> <td style="padding-left: 5px;">REL</td> </tr> </table>	PRED	'pro'	CASE	ACC [1]	PRN TYPE	REL																										
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RelTOP	[1]																																
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PRED	'pro'																																
PRN TYPE	PERS																																
PRN FORM	I																																
PERS	1																																
NUM	SG																																
ANIM	+																																
CASE	NOM																																
OBJ	[1]																																

From the *f*-structure in (22), one observes that the *wh*-pronoun is treated as the head of the clause, and that the pronoun is characterised as pronoun type *free*. At the same time, however, the *wh*-pronoun is also treated as a relative pronoun within the ADJ GF, as was the case with the *wh*-introduced non-FRCs presented in section 3.3.1, with the RelTOP-RelPRO dependency taking place accordingly. Dalrymple & Kaplan (1997: 4), on the other hand, do not regard the FRC in (23) as an instance of an unbounded dependency construction that includes a TOP DF, but rather represent it as a clause-bounded construction. It is proposed that (23) involves an OBJ GF which is headed by the *wh*-pronoun and includes a RelMOD feature representing the fact that the FRC functions as a modifier of a *free wh*-pronoun.

(23) I ate what was left

PRED	'eat < (↑ SUBJ)(↑ OBJ) >'														
TENSE	PST														
SUBJ	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'pro'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PERS</td> <td style="padding-left: 5px;">1</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">NUM</td> <td style="padding-left: 5px;">SG</td> </tr> </table>	PRED	'pro'	PERS	1	NUM	SG								
PRED	'pro'														
PERS	1														
NUM	SG														
OBJ	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'what' [1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">RelMOD</td> <td style="padding-left: 5px;"> <table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'left < (↑ SUBJ) >'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">SUBJ</td> <td style="padding-left: 5px;"> <table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">[1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table> </td> </tr> </table> </td> </tr> </table>	PRED	'what' [1]	CASE	NOM	RelMOD	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'left < (↑ SUBJ) >'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">SUBJ</td> <td style="padding-left: 5px;"> <table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">[1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table> </td> </tr> </table>	PRED	'left < (↑ SUBJ) >'	SUBJ	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">[1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table>	PRED	[1]	CASE	NOM
PRED	'what' [1]														
CASE	NOM														
RelMOD	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">'left < (↑ SUBJ) >'</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">SUBJ</td> <td style="padding-left: 5px;"> <table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">[1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table> </td> </tr> </table>	PRED	'left < (↑ SUBJ) >'	SUBJ	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">[1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table>	PRED	[1]	CASE	NOM						
PRED	'left < (↑ SUBJ) >'														
SUBJ	<table style="border-collapse: collapse; margin-left: 5px;"> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">PRED</td> <td style="padding-left: 5px;">[1]</td> </tr> <tr> <td style="border-right: 1px solid black; padding-right: 5px;">CASE</td> <td style="padding-left: 5px;">NOM</td> </tr> </table>	PRED	[1]	CASE	NOM										
PRED	[1]														
CASE	NOM														

A study of Greek FRCs in Chatsiou (2010: 171) takes a headless/complement approach, where the FRC is taken to be phrasal; a CP, and not nominal, as has been argued to be the case here, with evidence from Maltese given in section 2.3. Accounting for FRCs under a headless account within LFG requires the use of the ϵ (introduced in section 3.1) in the phrase structure rule. This is taken to be the covert head which FRCs are said to modify, and is annotated with $(\uparrow\text{PRED}) = \text{'pro'}$ and that it is only found in contexts where it is followed by a CP whose clause type is a FRC. The overt *wh*-pronouns, under this view, function as the RelTOP and the RelPRO, via the dependency between them.

The LFG analysis proposed here for Maltese FRCs takes the *wh*-pronoun as a *free* type which heads an FRC.⁴ Following the discussion in section 3.3.2, a RelTOP analysis is still required in this account, and cannot be done without, unless a RelMOD as in Dalrymple & Kaplan (1997) is retained, which on the other hand has the misfortune of hindering a unified *f*-structure analysis of RCs, whilst treating the modifying clause in the FRC as something completely distinct from RRCs. The proposed *headed* analysis of FRCs is displayed in (25), which is part of what the phrase structure rule for a construction such as (9b) would include. Under the DP node in the *c*-structure, the *free wh*-pronoun is associated with a GF, which, just as in other RC structures, is also in a dependency with the RelTOP. One notes that the pronominal element's requirement to be related with the RelTOP fulfils the stipulation which *free wh*-pronouns impose, i.e. to be obligatory followed by a modifying RC, in Maltese. The RelTOP analysis proposed here under the *headed* FRC account should be understood to be equivalent to the analysis assumed for *li/milli*-introduced RCs, where a null-pronominal element fulfils this function. The only essential difference between FRCs and RRCs lies in the *c*-structure, where in the former there will be no C-node heading the CP-modifying constituent. Thus, the co-indexing dependency taking place in the information-structure (as the *i* notation represents), is one which links the *free wh*-pronoun with the covert 'pro': the RelTOP function. From there, the RelTOP-GF dependency required by the ECC follows as usual, which in turn explains how the *wh*-pronoun takes the role of two GFs in these constructions.

$$\begin{array}{lcl}
 (24) \quad VP & \rightarrow & V' \quad DP \\
 & & \uparrow = \downarrow \\
 & & (\uparrow \text{PRED}) = \text{'pro'} \\
 & & (\uparrow \text{PRN TYPE}) = \text{FREE} \\
 & & (\uparrow \text{OBJ}) = \downarrow \\
 & & (\uparrow \text{OBJ})_i = (\uparrow \text{RelTOP } \epsilon (\downarrow \text{ADJ}))_i
 \end{array}$$

(25) illustrates the *f*-structure analysis of a FRC in Maltese assuming a *headed* approach.

(9b) *Kellimt 'l min raj-t*

$$\left[\begin{array}{l}
 \text{PRED} \quad \text{'kellimt } < (\uparrow \text{SUBJ})(\uparrow \text{OBJ}) >' \\
 \text{SUBJ} \quad \left[\begin{array}{l}
 \text{PRED} \quad \text{'pro'} \\
 \text{PERS} \quad 1 \\
 \text{NUM} \quad \text{SG}
 \end{array} \right] \\
 \text{OBJ} \quad \left[\begin{array}{l}
 \text{PRED} \quad \text{'min'} \\
 \text{CASE} \quad \text{ACC} \\
 \text{INDEX} \quad i \\
 \text{PRN TYPE} \quad \text{Free} \\
 \text{ADJ} \quad \left\{ \begin{array}{l}
 \text{RelTOP} \quad \left[\begin{array}{l}
 \text{PRED} \quad \text{'pro'} \\
 \text{INDEX} \quad i
 \end{array} \right] [1] \\
 \text{PRED} \quad \text{'rajt } < (\uparrow \text{SUBJ})(\uparrow \text{OBJ}) >' \\
 \text{SUBJ} \quad \left[\begin{array}{l}
 \text{PRED} \quad \text{'pro'} \\
 \text{PERS} \quad 1 \\
 \text{NUM} \quad \text{SG}
 \end{array} \right] \\
 \text{OBJ} \quad [1]
 \end{array} \right\}
 \end{array} \right]
 \end{array} \right]$$

4. CONCLUSION

This paper provided a brief overview of three RCs found in Maltese; restrictive, non-restrictive/appositive, and fused/free RCs. Their description was complemented with an analysis formulated within Lexical Functional Grammar. The two relativisation strategies

⁴ Note that the use of the term *relative constructions* vs. the more common term *relative clauses* finds a justification at exactly this point, in that under a headed analysis of fused constructions, these cannot be treated as *clauses*, since they are taken to be NPs. The use of the term *constructions* thus accounts for all FRCs and non-FRCs, without imposing any analytical bias.

employed in Maltese RCs were discussed, and it was shown that while the complementiser strategy is related to both the GAP and resumptive pronoun strategies, *wh*-introduced RCs as found in the Standard variety of the language, restricted as they are to preposition-fronted contexts, are only related to the in-clause GAP strategy. In the final section, an LFG analysis for fused/free RCs viewed from a headed approach was proposed, which unlike previous analyses does not take the *wh*-pronoun to be a relative pronoun within the RC. This paper has aimed to provide a stimulus for further research, and in particular for more descriptive work to be undertaken in Maltese, to see what other RCs exist there, as well as other theoretically-driven research which could expand and advance the proposals above.

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Motion Event Descriptions in English by Turkish EFL Instructors

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In the last twenty years, there has been an increasing interest in the research of motion events and their descriptions in typologically different languages. Much of this interest has derived from the works of Talmy (1985, 2000) and his lexicalisation patterns. In that sense, Slobin (2000) introduced the ‘Thinking for Speaking’ hypothesis and stated that lexicalisation patterns have certain consequences for the ways in which speakers express motion events as their choices and syntax structures might change by typological variations. Situated within the framework of this tendency, the aim of this study was to investigate how this tendency influenced second language acquisition process. In order to fulfil this aim, the motion event descriptions strategies of Turkish native speakers (30 EFL instructors) with high English proficiency were analysed through their English and Turkish descriptions. The data for the study was collected through three different instruments taken and adapted from Yu (1996), including a picture description task, a narration task and a translation task. The statistical analysis of the data revealed that even Turkish native speakers with high English proficiency showed significant differences while describing motion events in English and Turkish. While English motion event descriptions included mostly manner verbs, Turkish ones tended to focus on path information. Additionally, the study has revealed that subjects had some preferences regarding subordinate manner structures. Turkish EFL instructors preferred to encode path in the main verb slot, whereas giving manner information outside the verb through subordinate forms. In English descriptions, however, subjects tended to give manner information in the main verb slot while encoding path through satellites outside the verb. The results gained in this study will lead us to clarify the problems posed to Turkish students in the process of English motion event description. Besides, they may help EFL instructors understand the reasons behind the mistakes of their students and suggest certain strategies and activities to solve these problems.

Talmy (1985) defines the motion event as the movement of an entity through a space. According to him, a motion event consists of one object, the ‘Figure’, moving or located with respect to another object, the ‘Ground’. It is analysed as having four components that are Figure, Ground, Path and Motion and he claims that PATH of motion, that is the trajectory followed by the figure, is the core element to determine the categorisation of languages. Based on where the languages encode path information, Talmy classifies them as ‘Verb-Framed Languages’ and ‘Satellite-Framed Languages’. In Verb-Framed languages like Turkish and Spanish, path is encoded in the main verb of a clause, using verbs with meanings such as ‘enter, exit, ascend and descend’. In the other type, Satellite-Framed languages such as English and Russian, path tends to be encoded by elements associated with the main verb, such as particles and suffixes like ‘go in/up/out/down’.

Slobin (2005) claims that speakers of S-framed languages tend to encode more ‘path’ segments in narratives and conversations, as compared with the speakers of V-framed languages. As for the cross-typological comparison of ‘manner’, speakers of Verb-framed languages prefer to use adjuncts or just omit the manner information in their sentences. Slobin (1997) explains this difference through the ‘Thinking for Speaking’ hypothesis and claims that acquiring a native language means learning particular ways of thinking for speaking.

Many studies (Slobin 1996, 2000, 2003; Özçalışkan & Slobin 1999; Papafragou et al. 2006; Berman & Slobin 1994) have clearly revealed that S-language speakers tend to use

manner verbs more frequently while describing events. These studies confirm that manner languages are characterised by large use of manner verbs, whereas in path languages, manner is less frequent. Studies based on oral data (Allen et al. 2007; Naigles et al. 1998; Navarro & Nicoladis 2005; Stam 2006; Hill 1991; Oh 2003; Allbritton 2005) have all demonstrated that typological tendencies play a significant role in motion event description process.

Slobin (2003) states that if the typologies of two languages are similar, children learn the second language easily; whereas if the dichotomies are different, then they need to learn the second way of thinking for speaking to acquire this language. Many studies (Yu 1996; Montrul 2001; Hohenstein et al. 2006; Song 1997; Ortega 2007; Philips 2007) have revealed that learner's metacognition about a target language has a facilitative effect on language learning; in other words, L1 transfer plays a significant role in the acquisition of L2 motion verbs. As claimed by Song, second language learners have an underlying knowledge of certain universal aspects of verb meaning and this knowledge guides them in their acquisition of motion expressions in second language.

In order to compare the lexicalisation of motion verbs in English and Turkish, the first step which should be taken is the analysis of locative development in Turkish. According to Aksu-Koç & Slobin (1985), this development follows a standard order in Turkish, presumably based on language-free conceptual development, even though the principles of locative suffixation and post-positions are acquired early. Aksu-Koç (1994) states that, given its agglutinative morphology, Turkish is a language which has various means for event conflation. English speakers tend to encode both manner and path by conflating motion with manner in the main verb and indicating path with the particle *into* as in “he ran into the house”. Turkish speakers, on the other hand, typically encode only path by conflating motion with path in the main verb and leaving out manner information, as in “eve girdi - he entered the house”. However, in instances where manner becomes perceptually salient, Turkish speakers may choose to encode manner as well, typically by subordinating manner to the main path verb of a clause “eve koşarak girdi - he entered the house running”.

1. PRESENT STUDY

The aim of this study was to examine the motion event descriptions produced by Turkish EFL instructors with high English proficiency in order to observe the tendency or typological differences that are effective or playing a significant role in the motion event description processes in English and Turkish. In that sense, the research questions were:

1. Do Turkish EFL instructors with high English proficiency tend to use manner and path verbs differently while describing motion events in English and Turkish through picture description and narration tasks?

1.1. To what extent do they tend to use path satellites while describing motion events in English and Turkish?

1.2. To what extent do they tend to use subordinate manner structures or adverbial manner phrases in the process of describing motion event in English and Turkish?

2. Are there any differences between English and Turkish descriptions of motion event made by bilingual instructors, when the narration and translation tasks are compared?

1.1. Participants

As the tasks used in data collection procedure required a sound knowledge of English language, 30 EFL instructors from Atılım University, Preparatory School were chosen as

subjects for this study. They were all native speakers of Turkish with high English proficiency.

1.2. Materials

Material including picture description task, narration task, and translation task adapted from Yu (1996) was used. The **Picture Description Task** consisted of 10 pictures designed to elicit the use of *blow* (the hat) *into* (the fire), *pour* (milk) *into* (a pitcher), *fall into* (the water), *throw* (boxes) *out of* (the window), *climb down* (a tree), *push* (cheese) *into* (a hole), *pull* (a bicycle) *out of* (the water), *hit* (a baseball) *across* (the pool), *run down* (the stairs), and *jump over* (a table). In the **Narration Task**, the participants were asked to narrate and write a story by looking at the 13 pictures given to them. The story originally consisted of 14 pictures and motion verbs. However, considering the fact that the third motion event was ambiguous as there was no motion activity, it was omitted from the study. The following test items were chosen as the target motion events in this task; 1. (the farmer) *followed* (the path) *along* (the lakeshore); 2. (the farmer) *rode up* (the hill); 3. (the farmer) *kicked* (the ball) *down* (the hill); 4. (the ball) *rolled down* (the hill); 5. (the ball) *rolls* (down) *into* (the lake); 6. (the ball) *floated...up to* (the farmer’s wife’s feet); 7. (the wife) *picked up* (the ball); 8. (the wife) *walked home*; 9. (the ball) *jumped out of* (a basket); 10. (the ball) *flew across* (the garden); 11. (the ball) *crashed through* (the window) *into* (the cottage); 12. (the wife) *ran into* (the room); 13. (the ball) *split into* (two halves). The beginning of the story was presented so that the participants could be aware of the context and the characters. Finally, in the **Translation Task**, as there was an original English story, only the bilingual group translated the original text into Turkish and the bilingual Turkish translation data was collected in this way. The original English story was taken from Yu (1996) again.

2. RESULTS

First of all, Bilingual English data (BL_E) and Bilingual Turkish data (BL_T) were compared in terms of their manner (V: Manner) and path (V: Path) verb usage in Picture Description task. The results showed that the usages of path verb were significantly different from each other as demonstrated in Table 1. There was a significant difference between English and Turkish when their V: Path usage rates were compared. This result directly shows the typological difference between English and Turkish in terms of motion event descriptions. However, these two data groups were not significantly different from each other in terms of their manner verb mean results. Bilingual English data included more manner verbs than Bilingual Turkish data; while Bilingual Turkish data involved more path verbs than English data. Nevertheless, t-test comparison showed that there was no statistically significant difference between Bilingual English and Bilingual Turkish data.

(Table 1) *Results of Picture Description for the main data groups*

	N=10	MEAN	STD. DEVIATION	T	df	p
V: Manner	BL_E	24.7000	8.75658			
	BL_T	16.0000	11.89771	1.862		0.079
V: Path	BL_E	3.6000	7.57481		18	
	BL_T	13.2000	10.99293	-2.274		0.035
V: Neutral	BL_E	1.7000	4.08384			
	BL_T	0.8000	1.47573	0.655		0.525

The same analysis was administered for the Narration task. There was a significant difference between Bilingual English data and Bilingual Turkish data in terms of their path verb mean again. Although these two data groups had different mean scores in Manner verbs,

no significant difference was observed in the t-test analysis; while the V: Path means analysis indicated a significant difference between these two sets of language data. Table 2 demonstrates this significant difference in terms of path verb use.

(Table 2) *Results of Narration for the main data groups*

	N=13	MEAN	STD. DEVIATION	T	Df	p
V: Manner	BL_E	18.30	9.894	1.571	24	0.129
	BL_T	12.07	10.323			
V: Path	BL_E	4.46	6.172	-2.665	24	0.014
	BL_T	12.30	8.635			
V: Neutral	BL_E	2.69	6.587	0.032	24	0.975
	BL_T	2.61	5.781			
V: Failed	BL_E	4.53	6.022	0.697	24	0.492
	BL_T	3.00	6.022			

In order to clarify the reason for this difference between English and Turkish data in terms of their PATH verb usage, each motion event was analysed through single item analysis. According to these results, there was a significant difference between Bilingual English and Bilingual Turkish data in terms of the motion events including ‘blow into’ ($p=0.005 < 0.05$), ‘pour into’ ($p=0.000 < 0.05$), ‘climb down’ ($p=0.000 < 0.05$), ‘push into’ ($p=0.004 < 0.05$), ‘pull out of’ ($p=0.000 < 0.05$) and ‘run down’ ($p=0.000 < 0.05$). However, these two language data did not have such a significant difference for the motion event that was ‘fall into’ ($p=0.921 > 0.05$). This may be due to the fact that ‘fall’ encodes path in the main verb slot; and similarly the Turkish verb ‘*düşmek – fall*’ also encodes path information in the main verb slot. Besides, the participants from each language group produced nearly the same number of manner and path verbs in certain verbs, including ‘throw out of; hit across; jump over’. It is again because of the fact that these verbs conflate manner in their main verb slot in English and similarly in their Turkish counterparts ‘*atmak-throw; vurmak-hit; atlamak-jump*’, manner information is encoded in the verb. Therefore, there wasn’t a significant difference between English and Turkish.

The same item analyses were conducted for the Narration task and it was found that these two language groups of data had significant differences in certain motion events which are ‘follow along’ ($p=0.000 < 0.05$), ‘ride up’ ($p=0.000 < 0.05$), ‘pick up’ ($p=0.001 < 0.05$), ‘fly across’ ($p=0.007 < 0.05$), ‘crash through into’ ($p=0.000 < 0.05$), ‘run into’ ($p=0.045 < 0.05$), ‘split into’ ($p=0.014 < 0.05$).

As a sub-question, path satellite usage was analysed to clarify the typological tendency if there was any. Manner verb and Path Satellite forms (V:M+Path Satellite) were analysed. Table 3 shows that there was no significant difference between these two groups of data in terms of their path satellite usage. Besides, they were not different in terms of their zero path usage.

(Table 3) *Results of V:M + Path Satellites for the Picture Description Task*

	N=10	MEAN	STD. DEVIATION	t	df	p
V:M + path satellite	BL_E	20.80	8.443	1.839	18	0.08
	BL_T	12.70	11.076			
PD	BL_E	3.90	4.724	0.255	18	0.80
	BL_T	3.90	5.735			

PD: Picture Description

As for the Narration task, the results of the analyses demonstrated that there was no significant difference between Bilingual English and Bilingual Turkish data in terms of their manner verb and path satellite usage.

(Table 4) *Results of V:M + Path Satellites for the Narration Task*

		N=13	MEAN	STD. DEVIATION	t	Df	p
N	V:M + path satellite	BL_E	14.23	8.652	0.621	24	0.541
		BL_T	12.00	9.643			
	V:M + zero satellite	BL_E	4.07	4.889	1.086		0.288
		BL_T	2.30	3.250			

N: Narration

As for the other sub-question dealing with the usage of Subordinate Manner verb or Adverbial Manner Phrase in the Bilingual English and Bilingual Turkish data in terms of picture description, narration and translation tasks, analyses were done by counting the number of subordinate categories and adverbial phrases together with just manner verbs produced by the subjects and by calculating their percentages. In order to analyse the usages of subordinate manner verbs, firstly, Subordinate manner verbs demonstrated as ‘V+V:M’ referring to MANNER verb plus subordinate manner verb; and ‘V:M+Adv M’ referring to MANNER verb plus Adverbial Manner Phrases were grouped. The reason was that although some participants directly used two manner verbs – one as a subordinate manner verb –, some of them used adverbial manner phrases which were not directly verbs, but giving a manner effect through adverbial forms. Table 5 shows the frequencies and percentages of these groups. It can be seen that Bilingual English data included more manner verbs than Bilingual Turkish data. These frequencies indicate that English gives priority to manner verb. When the Subordinate verb usage was analysed within groups of data, it can be said that it is quite low in both groups. The subjects providing Bilingual English data produced just 11 subordinate manner verbs (V+V:M). The case was not different for the Bilingual Turkish data as there were 11 subordinate manner verbs. However, when the total value was taken into consideration, it was obvious that Bilingual Turkish data had more subordinate manner verbs than Bilingual English data. Table 5 shows that Bilingual Turkish data had much more adverbial manner verbs in the motion event descriptions in the Narration task.

(Table 5) *Results of Manner verb and Subordinate Analysis for three tasks*

	Picture Description		NARRATION		Translation	
	BL_E	BL_T	BL_E	BL_T	BL_E	BL_T
V:M	247	158	221	152	0	167
	100.0 %	98.76 %	92.86%	81.72%	0%	96.53%
V:M + Sub: M	0	2	11	5	0	4
	0 %	1.24%	4.62%	2.69%	0%	2.31%
V:M + Adv M	0	0	6	29	0	2
	0 %	0%	2.52%	15.59%	0%	1.16%
Total	247	160	238	186	0	173
	100.0%	100.0%	100.0%	100.0%	0%	100.0%

Table 6 shows the same analysis according to the PATH verb usage. In fact, this category is one of the most important questions that this study investigates. The percentage of path verbs used in Bilingual Turkish data was higher than the ones in Bilingual English data. As for the Subordinate verb use, Turkish speakers or Turkish language tends to use much

more subordinate manner verbs and adverbial manner phrases than English speakers or the English language. In other words, English prefers to use far more manner verbs while describing motion events. Turkish speakers, on the other hand, use far fewer manner verbs as they tend to use path verbs in their descriptions of motion events. However, they give the manner information through subordinate manner verbs or adverbial manner phrases.

(Table 6) *Results of Path Verb and Subordinate Analysis for three tasks*

	Picture Description		NARRATION		Translation	
	BL_E	BL_T	BL_E	BL_T	BL_E	BL_T
V:P	38 97.44 %	119 95.2 %	48 87.27%	98 61.25%	0 0%	104 72.22%
V:P + Sub: M	0 0 %	5 4.00%	4 7.27%	41 25.63%	0 0%	37 25.70%
V:P + Adv M	1 2.56 %	1 0.80%	3 5.46%	21 13.12%	0 0%	3 2.08%
Total	39 100.0%	125 100.0%	55 100.0%	160 100.0%	0 0%	144 100.0%

The second research question concerned any potential differences between English and Turkish motion event descriptions in narration and translation tasks. It aimed to clarify whether the bilingual speakers would be influenced by the motion verbs in the original story or whether they would just produce the motion items according to the lexical properties of their own language. Table 7 demonstrates that English data included more manner verbs in the narration process. When the Turkish descriptions were analysed, it appeared that Bilingual Turkish data includes nearly the same amount of manner and path verbs. However, in the translation process, although there was no significant difference, Turkish data included more manner verbs than path verbs. Although it was written in Turkish, the reason for using more manner verbs than path verbs could be the fact that in the translation process, the participants may have been influenced by the original manner verbs.

(Table 7) *Manner and Path verb usage in Narration and Translation Tasks*

	MEAN (Manner)	MEAN (Path)
BL_E_Narration	18.3077	4.4615
BL_T_Narration	12.0769	12.3077
BL_T_Translation	13.3846	11.0769

After the analyses of the mean, one-way ANOVA was used to compare the use of Manner and Path verbs in Bilingual English and Bilingual Turkish data in the Narration and Translation task. Anova results showed that there was no significant difference between these groups of data in terms of their use of manner verbs; however, there was a significant difference between them in terms of their use of path verbs.

In order to analyse this difference in the usage of path verbs, item analyses were applied. According to these analyses, the three language data had significant differences for certain motion verbs which are 'follow along' ($p=0.000 < 0.05$), 'ride up' ($p=0.001 < 0.05$), 'kick down' ($p=0.045 < 0.05$), 'roll into' ($p=0.000 < 0.05$), 'float up to' ($p=0.001 < 0.05$), 'pick up' ($p=0.001 < 0.05$), 'fly across' ($p=0.005 < 0.05$), 'crash through into' ($p=0.000 < 0.05$), 'run into' ($p=0.013 < 0.05$), and 'split into' ($p=0.000 < 0.05$). However, there were no such significant differences for certain verbs including 'roll down, walk home and jump out of'. This is due to the fact that both the English and Turkish version of these motion events encode manner dimension.

Apart from these comparisons and item analysis, Turkish motion event descriptions were listed in order to demonstrate the comparison between English original motion verbs and their Turkish equivalents. Table 8 shows English motion verbs from the original English story, and the descriptions of motion events taken from Bilingual Turkish Translation data. It can clearly be seen that subjects tended to use various motion verbs in Turkish while translating one original English motion event into Turkish. Besides, the motion verbs produced clearly show that participants can use path verbs while translating a manner verb into Turkish, such as ‘roll down’, which was translated as ‘descend rolling’.

(Table 8) *Types of Motion Verbs from Bilingual Turkish Translation Data*

ORIGINAL	TURKISH TRANSLATION
follow along	ilerlemek ‘proceed’; at sürmek ‘ride a horse’; takip etmek ‘follow’; izlemek ‘follow’; geçmek ‘pass’; yolu tutmak ‘follow the way to somewhere
ride up	tepeye tırmanmak ‘climb the hill’; tepeye doğru yola çıkmak ‘set out towards the hill’; tepeye doğru atını sürmek ‘ride; tepeye ulaşmak ‘reach’; atını yukarı sürmek ‘ride up’; tepeye doğru yola koyulmak ‘set out for the hill’
Kick down	aşağı tepmek ‘kick down’; aşağı doğru tekmelemek ‘kick down’; vurmak ‘hit’; yuvarlamak ‘roll’
Roll down	yuvarlanmak ‘roll’; yuvarlanarak inmek ‘descend rolling’
Roll into	göle düşmek ‘fall into the lake’
Float up to	gelmek ‘come’; yüzmek ‘swim’; ulaşmak ‘arrive’; sürüklenmek ‘drag’; yüzerek gelmek ‘come swimming’
Pick up	almak ‘take’; çıkarmak ‘take out’
Walk home	yola koyulmak ‘set out for’; yürümek ‘walk’; yolunu tutmak ‘follow the way to somewhere’; yoluna düşmek ‘follow the road’
Jump out of	zıplamak ‘bounce’; fırlamak ‘fly out’; atlamak ‘jump’; düşmek ‘fall’
Fly across	geçmek ‘pass’; uçmak ‘fly’; boyunca gitmek ‘go along’; aşmak ‘move over’
Crash through into	kırarak girmek ‘enter crashing’; kırıp geçmek ‘pass crashing’; kırmak ve düşmek ‘crash and fall’; kırıp gitmek ‘go crashing’; çarpıp girmek ‘enter crashing’; kırıp içeri düşmek ‘fall crashing’
Run into	Koşmak ‘run’; koşarak girmek ‘enter running’; girmek ‘enter’
Split into	ikiye ayrılmak ‘split into’; ikiye bölünmek ‘divide into’

3. DISCUSSION AND CONCLUSION

There are major findings in this study regarding descriptions of motion events by Turkish EFL instructors with high English proficiency. First of all, when manner and path verb usage within all data groups was analysed, it appeared that English language data had more Manner

verbs than Path verbs. So, subjects providing English data were more likely to encode manner in their main verb slot, whereas the ones describing motion events in Turkish tended to produce more path verbs. As argued by Talmy (1985, 2000), English, as a Satellite-framed language, encodes manner in its motion events and it tends to give path information outside through prepositions or particles.

Secondly, although they were highly proficient in English, Turkish EFL instructors produced a similar amount of manner and path verbs compared to their Monolingual Turkish and Native English counterparts. This showed that although they are regarded as bilingual speakers, they tended to describe motion events in certain ways while describing them in English or Turkish. This result clearly shows that Turkish speakers with high English proficiency are not influenced by their L2 while describing motion events. Instead, they tend to be affected by the lexical properties of Turkish.

Comparisons within the main data groups showed that there was a significant difference between them in terms of the PATH verbs described in the Picture Description task. This result clearly showed that although they are regarded as bilingual speakers, even Turkish EFL instructors with high English proficiency have preferences while describing motion events in English and Turkish. As for the Narration task, the situation was the same. As the previous studies have demonstrated (Slobin 2005; Özçalışkan 2005; Song 1997; Ortega & Philips 2007), speakers of S-framed languages tended to encode manner segments in their descriptions when compared to V-framed languages. Similarly, in this study, participants tended to encode manner information while describing motion events in English, whereas they preferred to conflate the path information in their descriptions of motion events in Turkish.

As for path satellite usages, although there was no significant difference between Bilingual English and Bilingual Turkish data as there was a limited number of path versions, there was still a cross-linguistic difference. Although they were equally likely to produce path satellites in their motion descriptions, the way in which they used these path satellites showed cross-linguistic difference. English data had prepositional paths and particle paths, whereas Turkish data included directional suffix paths and post-positional paths to express path outside the verb. It is quite normal as English uses more manner verbs and Turkish uses more path verbs; and this difference stems from this fact actually. Regarding the path satellite structures, Slobin (2009) had claimed that in S-framed languages such as English, a clause with a single verb can present a series of path elements as in the example “the owl flew down from out of the hole in the tree”. By contrast, in V-framed languages, path satellites are less used as each satellite requires a separate verb and their combinations are difficult. Therefore, S-framed languages tend to use more path satellites than speakers of V-framed languages.

As Slobin (2009), Ferez & Gentner (2006), and Aksu-Koç (1994) had stated before, speakers of S-framed languages tend to use more path satellites than speakers of V-framed languages. And in Turkish, the verb carried the information regarding the source, goal and direction, whereas the manner information may be given through associated adverbs. English speakers were more likely to infer a manner verb than a path verb and Spanish speakers just did the opposite. Satellites accompanying the verb became more frequent in English as a manner language than Spanish as a path language. In other words, English participants included a high number of prepositions in their productions. In other words, path is expressed in the verb by Spanish speakers, but it is encoded on the satellite by English speakers.

As for the subordinate manner structures, the idea was that V-framed languages tended to encode path in the main verb slot, therefore they were more likely to give manner information outside the verb through subordinate manner elements. For this comparison, the descriptions of motion event produced by the participants were grouped as ‘bare manner verb’ (V:M), ‘manner verb plus subordinate manner verb’ (V+V:M) and ‘manner verb plus adverbial manner phrase’ (V:M + Adverbial M). As an example, some of the participants just wrote “ride his horse” as a bare manner verb, while others preferred to write “go in breaking

the window” in which *go* was a manner verb and *breaking* was a subordinate manner phrase. Others tended to produce “climb up the hill on his horse” in which *climb* was a manner verb and *on his horse* was an adverbial manner phrase. The data collected was also grouped as ‘bare path verb’ (V:P), ‘path verb plus subordinate manner verb’ (V:P + Subordinate M) and ‘path verb plus adverbial manner phrase’ (V:P + Adverbial M). For instance, in a response like ‘reach’, there is bare path verb without any subordinate manner structure. However, some of the participants described a motion event using ‘enter the house by breaking” in which *enter* is a path verb while *by breaking* is a subordinate manner verb. Besides, in the example “pass by the lake on his horse”, *pass* is the path verb while *on his horse* is a kind of adverbial manner phrase. The descriptive analyses revealed that the subjects used slightly more subordinate manner verbs and adverbial manner phrases while providing Bilingual Turkish data than providing Bilingual English data, especially due to the fact that they used much more path verbs and chose to encode the manner path using subordinate manner information. As Özçalışkan (2005) claimed, Turkish speakers have the option of conveying manner in a subordinate clause attached to the main path verb, such as *eve koşarak gir* ‘house-to-running-enter’. According to her, both English and Turkish speakers use adverbials (enter rapidly, *hızla gir* ‘rapidly enter’) to express manner outside the verb.

In this study, the translation dimension was also investigated. The aim was to figure out whether Turkish EFL instructors with high English proficiency would be influenced by their L2 while translating an original English story into Turkish, or whether they would just prefer to describe motion events according to the lexical properties or tendencies of Turkish. Translation was an important method in the comparison process of languages in terms of their manner and path verb structures as the direct changes including additions and omissions can be easily analysed through translation process.

Besides, as Slobin (2004) stated, speakers may have certain difficulties in the translation process regarding their different thinking for reading and writing if two languages are typologically different from each other. The analysis showed that the motion verbs grouped in these two different language data were different from each other in terms of path verb usage. This showed that the descriptions of motion events by the Bilingual group in English and Turkish may be different from the Turkish translation of the same words in terms of path verb usage. In order to investigate the reason for this difference, Multiple Comparisons Test (Post Hoc) was used and its results revealed that this difference in terms of path verb usage stemmed from the English and Turkish data as they tended to differentiate from each other in terms of their manner and path verb usages. As Slobin (2009) claimed, when an English manner verb is used with a particle that corresponds to a path verb in a V-language, translators prefer to omit manner and use the appropriate path verb. In the opposite situation, he figured out that English translators generally add manner descriptions while translating events in their own language. Similarly, Slobin & Berman (2004) had explained that V-framed languages were less concerned with the domain of manner of motion than S-framed languages.

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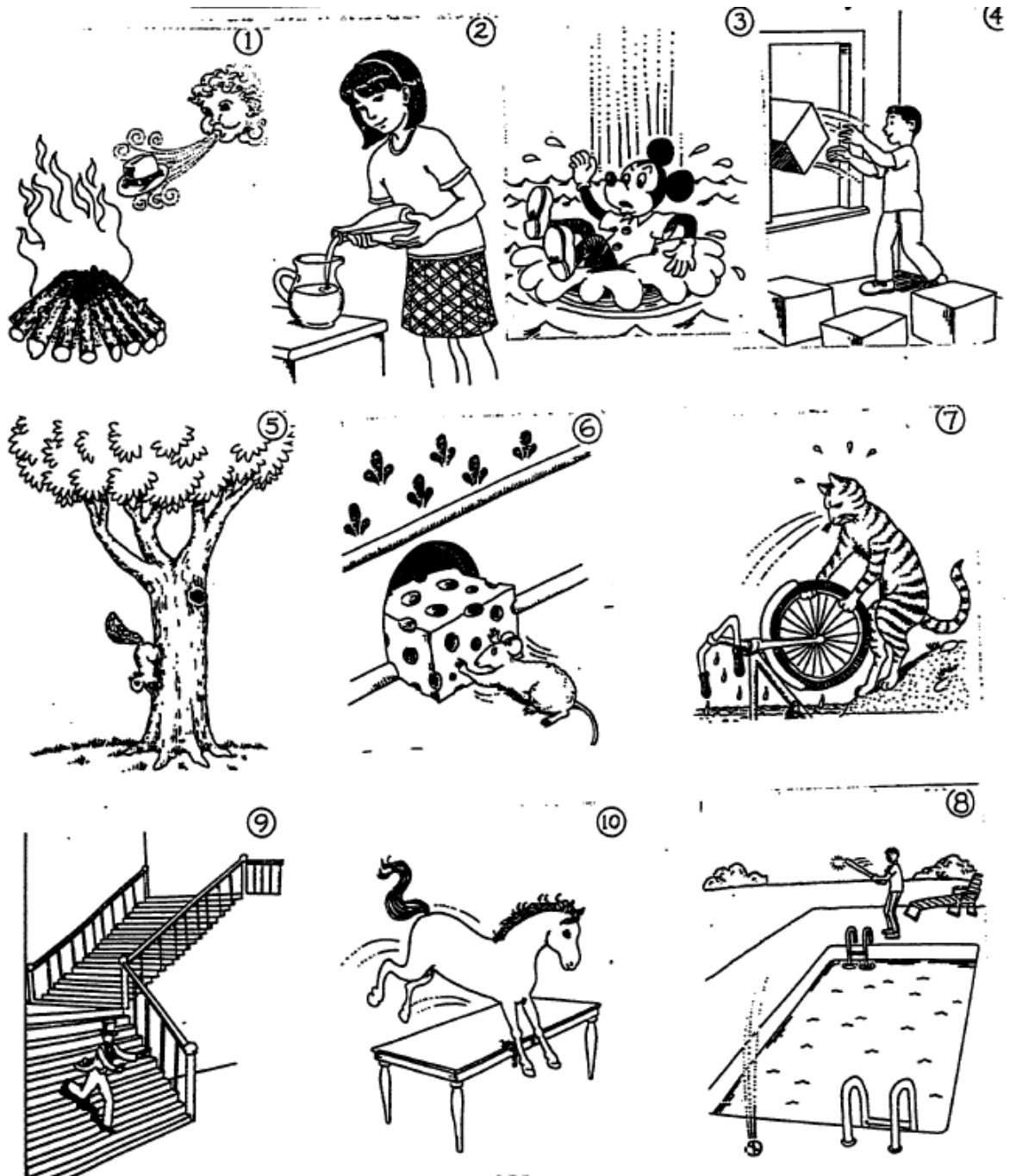
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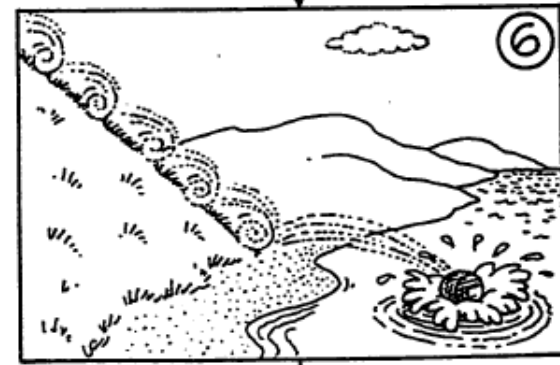
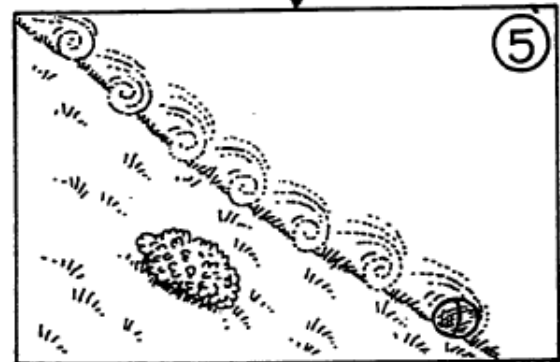
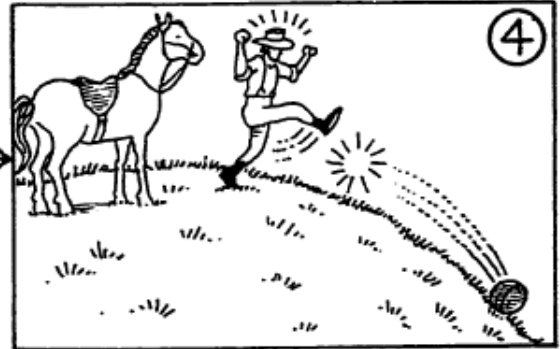
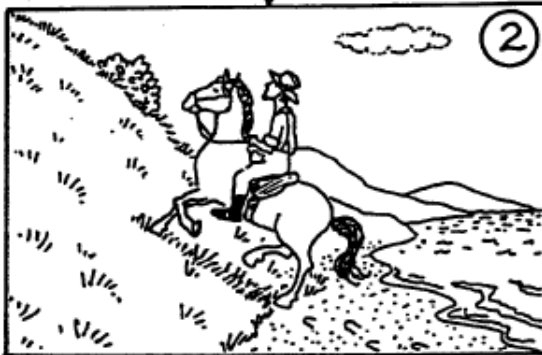
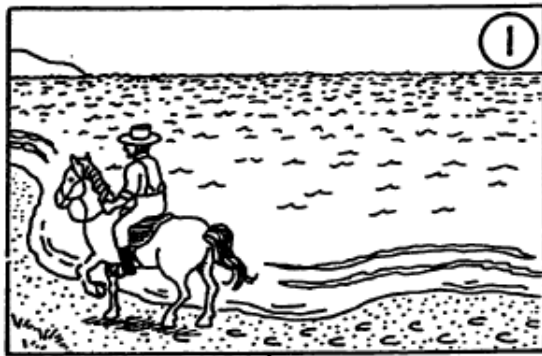
APPENDIX A

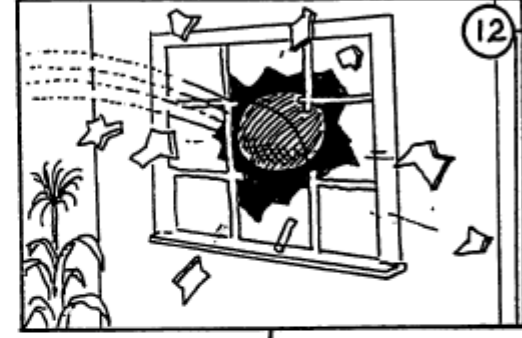
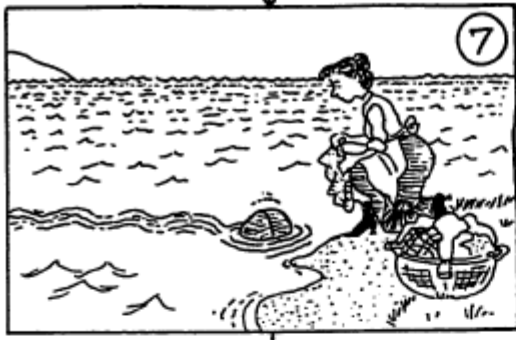
Picture Description Material



APPENDIX B

Narration Material





APPENDIX C

Translation Task

Directions: Please translate the underlined part of the story below into Turkish. Be careful with the action verbs.

Once upon a time there lived a farmer and his wife in a cottage near a lake at the foot of a hill. They had lived there for 30 years, but they had no children. They prayed to God day and night, hoping that He might give them a child. One night, God spoke to the farmer in a dream: “You will have a child tomorrow. The baby will be up on the hill and then down in the lake.”

Early next morning, the farmer said good-bye to his wife and set off for the hill on his horse. He followed the path along the lakeshore and soon started to ride up the hill. When he reached the top, he saw nothing there but a big, round ball. Angry and upset, he kicked the ball down the hillside with all his strength. The ball rolled all the way down the hill into the lake. It so happened that at that time the farmer’s wife was just doing the washing by the lake. The ball floated right up to her feet and she picked it up. To her, the ball looked just like a big baby’s face smiling up at her. After finishing the washing, she started to walk home with the ball in her basket. When she arrived at the cottage, the ball suddenly jumped out of the basket. It flew across the garden and crashed through the window into the cottage. The farmer’s wife ran into the room, where she saw a child was standing by the ball which had now split into two halves. The child shouted to her : “Mom, don’t be afraid. It is me.”

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Sentence Beginnings in Present-Day English, Present-Day Dutch and Old English*

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The main typological difference between Present-Day English on the one hand and Present-Day Dutch and Old English on the other is that the former is an SVO language and the latter two are both verb-second languages. Some synchronic studies of Dutch and English have connected this syntactic difference with differences these languages display in what is allowed as a subject and as a non-subject clause-initial constituent. The aim of the corpus-based pilot study presented in this paper is twofold: (i) to verify whether these differences are really due to the verb-second syntax by looking at a third language that is also verb-second: Old English; (ii) to establish how the differences in preferences are reflected in a corpus.

1. INTRODUCTION

It is a well-known fact that Present-Day Dutch allows fronting of objects to a clause-initial position in the main clause to a greater extent than Present-Day English. This has often been ascribed to the most notable syntactic difference that exists between the two languages: Dutch is an OV-language with verb-second in the main clause, whereas English is SVO. However, it is not only objects that can be fronted in Present-Day Dutch. The clause-initial position in Present-Day Dutch is in fact a multifunctional position. This multifunctionality is connected with the verb-second rule, which entails that the finite verb has to be in second position, but not that the subject has to be in first. Examples (1) through (3)¹ show the variety of clause-initial elements in Present-Day Dutch:

- (1) *Met genoegen kunnen we u meedelen dat uw aanvraag gehonoreerd is.*
With pleasure can we you inform that your application honoured is.
'It is with pleasure that we can inform you that your application has been honoured.'
(Los 2009)

- (2) *Op de Noordpool is het misschien te koud, maar op Kreta sterf ik van de hitte.*
On the North Pole is it perhaps too cold, but **on Crete** die I of the heat.
'It is perhaps too cold at the North Pole, but I will die of the heat on Crete.'
Or (more colloquially): 'The North Pole is perhaps too cold, but Crete I find far too hot.'

* We would like to thank Erwin Komen, Bettelou Los, Ans van Kemenade, the participants of the CamLing 2010 and Lysebu 2011 symposia and the participants of the Nijmegen CLS Colloquium for their valuable input and comments. We would also like to acknowledge the support of the Netherlands Organization for Scientific Research (NWO), grant 360-70-370.

¹ Unless a source is given, the examples in this paper are our own, based on our knowledge of Dutch and English.

- (3) *Dat is onze oom. Hij nam ons altijd mee naar de boerderij.*
That is our uncle. **He** took us always with to the farm.
 ‘That is our uncle. He always took us with him to the farm’

The first constituent can be discourse-new, such as the PP *met genoeg* in Example (1), but it can also be contrastive, such as the PPs *op de Noordpool* and *op Kreta* in Example (2), or discourse-old — or given — such as the demonstrative *dat* and the personal pronoun *hij* in Example (3). Moreover, non-subjects as well as subjects occur freely in clause-initial position. The English translations of these Dutch examples show that given information (as in Example (3)) can easily occur clause-initially in Dutch as well as in English, and that contrastive information (as in Example (2)) can, albeit somewhat less easily, be translated into English without having to abandon clause-initial position. Neutral non-subjects (as in Example (1)), on the other hand, are not able to take up clause-initial position in English, whereas their Dutch counterparts do.

However, this restriction concerning the clause-initial element has not always been present in English. Old English — the language spoken in England roughly from the fifth century through the mid-twelfth century — resembles Present-Day Dutch more than it resembles Present-Day English in terms of word order, and therefore displays a range of options for the pre-subject position that is not unlike the range of options that exists in Present-Day Dutch. Most notably, Old English is able to start a sentence more or less neutrally with a non-subject, as in Examples (4) and (5):

- (4) *Him geaf ða se cyngc twa hund gildenra pænega.*
Him gave then the king two hundred golden pennies.
 ‘The king then gave him two hundred golden pennies.’ (coapollo,ApT: 51.20.576)²
- (5) *Be þære he gestrynde ðry suna Her & Onam & Sela.*
By that he begot three sons Er & Onan & Shelah.
 ‘He had three sons with her: Er, Onan and Shelah.’ (cogenesiC,Gen_[Ker]: 38.3.83)

These non-subject clause-initial elements — which will be referred to as first constituents throughout the rest of this paper — in Old English and Present-Day Dutch are often adverbial discourse linkers which connect the sentence they appear in to the preceding discourse, as indeed is the case for the clause-initial PP *be þære* (‘by that one’) in Example (5). This similarity between Old English and Present-Day Dutch may very well be due to the fact that they have the verb-second rule in common, which does not only have syntactic consequences, but also, as we will see, information structural. Two rules for movement — one dictating that the verb should move to second position and the other allowing any sentence element to be fronted — yield verb-second word order in the main clause (Los 2009). The syntactic shift that the loss of verb-second during the late Middle English and early Modern English periods entailed may then have had influence on — or may even have been influenced by — the shift in options for the first constituent. Based on the synchronic differences between Present-Day English and Present-Day Dutch, and the similarities between Old English and Present-Day Dutch, we expect that the diachronic differences between Old English and Present-Day English concerning the first constituent and the subject show a similar development: that from a versatile first constituent to a less versatile first constituent.

Section 2 will look in more detail at the verb-second constraint and its relation with information structure, which connects Old English and Present-Day Dutch. Section 3 will look at the differences in preferences for sentence beginnings between Present-Day Dutch and

² All Old English examples are taken from the York-Toronto-Helsinki Parsed Corpus of Old English Prose (YCOE).

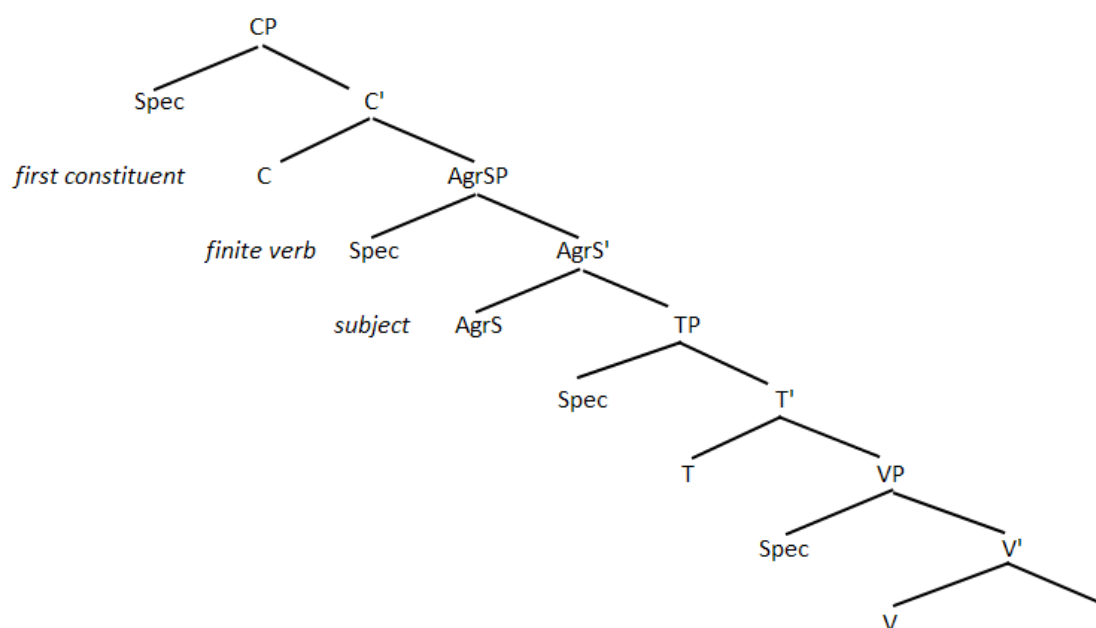
Present-Day English, with special attention to the subject in the three languages. Section 4 will contain the results of a corpus-based pilot study which aims to establish whether the differences between Old English and Present-Day English are indeed similar to those between Present-Day Dutch and Present-Day English and can therefore perhaps be connected to the loss of the verb-second constraint in English. Finally, a conclusion will be presented in Section 5.

2. SYNTAX AND INFORMATION STRUCTURE IN PRESENT-DAY DUTCH AND OLD ENGLISH

The last few years have witnessed a new perspective on the verb-second constraint, which has for a long time been considered a purely syntactic phenomenon. This new approach is based on the information structural notions of given and new, focus and background, topic and comment, or theme and rheme, which were introduced in a basic form under the term Functional Sentence Perspective by the Prague School in the 1970s (e.g. Daneš 1974). The main idea of given and new information (whether it be discourse-old or new or hearer-old or new) is that a universal preference exists for a particular information ordering, namely that of given before new. This preferred order of information dictates the sentence position of elements with a certain information structural status — i.e. given or new — and therefore interacts with the syntax of a sentence, and although it has for a long time been considered not to be part of syntax proper, recent generative analyses of language variation and change in general and verb-second in particular tend to incorporate information structural notions.

Following studies on verb-second that combine syntax and information structure, such as Van Kemenade & Westergaard (forthcoming), Hinterhölzl & Petrova (2010) and Los (2009), we assume that there is an interface between verb-second and information structure. We assume the standard analysis of verb-second clauses, first proposed by Koster (1975) and later modified by Vikner (1995), in which the first constituent occurs in SpecCP, the finite verb moves to C, and subjects occur in SpecAgrSP.

(Figure 1)

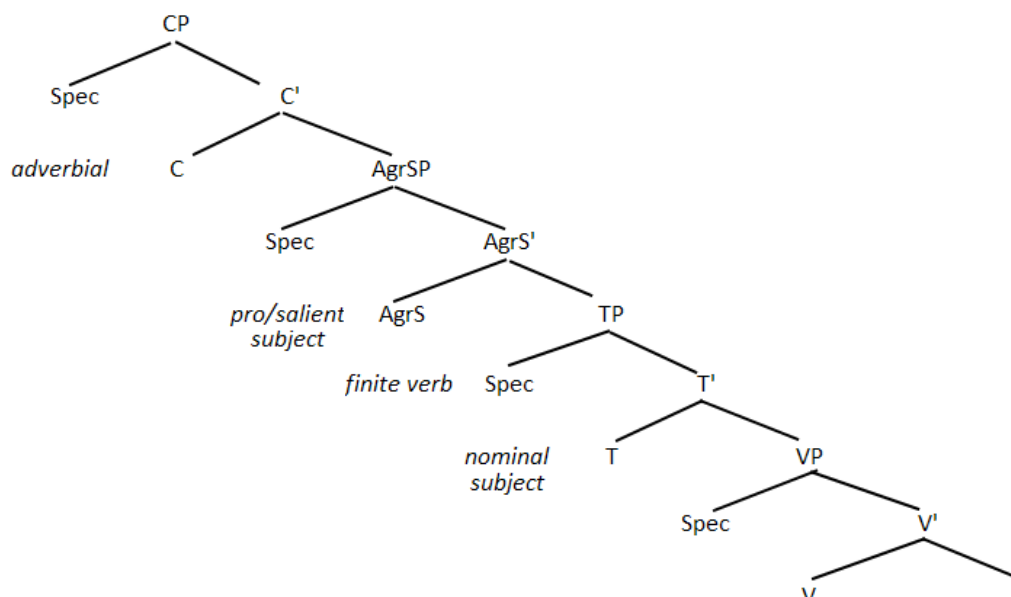


Present-Day Dutch belongs to the category which Biberauer (2002) dubs ‘well behaved’ verb-second languages; that is: languages in which the finite verb always occurs in second — i.e.

never in third — position in the main clause, but never in the subclause, provided that the subclause is headed by an overt complementiser (cf. Zwart 1997).

It is important to note, however, that Old English had its own version of verb-second, which distinguished between a pre- and a post-verbal subject position, as first demonstrated by Van Kemenade (1987) and later formalised by Pintzuk (1999), Haeberli (2002) and Van Kemenade & Westergaard (forthcoming). The structure given in Figure 1, with the subject postverbally in SpecAgrSP, occurs when the first constituent is an operator, a negative such as *ne* or *na*, or a discourse adverb such as *þa* or *þonne*. When the first constituent is an adverbial, however, the verb only moves as far as the head AgrS, and the subject occurs either in SpecAgrSP as before, but now crucially preverbally; or the subject occurs postverbally in SpecTP. This distinction is ruled by the information structural status of the subject (as demonstrated by Van Kemenade, Milicev and Baayen 2008): non-salient nominal subjects occur in the lower position, while pronominal and salient nominal subject occur in the higher position, giving rise not to a verb-second but to a verb-third environment. The tree structure in Figure 2 illustrates the two subject positions with the verb in AgrS:

(Figure 2)



Examples (6) and (7) show the difference in subject position between given and non-given subjects.

- (6) *Æfter þysum dædum hi þancodon Drihtne.*
 After these deeds they thanked Lord.
 ‘After these deeds, they thanked the Lord.’ (coelive,ÆLS_[Maccabees]:504.5170)
- (7) *On þam ylcan timan com eac sum bisceop fram Rome byrig.*
 In that same time came also some bishop from Rome city.
 ‘Around the same time, a bishop from Rome also came.’ (coelive,ÆLS_[Oswald]:119.5450)

Both sentences have an adverbial in first position, with Example (6) showing the given pronominal subject *hi* occurring preverbally, whereas Example (7) has the verb in second position, followed by the new nominal subject *sum bisceop*.

Following Los (2009), we take the most important consequence of having a verb-second system to be the availability of two positions for given material in the left periphery: the presubject first position, where adverbials and other non-subject discourse linkers such as

the PP in Example (5) can be found, and the subject position itself, which is either pre- or postverbal, and generally hosts the protagonist or the aboutness topic. Present-Day English, on the other hand, still has a presubject position available, which makes the Present-Day English translation of Example (7) possible. However, it is not only the syntactic status of this position that is different — it possibly has an extra-clausal status — but also the differences in use, which we claim are due to information structural restrictions. The loss of verb-second in English, then, is more than a purely syntactic ‘falling off of frequencies’ and ‘entailed the loss of this special position’ (Los 2009: 104). Section 3 illustrates how it is not just the first constituent that is affected by the changes in the left periphery. Rather, the changing use of this first position had consequences for the use of the subject.

3. PREFERENCES FOR SENTENCE BEGINNINGS IN PRESENT-DAY DUTCH AND PRESENT-DAY ENGLISH

The non-subject clause-initial constituent is used relatively infrequently in Present-Day English, and when it is used, it is marked and closely associated with contrast, as in the colloquial English translation of Example (2). Likewise, Examples (8)(a) and (9)(a) are far less likely to occur than their Present-Day Dutch counterparts in (b); Dutch learners of English are in fact warned against using them.

- (8) a. *With these words he said goodbye.*
 b. *Met deze woorden nam hij afscheid.*
- (9) a. *In the latest Beowulf movie we witness what happens to Beowulf after Grendel dies.*
 b. *In de laatste Beowulf film zien we wat er met Beowulf gebeurt nadat Grendel sterft.*

We claimed in Section 1 that the difference between Present-Day English and Present-Day Dutch illustrated by Examples (8) and (9) has to do with the fact that verb-second languages such as Dutch have the propensity to employ the first constituent — which obviously occurs in the preverbal domain, and is therefore, as is suggested in Section 2, associated with givenness — as a link to the *immediately* preceding discourse. This linking of an utterance to the immediately preceding discourse by means of the first constituent — most notably in the form of an adverbial phrase which often also contains a demonstrative or possessive pronoun — is termed local anchoring by Los & Dreschler (forthcoming), who claim that the possibility for local anchoring disappeared from the English language along with verb-second.

As subject prominence is a crucial difference between Present-Day English as an SVO language and Present-Day Dutch as a verb-second language, a picture of sentence beginnings cannot be painted without involving the subject. As Los & Dreschler point out, the subject in a verb-second language is more stable than the subject in an SVO language such as Present-Day English; verb-second subjects are usually reserved for the protagonist of the discourse, which would entail frequent occurrence of personal pronouns as the subject or ellipsis of the subject. This is indeed what Los & Dreschler find for Old English. Present-Day English subjects, on the other hand, are much more variable throughout the discourse, and can express the protagonist or any other discourse entity. This freedom in subject choice is clearly visible in Present-Day English. Where in Present-Day Dutch a locally anchoring first constituent in the form of a PP would occur, Present-Day English uses subjects that would never occur in Dutch. Examples (10) through (12) show subjects that are typical for Present-Day English in (a), and their infrequently used or even downright ungrammatical Present-Day Dutch counterparts in (b):

- (10) a. *This advertisement will sell us a lot.*
 b. **Deze advertentie zal (ons) veel verkopen.*

- (11) a. *The latest edition of the book has dropped a chapter.*
b. **De laatste editie van het boek heeft een hoofdstuk laten vallen.*
- (12) a. *The last few years have witnessed a new perspective on the verb-second constraint.*
b. *?De afgelopen jaren zagen (de opkomst van) een nieuw perspectief op de verb-second regel.*

Present-Day Dutch resists the use of subjects as the ones in the examples above; psycholinguistic research has shown that speakers of verb-second languages such as Present-Day Dutch resist the use of inanimate, non-agentive subjects, whereas these kinds of subjects are no problem at all for speakers of Present-Day English (e.g. Carroll & Lambert 2003).

Two aspects, then, can be distinguished concerning the differences in sentence beginnings between Present-Day English on the one hand and Present-Day Dutch and Old English on the other hand; the first one has to do with the versatility of the subject, and the second one, which is perhaps more noticeable, has to do with the first constituent and its function as a so-called local anchor. The pilot study presented in Section 4 will focus on the second aspect; that of the first constituent.

4. CORPUS-BASED PILOT STUDY

4.1. Hypotheses

Considering the similarities between Old English and Present-Day Dutch, we expect that the differences between Old English and Present-Day English resemble those between Present-Day Dutch and Present-Day English, and hypothesise that verb-second is a key factor in this. More precisely, we expect that the role of the subject and first constituent changed in such a way that the first constituent moved from a position for creating unmarked discourse links to a situation in Present-Day English where its use is very much restricted; and we hypothesise that the subject went from only an expresser of the protagonist to a multifunctional position, expressing both the protagonist, as well as any other actors, and, most crucially, it took over the function of creating unmarked discourse links from the first constituent. Consequently, the number of first constituents diminished, whereas the number of subjects in first position increased. This theory translates into two concrete hypotheses. They are:

- (1) Old English and Present-Day Dutch will display a lower percentage of subject-initial clauses, because the first position will often be filled by a first constituent.
- (2) Old English and Present-Day Dutch will display a wider range of options for the first constituent, reflecting the versatility of this first position.

4.2. Corpus

The corpus used for this pilot study consisted of a selection of main clauses from three Old English texts (the tenth-century *Story of Cædmon*, the eleventh-century *Life of St Æthelthryth* and the twelfth-century *Seinte Marherete, the Meiden ant Martyr in Old English*), two Present-Day Dutch texts (*Politicus uit Hartstocht: Biografie van Pieter Jelles Troelstra* from 2010 and *Vestdijk, een biografie* from 2005) and two Present-Day English texts (*Elizabeth Gaskell* from 1995 and *Jacques Derrida: A Biography* from 2006). Saints' lives were chosen for two reasons: they constitute a well-attested genre in the surviving corpus of Old English and they are coherent stories that would lend themselves well for local anchoring. Biographies were chosen as a modern genre because they seemed to be closest to saints' lives in terms of

content and style. Table 1 contains an overview of the number of main clauses selected for each language:

(Table 1) *Number of main clauses selected for each language*

	OLD ENGLISH	PRESENT-DAY DUTCH	PRESENT-DAY ENGLISH
No. of main clauses	247	173	151

Two sections containing a short narrative, of two different chapters in each Present-Day Dutch and Present-Day English biography were selected. The same selection method was applied to the Old English text *Seinte Marherete*. The other two Old English saints' lives — *Cædmon* and *Æthelthryth* — were selected in their entirety because of their limited length. The three Old English texts each stem from a different century so as to ensure representativeness, which explains the higher number of clauses for OE.

4.3. Results

As for the use of the first constituent, as reflected in the number of subject-initial clauses, Present-Day Dutch and Old English behave differently from Present-Day English, as shown in Table 2:

(Table 2) *Frequencies and percentages of clause-initial elements for each language*

	PRESENT-DAY ENGLISH	PRESENT-DAY DUTCH	OLD ENGLISH
Subject	77% (117)	54% (94)	61% (150)
First constituent	23% (34)	46% (79)	39% (79)
Total	100% (151)	100% (173)	100% (247)

Just over three quarters of the selected clauses in Present-Day English are subject-initial, whereas that percentage is much lower in Present-Day Dutch, which has only just over half of the clauses starting with a subject. Old English has a lower percentage than Present-Day English - a difference of 16% - but the percentage of subject-initial clauses is still higher than in Present-Day Dutch, with 7%. Nevertheless, the results for the clause-initial elements are statistically significant on a $p < .05$ level. This supports the findings of Los & Dreschler (forthcoming), but it also suggests that although Dutch and Old English are closer, they are not completely similar.

Table 3 shows the largest categories of first constituents in Present-Day English:

(Table 3) *Frequencies of first constituent categories in Present-Day English*

Time adverbial	13
Non-finite clause	8
Clause	4
Place adverbial	4
Other	5
Total number of first constituents	34

Time adverbials are most frequent in the Present-Day English texts, with clauses (both non-finite and finite) following. Example (13)(a) shows one of the few instances in which there is some kind of link in a remnant verb-second environment. Example (13)(b) shows how, in some cases, it is possible to have a discourse link in the first position, with *these experiences* linking back to the previous sentence.

- (13) a. *The theme of conflicting senses of identity is prominent in her fiction. So, too, is her manipulation of the tension which arises when individuals are subjected to rival demands.*
 b. *After these experiences, schools and colleges always gave him an unpleasant feeling.*

These examples, however, are exceptional in the corpus.

Present-Day Dutch shows a rather different ranking when it comes to the most common types of first constituents. As Table 4 shows, the largest category is that of fronted elements:

(Table 4) *Frequencies of first constituents in Present-Day Dutch*

Fronted element (argument/adjunct)	22
Time adverbial	19
Place adverbial	13
'd-word'	7
Other	18
Total number of first constituents	79

The examples show that almost anything can be fronted, whether it is an argument, and adjunct, discourse-new or discourse-old, as witnessed by the clause-initial heavy object in Example (14)(a) and the clause-initial PP in example (14)(b):

- (14) a. *Wat hij als 'uitzonderlijk' zag of beleefde noteerde Vestdijk in zijn aantekeningenschriftjes.*
 What he as 'exceptional' saw or experienced wrote down Vestdijk in his notebooks.
 'Vestdijk wrote down in his notebooks what he saw or experienced as "exceptional".'
- b. *Aan het proefschrift waren twintig stellingen toegevoegd.*
 To the dissertation were twenty statements added.
 'Twenty statements were added to the dissertation.'

Another remarkable category, and one which was not found in the Present-Day English corpus, is that of d-words, or discourse-words. These pronominal adverbs, of which *daarmee* in Example (15) is an example, occur in first position and directly link to the previous discourse. They are the most overt type of local anchors.

- (15) *Daarmee wordt de buitenstaander deelgenoot en medeverantwoordelijk voor het lot van de ander(en).*
 With that the outsider becomes part of and partly responsible for the fate of the other(s).
 'This causes the outsider to be part of and partly responsible for the fate of the other(s).'

As in Present-Day English, time and place adverbials are quite common in Present-Day Dutch first position as well.

The data for Old English show a different picture altogether, as shown in Table 5:

(Table 5) *Frequencies of first constituents in Old English*

Time adverbial	44
'd-word'	17
Verb	16
Place adverbial	7
Fronted element (argument/adjunct)	4
Other	7
Total number of non-subject initials	95

Time adverbials are the most common elements in first position. Like Present-Day Dutch, Old English has a rather large category of d-words. It also has a number of sentences with fronted elements, as in Example (16)(a), although this number is much smaller than in Present-Day Dutch. A special category is the verb-first sentences, which do not occur in either PDE or PDD, as in (16)(b).

- (16) a. *Be hire is awryten þæt heo wel drohtnode to anum mæle fæstende.*
 About her is written that she well lived to one meal fasting
 'It is written (about her) that she lived comfortably on one meal fasting'
- b. *Wæs eac wundorlic þæt seo ðruh wæs geworht þurh Godes foresceawunge hire swa gemæte.*
 Was also miraculous that the coffin was made through God's providence her so suitably
 'It was also miraculous that the coffin was made so suitable for her through God's providence'

As Calle-Martín and Miranda-García point out, these verb-first main clauses occur quite frequently in Old English, but they are also heavily dependent on authorial preference. Moreover, the frequencies of verb-first clauses decline when verb-second becomes more stable in the late Old English period. Verb-first was in all likelihood a stylistic device that was freely employed by some authors, but not by all. Finally, like in Present-Day English and Present-Day Dutch, place adverbials form a large category.

In summary, Old English is closer to Present-Day Dutch than it is to Present-Day English when it comes to the number of subject-initial clauses. Present-Day English main clauses often start with a non-finite clause; a phenomenon that is far less common in both Present-Day Dutch and Old English. On the other hand, Old English and Present-Day Dutch frequently use fronted elements and d-words, which in turn is uncommon in Present-Day Dutch. Two categories seemed frequent, and thus stable in all three languages, namely place and — especially — time adverbials. This may seem surprising because of the restrictions on the Present-Day English non-subject clause-initial constituent, but it is not: time adverbials such as *then* are perfectly acceptable as a clause-initial element in Present-Day English, even if it is not used as frequently as in verb-second languages. The difference between clause-initial *then* in Present-Day English and clause-initial *then* in verb-second languages lies in the point of reference of the temporal adverbial — i.e. whether the event that precedes *then* is completed or not (Carroll & Lambert 2005). All in all, it is clear that Old English behaves different from Present-Day English, but we cannot say that it is entirely similar to Present-Day Dutch. Further research should point out whether this is due to the differences in verb-second between Present-Day Dutch and Old English.

5. CONCLUSIONS AND DISCUSSION

Verb-second languages such as Present-Day Dutch and Old English and SVO languages such as Present-Day English do not only differ from a syntactic viewpoint; although it is a well-known fact that verb-second syntax allows free use of non-subject clause-initial elements, it is not only the possible occurrence of these elements, but also their nature that makes them interesting. The first constituent in verb-second languages is the domain *par excellence* for given information, and it is used as a local anchor, referring back to the immediately preceding discourse. It seems, then, that verb-second is not only a grammatical phenomenon, but it has broader consequences for organising the discourse.

The results of the pilot study presented in this paper show that there are certain similarities between the three languages. The most notable similarity is the occurrence of clause-initial temporal adverbials, which is — as we explained in Section 4 — not surprising. However, the majority of the data indicates that Old English and Present-Day Dutch group together in their use of the first constituent: they use the first constituent more often than Present-Day English does, and they use a comparable range of elements as first constituents. D(iscourse)-words — the first constituents that are most suitable as local anchors — occur in Present-Day Dutch and Old English, but not in Present-Day English. This indicates that local anchoring is indeed typical of verb-second languages.

Nevertheless, Old English and Present-Day Dutch are not completely similar: aside from the rather frequent occurrence of verb-initial main clauses in Old English and the absence of these verb-initial clauses in Present-Day Dutch, Old English employs significantly more time adverbials and d-words and significantly fewer fronted elements and place adverbials than Present-Day Dutch does. It is at this point unclear whether these differences can be attributed to the fact that Old English has another version of verb-second than Present-Day Dutch does, seeing as the difference between these versions of verb-second mostly revolves around the possibility of the occurrence of verb-third in Old English, which does not exist in Present-Day Dutch. A closer examination of Old English data on a larger scale might lead to a better understanding of these differences.

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Code-Choice between English and Cypriot Greek Bilingual Compound Verbs Κάμνω erase (I do erase) instead of διαγράφω (I erase)*

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Greek Cypriots are “reported by contributors to the press to freely use English loans and those competent enough in the language to code-switch” (Karyolemou 1994: 257). Most studies addressing this issue “are not based on actual data or extensive sociolinguistic research” (Goutsos 2005: 187). The data of this study come from natural speech recordings collected in Cyprus and the UK from December 2008 till December 2011, enriched by non recorded speech collected through participant observation (Dayton 1996). This paper focuses on one particular construction which is present in the data: Bilingual Compound verbs (BCVs). Two questions arise in relation to these constructions. Firstly, how can we analyze them syntactically when in many cases the English lexical item that accompanies the verb *kamno* (= do) is also a verb? The discussion is constructed based on Moravcsik’s (1975), Muysken’s (2000) and Wohlgemuth’s (2009) analysis of BCVs. Secondly, why do BCVs exist at all since there are other mechanisms to incorporate foreign lexical items into CG? Some answers are suggested towards the end of this paper; however, they can only be applied to some of the BCVs present in the data.

1. INTRODUCTION

One topic that has been discussed extensively during the last decades is the influence of the English language in Cyprus¹, both at the state and at the personal level. While the state level measures have been taken to reduce the power and use of the English language, at the personal level not much can be accomplished. Thus, it is very common for scholars and non-scholars to comment upon the admixture² of English into Cypriot Greek (henceforth CG). Reports that Greek Cypriots code switch in English and freely use English loans are regularly present in the media (Karyolemou 1994: 257). The same author notes in a more recent article that the English language “very often sneaks into the vernacular either as a loan or as code switching. Its presence in certain spheres makes up a distinctive linguistic context” (my translation, <http://abnet.agrino.org/htmls/D/D005.html>). Some people interpret this domination as deeply harmful, as a warning of a construction of an ‘Anglo-Cypriot idioma’ and the dissolution of national identity (2004: 82). Others believe that factors contributing to

* I am particularly grateful to Peter L. Patrick for his supervision and support for this particular paper and generally for my PhD thesis. I would also like thank all the people who were willingly recorded for the purposes of data collection and all my friends and family who helped in finding the participants.

¹ Cypriot Greek is the everyday linguistic variety of Greek Cypriots. It is widely known and accepted as the Cypriot Greek dialect. For the purposes of this paper, I will refrain from making the distinction between language and dialect and plainly refer to it as Cypriot Greek (CG). In the vast majority of cases, “Greek Cypriots use CG during their daily activities and code-switch into SMG in certain situations (Papapavlou and Pavlou 2005: 16). See Tsiplakou (2007) and Arvaniti (2006) for recent works on this issue.

² For the purposes of this paper I will not make the distinction between code-switching and code-mixing.

the wide use of English Greek” along with “the difficulty Cypriot Greeks experience in defining a satisfactory identity (cultural or ethnic), due to the fact that, although they are Greek, they constitute a political entity separate from the Greek state” (Karyolemou 1994: 257). A more positive view sees the number of English loans in CG not big enough to “alter the ‘Greek’ character of the Cypriot dialect” (Papapavlou 2005:153).

2. ENGLISH IN CYPRUS

Cyprus was under British rule from 1878 until 1960. After independence English was used in areas in which the official languages – Standard Modern Greek (henceforth SMG) and Standard Turkish – should have been used, for example in the judicial system. Since the mid-1980s legal measures have been applied to safeguard the Greek language in Cyprus (Karyolemou 2005: 28) and replace English with SMG; for example the use of English finally ceased in the courts of Cyprus in 1989 (ibid.: 38).

However, English shares a strong position in the linguistic repertoire of Greek Cypriot speakers. Children learn English as a second language from the very young age of six and, apart from the secondary-level private schools, there are now English-based elementary and nursery schools on the island. Moreover, UK universities are a favourite choice for many Greek Cypriots. Also, the majority of occupations require *at least* basic knowledge of English; this is partly due to the character of the Cypriot economy which is mostly based on tourism and services (ibid.:33). Finally, knowledge of English is needed in everyday interaction with the foreigners working on the island in places like cafes and even in the houses where foreign housekeepers are employed.

3. METHODOLOGY

The data discussed in this paper are part of a larger project placed within the background of research on admixture of English in CG during everyday activities of Greek Cypriots (Fotiou forthcoming). The definition that best describes code-mixing in Cyprus is “[t]he phenomenon where pieces of one language are used while the speaker is basically using another language” (Fasold 1984:180). An example from the data:

- (1) **No way.** Ξέχασ’το όχι διότι μια δουλειά μπορεί να μεν ευχαριστήσει κάποιον αλλά άμαν μπεις σε τούτα τα γραναζια γίνεσαι **you become one of them**
No way. Forget it because a job may not please someone but when you enter into this system you become you become one of them

In this paper, data from ten recordings of naturally occurring conversations which last approximately 505 minutes in total are used in this paper. Seven were recorded in Cyprus and three in the UK from Greek Cypriot students temporarily living there. The participants are fourteen women and thirteen men aged between thirteen and twenty-six years old. I used the “friend of a friend” approach to find participants and the recordings were not in any way guided.

I am also using non-recorded data which I have obtained through participant observation. This is a method suggested by Rickford (1975) and used by Baugh (1983) and Dayton (1996). This means that whenever it is possible and I hear someone using an English word or a phrase, I write it down along with a few words about the context. For a discussion on both the advantages and disadvantages of this method see Dayton (1996).

4. BILINGUAL COMPOUND VERBS

This paper focuses on a particular construction: bilingual compound verbs (BCVs). Many scholars have discussed and analysed such constructions (Moravcsik 1975; Muysken 2000; Myers-Scotton 2002; Edwards and Gardner-Chloros 2007; Wohlgemuth 2009)³. BCVs consist of a light or helping verb, usually translated as “do” or “make” and a lexical item which gives the semantic content of the construction:

Tamil-English data

(Annamalai 1989: 50; cf. Muysken 2000)

- (2) Avan enne confuse –pannittan
 He me confuse did
He confused me

Scholars argue that “[t]his construction knows no typological or geographic limits” (Myers-Scotton 2002: 35) and “may constitute a universal of CS” (Edwards & Gardner-Chloros 2007:74). Most of the cases reported in the literature come from immigration settings. As far as the Greek⁴-English language pair is concerned, there are also many cases of compound verbs reported worldwide, for example:

- (3) Greek-American English (Seaman 1972)
 (4) Greek- Australian English (Tamis 1986)
 (5) Greek- Canadian English (Maniakas 1991)
 (6) Cypriot Greek- British English (Gardner-Chloros 1992; Edwards and Gardner-Chloros 2007)

The following examples come from the study of Zarpetta (1995) of Greek Cypriots in London (Harringey). As it seems verbs, participles, gerunds and nouns are used in conjunction with the helping verb and this is actually the case in all the studies reported in the literature which involve the Greek language.

- (7) Kámno use
 do-1sg use
 to use
 (8) Kámno developed
 do-1sg developed
 to *develop*
 (9) Kámno spelling
 do-1sg spelling
 to *spell*

³ These constructions are not always referred to as Bilingual Compound verbs. Myers-Scotton (2002:134) refers to them as the *do construction* while Wohlgemuth (2009) refers to them as the *Light Verb Strategy*.

⁴ Wherever I use the term Greek language I intend it to be an umbrella term which includes both SMG and CG.

5. WHAT MAKES THE PRESENT STUDY DIFFERENT FROM RELATED STUDIES OF BCVs?

Cyprus does not constitute an immigration setting or a language contact situation where there are native speakers of two languages. English is, for the majority, the second language of Greek Cypriots, acquired through second language acquisition. The use of BCVs is not necessary or justified since the Greek verb can easily be used instead. Limited knowledge of Greek does not explain the use of such constructions by Greek Cypriots by any means.

6. VERB COMPOUNDS IN THE GREEK LANGUAGE

By examining the nature of the verb compounds in the Greek language per se we can observe if BVCs involving the Greek language follow the same pattern as native ones or if they present innovations.

Both SMG and CG have native compounds with *káno/kámno*, such as *káno/kámno psonia* (do shopping) and *káno/kámno gimnastiki* (do gymnastics). There are also a number of borrowings in the form of bilingual compound verbs, such as *káno jogging* (do jogging) and *káno zapping* (I zap) (Edwards and Gardner-Chloros 2007:77), *káno surfing*, *káno camping* (Apostolou Panara 1991: 50). The second element of the compound is always the direct object of *káno/kámno*, and therefore a noun. Thus, *do (káno/kámno)* is only combined with Greek nouns or English gerunds which are borrowings in native Greek; “[n]either English nor Greek provides a model for the double verbal formation attested in CS” (Gardner-Chloros 1995: 78) which is evidently present in the data from Greek in the immigration settings discussed before.

In the following sections I discuss some problems that arise with BCVs.

7. SYNTACTIC CONSIDERATIONS

BCVs have been widely discussed in the code-switching literature (Moravcsik 1975, Romaine 1985, Muysken 2000, Myers-Scotton 2002, Edwards & Gardner-Chloros 2007, Wohlgemuth 2009). The main concern of these authors is the nature of the lexical item that accompanies the light verb, and the problematic cases are those in which the accompanying element of the light verb *do* seems to be another verb. One scholar whose discussion and analysis on the role of the verb in language contact phenomena has been very influential is Edith Moravcsik (1975, 1978). In her work *Verb Borrowing* (1975) she claims that:

(10) “There is a cross-linguistically recurrent **restriction** on the range of borrowed objects from the point of view of their syntactic classification. The restriction is that the class of borrowed constituents in a language does not include lexically homolingual constituents that are verbs in both languages – constituents, that is, that share *both meaning and phonetic form* with (or are similar in both meaning and phonetic form to) a verb in the source language and which are themselves characterized by the grammar of the borrowing language as verbal constituents whose sub-constituents are all foreign. The more specific positive claim to be advanced is that borrowed verbs, by internal syntactic composition, are (at least) bimorphemic and that they are bilingual, consisting of a generic verb constituent whose form is indigenous, *and of a more specific nominal constituent whose phonetic form corresponds, by identity or similarity, to the phonetic form of the source verb.*” (4)

Moravcsik claims that verbs cannot be borrowed **as verbs** in the recipient language but “are borrowed as nouns instead which then require some sort of (re)verbalization in order to function as regular verbs in the recipient languages” (Wohlgemuth 2009: 279).

Moravcsik uses BCVs as evidence for her claim since they are formed “from an indigenous verb form meaning ‘do’ (...) and a source verb, the shared form here being all of the form of the source verb *but the shared meaning being only the specific nominal part of the meaning of the source verb*” (1975: 7-8, my emphasis).

She specifically claims that this applies to verb borrowing in American Greek. She bases her argument partly on the fact that in native Greek in similar constructions the complement of the verb *káno* is a noun:

- (11) O Pétros káni mia prosforá
Peter makes a remark

Thus according to her, in the following example taken from my data:

- (12) Pu tóte tha mporúsan na to kámun diagnose as púme;
Since then they could **do it diagnose** let's say?

“diagnose” is taken into the construction NOT as a verb but as a nominal.

However, Moravcsik uses semantic terms to explain her argument which concerns the syntax of the lexical item. She does not explain why a “nominal part” of a verb gets to be borrowed, and what is so special or wrong with verbs that they cannot be borrowed as such. As Muysken (2000: 197) argues “[w]hile inserting verbs as such may well be problematic for both morphological and syntactic reasons, there is nothing in universal grammar that forces the way they are inserted to be nominal.” In fact, in his study⁵, Wohlgemuth (2009) demonstrates that verbs do get borrowed as verbs.

If Moravcsik’s argument is false and verbs can be borrowed as verbs, the problem of the nature of the lexical item in BCV constructions remains unsolved. Her argument was offering at least a convenient solution to the problem since, in syntactic terms, having a nominal next to the (light or helping) verb makes more sense than actually having another verb (which is not in an infinitive form).

Moving on to the study of Wohlgemuth (2009), he discusses four main borrowing strategies. To begin with, there is what he calls *direct insertion* in which “the borrowed verb is immediately available for the grammar of the recipient language without any morphological or syntactic adaptation whatsoever being necessary to render the replica equivalent to a native verb (or verb stem)” (2009: 87). Direct insertion is used by the majority of languages that Wohlgemuth reports from.

However, many languages require morpho-syntactic adaptation in order to accommodate loan verbs. Thus they used *indirect insertion* with which borrowed verbs are adapted with overt (verbalizing) affixation of some kind, and once the affix is added the borrowed verb can fully function in the recipient language and normal inflection patterns of that language can be applied to it. This strategy comes third in its frequency.

The strategy that comes second in frequency is no other than the BCVs – Wohlgemuth calls them the *light verb strategy* and argues that “[m]any languages (...) accommodate borrowed verbs by means of complex constructions, where the borrowed elements remain mostly uninflected and *more or less neutral with regard to their part-of-speech membership*” (2009: 102, my emphasis). He believes that since with *indirect insertion* and the *light verb strategy* the “loan verbs are overtly accommodated by equipping them with a native element that is either verbalizing (or has verbalization among its primary function) or a native (auxiliary) verb” (283) then we can assume that they are borrowed as non-verbs since they have to be reverbalized in some way.

Muysken (2000), in his discussion concerning borrowed verbs, claims that borrowed verbs can be classified either as inserted verbs, which are verbs inserted into the position which is ordinarily reserved for the native verb or as bilingual compound verbs (185). The latter are divided into the cases which involve a verb adjoined to the light verb and those cases in which there is a nominalised verb as a complement to the light verb. His basic argument is

⁵ For his study, Wohlgemuth collected 794 examples of loan verbs from 207 languages and 553 language pairs.

that a single unitary analysis of BVCs is impossible. In relation to Moravcsik's argument, he argues that only in cases with strong evidence of nominalization, can we claim to find patterns involving a helping verb and a nominalised complement. For example, in American Portuguese the presence of *o* (masculine singular definite article) makes a nominalization analysis possible:

- (13) *fazer o spoil* (2000: 207)
spoil

Muysken argues for cases which are better analysed as having adjoined to the helping verb another verb because in some cases there is a difference between the structure of the native compound and the bilingual one. This is the case with the CG data, as well. For example, in Popoloca, an Otomanguena language spoken in Mexico (Veerman-Leichsenring 1991) in the native use of the compounds, the helping verbs are combined with nouns. However, in the bilingual compounds the accompanying element of the helping verb "is generally, but not always, a verb" (Muysken 2000: 193). Romaine claims the same pattern for Panjabi-English mixed compounds (1985: 210).

According to Muysken's analysis, in the native structures there is an insertion pattern (14a) that involves a noun complement. In the bilingual cases, there is (14b) which involves an adjoined verb (and hence alternation)⁶.

- (14) a. Native: [love (noun) do] to perform love
b. bilingual [love(verb) [do]] to do something (namely loving)

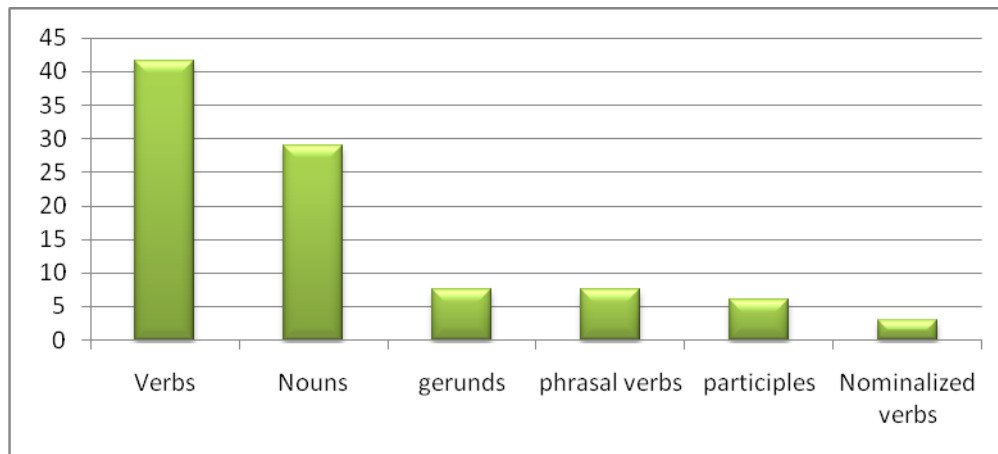
There seems to be a development in the bilingual use of the compound verbs from their native counterparts, in that the latter have a verb + noun construction and the former a verb + verb construction and if this analysis is correct "this shift from nouns to verbs was accompanied by a shift from a government to a modification relationship" (211).

8. CG – ENGLISH COMPOUND VERBS

In this section, I discuss 65 instances of different examples (types) of bilingual compound verbs. Certain examples occur more than once (tokens) and I did not count them as additional instances. The main characteristics of these BCVs are:

- a. The helping verb *kámno* is always inflected for tense, person and number.
b. The English part of the construction is not integrated into the Greek language.
d. There is not strong evidence of nominalization of the lexical item

⁶ Muysken argues for the existence of different processes in code-mixing, two of which are *insertion* and *alternation*. The first concerns "insertion of material from one language into a structure from the other language" and the second concerns "alternation between structures from languages" (2000: 3).

(Table 1) *Distribution of the lexical item (in terms of syntax)*

(15) Examples with a verb (41.5%):

- (a) En emporósa na **kámo conceptualize**
I couldn't do-1sg conceptualize
- (b) Pios se **kámni assign** se káthe máthima?
Who does-3sg assign you in each course?

(16) Examples with a noun (29%):

- (a) Prospathó na **kámno time management**
I am trying to do-1sg time management
- (b) H Katerina **kámni acquaintance** me ton Rikko
Katerina does-3sg acquaintance with Rikko (the dog)

(17) Examples with a gerund (7.5%):

- (a) **Kámno calling** eyo etsi; Bravo Skevi, éklises to tiléfono.
I am doing-1sg calling now? Well done Skevi, you hung up the phone.
- (b) Mporí na éshi pu na **kámnun spying** pjiós ena pái, pjiós en tha pái.
There might be people who do-3pl spying who is going and who is not.

Note that under a specific reading these BCVs could be acceptable in English if they were to be translated. According to Tobin (1993:29) “do is often used with an *-ing* form when we want to talk about an activity that takes a certain time or that is repeated. There is usually a “determiner” (*the, my, some, much* etc) before the *-ing* form”. So, for example, if you say “They don’t do testing” in English, it would have a habitual meaning. Also (18) may be instances of nominalization. According to Quirk’s English grammar, “we can take a normally dynamic item (say the verb in “He wrote the book” and nominalise it (“The writing of the book”) pretending to see the action as a static thing” (1979: 48). Even without an article these examples could be instances of nominalised verbs.

- (18) Examples with phrasal verbs (7.5%):
- (a) Epiðí en tha mporún na **kámun cope with** en kséro pos en i ellinikí l éksi, ne, na antepeksélthun me to environment tus.
Because they cannot do-3-pl cope with I don't know the Greek word, yes, to copewith their environment.
- (b) Men to **kámis turn off**
Don't do-2sg it turn off
- (19) Examples with participles (6%):
- (a) to sístima **kánni ta authorized**
the system does-3sg them authorized them
- (b) Foúme na tus kámo **confirmed**
I am scared to them do-1sg confirmed
- (20) Example with *format*

Format can be a verb and a noun in English. But when referring to computers *format* can only be the verb; the noun is *formatting*.

- (a) aplá éprepe na tu **kámi format**.
he just had to do-3sg format.
- (b) mporí na **káni** (pause) to **format** alla ðen éxume ta Windows.
he can do-2sg the format but we do not have the Windows.
- (c) tha tu pari 40 lepta na mu **kani to format**.
it will take him 40 minutes to do-2sg the format.
- (d) **ékame** mu to (pause) **format tze**
de did-3sg the format for me and

In contrast to the first example, an article precedes *format* in the other three. In (21d) “to” is most likely a pronoun referring to the computer, since there is a short pause just right after it suggesting that it is not an article. Thus, examples (20b) and (20c) provide the only sign of nominalization including articles.

Does the presence of the article here really guarantee noun-ness or high/full deverbalization of the verb? In this case probably yes. In the particular recording in which all of the above instances of *format* occur there is also another instance in which *format* occurs - not in a compound verb- and receives an article as well:

- (21) Pósi ora pénni **to format**;
How long does the format take?

One hypothesis could be that *format* has been borrowed both as a verb and as a noun from English to Greek since the noun “formatting” does not seem to be in use at all⁷.

⁷ This conclusion is reached both from participant observation and from directly asking speakers if they use it or hear it being used.

9. FUNCTIONAL CONSIDERATIONS

In this section I classify some of my data⁸ based on semantic grounds so as to address the question of why such constructions are used since there are other mechanisms to incorporate foreign verbs into the Greek language.

As I have already mentioned, the Greek language includes some loans in the form of BVCs, such as *káno jogging* in order to “designate culturally new concepts (Edwards and Gardner-Chloros 2007: 77). Let us see some examples from this study:

- (22) Kséris **ekómame sightseeing** epíame Vatikanó.
You know we **did-1pl sightseeing**, we went to the Vatican.

Sightseeing has no lexical entry in Greek. It can be translated periphrastically as *περιήγηση/ επίσκεψη αξιοθεάτων* or *ξεναγηση αξιοθεάτων* (touring of sights). The same applies to *jogging*,

- (23) an **kámnis jogging** as púme;
if you **do-2sg jogging** let’s say?

There is no lexical entry for *jogging* in Greek:

- (a) Jogging: *τρέξιμο εξάσκησης* (running for practice) (Matzenta dictionary).
(b) Jogging: *τζόκινγκ* (Google translator).
(c) The Oxford Greek-English dictionary does not have an entry.

Thus, some BVCs are used to introduce a new concept into the Greek language. In other cases they are used with mobile and computer based lexicon. Greek Cypriots tend to set their computers and mobile devices in English; thus particular terms tend to replace their Greek equivalents in their speech repertoire. In such cases the use of English words constitutes a choice of an English term over the Greek one. One such example is (18a) mentioned above. In that case, the participant attempted to make a call and accidentally hung up, cancelling the action of calling. The choice of *káno calling* instead of *τηλεφωνώ* (call) here is explained by the fact that she could see on her mobile the word *calling*. Other examples are:

- (24) **ékame** mu to **format** tze ípe mu na **kámo download** pu to Internet yia na to **kámi update**
[he] **did-3sg format** it for me and he told me to **do-1sg download** from the **internet** in order to **do-3sg update**
- (25) **ékame** tu **delete** email
[he] **did-2sg-past** him **delete email**

There are also many examples involving terms associated with Facebook. The majority of Greek Cypriots enjoy Facebook in the English language even though it is available in Greek.

- (26) en ton **kómno friend** tze en dangerous katástasi
I **do-1sg** not him **do1sg friend** and it is a dangerous situation
- (27) **ékame se add?**
[he] **did-3sg** you **add?**

⁸ Only 20% of the data could be fitted in categories which I will mention below.

For the rest of the data, an analysis of each recording individually is required in order to reach further conclusions.

10. CONCLUSION

In this paper, I discussed BCVs, a particular construction that arises in many bilingual communities, in the context of the use of English in CG as a form of code-switching/mixing. In particular, I addressed two major problems concerning BCVs: their syntactic analysis and the question of why they exist at all. In relation to the former, I have referred to the main analyses by various authors, however without reaching a specific conclusion myself. In relation to the latter, I have demonstrated how some of the occurrences of some of the data can be explained based on semantics.

The rest of the data which I have not addressed in this paper will be analyzed in the framework suggested by Gumperz (1982, 2008) and Auer (1984, 1995, 1998, 2007), which requires analysis of each recording individually for a micro-level of analysis and interpretation of the data.

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Automatic Recognition of Abbreviations and Abbreviations' Expansions in Multilingual Electronic Texts

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The paper presents universal rules for creating an algorithm for automatic recognition of abbreviations and abbreviations' expansions in texts written in various languages by focusing on how universal the expansion patterns are, and testing them on multiple languages to see how reliable such patterns are (Zahariev 2004).

As a first step, a demonstration algorithm has been used which focuses on the automatic recognition of abbreviations and abbreviations' expansions in just one language (Slovene) and with a restricted number of characters for each abbreviation. Further development expands the number of characters for each abbreviation and takes into consideration all four types of abbreviation-expansion patterns. A random selection of Slovene text is used to verify the performance of the algorithm and to improve recognition. The universality of rules is taken into consideration by the presence of foreign abbreviation-expansion pairs that exist in Slovene texts and is verified on random foreign texts.

The final version of the algorithm filters texts coming from the *Europarl corpus*, covering all EU languages and bearing in mind specialised characteristics of each language. The acquired data can be used for (semi)automatic production of a dictionary of abbreviations. Such a dictionary represents the future of electronic lexicography (Kompara 2009: 109).

1. INTRODUCTION

Abbreviations are difficult to deal with (Gabrovšek 1994: 23) and represent a growing phenomenon present in all languages. The scope of this article is to present automatic recognition of abbreviations and abbreviations' expansions in multilingual electronic texts. The paper presents universal rules (Zahariev 2004: 10) for creating an algorithm for automatic recognition of abbreviations and abbreviations' expansions in texts written in various languages by focusing on how universal the expansion patterns are, and then testing them on multiple languages to see how reliable such patterns are.

2. DICTIONARIES ARE NO LONGER ENOUGH

In this chapter we present how abbreviations are dealt in dictionaries. We present the insufficient and inefficient inclusion of abbreviations in dictionaries by focusing on the inclusion of abbreviations in monolingual, bilingual, specialised and online dictionaries. All bilingual dictionaries are applicable to the Slovene language and special emphasis is placed on the microstructure of specialised abbreviation dictionaries. Abbreviations are usually included among the entries or/and in supplements of monolingual dictionaries of English *Collins COBUILD English Dictionary* (Sinclair 1999), Italian *Vocabolario della lingua italiana* (Zingarelli 2000), German *Deutsches Universal Wörterbuch* (Drosdowski 1989), Spanish *Clave: Diccionario de Uso del Español* (García Marquez 2002) and French *Le Nouveau Petit Robert* (Robert 1996) but they are not included among the entries of the Slovene monolingual dictionary *Slovar slovenskega knjižnega jezika* (Bajec *et al.* 1970–

1991). As far as bilingual dictionaries are concerned, abbreviations are usually not included in older publications of dictionaries for encoding, such as *Slovensko-angleški slovar* (Grad & Leeming 1997), *Slovensko-italijanski slovar* (Kotnik 1992), *Slovensko-španski slovar* (Grad 2000) and *Slovensko-francoski slovar* (Jesenik 2005) but the exceptions are some new publications *Veliki slovensko-italijanski slovar* (Šlenc 2006) and *Veliki slovensko-nemški slovar* (Debenjak 2003). On the other hand, abbreviations are included in dictionaries for decoding, such as *Veliki angleško-slovenski slovar* (Grad 1998), *Veliki angleško-slovenski slovar Oxford-DZS* (Gabrovšek *et al.* 2005–2006), *Veliki italijansko-slovenski slovar* (Šlenc 1997), *Veliki nemško-slovenski slovar* (Debenjak 2001), *Špansko-slovenski slovar* (Grad 2001) and *Francosko-slovenski slovar* (Grad 2004). The main problem of all the mentioned dictionaries is the fact that they are not published frequently enough to cover all new abbreviations among their entries, and that abbreviations are not covered extensively.

2. 1. English dictionaries of abbreviations

In English several dictionaries of abbreviations (listed below) were observed. The characteristics of microstructure are visible in table 1.

Index: X – no; \sqrt{X} - yes (not consistently); \sqrt{R} - yes (rarely); $\sqrt{\sqrt{}}$ - yes (consistently); \sqrt{E} - yes (extensive); $\sqrt{\sqrt{}}$ - yes; \sqrt{TE} - yes (too extensive)

(Table 1) *English dictionaries of abbreviations*

Name	Entries	Suppl.	Foreign abbr.	Transl.	Qualifier	Lang.	Encyclo. data
(Paxton 1983)	25,000	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	\sqrt{X}	$\sqrt{\sqrt{}}$
(Fergusson 2000)	40,000	\sqrt{E}	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$
(De Sola 1986)	23,000	\sqrt{E}	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	X	$\sqrt{\sqrt{}}$	\sqrt{R}
(Buttress 1976)	60,000	X	$\sqrt{\sqrt{}}$	X	X	X	X
(Dale & Puttick 1999)	20,000	\sqrt{TE}	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$
(Geddes & Grosset 1999)	10,000	X	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	X
(Gale Research Company 2006)	1,000,000	X	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	X	$\sqrt{\sqrt{}}$
(Barnhart 1995)	60,000	X	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$
(Jung 1991)	50,000	X	$\sqrt{\sqrt{}}$	X	\sqrt{X}	X	X
(Benedetto Mattia 1997)	60,000	$\sqrt{\sqrt{}}$	$\sqrt{\sqrt{}}$	X	X	X	X

As seen from the table the analysed and presented dictionaries differ mainly in size but also in microstructure, especially in terms of translations which are not always present in entries or not present at all. Translation of abbreviations is an essential item that should always be consistently included in specialised dictionaries. A dictionary without translations does not solve problems but causes new ones. As seen from the table above, some dictionaries do not have supplements while others have overly extensive ones. There is also a lot of inconsistency in terms of qualifiers, language and encyclopaedic data. Reverse dictionaries or supplements such as *Reverse Acronyms Initialisms & Abbreviations Dictionary* (Gale Research Company 2007) or (Barnhart 1995) are extremely useful for users but still missing in most dictionaries. The main problem of all dictionaries is the fact that they are too old and not published frequently enough to include new abbreviations.

2.2. German, Italian, Spanish and French dictionaries of abbreviations

Some Italian, German, Spanish and French dictionaries of abbreviations (listed below) were observed. The characteristics of microstructure are visible in table 2.

Index: X – no; \sqrt{X} - yes (not consistently); \sqrt{R} - yes (rarely); $\sqrt{\sqrt{}}$ - yes (consistently); \sqrt{E} - yes (extensive); $\sqrt{\quad}$ - yes; \sqrt{TE} - yes (too extensive)

(Table 2) *German, Italian, Spanish and French dictionaries of abbreviations*

Name	Entries	Suppl.	Foreign abbr.	Translation	Qualifier	Lang.	Encyclop. data
(Steinhauer 2005)	50,000	\sqrt{E}	$\sqrt{\quad}$	X	$\sqrt{\quad}$	\sqrt{X}	X
(Koblischke 1983)	50,000	\sqrt{E}	$\sqrt{\quad}$	$\sqrt{\quad}$	$\sqrt{\quad}$	$\sqrt{\quad}$	$\sqrt{\quad}$
(Righini 2001)	10,000	X	$\sqrt{\quad}$	$\sqrt{\quad}$	$\sqrt{\quad}$	$\sqrt{\quad}$	$\sqrt{\quad}$
(Malossini 1999)	8,000	X	$\sqrt{\quad}$	X	\sqrt{X}	X	X
(Murith & Bocabeille 1992)	20,000	X	$\sqrt{\quad}$	X	X	X	X
(Galende 1997, 2001)	20,000	X	X	X	X	X	X

There are even more differences in terms of microstructure in German, Italian, Spanish and French dictionaries of abbreviations presented above compared to English dictionaries. This concerns especially translations that should be essential data in such dictionaries too. We notice also that all observed dictionaries are old and do not include new abbreviations and include fewer entries compared to the English dictionaries. As far as Slovene is concerned there is still no updated abbreviation dictionary. The first one *Kratice, Mala izdaja* (Župančič) was written in 1948. Fortunately we have an online dictionary of abbreviations *Slovarček krajšav*,¹ containing over 5,000 entries and providing translations of all foreign abbreviations. Abbreviations represent a growing phenomenon present in all languages. New ones arise suddenly and paper dictionaries do not dedicate enough space and attention to them, and such dictionaries are not published frequently enough to cover new abbreviations. Online dictionaries such as *Slovarček krajšav*,² *Evroterm*,³ *Acronym Finder*,⁴ *The Free Dictionary*,⁵ and others represent an alternative to paper ones and are easily updated. But unfortunately abbreviations in online dictionaries are acquired mainly manually which is still time consuming and not precise enough. The alternative is automatic recognition of abbreviations and abbreviations' expansions from electronic texts.

3. ABBREVIATIONS RECOGNISED AUTOMATICALLY

The pioneer in automatic recognition of abbreviations and abbreviations' expansion is Taghva (1998). Automatic recognition was also dealt with by Yeast (1999), Larkey *et al.* (2000),

¹ <http://bos.zrc-sazu.si/kratice.html>.

² <http://bos.zrc-sazu.si/kratice.html>.

³ <http://www.sigov.si/evroterm/>.

⁴ <http://www.acronymfinder.com>.

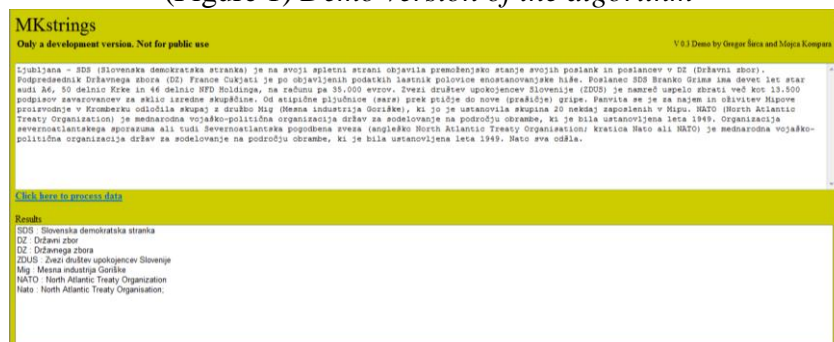
⁵ <http://acronyms.thefreedictionary.com/>.

Pustejovsky *et al.* (2001), Schwartz and Hearst (2003), Park and Byrd (2001), Chang *et al.* (2002) and Zahariev (2004), but his approach is considered special due to the fact that he was not limited to just one language's recognition. In the early stage of the research, words of up to 5 capital letters written in brackets were used as abbreviations' candidates, e.g. (NATO). The reference was Slovene online newspaper *Delo* from 2007. It had 25,588 such words and some occurred more than once. In order to obtain an appropriate amount of abbreviations for further research, all abbreviations occurring more than once and all abbreviations that are not acronyms and/or abbreviations written in capital letters were excluded. Words that are not abbreviations, such as proper names, names of places etc. were excluded, using the *Slovene monolingual dictionary*; after the exclusions the database had over 4,000 abbreviations. After the exclusion of all abbreviations not written in capital letters and considering also the context that should not be written in capital letters, the final list had 2,500 abbreviations. In order to obtain the abbreviations' expansions from the newspaper *Delo*, left context was observed, because expansions are usually placed before the abbreviations, e.g. *European central bank (ECB)*, but still not excluding the possibility of right context. To recognize expansions, 4 types of abbreviations were used. The first type are the so called *covered abbreviations* where letters match the words in left context, e.g. *FF* with the expansion *Filozofska fakulteta*. The second type are *abbreviations with expansions containing prepositions and conjunctions*, e.g. *FDV Fakulteta za družbene vede*. The algorithm takes into consideration also expansions with one or two additional words. The third type concerns *abbreviations composed of the first two letters*, e.g. *NAMA Narodni magazin*. The fourth type covers *abbreviations with prepositions*, e.g. *DZU Družba za upravljanje* where prepositions appear in the abbreviation and also in the expansion. Considering the above-mentioned criteria, 1,800 expansions matched the abbreviations. In the final list containing abbreviation-expansion pairs several problems were observed, such as the occurrence of cases, the multiple occurrences of the same expansion and foreign abbreviations with Slovene expansions.

4. FURTHER DEVELOPMENT AND DEMO PRESENTATION

In the second stage of the development the number of letters in the abbreviations was extended to 10 and right context was observed. All four types of pattern: (*abbreviation*) *expansion*, (*expansion*) *abbreviation*, *abbreviation* (*expansion*), and *expansion* (*abbreviation*) were used. Abbreviations with more than 10 letters were not included and lexicalized abbreviations were also excluded but such abbreviations are well-known and are included in the algorithm via the dictionary of abbreviations *Slovarček krajšav*. After the newly established rules for recognition a demo version of the algorithm was produced. The system called *MKstrings* is composed of two windows. In the first one we add text rich in abbreviations, after clicking *Click here to process data*. In the second window abbreviations and expansions occur as seen in figure 1.

(Figure 1) Demo version of the algorithm



As seen from figure 1, the algorithm is not taking into consideration abbreviations such as *sars*, *Mipu*, *NFD*, *A6*, which is expected according to the rules stated above. Although at first sight the obtained results look really good, the algorithm needs further improvement. To improve the algorithm randomly selected texts rich in abbreviations (from the website *24ur.com*) were used in order to observe how the algorithm behaves. Problems occurred mainly in examples containing the abbreviation e.g. *RS* in the expansion and non-capitalised abbreviation e.g. *DARS* in *Družba za avtoceste v RS (Dars)*. But after taking this into consideration, the problem was still not solved. Prepositions *za* and *v* represented a problem too, because at the present stage the algorithm was able to consider just one preposition in the expansion. Problems occurred also in some copy-pasted examples e.g. *Urada za varstvo konkurence (UVK)*, recognised when retyped. The algorithm does not recognise abbreviations with no expansions. Such examples are automatically excluded. An interesting issue also concerns patterns composed of a foreign abbreviation and a Slovene expansion, e.g. *Združenje evropskih avtomobilskih proizvajalcev (ACEA)*. Such patterns were not observed in the present article and will be recognised in the future. After applying modifications and improvements the software was enlarged in order to be able to filter larger amounts of data. A larger corpus composed of 60 million words (newspaper *Delo* from 2005 to 2009) was used. The algorithm filtered the corpus in 30 minutes and gave 5,820 abbreviation-expansion pairs. The obtained pairs were manually revised and verified using *Google*. Among the revised and verified pairs 4% of false pairs occurred, e.g. *PO predstavljenih podatkih o, NA na vse argumente, IN in novincev*. The precision of the algorithm is 96%. Among the revised and verified pairs were also genuine abbreviations not matching with the right expansions, e.g. *HIV virusom i hepatitisom in virusom* because the expansions were missing. Among the good expansions many occurred more than once and/or with tiny modifications, e.g. usage of different cases or spelling as seen in table 3. In table 3 just 3 expansions out of 6 are genuine.

(Table 3) *Expansions for MNZ*

MNZ	MNZ
1 ministrstva za notranje zadeve	1 ministrstva za notranje zadeve
2 medobčinskih nogometnih zvez	2 medobčinskih nogometnih zvez
3 ministrstvom za notranje zadeve	3 Muzej novejšje zgodovine
4 Medobčinske nogometne zveze	
5 Muzeja novejšje zgodovine	
6 Muzej novejšje zgodovine	

After the exclusion of false pairs, verification and revision of good pairs 2,665 genuine abbreviations-expansion pairs occurred. Among the good pairs there were also some foreign pairs although the recognition focused only on Slovene texts. Among the foreign pairs, some problems occurred in misrecognition of parts of expansions, e.g. *FEE for Environmental Education*, where *Foundation* is missing.

5. RECOGNITION IN FOREIGN LANGUAGES

Among the Slovene analysed texts the algorithm recognised also some foreign abbreviations. To discover whether the algorithm is universal⁶ some English and Italian texts randomly selected and available online were used. In English texts the algorithm recognised patterns such as *Severe acute respiratory syndrome (SARS)*, *World Health Organization (WHO)*, *Center for Group Learning (CGL)*, and *Scottish Licensed Trade News (SLTN)* but did not recognise patterns having abbreviations in the expansion, e.g. *USB Implementers Forum (USB-IF)* and abbreviations written in a special way and/or expansions with punctuation, e.g.

⁶ Such an approach was also used by Zahariev (2004).

Human-interface devices (HIDs). In Italian the situation is similar, the algorithm recognised the following patterns; *Confederazione Generale del Lavoro (CGdL)*, *Popolo della Libertà (PdL)*, *Centro Interdipartimentale di Studi Europei e Mediterranei (CISEM)* but it did not recognise patterns such as *Azienda Nazionale Autonoma delle Strade (ANAS)* because in the text *ANAS* is preceded by the definite article *L'ANAS*. The algorithm does not recognise patterns composed of articles combined with prepositions (*preposizione articolata*), e.g. *della*, *per la*, as seen in the following examples; *Dipartimento di Scienze del Linguaggio, dell'Interpretazione e della Traduzione (DSLIT)*, *Centro Interdipartimentale per la Ricerca Didattica (CIRD)*. The final version of the algorithm filters texts coming from the *Europarl corpus*, covering all EU languages and bearing in mind specialised characteristics of each language. This approach aims to show how universal the expansion patterns are and how reliable such patterns are. For the purpose of this article, texts in Italian, Spanish, French and Slovak were filtered. In all languages the algorithm recognised also foreign patterns e.g. *ADR (Australian Design Rules)* in the Italian text etc.

Italian

In recognising abbreviation-expansion pairs in foreign languages, typology of the foreign language is of extreme importance. In Italian abbreviation-expansion pairs, typological characteristics of the Italian language were taken into consideration. Several stop lists were used in order to come across genuine pairs. A stop list of prepositions e.g. *da*, *a*, *su* etc., conjunctions, definite and indefinite articles and combinations of prepositions and articles called *preposizioni articolate* e.g. *della*, *nella* etc. were used in recognition. After recognition false pairs were manually eliminated but the main problem occurred in pairs where it was difficult to establish an official abbreviation (fixed) and an abbreviation used just once for the purpose of shortening text (unfixed). Abbreviations with more than one meaning were frequent and without experts in the field the right expansion cannot be detached as seen in table 4 where the algorithm gives several possibilities for the abbreviation *CE*.

(Table 4) *Abbreviations with more than one meaning*

It	CE	Comunità europea
It	CE	certificato di esame
It	CE	conformità alle esigenze
It	CE	componenti elettronici

French

Typological differences can be seen also in French. As in the Italian text a stop list of preposition, definite and indefinite articles and conjunction were used in order to provide appropriate recognition. But as seen in table 5 linguistic and non-linguistic expertise is still essential in discerning genuine pairs.

(Table 5) *Abbreviations with more than one meaning*

Fr	SPG	Système de préférences généralisées
Fr	SPG	système des préférences généralisés
Fr	SPG	schéma de préférences généralisées
Fr	SPG	système des préférences généralisées

Spanish

A similar approach was also needed for Spanish texts where in order to obtain genuine pairs stop lists of prepositions, conjunctions and articles were used. The need of experts in establishing genuine pairs remains, as seen from table 6.

(Table 6) *Abbreviations with more than one meaning*

es	FEOGA	Fondo Europeo de Orientación y Garantía Agrícola
es	FEOGA	Fondo Europeo de Orientación y Garantía Agraria

Slovak

Slovak, like Slovene, is a Slavic language and has a completely different typology compared to Romance languages. In Slovak, as in all the Romance languages, a stop list of prepositions and conjunctions was built, but due to the absence of definite or indefinite articles such a list was not needed for articles. On the other hand the occurrence of cases represented a general problem common to all Slavic languages. Multiple occurrences of the same expansion with different cases are seen in the table below. For such cases an automatic approach should be used also for the recognition of just nominative cases. Such an approach is in preparation for Slovene but not yet for Slovak. In Slovene we use the analyser module from *Presis* machine translation software to translate the texts to *Presis Interlingua*. For this task, the analyser module was changed in order to accept just noun phrases in various cases instead of both sentences and noun phrases. The result in *Interlingua* is checked to find out if the noun phrase is nominative. If it is not, the *Interlingua* result is changed to nominative and sent to the generator module of *Presis* to translate *Interlingua* back to Slovene. Furthermore the number of the noun phrase is also checked since nominative dual or plural forms can be the same as non-nominative singular forms (*Alzheimerjeve bolezni*). But unfortunately such an approach works only for the Slovene language.

(Table 7) *Abbreviations with more than one meaning*

sk	AKT	afričských karibských a tichomorských
sk	AKT	alebo zámorských krajín a teritórií
sk	AKT	afričké karibské a tichomorské
sk	AKT	africkej karibskej a tichomorskej
sk	AKT	Afriky Karibiku a Tichomoria
sk	EHS	Európskym hospodárskym spoločenstvom
sk	EHS	Európskeho hospodárskeho spoločenstva Dohoda
sk	EHS	Európskeho hospodárskeho spoločenstva
sk	EHS	Európske hospodárske spoločenstvo
sk	EHS	Európskemu hospodárskemu spoločenstvu

As seen from the filtered foreign language texts the main problem concerns the typology of the foreign language and the need for manual cleaning of good examples, fixed and non-fixed pairs. If we want to come across genuine pairs the need of experts in the field is also essential. In the future development data from a multilingual corpus can be used for automatic production of the dictionary of abbreviations. At present the automatic approach is used just

for the production of a Slovene dictionary of abbreviations in *Termania* software.⁷ The production of simple Slovene entries e.g. FDV (*Fakulteta za družbene vede*) where the abbreviation-expansion pair and nominative structure of the expansion are needed is already possible. The production of complex entries (covering qualifiers, language qualifiers and encyclopaedic data) is still under development.

6. CONCLUSION

Abbreviations are not something new or a fashionable way of communication; they were used even by Cicero (Kompara 2005: 80). Abbreviations became part of our everyday life and are produced on a daily basis. They are rapidly growing in number, but as seen in the analysis, neither paper nor online dictionaries are published or updated frequently enough to cover new ones among their entries. Manual acquisition of abbreviation data and manual inclusion of abbreviations into online dictionaries is time-consuming; the solutions are algorithms for automatic recognition of abbreviations and abbreviations' expansions in electronic texts. In the present paper such a system is described and the demo version of the algorithm is presented. The paper describes the development of rules, the algorithm and the software. At a present stage the algorithm is applicable just for Slovene but the occurrence of foreign pairs introduced the idea of multilingual recognition. The *Europarl corpus* was filtered and results for Italian, French, Spanish and Slovak were described. Such an algorithm raises the possibility of creating a semi-automatic dictionary of abbreviations and such a dictionary represents the future of electronic lexicography. Algorithms for automatic recognition of abbreviations present the link between the text and the semi-automatic production of a dictionary of abbreviations (Kompara 2009: 109). That is why the production and further development of the algorithm is essential and useful.

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Overt quantifier raising of Neg-wh-quantifiers in Cantonese

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This paper reports the overt quantifier raising phenomenon in Cantonese, particularly to non-existential quantifiers in the combination of a negator *mou* and a wh-phrase. It claims that the overt quantifier raising by successive movements is driven by the uninterpretable features [quant] (Chomsky 1995) and [neg]. A NegQP structure for negative wh-quantifiers (Neg-whQ) is proposed to account for the SOV order in Cantonese. The proposed NegQP has an unpronounced quantifier operator \emptyset which carries [quant] feature as its head, negator *mou* in spec position which specifies the phrase with [neg] feature and a wh-phrase as its complement (any DP for other non-existential quantifiers). It gives the correct order of a neg-whQ where the negator *mou* precedes a wh-phrase (e.g. *bingo* ‘who’) and NegQP inherits both [neg] and [quant] features which triggers QR that applies to any neg-whQ in Cantonese.

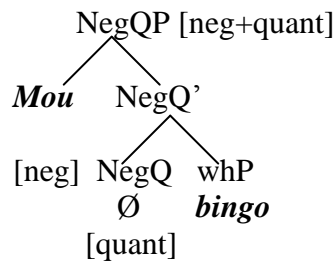
1. INTRODUCTION

Quantifier raising (QR) is a proposed movement of quantifiers, and is parameterised between being covert (English) and overt (Hungarian, French and Icelandic etc). Cantonese object quantifiers are seen to belong to languages with overt quantifier raising. Non-existential quantifiers in the combination of the negator *mou* and a wh-phrase, for example *mou-bingo*, *mou-matje* and *mou-bindou*, are referred as negative wh-quantifiers (neg-whQ) in this paper. Cantonese and Mandarin Chinese are syntactically the same in general. Neg-whQ is an exceptional case that is allowed to undergo QR in Cantonese but not in Mandarin, although overt QR is observed in both languages. This paper proposes the NegQP which combines the negator *mou* at its spec position, a quantifier operator \emptyset at its head position and any wh-phrase as its complement, and movements of NegQPs are triggered by its inherited [neg] and [quant] features. Following Chomsky’s (1995) approach, quantifiers raise to satisfy the uninterpretable [quant] feature in the vP-spec and also the uninterpretable [Neg] feature in the NegP-spec proposed in this study. In section 2, I put forth the proposed NegQP and present the account triggering overt QR. Section 3 provides a brief review and presents my original data in Cantonese including raised object neg-whQ to preverbal position and section 4 explains how NegQP accounts for data on dative and infinitival constructions where the raised neg-whQ licenses another wh-phrase as NPI and cancels WCO effect. Last but not least, section 5 concludes on the proposed account.

2. THE PROPOSAL

This paper proposes a negative wh-quantifier-phrase (NegQP), which accounts for all non-existential quantifiers including neg-whQ and can even be extended to all quantifiers in Cantonese. However, I limit the discussion to object neg-whQ. The proposed NegQP in (1) has an unpronounced quantifier operator \emptyset that carries [quant] feature as its head, negator *mou* in spec position that specifies the phrase with a [neg] feature, and a wh-phrase as its complement (any DP for other non-existential quantifiers). The proposed structure gives the correct order of neg-whQ where the negator *mou* precedes a wh-phrase (e.g. *bingo* ‘who’), and NegQP inherits both [neg] and [quant] features that trigger QR, which applies to all *mou*+wh-phrases in Cantonese.

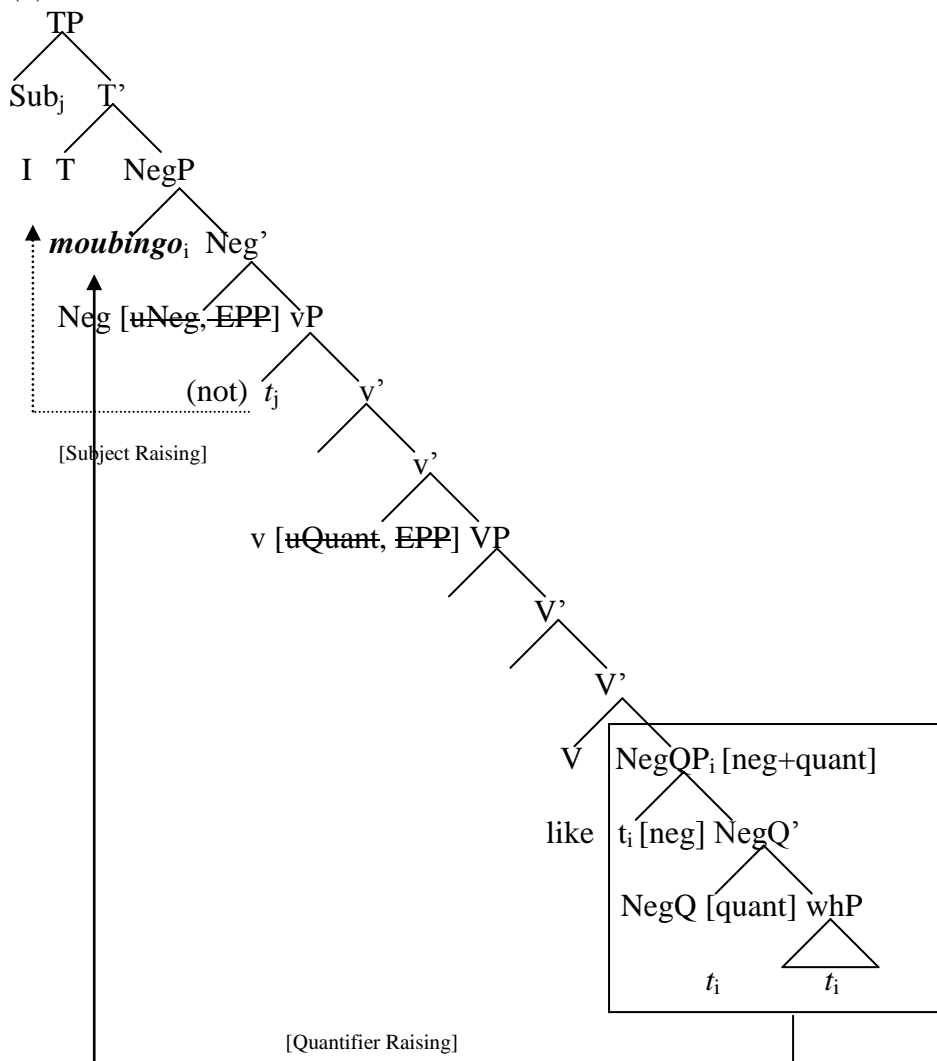
(1) NegQ-phrase:



I also propose that all neg-whQs undergo overt QR driven by inherited features [quant] and [neg] in Cantonese. Given current Minimalist approaches, I follow Chomsky's (1995) account that the unvalued [uQuant] feature in vP forces quantifiers to raise to [spec, vP] from its base generated object position. This accounts for all quantifiers raising overtly to preverbal positions. Neg-whQs first move to [spec, vP], then move to [spec, NegP] and check [uNeg].

(2) Ngo [mou-bingo]_i (m) zungji *t_i*
 I no who not like
 (a) 'I (dis)like nobody.'
 (b) 'I don't (dis)like anybody.'

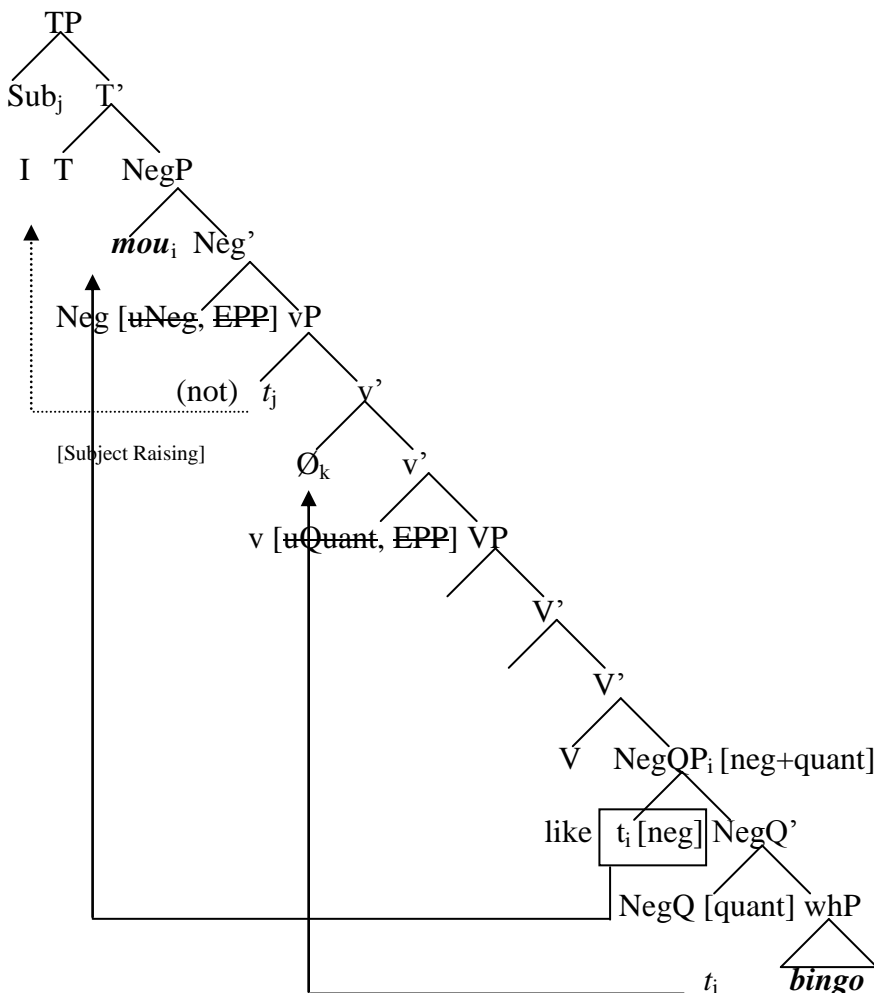
(3)



Example (2) displays the word order for a construction (also possible in negated context) with a neg-whQ as the object, where overt quantifier raising is observed. The structure is illustrated in (3), which gives both the non-existential *nobody* and existential polarity *not+anybody* interpretations of *mou-bingo*. NegQP carrying [neg] and [quant] features undergo successive movement to [spec, vP] valuing [uQuant] and [EPP] features in the head of vP. Since the features [uNeg] and [EPP] in head of NegP is unvalued, they force NegQP to raise further and land at [spec, NegP]. After the overt movement, it gives the NegQP-S-V order that possibly accounts for cases where NegQP is topicalised and appears in pre-subject position in surface structure. In fact, there should be an overt subject raising from V-to-T in Cantonese as well, such that S-NegQP-V order is preserved.

- (4) Ngo mou_i (m) zungji [_{t_i} bingo]
 I no not like who
 ‘I don’t (dis)like anybody.’

(5)



The proposed structure could well account for example (4), where only the negator *mou* moves out of the NegQP and licenses *bingo* in-situ as a negative polarity item (NPI). In this structure, only the existential polarity reading survives. As illustrated in the representation (5), the negator in [spec, NegQP] first undergoes successive raising to [spec, NegP] and satisfies the [uNeg] and EPP features. Next, the unpronounced quantifier operator \emptyset carries along [quant] feature and raises to spec of vP and check the [uQuant] and EPP features. The v-to-T

raising of the subject DP follows. The structure is preserved with the raising of the quantifier operator \emptyset satisfying both [uQuant] and EPP features and yields the wh-phrase in-situ construction. In this structure, the raised negator *mou* c-commands the wh-phrase *bingo* in-situ and licenses it as NPI.

To summarise this section, a NegQP is proposed which contains a negator *mou* as its specifier, an unpronounced quantifier operator \emptyset as its head and any DP (wh-phrase in this discussion) as its complement. The proposal follows Chomsky's (1995) account that the unvalued [quant] feature in vP forces quantifiers in Cantonese to raise to [spec, vP] from their base generated object position. This accounts for all quantifiers raising overtly to preverbal position in Cantonese. NegQP, which is a specifically proposed phrase for all Cantonese non-existential quantifiers, inherits the [neg] feature from its specifier and the [quant] feature from its head. It is driven to undergo overt quantifier raising to preverbal position by [uQuant] at [spec, vP] and [uNeg] at [spec, NegP], which also satisfies the EPP features in the two spec positions.

3. BACKGROUND ON CANTONESE *MOU+WH-PHRASE*

3.1. The observed SOV order with an object *mou+wh-phrase*

Cantonese allows the canonical SVO, possible VOS and OSV orders (where NP dislocation applies), but never allows SOV order in general. SOV is not observed even in interrogatives as Cantonese is one of the wh-in-situ languages (Mandarin Chinese, Japanese etc).

(6) Ngo zungji nei
I like you
'I like you.'

(7) Zungji nei aa ngo
Like you PCL I
'Like you, me'

(8) Nei, ngo zungji
You I like
'You, I like.'

(9) *Ngo nei zongji
I you like
'I like you.'

Cantonese canonically has the SVO word order as in (6), but it permits other orders as well since NPs are subject to scrambling. The subject of the sentence can be right-dislocated to give rise to the VOS order, as in (7) with the particle *aa* following the object. OSV is also possible when the object is topicalised as in (8). SOV is generally impossible, as (9) displays the ungrammaticality.

(10) Ngo [mou-bingo]_i zungji *t*_i
I no who like
(a) 'I like nobody.'
(b) 'I don't like anybody.'

- (11) *Ngo zunji mou-bingo
 I like no who
 'I like nobody.'

However, Neg-whQ undergoes obligatory and overt raising to preverbal position as in (10) whereas *mou-bingo* in-situ in (11) is ungrammatical. Neg-whQ can be extracted as a whole and this will be discussed in a later section. Crucial to the structure in (10) with an overt raising of neg-whQ are the two given interpretations, the one which treats a negator *mou* and wh-phrase *matje* as a non-existential quantifier *nothing* and the one which treats it as *mou* licensing a wh-phrase as a negative polarity item *anything*. Christensen (2004) refers to the former as “zero quantification” and the latter as “sentential quantification”.

- (12) John [mou-matje]_i soeng maai *t_i* me?
 John no who want to buy Q
 (a) 'Is it true that John wants to buy nothing?'
 (b) 'Doesn't John want to buy anything?'

In interrogatives, the two possible interpretations of *mou-matje* could give very distinct readings. As (12) illustrates, it gives either a non-existential reading of *mou-matje* resulting in a yes-no question, or an existential polarity reading of *mou-matje* resulting in a rhetorical question that actually presupposes the reading 'John wants to buy something.'

- (13) *Wo [meiyou-shei] xihuan
 I no who like
 *Wo xihuan [meiyou-shei]
 I like no who
 'I like nobody.'

- (14) Meiyou-shei xihuan wo
 No who like me
 'Nobody likes me.'

- (15) Wo meiyou xihuan shei
 I no like who
 'I don't like anybody.'

- (16) Wo shei dou xihuan
 I who also like
 'I like everyone.'

Although Cantonese and Mandarin Chinese have similar syntactic structure, such overt raising of object neg-whQs is forbidden in Mandarin Chinese as in (13). *Meiyou-shei* in the combination of the negator *meiyou* and the wh-phrase *shei* in (13) is ungrammatical neither in preverbal positions nor post-verbal positions, but it can appear in the subject position as in (14). Overt quantifier raising is observed only with universal quantifiers with *dou*-quantification (Cheng 1995) as in (16). Examples (15)-(16) also show that, as in Cantonese, wh-phrases in Mandarin Chinese can also be licensed as existential polarity by negation *meiyou* in (15) and universal quantifier by *dou* in (16).

- (17) Bingo mou/m soeng maai matje (le)?
 Who no/not want to buy what
 (a) 'Who didn't want to buy what?'

(b) 'Who didn't want to buy anything?'

(18) Shei bu xiang mai shenme (ne) (Cheng 1994: 23)

Who not want buy what

(a) 'Who didn't want to buy what?'

(b) 'Who didn't want to buy anything?'

Negations can license wh-phrases as existential polarity items (equivalent to English negative polarity item NPI *any*-phrases) in both Mandarin Chinese and Cantonese. Negators *mou* and *m* therefore can license *matje* as existential quantifier *anything* in (17) in Cantonese and the same licenser licensee relationship applies to negators *meiyou/bu* and the wh-phrase *shenme* in (18) in Mandarin Chinese. Therefore, examples (17)-(18) show ambiguity as to whether the object wh-phrase *what* is interpreted as interrogative in (a) or as NPI in (b).

Regarding the significant difference between Cantonese and Mandarin Chinese on object neg-whQ, I focus on cases where the negator *mou* immediately precedes the wh-phrase as a neg-whQ that undergoes overt raising to a preverbal position. The above sentences raise the question of whether the negator is base-generated in NegP position, which is anyhow above VP, or whether it attaches to the wh-phrase in object position as a phrase on its own and moves as a NegQP. The ideal goal is the later option and this is to be reviewed in the next section with a detailed discussion of the status of two different negators *mou* and *m* in Cantonese.

3.2. The two negators *mou* 'No/Without' and *m* 'Not'

On a par with Norwegian neg-phrases in which “*ingen* is in effect the Spellout of *ikke+noen* ('not+any/some')” (Kayne 1998: 130), the morphology of Cantonese neg-whQs is a composition of a negator *mou* and a wh-phrase being licensed as indefinites. To argue that *mou*+wh-phrase is a NegQP rather than simply *mou* in NegP attracting the wh-phrase to land at preverbal position, we have to look at the negator *mou* in detail.

(19) Ngo [mou-bingo]_i m zungji *t_i*

I no who not like

(a) 'I don't like nobody.'

(b) 'I don't dislike anybody.'

Raised neg-whQ can appear with another negative morpheme *m* as illustrated in (19). According to Kratzer (1995), Potts (2000) and Penka & von Stechow (2001), negative phrases can actually be decomposed into negation and an existential/indefinite element. The overt raising of *mou-bingo* in (19) actually gives rise to the non-existential reading in (a) and the existential reading in (b).

(20) Ngo mou m zungji bingo

I no not like who

'I don't dislike anybody.'

(21) Ngo m/mou zungji Tom

I not/no like Tom

'I don't like Tom.'

Example (20) shows that *mou* by itself appears in a position that precedes the negative morpheme *m*, stranding *bingo* in-situ. Both *mou* and *m* generally have the same function as negation in (21), but the two negators seem to be different when they co-occur in one

construction. This is the starting point to look at where *mou* and *m* locate at in the structures. We would expect a negator which is base-generated in NegP to be located at the head of NegP. So before looking at where *mou* of the neg-whQ is base generated, it is necessary to address where *m* is located as well, since *mou* can co-occur with it.

- (22) Q: Nei m zungji bingo (aa)?
 You not like who
 ‘Who do you not like?’
- (a) Mou aa (Ngo mou m zungji bingo)
 NO PCL (I no not like who)
 ‘No. (Not anyone.)’
- (b) Mou-bingo aa
 No who PCL
 ‘Nobody.’

Firstly, either the negator *mou* or the neg-whQ *mou-bingo* can stand as an answer to the question in (22). The interrogative wh-phrase *bingo* is being asked in (22); the two possible answers (a) and (b) are given. Answer (a) with only the negator *mou* actually implies a non-existential interpretation as in the bracket, equivalent to the neg-whQ in answer (b). This suggests that *mou* in (a) could well be extracted from *mou-bingo* in (b).

- (23) Q: Nei zung-m-zungji Mary?
 You like-not like Mary
 ‘Do you like Mary?’
- (a) M zungji
 Not like
 ‘Don’t like.’
- (b) *M
 not
 ‘Not.’

But, *m* cannot be extracted alone and has to be extracted along with the verb as an answer to the question in (23).

- (24)*Ngo m mou zungji bingo
 I not no like who
 ‘I don’t dislike anybody.’

- (25)*Ngo m [mou-bingo]_i zungji *t_i*
 I not no who like
 ‘I don’t like nobody.’

Secondly, the negator *mou* or the raised neg-whQ *mou-bingo* must precede the negator *m* in all circumstances, or else ungrammaticality results, as in (24)-(25). The head of NegP cannot be filled twice when the two negators co-occur.

- (26) Ngo mou hakji m sik matje
 I no intentionally not eat what
 ‘I don’t intentionally not eat anything.’

- (27)*Ngo mou m hakji sik matje
 I no not intentionally eat what

‘I don’t intentionally not eat anything.’

- (28) Ngo mou/m hakji sik matje
 I no/not intentionally eat what
 ‘I don’t intentionally eat anything.’

Finally, an adverb can be inserted between *mou* and *m* in (26), which suggests that the two cannot appear as a constituent. Besides, an adverb can never appear between the negator *m* and the verb in (27). This again confirms that the later attaches more closely to the verb. However, an adverb can intervene between a negator and a verb in (28) when there is only one negator in the construction where *mou* and *m* do not interact at the same time.

To summarise, the above suggests that the negators *mou* and *m* are indeed not totally the same when they co-occur. The former can be extracted along with a wh-phrase as a neg-whQ combination or alone, yet give the same non-existential interpretation *nobody*. The later can only be extracted along with a verb and gives sentential negation interpretation only. Negator *mou* has a hierarchically higher position than *m* and they do not form one constituent. This is supported by the fact that *mou* must always precede *m*, and no adverb can intervene between *m* and the verb but may occur in between *mou* and *m* when they interact. Therefore *mou* in neg-whQ is proposed to be base-generated within the NegQP as a complement of the verb throughout the study.

3.3. Overt quantifier raising in Cantonese

This study argues that the observed movement is overt quantifier raising (QR) as suggested by Rögnavaldsson (1987), Haegeman (1995) and Rizzi (1990). Such overt QR is observed in languages such as French with “strong” quantifiers and Icelandic optionally.

- (29) János [**minden diákot**]_i [VP szeretne [ha meghívna *e_i*]]. (Kiss 1995: 226)
 John every student would:like if invited:we
 ‘John would like if we invited every student.’

It cannot simply be referred as Chomsky’s object shift (2001), since such raising is restricted only to and even obligatory to object quantifiers in Cantonese creating SOV¹ order. The overt quantifier raising observed in Cantonese resembles Kiss’ (1995) proposal for Hungarian that the quantified NP in (29) raises.

- (30) Ngo [moujan/ sojaujan/muigojan dou/ joujan / mou bingo]_i (m) zungji *t_i*
 I nobody/ everyone also/ someone/ no who (not) like
 ‘I (not) like Q.’
- (31) Ngo [mou-bingo]_i zungji *t_i*
 I no who like
 (a) ‘I like nobody.’
 (b) ‘I don’t like anybody.’

¹ The wh-movement in the following example applies only to object wh-phrases in Archaic Chinese of the Warring State period (475-221 BC). This suggests a long history of the movement of object phrases morphologically consisting of wh-elements and it was actually hypothesised as “the result of a general prohibition on quantificational material in VP” (Aldridge 2006: 13).

e.g. Wu shei qi? Qi Tian hu? (Aldridge 2006: 1)

I who deceive deceive Heaven Q
 ‘Who do I deceive? Do I deceive Heaven?’

I first argue that such overt quantifier raising applies to all quantifiers in Cantonese and requires all “strong quantifiers” (Diesing 1992), such as the non-existential *moujan* ‘nobody’, universal *sojaujan* and *muigojan* ‘everyone’ with *dou*-quantification, existential *jaujan* ‘someone’ and neg-whQ *mou-bingo* ‘nobody’, to raise to preverbal positions as illustrated in (30). The example with neg-whQ in (10) is repeated here again in (31), displaying the special features of QR with the negator *mou* that yields both non-existential quantifying and negative polarity interpretations of the wh-phrase *bingo*.

- (32) Wo shei_i dou bu xihuan t_i
 I who also not like
 (a) ‘I like nobody.’
 (b) ‘I don’t like anyone.’

- (33)*Wo [meiyou-shei]_i xihuan t_i
 I no who like
 ‘I like nobody.’

Overt QR is observed in Mandarin Chinese only with universal quantifiers with *dou*-quantification. Wh-phrases can be licensed as quantifiers as well with different licensors, and *shei* ‘what’ is licensed as a universal quantifier with *dou* following and it is raised to a preverbal position as in (32). Other licensing of wh-phrases as quantifiers will not be discussed in this paper. What should be noted is that overt QR is disallowed for neg-whQ *meiyou-shei* in (33). So this makes the unique feature of overt QR in Cantonese the fact that neg-whQ is a strong quantifier. Resembling Hungarian and other Germanic languages, the overt quantifier raising is obligatory in Cantonese. QR with any object non-existential quantifiers or neg-whQ distinguishes Cantonese from Mandarin Chinese, although the two are grammatically the same.

Besides, recent work on the syntax of LF has suggested that QR is required for the *antecedent-contained deletion* (ACD) (May, 1985; Kennedy, 2010) construction as a condition for grammaticality. Kennedy (2010) suggests that “the principles that force LF movement of lexical material are essentially the same as those that force overt (PF) movement”. Data on ACD in Cantonese in the following support the claim and support my previous claim about the overt QR in Cantonese.

- (34) (a) I read every book that you did. (Diesing 1992: 70, example 25a)
 (b) Max put everything he could in his pockets. (Diesing 1992: 70, example 25d)

VP-ellipsis is marked by the verb *do* in English and the deletion can be recovered by copying the elided VP to replace *do* as in (34a). Also, it is marked by the modal *could* and can be recovered by copying the elided VP after *could* in (34b).

VP-deletion in Cantonese appears in a similar pattern, but it is marked by modal verbs like *jau* ‘have’, *hoji* ‘can’ and in infinitival. This patterns with Mandarin Chinese that “ACD constructions involving a relative clause in MC requires the presence of a modal such as *neng* ‘can’ or *gan* ‘dare to’” (Soh 2005: 10). Overt QR of Neg-whQ as a kind of strong quantifier in Cantonese survives in ACD.

- (35) Ngo [mou-matje]_i maai-zo t_i (ji) nei dou jau ge.
 I no what buy-PVF (that) you also have GE
 (a) ‘I bought nothing that you did.’
 (b) ‘I don’t buy anything that you did.’

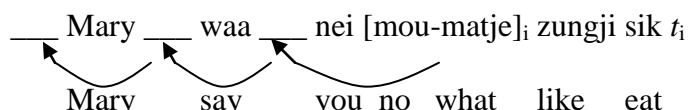
- (36) John [mou-matje]_i jung t_i ngo jiukou kui ge.

- John no what use I request him GE
 (a) 'John uses nothing I ask him to.'
 (b) 'John does not use anything I ask him to.'

In both (35) and (36), the deletion of VP is contained within the NP as a consequence of overt QR. Even if the deletion is recovered by copying its antecedent, the grammaticality of the sentences is maintained without producing infinite regress.

3.4. Left Dislocation of *Mou+wh-phrases*

The above sections present the general observation that the obligatory raising of the neg-whQ to a preverbal position in Cantonese is a consequence of the overt QR, and suggest the idea that *mou+wh-phrases* move along as a whole constituent. In this section, I will present data regarding optional movement² of the neg-whQ after the obligatory QR and suggest the resemblance of neg-whQs to any ordinary DPs in Cantonese for left dislocations.

- (37)  Mary waa nei [mou-matje]_i zungji sik t_i
 Mary say you no what like eat
 (a) 'Mary says you like to eat nothing.'
 (b) 'Mary says you don't like to eat anything.'

As illustrated in (37), the neg-whQ can further be raised to any pre-subject and preverbal positions after the obligatory QR. (37) indicates the possible landing sites for this optional successive movement.

Left dislocation of neg-whQs not only adds focus to the raised neg-whQ, but also cancels weak crossover (WCO). In accordance with Mahajan's (1990) proposal regarding the difference between internal and long distance scrambling, I argue that the neg-whQ undergoes 'clause-internal' A-movement as well as optional 'long-distance' A'-movement.

- (38) *Kui_i aamaa mou-bingo_i toujim t_i
 His mother no who hate
 '*His_i mother hates nobody_i.'

The ungrammaticality of (38) illustrates that WCO is observed where the pronoun appears within the subject NP and the neg-whQ appears as the object and they are coindexed. The anaphor *kui* 'his' in a DP in the subject position cannot be bound where it is not c-commanded by the neg-whQ *mou-bingo* 'nobody' after the overt QR.

- (39) [Mou-bingo]_i, [kui_i aama] t_i toujim t_i
 No who his mother hate
 'Nobody_i, his_i mother hates.'
 = 'There is nobody such that his mother hates him.'
 (40) Ngo [mou-bingo]_i waa t_i [kui_i aama] t_i toujim t_i /(kui_i)
 I nobody say his mother hate him
 'Nobody, I said that his mother hates him.'

² This optional movement is subject to an island effect. Long distance movement is not allowed when the embedded clause is marked finite with aspect such as *-guo* and *-zo* in Cantonese.

e.g. * Mary [mou-matje]_i waa [_{CP} nei maai-zo t_i]
 Mary no what say you buy-PFV
 'Mary says you bought nothing.'

(41) Someone_i is likely [_{IP} t_i to win the race] (Saito, 1992: 89, example 45)

However, the WCO effect is repaired in the case where the object neg-whQ *mou-bingo* undergoes successive optional movements after the obligatory overt QR and lands in the sentential initial position in (39). Besides, grammaticality is maintained remedying the WCO effect with long distance optional movement even without the resumptive pronoun in the object position in (40). The neg-whQ *mou-bingo* moves out of the embedded clause binding the anaphor *kui* within the subject DP, and successfully cancels WCO as well. This could well explain the successive cyclic movements that neg-whQs undergo. The clause-internal A-movement of *mou-bingo* in (40) cancels WCO. Then the neg-whQ undergoes A'-movement and takes wide scope with respect to the matrix verb. Unlike (41) in English, *someone* moving within CP may take either wide or narrow scope with respect to the word *likely*.

(42) ??Ngo [mou-bingo]_i gotdak t_i nei t_i gin-guo *(kui)
 I no who think you meet-PFV him
 'Nobody, I think that you met him.'

Strong islandhood (Chomsky 1986; Ross 1967) is observed when the embedded clause is marked finite with the past tense marker *-guo* or *-zo*. The optional further raising from the embedded clause is forbidden unless a resumptive pronoun is present (Aoun, Choueiri, & Hornstein, 2001) and the ungrammaticality is loosened in (42).

This section summarises the possible optional movements that a neg-whQ undergoes to any preverbal and pre-subject positions after the obligatory QR, and suggests that such left dislocation of a neg-whQ in overt syntax actually cancels the WCO effect. In addition, long-distance movements are subject to an island effect, but can be rescued by a resumptive pronoun.

4. ACCOUNTING FOR THE DATA

In this section, I will include data on NPI licensing and WCO cancellation in dative and infinitival constructions.

4.1. Licensing NPI in dative constructions

Several scholars (Li 1992, Cheng 1994, 1995, Lin 1996, Cheng & Rooryck 2000) discuss the licensing of wh-phrases as polarity items in Mandarin Chinese, and Cantonese wh-phrases are licensed by negations as NPI as in MC.

(43) Koei mou fatjin matje
 He no discover what
 'He doesn't discover anything.'

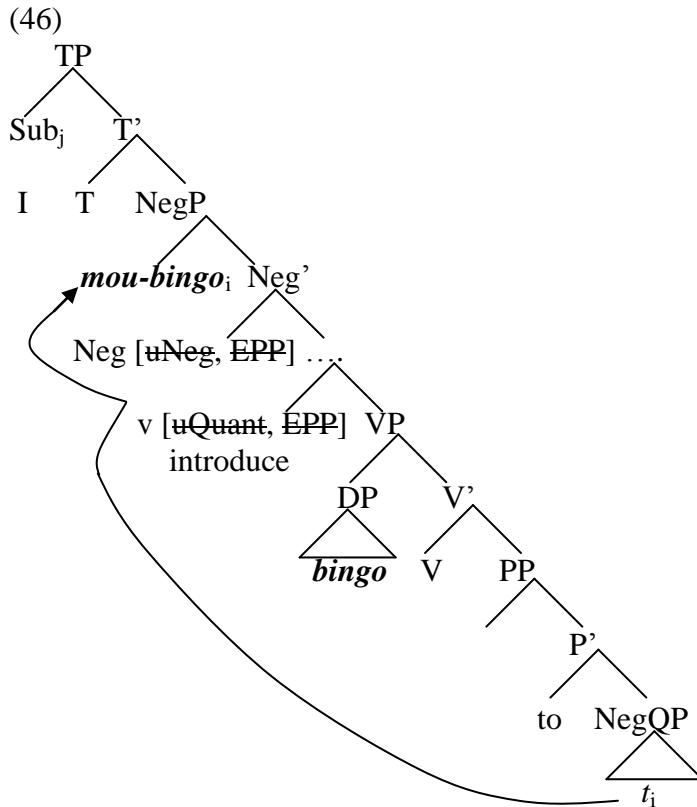
Example (43) illustrates how *mou* licenses wh-phrase *matje* as NPI in Cantonese.

The proposed overt QR of the NegQP licenses another wh-phrase as NPI in dative constructions, where the neg-whQ is the indirect object undergone raising to preverbal position and the licensed wh-phrase as NPI is the direct object.

(44) *Ngo gaaisiu bingo bei [mou-bingo]
 I introduce who to no who
 ?'Who do I introduce to nobody?'
 (45) Ngo [mou-bingo] gaaisiu bingo bei t_i

- I no who introduce who to
 (a) ‘Nobody, I introduce anyone to.’
 (b) ‘I do not introduce anyone to anyone.’

The overt QR not only saves (44) syntactically since *mou-bingo* cannot stay in-situ, but also semantically as (45) gives the possible reading where the direct object *bingo* is licensed as NPI. The structure in (46) explains how the licenser-licensee relationship is preserved by overt QR.



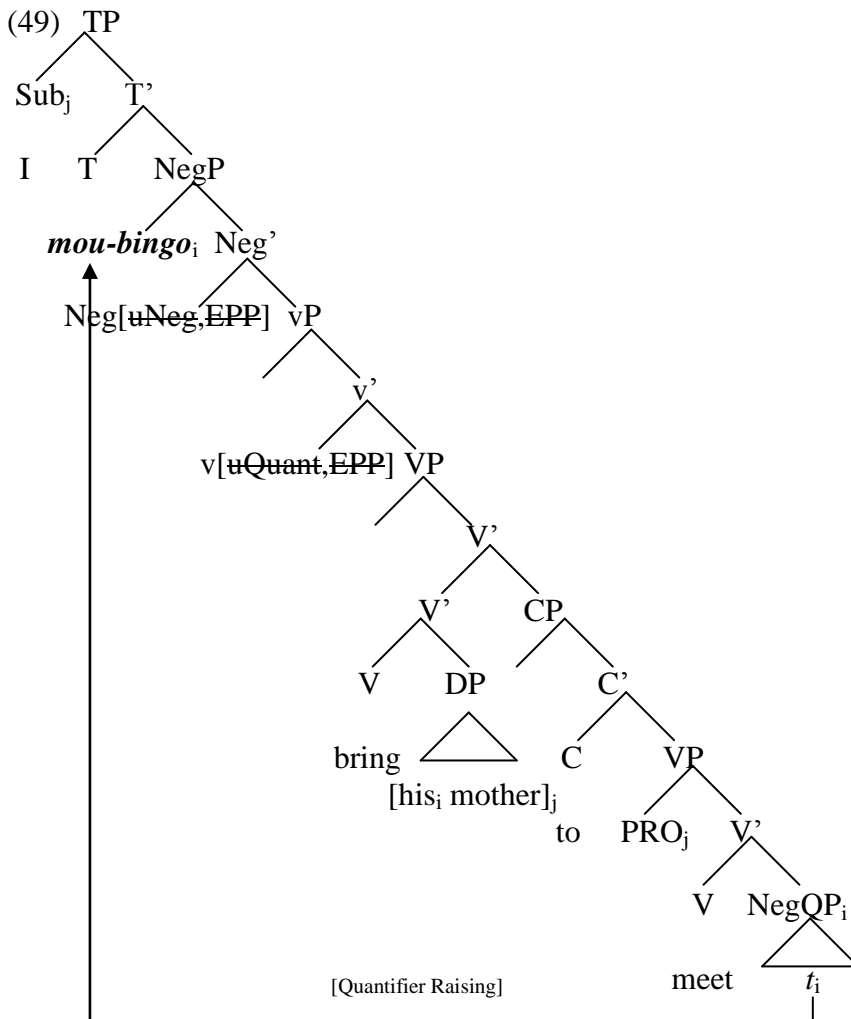
The neg-whQ which originally stays inside the PP does not c-command the wh-phrase in DP, and (44) has an interrogative interpretation which makes no sense. In the representation (46), the raised NegQP *mou-bingo* not only satisfies the [uQuant], [uNeg] and EPP features and provides grammaticality, but also creates the c-commanding relationship with the direct object wh-phrase *bingo* and licenses it as NPI “anything” giving rise to the possible interpretations in (45a-b).

4.2. Cancelling WCO in infinitival constructions

The proposed overt QR of NegQP also cancels the WCO effect, where a neg-whQ is the complement of the verb within the infinitival and the anaphor is within the direct object of the main verb.

- (47) *Ngo daai [kui_i aa ma] hui gin [mou-bingo]_i
 I bring his mother to meet no who
 ‘I bring his_{*i/j} mother to meet nobody_i.’
- (48) Ngo [mou-bingo]_i daai [kui_i aa ma] hui gin t_i
 I no who bring his mother to meet
 ‘Nobody_i, I bring his_{i/j} mother to meet.’

The construction in (47) is ungrammatical with the neg-whQ in-situ. Also, it observes the WCO effect when *mou-bingo* is co-indexed with the anaphor *kui*. However, the overt QR provides grammaticality in (48) cancelling WCO where *mou-bingo* now successfully binds the anaphor *kui* as illustrated by the representation (49).



The neg-whQ *mou-bingo* as the object in the infinitival undergoes overt QR, first raising to [spec, vP] to value [uQuant] and satisfy the EPP feature, then raising successively to [spec, NegP] to satisfy both [uNeg] and EPP features. As long as it c-commands the anaphor *kui* within the DP as the object of the matrix verb, the WCO effect is cancelled, rendering (48) grammatical.

4.3. Licensing wh-phrase as NPI in infinitival constructions

Again, the proposed overt QR to neg-whQ licenses the object wh-phrase of the matrix verb as NPI and accounts for the declarative interpretation.

(50) *Ngo daai bingo hui gin [mou-bingo]
 I bring who to meet no who
 ?'Who do I bring to meet nobody?'

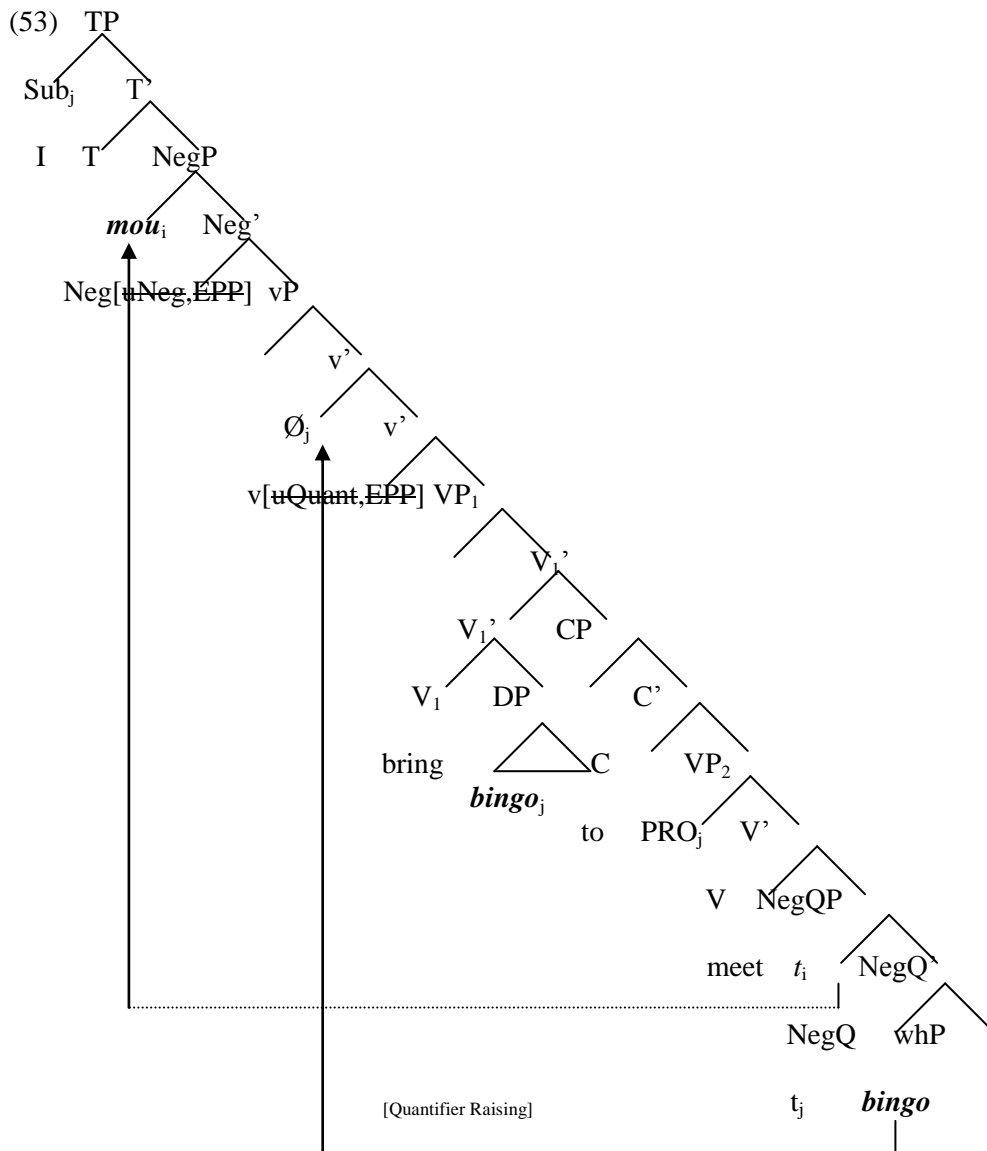
(51) Ngo [mou-bingo]_i daai bingo hui gin t_i
 I no who bring who to meet

- (a) ?‘Who do I bring to meet nobody?’
- (b) ‘Nobody, I bring anyone to meet.’

Example (50) is ungrammatical with the neg-whQ in-situ at the object position in the infinitival and allows only an interrogative interpretation where the wh-phrase is not licensed as NPI, whereas in (51) the interrogative reading is suppressed and the direct object *bingo* is now licensed as NPI giving the reading in (b). The structure for (51) is similar to the one in (48) and it is not repeated again.

- (52) Ngo mou_i daai bingo hui gin [t_i bingo]
- I no bring who to meet who
- (a) ‘I don’t bring anyone to meet anyone’
- (b) ‘Who do I not bring anyone to meet?’
- (c) ‘Who do I not bring to meet anyone?’

As I proposed, the structure could account for the case where only the negator *mou* raises to preverbal position in (52). The representation (53) explains the ambiguity of (52) due to the overt raising of *mou* from NegQP.



With only the negator *mou* raising out of the NegQP, it satisfies [uNeg] and the EPP feature at [spec, NegP]. The quantifier operator \emptyset raises to [spec, vP] and satisfies [uQuant] and the EPP feature, and licenses the wh-phrase *bingo* in-situ inside NegQP as NPI. In the representation (53), the negator *mou* c-commands both wh-phrases *bingo* in VP₁ and in NegQP. This gives rise to the declarative interpretation that both *bingo* phrases are licensed as NPIs, and the interrogative interpretations that either *bingo* is licensed as NPI while the other remains to be interrogative.

4.4. Summary

Under the proposed structure, a neg-whQ undergoing obligatory and overt QR cancels WCO in dative constructions, and also licenses another wh-phrase as NPI in dative constructions and infinitival constructions. This is observed when the neg-whQ *mou-bingo* is the indirect object binding the direct object *bingo* in the former construction, and it is the object in the infinitival binding the object *bingo* in the matrix clause after the overt QR.

5. CONCLUSION

To conclude, this study illustrates the overt quantifier raising phenomenon of object quantifiers in Cantonese, in particular the negative-wh-quantifiers (Neg-whQ). The proposed structure NegQP is a composition of the specifier *mou* carrying the [neg] feature, the head of an unpronounced quantifier operator \emptyset carrying the [quant] feature and the wh-phrase. This study follows Chomsky's idea that QR is driven by [uQuant] at [spec, vP] and by satisfying EPP features. The proposed NegQP accounts for constructions where the whole phrase NegQP moves to a preverbal position giving an SOV order and constructions where only the negator *mou* moves to a preverbal position licensing the wh-phrase in situ as NPI. It can be extended to account for all strong quantifiers in Cantonese in future research.

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A Constraint-Based Model of Word Stress in Polish English Acquisition: 'An American in Paris'*

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This paper proposes an examination of English word stress which is part of my greater research project devoted to Polish English (henceforth PE) word stress acquisition (cf. Marczak 2008). It will be shown that a quasi-OT approach, using Burzio's (1995) suggestion to insert null vowels after final consonants, does not only offer a solution for English word stress assignment, but also shows a way of how to deal with stress on prosodic words, without making use of arguments other than phonological ones.

1. INTRODUCTION

When it comes to English stress, one may come across a striking difference between

- (1) in America
- (2) an American

In both (1) and (2) main stress falls on the same syllable, the second syllable of the word America. However, in (1) secondary stress appears on the first syllable of the whole phrase, so on 'in', whereas example (2) has no secondary stress at all.

One may try to explain this difference in terms of parts of speech, such as article and preposition, but here it will be shown how this difference can be explained in terms of constraint ranking and thus within an OT-like approach, such as the one proposed by Burzio (1995).

2. CLASSIFICATION

English word stress is a complicated matter, as has been shown by Chomsky and Halle's (SPE; 1968), McCarthy and Prince (1990), Liberman (1997), Hayes (1995) and others.

This is the result of a historical process. As is well known, the Germanic language English borrowed huge parts of its lexicon from French, a Romance language with a completely different stress pattern. This clash of systems resulted in the very idiosyncratic stress pattern of present modern English.

Traditionally English word stress has been described to consist of mainly four types. A large majority of English words fall into one of the following four classes:

- a. Stress on the 'superheavy' final syllable: *contain, decide, pertain*.
So, mostly verbs.
- b. Stress on the penultimate syllable with the final syllable being heavy and ending in a final consonant: *inhabit, merit*.

* I wish to express my deepest gratitude to Luigi Burzio for his very helpful comments. However, it goes without saying that he cannot be responsible for the remaining shortcomings of the article.

Again mostly verbs.

- c. Stress on the heavy penult: *consensus, cumulonimbus*.

Mostly nouns.

- d. Stress on the antepenultimate syllable with the penult light: *cabinet, asterisk*.

Mostly nouns.

In a more formal notation:

- a. ...**(H)** <C>
- b. ...**(XL)** <C>
- c. ...**(H)** <X>
- d. ...**(XL)** <X> ,

where H stands for super heavy, L light, C consonant and X a variable.

Although this classification is well known, it is not very satisfactory. Not only since three of the four classes contain words which overtly end in a vowel: *obey, veranda, remedy*, but mainly because of the role of [H]. As Burzio (1994: 11) pointed out [H] offers problems when it comes to stress clashes. In a compound such as *nineteen* both *nine* and *teen* are [H] and so two [H] syllables follow each other without an intermediate [L]. Normally [H][H] is forbidden, which may raise question about the status of [H] or may lead to the introduction of an intermediate segment. That is what Burzio (1994:17) suggested. When discussing the difference between *contain* and *container*, he suggested the same description for both forms. *Contain* is stressed just like its derivation, because the two words are syllabically equivalent according to Burzio's description, for the syllabic form of *contain* is *con.tai.nø*, with ø as a null vowel¹. This solution also works for *nineteen*, since *nine* should be syllabified as *ni.nø*. So the syllabic structure of *nineteen* should be [H][L][H]. However, ø is not 'light' but 'weak' in Burzio's terms, or ultralight [U], as it is called here, since weak may suggest a binary relation with strong, a term which is not used in this approach. So the syllabic structure of *nineteen* is [H][U][H].

Having introduced the concept of null vowels², the classification given above may be improved as follows, where feet should be read instead of syllables, since we are discussing the weight of syllables³:

- a. ...**(HX)**
- b. ...**(XLX)**
- c. ...**(HX)**, where the final null vowel is extrametrical
- d. ...**(XLX)**, where the final null vowel is also extrametrical,

where two classes are dactylic (b&d) and the two others trochaic (a&c), which restricts the classes of feet to two: (HX), trochaic and (XLX) dactylic where in two classes the final null vowel is metrified (a&b) and is extrametrical in the two others (c&d). Verbs strongly tend to metrify the final null vowel, whereas nouns do not.

Instead of a classification consisting of the four classes we started with, we end here with a classification consisting of two classes plus the notion extrametricality⁴.

¹ for null vowels see also Harris and Gussmann (1998)

² In the representations used in the rest of this article we will assume that a final consonant should always be followed by a null vowel.

³ In this study we do not make use of the notion 'mora' since this research is part of a greater research project which studies Polish English, especially stress acquisition in Polish English (cf. Marczak 2008). While English might be seen as a mora counting language, Polish is not, just as Polish English. Therefore, we cannot make use of the same phonological apparatus when comparing the two languages. Consequently, we have chosen not to make use of morae and to describe English word stress differently.

3. GENERATOR

So far English word stress has only been described; when it comes to generate words with the right stress pattern, one has to start from a different angle.

In such a generator one should distinguish between six steps:

1. Add a null vowel after a final consonant
2. Syllabify the resulting word form and assign weight to the syllables. Mark a final syllable consisting of C + \emptyset as [U].
3. In case there is a final [U], split the syllabified input form in one of the following two ways:
 - a. with final [U] as extrametrical in case of nouns
 - b. with final [U] as metrified in all other cases
4. In case the penultimate syllable is likewise [U], then assign extrametricality to [U][U].
5. Assign feet from right to left. Choose between the two priority options trochaic (HX)⁵ or dactylic (XLX). If this turns out to be impossible try the suboptimal foot (LX); if this last option is impossible mark the syllable as a stray and skip it. Since foot assignment is a cyclic process, repeat the process till there are no syllables left.
6. Assign main stress to the rightmost foot, unless it is of the form (XU) and there happens to be another foot to the left, in which case one should assign stress to this foot.

3.1. Examples

The generator sketched above is able to produce examples such as:

1. Arizona

Step 1: vacuous, since there is not final consonant

Step 2: a. ri.zo. na

L L H L

Step 3: vacuous, since there is no final [U]

Step 4: vacuous, since there is no penultimate [U]

Step 5: L L (HL)

(LL) (HL)

Step 6: (LL) (‘HL) > ariˈzona⁶

2. robust

Step 1: robust \emptyset

Step 2: ro. bus. t \emptyset

L H U

Step 3: L (HU)

Step 4: vacuous

Step 5: L (HU), where L is a stray

Step 6: L(‘HU) > roˈbust

⁴ In English one finds extrametricality at the right edge. Furthermore, it is optional and limited to a small class of syllables defined by the acoustic weakness of their nuclei: \emptyset , i, \emptyset and syllabic consonants. These syllables are [U] (cf. Marczak 2010).

⁵ Underlining means stressed here.

⁶ Secondary stress (on the first foot) is not mentioned here.

3. nominative

Step 1: nominative

Step 2: no. mæ. nə. ti. vø

L L L U⁷ U

Step 3: L L L U <U>

Step 4: L L L <U U>

Step 5: (L LL) <UU>

Step 6: (ˈLLL) <UU> > ˈnominative

4. decide

Step 1: decidø

Step 2: de. ci. dø

L H U

Step 3: L (H U), since decide is –N(oun)

Step 4: vacuous

Step 5: L (HU), where L is a stray

Step 6: L (ˈHU)> deˈcide

5. participant

Step 1: participantø

Step 2: pa. ti. ci. pan. tø

H L L H U

Step 3: H L L H <U>

Step 4: vacuous

Step 5: H (LLH) <U>, where the first H is a stray

Step 6: H (ˈLLH) <U> > parˈticipant

6. participate

Step 1: participatø

Step 2: pa.ti. ci. pa. tø

H L L H U

!Step 3 H L L H <U>, U is extrametrical as if *participate* is +N(oun)

Step 4 vacuous

Step 5: H (LLH) <U>, where the first H is a stray

Step 6: H (ˈLLH) <U> > parˈticipate

7. productivity

Step 1: vacuous

Step 2: pro. duc. ti. vi. ty

L H L L U

!Step 3: L H (L L U), U is metrified as if *productivity* was –N(oun)

Step 4: vacuous

Step 5: LH (LL U)

(LH) (LLU)

Step 6: (LH) (ˈLLU), producˈtivity⁸

As might be clear from these examples the generator as sketched above does not account for all cases. Especially the relation between extrametricality and parts of speech needs refinement. Moreover, step 4 turns out to be more or less superfluous. Step 4 is only not

⁷ See footnote 2.

⁸ Secondary stress (on the first foot) is not discussed here.

vacuous in cases like *nominative* and other words ending in *-(at)ive*, a small class of English words.

Furthermore it turns out not to be an incident that the generator produces the wrong results as in (7) and (8), where assignment of extrametricality conflicts with parts of speech.

See for instance the nouns *brocade* and *cement*.

9. brocade	cement
step 1: brocadø	cementø
step 2: bro. ca. dø	ce. men. tø
L H U	L H U
!step 3: L (HU)	L (HU), U is metrified as if these words were -N(oun)
step 4: -----	-----
step 5: L (<u>HU</u>)	L (<u>HU</u>)
step 6: L (‘HU) > bro‘cade	L (‘HU) > ce‘ment

10. hesitate	penalize
step 1: hesitatø	penalizø
step 2: he. si. ta. tø	pe. na. li. zø
L L H U	H L H U
!step 3: L L H <U>	H L H <U>, U is extrametrical as if these forms were +N(oun)
step 4: -----	-----
step 5: (<u>LLH</u>)<U>	(<u>HLH</u>)<U>
step 6: (‘LLH) <U>	(‘HLH) <U>
> hesitate	> ‘penalize

Because of this serious weakness of the generator we will use a different approach for English stress placement, a more classical OT-like approach.

4. CONSTRAINTS

In the model which will be sketched here we do not use rules or steps as with the generator before, but constraints. These constraints are not absolute, but they are violable. It is the amount and the ranking of the constraints that decides about the preference for a possible output.

We start with a possible inventory of constraints, in which the simplest constraints come first.

- (1) *UNARYFT: Feet are not unary
- (2) *LONGFT: Feet are most ternary
- (3) FTHEAD_{LT}: carry one stress each, on the left edge
- (4) FTWEIGHT_{MAX₂₆}: Foot weight is at most 26⁹
- (5) RTMOSTPRIMARY: Primary stress is carried by the rightmost foot
- (6) *STRESSWEAK: No stress falls on syllables with weak¹⁰ nuclei
- (7) IDSTRESS: Output stress matches input stress, if any (faithfulness constraint)
- (8) *STRAYSTRING: There are no strings of stray syllables
- (9) *WDINTFINSTRAY: There are no stray syllables word-internally or word-finally

⁹ In counting foot weight H = 6, L = 2, U = 1. So trochees are weighted 2–1, dactyls are weighted 2–4–1. The heaviest foot allowed in English (HLH) thus weights (2x6)+(4x2)+(1x6) = 26. The method of calculating foot weight used here is positional, rather than adding up morae (see footnote 1). The numbers are chosen arbitrarily.

¹⁰ For weak nuclei see footnote 2

- (10) PRESERVE_{STRESS}: Derived and inflected forms preserve the pattern of the stem words as (part of) their stress pattern
- (11) FT_{WEIGHT}MIN₁₃: Foot weight is at least 13¹¹
- (12)* METRIFY_{UNOUN}: Nouns do not metrify the final U syllables
- (13) METRIFY_{U_{VERB}}: Verbs metrify final U syllables
- (14) METRIFY_{U_{VV∅}}: Final U syllables are metrified long vowels
- (15) ID_{METRIFYU}: Output extrametricality matches input extrametricality, if any

A possible ranking for English may be:

*UNARY_{FT}, *LONG_{FT}, FT_{HEAD}LT, FT_{WEIGHT}MAX₂₆, RT_{MOST}PRIMARY, *STRESS_{WEAK},
ID_{STRESS} >> *STRAY_{STRING} >> *WD_{INT}FIN_{STRAY} >> PRESERVE_{STRESS}
(/FT_{WEIGHT}MIN₁₃)

and *UNARY_{FT} >> *METRIFY_{UNOUN}

and ID_{METRIFYU} >> METRIFY_{U_{VV∅}} >> *METRIFY_{UNOUN}, METRIFY_{U_{VERB}}

The examples given above can be explained within this approach as follows: The numbers in the examples below refer to the numbers of the constraints given before.

1. Arizona¹² ærɪ 'zəʊ nə
 (LL) (HL)

- (1) NA (= non applicable)
- (2) yes
- (3) yes
- (4) (6) (14)
- (5) yes
- (6) yes
- (7) NA
- (8) NA
- (9) NA
- (10) NA
- (11)! violation by first foot
- (12) NA
- (13) NA
- (14) NA
- (15) NA

Optimal output: Ari'zona
 (LL)(HL)

In *Arizona* only constraint (11) is violated by the first foot, which has no consequences for stress assignment.

In the next examples constraints that are not applicable will be omitted. An exclamation mark signals violation of a constraint.

2. robust rəʊ 'bʌ stə
 L (LU)

- (2) yes

¹¹ The lightest heavy trochee (HU) weights (2x6)+(1x1) = 13

¹² Secondary word stress is not discussed here and elsewhere.

- (3) yes
 (4) Ø¹³ (5)
 (5) yes
 (6) yes
 (11)! violation

Optimal output: roˈbustø
 L (ˈL U)

In *robust* again constraint (11) is violated, which has no consequence since the foot that violates the minimum weight condition is the only one to bear stress.

3. nominative ˈnɔ mənətiv
 (L L L)U U

- (2) yes
 (3) yes
 (4) 14 Ø
 (5) ! no
 (6) yes
 (11)yes
 (15)yes

The optimal output would be *nomiˈnativø* ,(LLˈL) UU, without violation of (5) but with a bizarre foot type. However, the attested stress pattern is *ˈnominativø*, (ˈLLL)UU. So far *nominative* and other words ending in *-(at)ive* seem to be an exception or one might add a constraint on foot types.¹⁴

4. decide dɪˈsaɪdø
 L (H U)

- (2) yes
 (3) yes
 (4) Ø 13
 (5) yes
 (6) yes
 (11)yes
 (13)yes

Optimal output: deˈcidø
 L(ˈH U)

In the next example three competing outputs will be presented.

5a. participant
 pɑ :ˈtɪsɪpəntø
 H (L L L)U
 (1) ! violation left edge

5b. participant
 pɑ :tɪsɪˈpəntø
 (HLL) (HU)

5c. participant
 pɑ :øˈtɪsɪpəntø
 (HU) (LLH)U

¹³ Ø means not counted.

¹⁴ One should note that the generator above needed an extra step, step 4, to account for this small group. Apparently stress placement is a lexical matter for this subclass and should be accounted for in the lexicon. Therefore, one can imagine that the input should be supplied with this information.

(2) yes	(2) yes	(2) yes
(3) yes	(3) yes	(3) yes
(4) Ø 14	(4) ! (30) (13)	(4)
(5) yes	(5) violation	(5) yes
(6) yes	(6) yes	(6) yes
(10) yes	(10) yes	(10) yes
(11) yes	(11) yes	(11) yes
(12) yes	(12) ! violation	(12) yes
(15) yes		(15) yes

Optimal output: pa'ticipantø *patici'pantø paø'ticipnatø
H('LLL)U HLL)('HU) (HU)(LLH)U

The second optional output will not be realised because of three violations, instead one by the first output and none by the last. However, in the last case (5c) a null vowel follows a vowel, which is a not very desirable solution.

6. participate ¹⁵	pa : 'tʰisipɛitø H(LLL)U	7. productivity	prɔ dʌ k 'tɪvəti (LH)(LU)U
(1) ! violation left edge		(2) yes	
(2) yes		(3) yes	
(3)		(4) (10) (5) Ø	
(4)		(5) yes	
(5)		(11) !! both feet <13	
(11)		(12) yes	
(13)		(15) yes	
(15)			

Optimal output: par'ticipate Optimal output: produc'tivity
H('LLL)U (LH) ('LU)U

The optimal output for *participate* violates two constraints, but as we have seen, the violation of constraint (1) may be solved by inserting a null vowel. In that case only the violation of a minor constraint (13) is left.

In the case of *productivity* the violation seems to be more serious. However, one should not forget that *-ivity* and similar suffixes are stress attracting, see *'active – acti'vity*.

In the next and last examples only violations of constraints will be shown.

8. brocade	brəʊ 'keɪdø L (HU)	9. cement	ci'mentø L (HU)
(1) ! violation left edge		(1) ! violation left edge	
(4) Ø 13		(4) Ø 13	
(12) ! violation, <i>brocade</i> follows verb pattern		(12) ! violation, verb pattern	

Optimal output: bro'cadø Optimal output: ce'mentø
L('HU) L ('HU)

Violation of constraint (1) may be solved again by inserting a null vowel.

¹⁵ For *participate* we could give three alternative foot structures as in the case of *participant*, but since the option (HLL) (HU) would violate more or less the same constraints as in 5b. and since we do not want to give a second example with a full vowel followed by a null vowel, we only describe the option H(LLL)U.

10. hesitate	ˈheziteitø (LLH)U	11. penalize	ˈpi:nəlaizø (HLH)U
(4) 18 Ø		(4) ! 34 Ø	
(13) ! violation, U not metrified		(13) ! violation, U not metrified	
Optimal output:	ˈhesitatø (ˈLLH)U	Optimal output:	ˈpenalizø (ˈHLH)U

As may be clear from these examples, most of these forms violate one or more constraints. That is exactly what one may expect when discussing a not absolutely regular system as the English stress system. However, almost none of these examples weakens the approach.

5. RANKING

Ranking of constraints may explain why a certain output is preferred, as will be shown in the next example. In this and the other following examples only a few possible candidates will be discussed.

1. Alabama

Alabama	* STRESSWEAK	* STRAYSTRING	* WDINTFINSTRAY	FtWEIGHTMIN ₁₃
a(ˈlabama)	*			
ala(ˈbama)		*		*
(ˈalaba)ma			*	
☞ (ala) (ˈbama)				*

This example shows among other things that violating constraint (11), FtWEIGHTMIN₁₃, is less harmful than violating constraint (6), * STRESSWEAK, which proves that constraint ranking plays a role in stress assignment.

The partial ranking which follows from this example is: * STRESSWEAK >>

* STRAYSTRING >>>

* WDINTFINSTRAY >>> FtWEIGHTMIN₁₃.

2. Second class

Stress assignment operates similarly in cases with NP's. Also in this case the input form should conform to the representation rules, which implies that a null vowel should follow a final consonant. Exclamation mark means violation of a constraint, as before.

Input:	2a. secondø classø secon(døcla)sø (3) FtHEAD _{LT}	2b. secondø classø se(condøcla)sø (6) ! * STRESSWEAK (8) ! * STRAYSTRING	2c. secondø classø (secondø) (classø) (4) ! FtWEIGHTMAX ₂₆ (9) * WDINTFINSTRAY
Output	secondøˈclassø	seˈcondø classø	ˈsecondø classø

The winning output (2c) violates only one, low ranking, constraint, (4) ! FtWEIGHTMAX₂₆.

America

In the first paragraph of this article we introduced the difference between

- (1) in America
- (2) an American

We promised to give an analysis in which parts of speech do not have to play a role. Here follows an analysis that makes use of phonological arguments only.

:	(3) America	(4) American
	Input əmerikə	əmerikənø
	ə(merikə)	ə(merikə)<nø>
	(L L U)	(L L U) U

Optimal output A´merica A´merican

There are of course several losing outputs as well, but we do not discuss these here since we are interested in the differences between (1) and (2). In the following analysis we will give an example of a losing output and of the optimal output. Of course there are several more losing candidates to imagine.

:	(5) In America	(4) An american
	Input məmerikə	ənəmerikənø
	mə(merikə)	ənə(merikə)<nø>
	(L L U)	(U U) (L L U) U
	(8) !* STRAYSTRING	(6) !* STRESSWEAK,
		the first foot would be stressed

Losing output in A´merica ´an A´merican

(7)	In America	(8) An american
	Input məmerikə	ənəmerikənø
	(i.nə)(merikə)	ənə(merkə)<nø>
	(L U) (L L U)	(L L U) U
	(11) ! FTWEIGHTMIN ₁₃ (first foot)	(8) !* STRAYSTRING
		the first foot would be stressed

Optimal output A´merica A´merican

Analyses (5) and (6) result in losing outputs because the constraints which are violated are ranked above the constraints violated by analyses (7) and (8) respectively. So the evaluator of the system will put the outputs of (5) and (6) aside.

However, the optimal output of (7) is not the actual realisation. Two main stresses within one phrase are impossible. So, one of the main stresses should be reduced. Since the stress on the first foot violates constraint (11), whereas the stress assignment on the second foot does not violate any constraint it is clear that the evaluator would consider second main stress (on *America*) as a better candidate for the resulting main stress. Subsequently the stress on the first foot (on *in*) should be reduced to a secondary stress.

In this way the final output becomes: ɹin A´merica.

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Post-nominal *lá* in the DP-structure: a specificity marker^{*}

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This paper aims at analyzing structures with post-nominal *lá* in Brazilian Portuguese, such as *essa/a mulher lá* ('this/the woman there'). In these structures, *lá* is used to refer to a specific entity treating its identity as unimportant. In this case, we claim that *lá* belongs to the functional DP-hierarchy rather than to an adverbial IP-adjunct or to a VP circumstantial argument. Besides, we hypothesize that *lá* is a specificity marker, due to the fact that it performs pretty much the same role of English indefinite *this* (Marchant 1994), post-nominal Mauritian Creole *la* (Guillemin 2007) and other specificity particles (Lyons 1999). Therefore, we assume that *lá* is merged in the specifier position (Cinque 2005) of a functional category located immediately above the NP and below the modifiers in the DP. Following Guillemin's (2007) proposal for Mauritian Creole, this category might be a SpP (Specificity Phrase).

1. INTRODUCTION

This paper describes and analyzes structures like the ones in (2) with post-nominal *lá* in Brazilian Portuguese (BP).¹

- (1) O menino (que está) lá é meu filho.
'The boy (who is/lives) there is my son.'
- (2) (a) "Aí eu fico assistindo [...] um desenho que [o menino **lá**] gosta muito de esporte"
(Alkmin & Chaves 2009).
then I stay watching a cartoon that the boy lá like-3SG much of sport
'After that, I usually watch a cartoon where this boy likes sports very much.'
- (b) "eu tinha [um colega meu **lá**] que ele trabalhava com negócio de obra"
(Almeida & Carneiro 2008).
I had a colleague my lá who he worked with stuff of building
'I had a certain colleague who used to deal with building stuff.'
- (c) "tinha [aquela mulher **lá**] que veio aqui... éh: como é que chama?"
(Alkmin & Chaves 2009).
had that woman lá who came here ...[hesitation] how is that pro call-3SG
'There was that woman who came here... ah: I can not remember her name.'
- (d) "quando eu acabo o dever, é, eu vejo [desenho **lá**], eu vejo é as [...]"
(Alkmin & Chaves 2009).
when I finish the homework [hesitation] I watch cartoon lá, I watch [hesitation] the ...
'When I finish my homework, ah... I usually watch cartoons.'

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¹ This work belongs to a broader project which aims at: (i) cataloguing the different occurrences of *lá* in Brazilian Portuguese and (ii) analyzing them, preferably, in a unified fashion. We argue that *lá* is merged in spec of functional categories which make up the left peripheries of NP, VP and IP (Pereira 2010).

- (e) “brinco de casinha, pego [umas panelinha véia² lá], pego e brinco”
(Alkmin & Chaves 2009).
play-1SG of house-little, take-1SG some pots-little old lá, take-1SG and play-1SG
‘I usually play house (acting as if I were a housewife), I take some old little pots,
...’
- (f) “o Bastos, ao que parece morava, ainda no tempo da noiva viva, [...] com uma
mulher. E assim com esta continuou, pouco ligando. Bem. **Essa mulher lá** um dia
teve ciúmes”³.
.... *This woman lá one day had jealousies.*
‘Bastos, as it seems, used to live with another woman when her fiancée was still
alive. Over the time, he kept on an affair with this woman and did not care about
the consequences. Well. It happens that one day this woman (the latter) was
fiercely jealous...’

In (1), *lá* is a deictic locative and indicates that the boy (1) is far away both from speaker (1st person) and listener (2nd person). In contrast, *lá* in (2) is not a locative. As such, it does not mean that *um colega meu, o menino, aquela mulher, desenho* and *umas panelinhas velhas* are far from speaker and listener. *Lá* is used in (2) to indicate that the speaker does not want to (or cannot) identify (e.g., by name) the entity he is referring to.⁴

Regarding these issues, this paper is organized into three further sections.

The next section examines the semantic and syntactic properties of non-locative *lá*, being divided into three more subsections: (2.1) points out the differences between post-nominal non-locative *lá* and post-nominal locative *lá*; (2.2) compares non-locative *lá* and English indefinite *this* (Marchant 1994); (2.3) relates post-nominal non-locative *lá* to specificity markers available in many different languages (Lyons 1999).

The third section presents the theoretical background, which is based on Cinque (2005).⁵ Basically, he argues that the NP raises as a maximal projection to Spec, AgrP positions in the DP-hierarchy. This claim will be useful to explain why *lá* may either precede or follow post-nominal modifiers.

Finally, the fourth section hypothesizes that *lá* is merged in Spec, SpP, following Guillemin’s (2007) proposal for Mauritian Creole *la*, a specificity marker. In order to support this hypothesis, we set a parallel between post-nominal *lá* and post-nominal *qualquer* (‘certain’) showing that both are prevented from surfacing in generic contexts.

2. POST-NOMINAL *LÁ*: SYNTACTIC AND SEMANTIC PROPERTIES

So that we can understand the semantic and syntactic properties of structures with post-nominal non-locative *lá*, we will compare this item with: firstly, locative *lá*; secondly, indefinite *this*; and thirdly, specificity markers morphologically realized in different languages.

2.1. Non-locative *lá* versus locative *lá*

Roughly, the use of deictic locatives in the DP follows the pattern shown in (3).

² Standard BP: “umas panelinhas velhas”.

³ www.laderzi.com/claricelinspector/umcasocomplicado.htm. Accessed on: 29th June 2010.

⁴ According to Martellota & Rêgo (1996: 245, our translation), post-nominal *lá* conveys the idea that “the speaker does not want to (or cannot) specify the noun which it refers to”. However, the term “specify” is improper, because, in structures with post-nominal *lá*, the referent is actually specific.

⁵ I would like to thank both Prof. Ian Roberts (p.c.) and Prof. Giuseppe Longobardi (p.c.) for having brought to my attention, respectively, Cinque (2005) and Guillemin (2007).

- (3) (a) **Este** menino **aqui**
This-1SG boy here
 (b) **Esse** menino **aí**
This-2SG boy there
 (c) **Aquele** menino **lá**
That-3SG boy there

The pattern in (3) makes clear that, concerning DPs with pre-nominal demonstratives, *lá* is allowed to co-occur only with the third person demonstrative ('that'), as in (3c). As a result, locative *lá* is prevented from co-occurring either with *este* (1st person demonstrative) (Table 1, (1g)) or with *esse* (2nd person demonstrative) (1f). Crucially, the incompatibility between locative *lá* and demonstratives *esse/este*, on the one hand, and the compatibility between non-locative *lá* and these same demonstratives (2f, g), on the other hand, is a very clear test to show that *lá* in (1) is different from *lá* in (2).

Furthermore, locative *lá* is prevented from co-occurring either with bare NPs (1d) or with indefinite articles (1b), which is allowed with non-locative *lá* (2d, b). A last striking difference is that, while locative *lá* is fully compatible with an embedded clause made up by a stative verb requiring a locative argument, such as 'to live' and 'to be' (1h), non-locative *lá* is not (2h). When an embedded clause is inserted between noun and non-locative *lá*, it results either in ungrammaticality (2d') or in semantic changes (2h).

(Table 1) *Locative lá versus non-locative lá: tests for distinction*

	Locative <i>lá</i> (1)	Non-locative <i>lá</i> (2)
Definite article	a. O menino <i>lá</i> é meu filho. <i>The boy (who is) there is my son</i>	a. um desenho que [o menino <i>lá</i>] gosta ...
Indefinite article	b. *Um menino <i>lá</i> é meu filho. <i>A boy there is my son</i>	b. eu tinha [um colega meu <i>lá</i>] que ...
Demonstrative 'aquele' (that)	c. Aquele menino <i>lá</i> é meu filho. <i>That boy there is my son.</i>	c. tinha [aquela mulher <i>lá</i>] que veio ...
Bare NPs	d. *Menino <i>lá</i> é meu filho. <i>Boy there is my son</i>	d. eu vejo [desenho <i>lá</i>] ... d'. [*desenho que está <i>lá</i>]
Demonstrative 'esse' (2ndP)	f. *Esse menino <i>lá</i> é meu filho. <i>This-2SG boy there is my son</i>	f. [Essa mulher <i>lá</i>] um dia teve ciúmes.
Demonstrative 'este' (1stP)	g. *Este menino <i>lá</i> é meu filho. <i>This-1SG boy there is my son</i>	g. [Esta mulher <i>lá</i>] um dia teve ciúmes.
Embedded clause	h. Aquele menino (que está) <i>lá</i> é meu filho. <i>That boy (who is) there is my son.</i>	h. tinha [aquela mulher (≠que está) <i>lá</i>]

Considering these facts, we may conclude that (2) does not make available a deictic locative reading for *lá*. This reading would be feasible only if there were a clear indication of place, as in (4). However, this is not the case in (2).

- (4) (a) eu vejo desenho ***lá*** na sala ...
I see cartoon there in-the room
 'I watch cartoons there in the sitting room.'
 (b) o menino ***lá*** na cidade gosta muito de esporte ...
the boy there in-the city like-3SG much of sport
 'The boy (who is) there in the town likes sports very much.'

Despite this possibility, we should highlight that, in (4), *lá* does not belong to the nominal structure; rather, it belongs to a clause. For instance, in (4a), *lá* belongs to the IP as an IP-

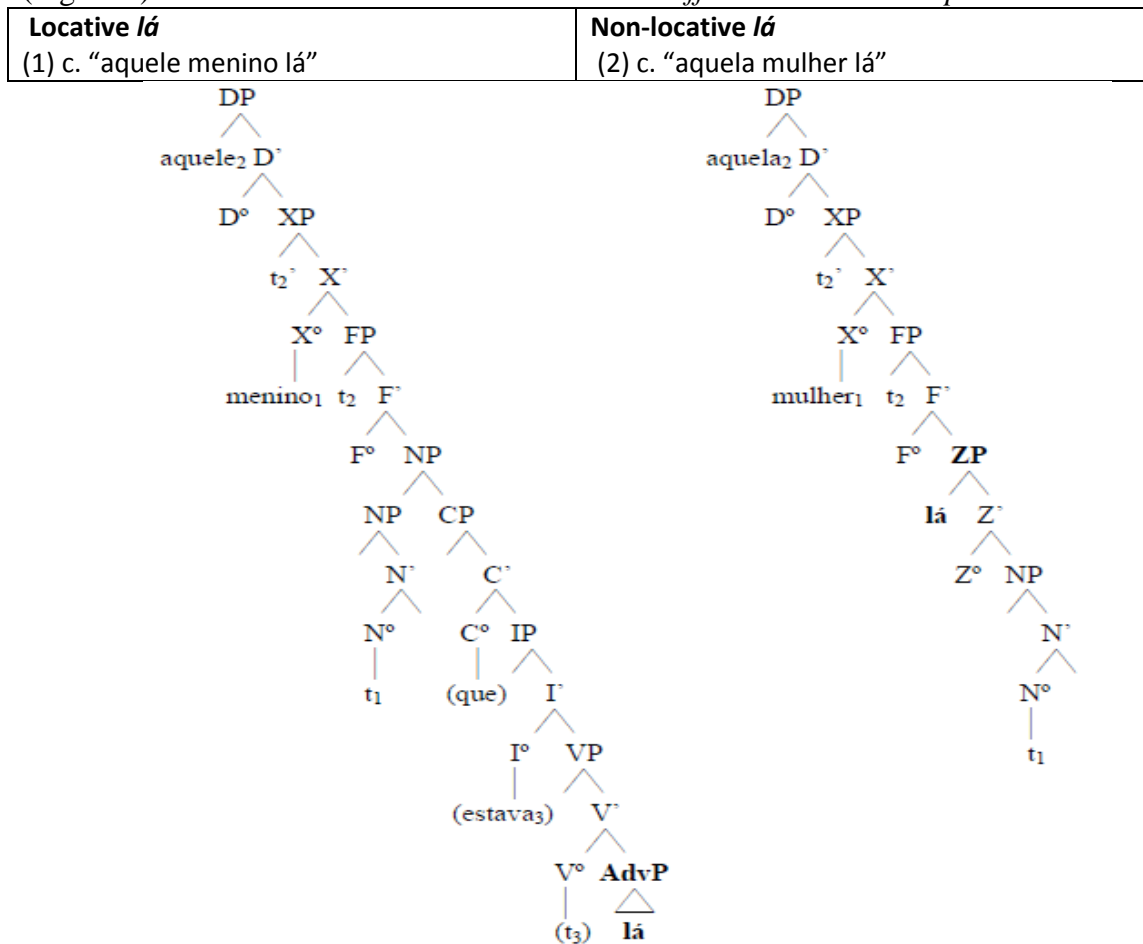
adjunct and, in (4b), *lá* belongs to an unexpressed VP ('the boy (who is) there') as a circumstantial argument of *está* ('is'). This verb makes up a reduced relative clause embedded in the DP. Regarding these facts, we can conclude that, when post-nominal *lá* bears locative reading, it does not belong directly to the DP, but to a clause (IP/VP) embedded in the DP structure.

Consequently, the positions occupied by *lá*, in (1c) and (2c), are definitely distinct, though these structures look as if they were the same.

- (1) (c) [Aquele menino *lá*] é meu filho.
That boy (who is) there is my son.
- (2) (c) “tinha [aquela mulher *lá*] que veio aqui... éh: como é que chama?”
 (Alkmin & Chaves 2009).
had that woman lá who came here ... [hesitation] how is that pro call-3SG
 ‘There was that woman who came here... ah: I can not remember her name.’

In (1c), on the one hand, *lá* is merged lower than the NP, due to the fact that *lá* belongs to a reduced relative clause embedded in the DP: ‘That boy (who is/lives) there’. In (2c), on the other hand, *lá* is merged higher than the NP, according to the hierarchy roughly depicted in the diagrams⁶ below:

(Figure 1) *Locative lá versus non-locative lá: different hierarchical positions*



⁶ The derivation for (2c) is only provisional. Subsequently, it will have some amendments based on Cinque (2005).

To sum up, this section showed that, while locative *lá* belongs either to the IP or to the VP-domain, non-locative *lá* belongs to the DP. Therefore, despite being homonymous and post-nominal, non-locative *lá* and locative *lá* are completely different categories.

2.2. Non-locative *lá* and indefinite *this*

In (5), the use of *this* does not convey spatial deixis.

- (5) “There is **this** scene in, what was that movie, *The Adventures*, **this** lady – she wanted an escort man, you know, to take her places, you know, what do they call them, not gigolos, no, no-no, uh boy.” (Marchant 1994: 17).

According to Marchant (1994), indefinite *this* can be identified, among other tests, by replacing *this* with an indefinite article. However, “Unlike the indefinite article, indefinite *this* is necessarily specific, which is to say, the speaker must have a particular individual in mind in order to use it felicitously” (Marchant 1994: 17-18).

Considering this claim, we should highlight some similarities between non-locative *lá* and indefinite *this*. Basically, *this* is *a priori* a demonstrative which points out to something close to speaker and listener, while *lá* is *a priori* an adverb which points out to a place far from speaker and listener. Nevertheless, both of them have this deictic function replaced in the examples (5) and (2) with another function which conveys a “vague” identification of the referent. Therefore, both indefinite *this* (Ionin 2006) and post-nominal non-locative *lá* act as specificity markers, due to the fact that they indicate that the speaker has a specific entity in mind, though s/he does not identify it clearly.

2.3. Non-locative *lá* and the notion of specificity

According to Lyons (1999: 165), indefinite NPs can be specific or non-specific. For instance, while in (6a) the speaker has a specific referent in mind for the DP ‘a business partner’, in (6b), there is no specific referent for the same DP.

- (6) (a) “Liz is looking for **a business partner**—the poor fellow disappeared last month and she suspects he’s been kidnapped.” (Lyons 1999: 168).
 (b) “Liz is looking for **a business partner**—but it will have to be someone with plenty of experience in catering.” (Lyons 1999: 168).

In other words, “In the specific reading the speaker has a particular one in mind, and the hearer is given to understand that the speaker has one in mind. In the non-specific reading the identity of the singular referent is unknown to both speaker and hearer.” (Hawkins 1978: 211).

Again, according to Lyons (1999: 57), specificity refers to “the phenomenon of a language encoding something which resembles definiteness, but not very closely”. Therefore, there is not a very well shaped and delimited concept for this category, but the fact is that “articles marking specificity, or something close to specificity, rather than definiteness are fairly widespread” (Lyons 1999: 59).

For instance, “Samoan distinguishes a ‘specific’ article *le* and a ‘non-specific’ article *se*” (Lyons 1999: 57). However, *se* (7) “is also used where there is a particular referent but the identity of this is either not known exactly to the speaker or considered unimportant or uninteresting” (Lyons 1999: 58).

- (7) Sa fesili mai se tamaitai pó-o ai l-o ma tama
 PAST ask DIR ART lady WH PRT who ART POSS 1EXCDU⁷ father
 ‘A lady asked us who our father was’ (Lyons 1999: 58).

Analogously, in Maori, the item *teetahi* (made up of *te* and *tahi* ‘one’) is a specific indefinite differing from *te* which is a definite article and from *he* which is a non-specific indefinite marker. In Shuswap, the article *k* “indicates that the referent is ‘uniquely determined for the speaker’” (Lyons 1999: 59). In Sango, the particle *ní* “is used to ‘identify or single out a particular object’” (Lyons 1998: 59). In Sissala, *bál ré* means ‘a man’ (non-specific) while *bááló né* means ‘a man’ (specific). (Lyons 1999: 177). Finally, Lyons (1999: 176) also mentions English indefinite *this* as a specificity marker.

To conclude, specificity markers “embrace instances where the speaker may be in a position to identify the referent of the noun phrase but chooses to treat its identity as significant or not” (Lyons 1998: 178). Because this is the role played by post-nominal non-locative *lá*, we claim that it may be described as a specificity marker in BP.

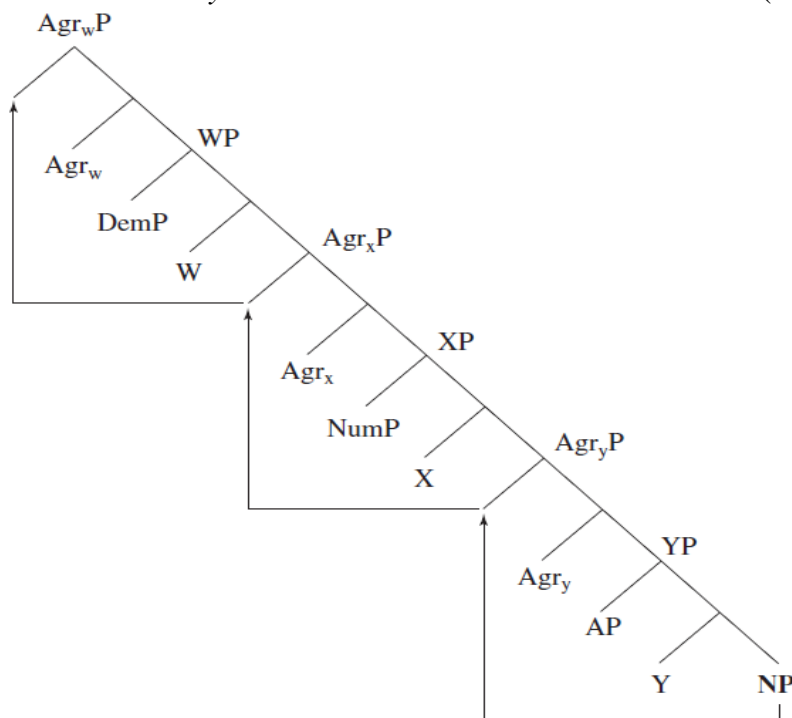
3. NP AND MODIFIERS IN THE DP-HIERARCHY (CINQUE 2005)

Regarding the studies on adverbial syntax, Cinque (1999) argues that adverbs are merged in the specifiers of different functional projections where they check head-features of these projections. As such, AdvPs are rigidly ordered according to the universal hierarchy of functional categories which make up the sentence, such as modality, mood, aspect, tense, negation, and so forth.

The nominal structure, as well as the sentence, also makes available a hierarchy of functional projections, which is determined by Universal Grammar. According to Cinque (2005), modifiers follow a fixed pre-nominal order which is Dem > Num > A > N. Being so, the different orders attested cross-linguistically result from NP-raising as a maximal projection (rather than a head) to specifiers of different AgrP positions licensed in the DP-domain, as shown in the figure (2).

(Figure 2) *The DP-hierarchy*

(Cinque 2005: 317)



⁷ DIR=direction; PRT=particle; 1EXC=1st person exclusive; DU=dual number.

According to Cinque (2005), AgrP categories are justified because:

- (8) “each phrase (the one containing an Adjective Phrase, the one containing the Number Phrase, the one containing the Demonstrative Phrase, etc.) needs to be endowed with a nominal feature to be licensed (i.e., to count as part of the extended projection of NP), and [...] this can be brought about by merging above it an Agr(eement) head whose Spec ultimately comes to have such a nominal feature” (Cinque 2005: 325-326).

In addition, he claims that NP-raising can be done in two different ways: either the NP may raise alone, deriving the orders in (9a-c), or the NP may pied-pipe modifiers, deriving the orders in (9d-f).

(Table 2) *NP-raising in the DP*

Dem > Num > A > N	
(9) a. Dem Num N A	(9) d. A N Dem Num
b. Dem N Num A	e. N A Dem Num
c. N Dem Num A	f. Dem A N Num

In (9a), the NP moves past one notch; in (9b), it moves past two notches; and, in (9c), it moves past three notches, without *pied-piping*. Contrastively, in (9d), the NP pied-pipes the AP and they move past two notches together [AP [NP]]; in (9e), the NP raises firstly to Spec,Agr_yP, right above the AP, and then the NP pied-pipes the AP; subsequently, both NP and AP [NP [AP]] raise to Spec,Agr_xP, moving past the NumP, and then to Spec,Agr_wP, moving past the DemP; in (9f), [AP [NP]] raise together to Agr_xP moving past only one notch: NumP.

To sum up, the different orders of modifiers in the DP structure are due to NP-raising, as an XP, to Spec,AgrP. Besides, each functional projection in the DP is licensed by an AgrP which endows them with nominal features.

4. ANALYSIS: *LÁ* AS A SPECIFICITY MARKER IN SPEC,SPP

From now on, we will show how the phenomenon depicted in (2) may be analyzed. We hypothesize that *lá*, as a specificity marker, is merged in Spec,SpP, which is probably situated below modifiers in BP. In order to clarify this claim, we firstly make a comparison between BP post-nominal *lá* and MC post-nominal *lá*. Secondly, we make a parallel between post-nominal *lá* and post-nominal *qualquer*. Finally, we describe the position of BP *lá* in the DP-structure.

4.1. The particle *la* in Mauritian Creole

Guillemin (2007) looks at the expression of specificity in MC and argues that *la* is a specificity marker in definite noun phrases. According to Guillemin (2007),

- (10) “Early in the stages of creolization, the French definite articles and partitive determiners incorporated into a large number of the nouns that they modified, leaving the emergent creole without the means of expressing the contrasts of (in)definiteness and singular vs. plural” (Guillemin 2007: 64).

The determiners of the lexifier were taken in the Creole as an integral part of the nouns that they modified. Therefore, while French has dedicated morphemes to signal the contrasts mentioned above, MC did not have those determiners, resulting in ambiguous interpretation, as shown in table (3):

(Table 3) *Determiners in French and in early Mauritian Creole*

Adapted from Guillemin (2007: 65)

Features	French	English	Mauritian Creole
singular [-def]	<i>une table</i>	<i>a table</i>	<i>latab</i>
plural [-def]	<i>des tables</i>	<i>tables</i>	
singular [+def]	<i>la table</i>	<i>the table</i>	
plural [+def]	<i>les tables</i>	<i>the tables</i>	

Due to this problem, several new functional items emerged in the MC determiner system. One of these items is the specificity marker *la* (11) which may have derived from either the demonstrative reinforcer *là*, in ‘*ce ... là*’, or the adverbial locative.

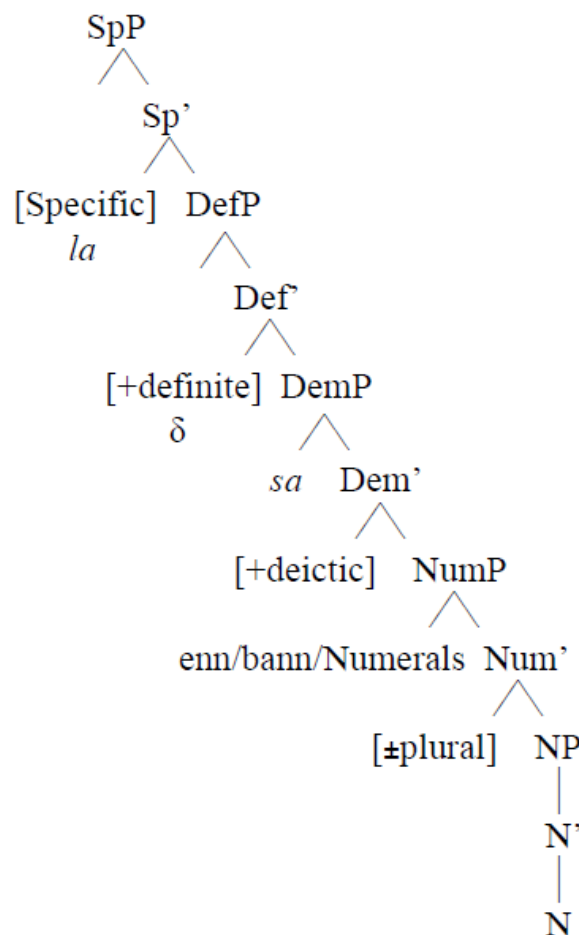
- (11) (a) “Problem *la* poze dan enn leta multileng ...”
 problem SP pose in a state multilingual
 ‘That problem arises in a multilingual state’ (Guillemin 2007: 76).

In addition, according to Guillemin (2007: 75), MC *la* can be translated into a definite article or into a demonstrative pronoun, indicating that the NP has somehow a specific antecedent in the discourse. Therefore, “It is not possible to use *la* on its own to introduce a new discourse referent” (Guillemin 2007: 77).

Regarding the DP-structure, Guillemin (2007: 85) proposes for “MC a highly articulated noun phrase structure” which contains projections with functional features, such as definiteness, specificity, number, and so on, as drawn below:

(Figure 3) *The DP-hierarchy and the position of SpP in Mauritian Creole*

Guillemin (2007: 86)



Considering the facts discussed so far, we observe that, although MC *la* differs from BP *lá* in that the former is restricted to definite DPs, there are still some amazing coincidences between them. The first one is obviously the idea of specificity; the second one is the fact that both of them derive from deictic locative particles; and the third one is their post-nominal position.

Furthermore, in the same way that MC *la* differs from French demonstrative reinforcer *là*, BP *lá* differs from other Romance locatives including European Portuguese *lá* which apparently is not used as a specificity marker at all in contrast to the several BP examples shown in (2).

A final comment on Guillemin's (2007) work should emphasize its analytical contribution for the studies on specificity. She proposes a dedicated label and a dedicated syntactic position in the DP for specificity. We will pursue her analysis, arguing that, like MC *la*, BP *lá* belongs to a functional category labeled SpP.

4.2. Post-nominal *lá* and post-nominal *qualquer*

Lá and *qualquer* (12) have at least three important features in common which will be discussed below: inaccurate identification of the referent, incompatibility with generic contexts and post-nominal position.

- (12) “Houve um terramoto num país **qualquer** da Ásia” (Móia 1992: 38).
There-was an earthquake in-a country certain of Asia.
 ‘There was an earthquake in a certain country of Asia.’

Firstly, according to Móia (1992), in (12), the speaker

- (13) “refers to a particular country, but, in the utterance time, he does not know accurately how to identify this country or how to name it (hence no proper name is used [...]). *Qualquer* conveys a semantic value which yields a vague identification of the referent [...] and which corresponds to a speaker's partial state of information”⁸ (Móia 1992: 38, our translation).

Accordingly, post-nominal *qualquer* is prevented from co-occurring with proper nouns (14). However, this property is not so straightforward with post-nominal *lá* which may (15) or may not (16) co-occur with proper nouns.

- (14) *Vi o Márcio Garcia qualquer no shopping.
Saw-1SG the Márcio Garcia certain in-the shopping-centre
 ‘I saw Márcio Garcia in the shopping centre.’
- (15) O João *lá*⁹ é bem folgado.
The João lá is very lazy.
 ‘That João is very lazy.’

⁸ “refere-se a um país [...] determinado, mas que, no momento da enunciação, não sabe com precisão identificar ou designar (daí não usar um nome próprio [...]). Trata-se [...] de um valor de identificação vaga—específico do operador *qualquer*—correspondente a um estado de informação parcial do falante” (Móia 1992: 38).

⁹ We suggest that, in this case, even though *lá* is still a specificity marker, because this sentence conveys the idea that the speaker has a particular João in mind, *lá* is not used to imply that the identity of the referent is irrelevant for the communicative purposes; instead it implies that the referent, fully identified by name, is irrelevant itself, that is, João is an unworthy man in the speaker's view. Therefore, with proper nouns, besides being a specificity marker, *lá* is a belittlement modifier (15) rather than a ‘vague’ identification one (2). That is why *lá* in (15) accepts proper nouns, while *lá* in (16) does not.

- (16) *Vi o Márcio Garcia **lá** que sempre assiste TV na sala de espera do aeroporto.
Saw-1SG the Márcio Garcia lá who always watches TV in-the room of
 ‘I saw Márcio Garcia who always watches TV in the lounge of the airport.’

Secondly, still according to Mória (1992: 38, our translation), “[N qualquer] (or [certo N]) always refers to a specific entity”.¹⁰ Consequently, when a speaker uses either *qualquer* or *lá*, s/he refers to a specific referent or to a specific subset of referents. That is why both of them are prevented from co-occurring with generic contexts (17).

- (17) (a) *Gatos *lá* são mamíferos./*Um gato *lá* é mamífero.
Cats lá are mammals/ A cat lá is mammal
 ‘Cats are mammals.’
- (b) *Gatos *qualquer* são mamíferos./*Um gato *qualquer* é mamífero.
Cats certain-PL are mammals/ A cat certain is mammal
 ‘Certain cats are mammals.’/‘A certain cat is mammal.’

Thirdly, both *lá* and *qualquer* are post-nominal and may either precede or follow modifiers, such as adjectives, possessives and genitives, as shown in (18).

(Table 4) *Distribution of post-nominal lá and qualquer*

(18)	<i>lá</i>	‘qualquer’
a. adjectives	“pego umas panelinhas (<i>lá</i>) velhas (<i>lá</i>)”. <i>take-1SG some pots (lá) old (lá)</i> ‘I take some old pots.’	Aconteceu um terremoto num país (qualquer) asiático (qualquer). <i>Happened an earthquake in-a country (certain) Asian (certain).</i> ‘There was an earthquake in a certain Asian country.’
b. possessives	“Eu tinha um colega (<i>lá</i>) meu (<i>lá</i>)”. <i>I had a colleague (lá) my (lá)</i> ‘I had a certain colleague.’	Aconteceu tumulto em uma aula (qualquer) minha (qualquer). <i>Happened tumult in a class (certain) my (certain)</i> ‘There was tumult in a certain class.’
c. genitives	Ele usou uma panela (<i>lá</i>) de ferro (<i>lá</i>). <i>He used a pot (lá) of iron (lá)</i> ‘He used a certain pot made of iron.’	Ele usou uma panela (qualquer) de ferro (qualquer). <i>He used a pot (certain) of iron (certain)</i> ‘He used a certain pot made of iron.’

Summarizing, both *lá* and *qualquer* share the following properties: unclear identification of the referent, incompatibility with generic contexts and post-nominal¹¹ position. However, *lá* and *qualquer* differ from each other in respect to the fact that the latter is restricted to NPs preceded by an indefinite article.

¹⁰ “[N qualquer] (ou [certo N]) remete sempre para uma única entidade do conjunto denotado por N” (Mória 1992: 38).

¹¹ Here, we highlight that pre-nominal *qualquer* (‘any’), which is a quantifier, is head of a QP (ia), while post-nominal *qualquer* (‘certain’), which is a modifier, is specifier of an AP (iia). *Lá* is interchangeable only with post-nominal *qualquer* (ib vs. iib). This arises from the fact that BP *lá* is specifier rather than head. Note that this analysis differs from the one given to MC *lá* in head position.

- (i) (a) Qualquer bolo de coco me agrada.
 ‘Any cake having coconut taste pleases me’.
- (b) *Lá bolo de coco me agrada.
- (ii) (a) Elisa experimentou um bolo qualquer de Minas e adorou.
 ‘Elisa tried a certain cake from Minas and loved it’.
- (b) Elisa experimentou um bolo lá de Minas e adorou.
 ‘Elisa tried a certain cake from Minas and loved it’.

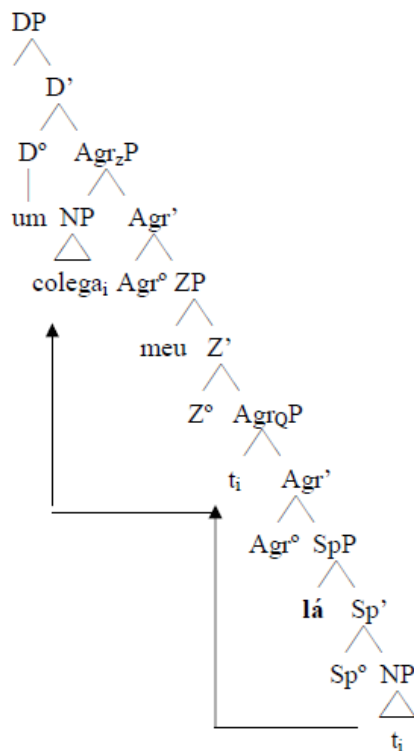
4.3. *Lá* as a specificity marker in Spec,SpP

We suggested above that post-nominal *lá* would be merged in a low position labeled SpP¹² (Specificity Phrase), according to Guillemín’s (2007) proposal for MC *la*. This projection would be probably the first one above the NP and below the modifiers. That would explain why *lá* can follow modifiers. In addition, its post-nominal position would be derived by the movement of the NP (Cinque 2005) to SpecAgrzP, according to the derivation for (2b), shown at figure (4).

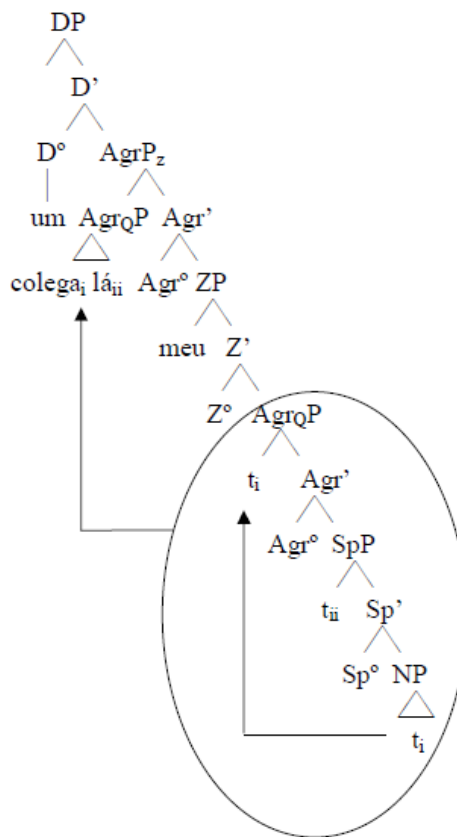
Additionally, the fact that *lá* can precede post-nominal modifiers would be explained, based on Cinque (2005)’s proposal, by the movement of the NP which pied-pipes *lá*, as we can see in the derivation for (2b’), shown at figure (4).

(Figure 4) *The position of lá as a specificity marker in the DP-domain*

(2) b. “um colega meu *lá*”



(2) b’. “um colega *lá* meu”



5. CONCLUDING REMARKS

In this article, we investigated structures with post-nominal *lá* in BP. Basically, we argued for an analysis of non-locative *lá* as a specificity marker merged in Spec of a Specificity Phrase (SpP). In order to support this hypothesis, we tried to pursue empirical and theoretical methods which will be summarized below.

Firstly, we worked on tests so that we could distinguish post-nominal locative *lá* and post-nominal non-locative *lá*. We concluded that, while the former conveys deictic locative interpretation, being incompatible with 1st and 2nd person demonstratives, the latter is not a deictic locative. Furthermore, we showed that an embedded clause is compatible with locative *lá*, but not with non-locative *lá*. This arises from the fact that while post-nominal locative *lá*

¹² Here, we revise the analysis in Pereira (2011) by replacing QP with SpP.

belongs either to the IP, as an adjunct, or to the VP, as a circumstantial argument, post-nominal locative *lá* belongs to the DP-domain.

Secondly, we compared *lá* with specificity markers in a range of different languages in order to check if *lá* could be described like them. According to Lyons (1999), many languages codify specificity morphologically. Basically, specificity means that the speaker has a particular entity in mind, whose identity is not considered relevant or important. Analogously, when the speaker uses post-nominal non-locative *lá*, the referent is specific, but is not properly identified. This is one of the reasons why *lá* can be viewed as a specificity marker. Another reason is that non-locative *lá* is prevented from co-occurring with generic contexts.

Thirdly, we looked at Guillemín's (2007) proposal for MC *la* which shares some common properties with BP *lá*, such as post-nominal position, specificity and origin in deictic items. Guillemín (2007) claims that MC *la* is a specificity marker merged in SpP. This claim turns out to be an interesting solution that we pursued to account for BP *lá* as well.

Finally, following Cinque (2005), we explained the different orders which BP *lá* may assume in the DP-architecture. We argued that *lá* is merged in a projection located immediately above the NP and below the modifiers. This would explain why *lá* can follow modifiers. However, *lá* may also precede them. This is due to the fact that the NP pied-pipes *lá* to a higher AgrP position.

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Intralingual false friends: British English and American English as a case in point*

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Traditionally speaking, false friends are commonly seen as *interlinguistic* phenomena affecting different languages (Koessler & Derocquigny 1928; Hill 1982; Prado 2001; Chamizo Domínguez & Nerlich 2002; Shlesinger & Malkiel 2005). However, we can identify false friends between different varieties of the same language, as is the case of British and American English. Lexical items, such as *biscuit*, *fag*, *pants*, *rubber* or *suspenders* are used both in British and American English but their meanings differ quite a lot. In this paper, I will analyse the semantic differences of these items in both varieties supporting my arguments with data extracted from two major online dictionaries (the *Cambridge Dictionary Online* or the *Oxford Dictionary Online*) and from two corpora (the *British National Corpus* and the *Corpus of Contemporary American English*). The semantic analysis together with a reflection on the pragmatic use of those items, will pave the way for the identification of different situations which these intralingual false friends might produce: 1) funny situations (e.g. *Your pants and suspenders are really cool!!* or *I love my girlfriend's buns*), 2) serious blunders (e.g. *If you are stressed, grab a fag*) and 3) neutral but different referents (e.g. *Buy some biscuits, chips and jelly, please*). As a final remark, I will mention some of the reasons for the existence of false friends between American and British English. Undoubtedly, factors, such as geographical distance, cultural idiosyncrasies and the separate evolutions of the language in both countries will play a role in this matter.

1. INTRODUCTION

The metaphorical phrase *false friends* is frequently used in the field of linguistics in order to indicate the existence of some lexical items in two languages which are similar in form but different in meaning (Hill 1982; Prado 2001; Chamizo Domínguez & Nerlich 2002; Shlesinger & Malkiel 2005). They are called false friends because they appear to be easy to grasp, learn and understand at first sight but unfortunately for non-native speakers, the words' formal appearance is not really indicative of their true meaning.

The phenomenon of false friendship is generally understood as an *interlingual* development affecting different languages, either cognate languages (e.g. German *Gift* 'poison' vs English *gift* 'present') or non-cognate (e.g. English *rope* 'string' vs. Spanish *ropa* 'clothing'), but *intralingual* false friends do exist as well. In fact, false friends can be found within the same language when analysing different geographical variants. That is the case of British and American English (Rollings 2001: 909).

The present paper deals precisely with 'false friends' between these two standard varieties of English. Some of the most interesting pairs of intralingual false friends will be presented and discussed. The prototypical contexts of use of these lexical items, together with the semantic relations with other words (synonymy, semantic prosody, etc.) will be analysed. Special emphasis will be placed on false friends which could provoke hilarious situations, serious blunders and curious pragmatic differences.

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2. THE EXISTENCE OF FALSE FRIENDS WITHIN THE SAME LANGUAGE

3.

Many linguists have pointed out differences between British and American English, differences at the lexical level are among the most prominent and remarkable ones. Most research on the subject focuses on registering everyday words which are different in British and American English (e.g. U.K. *lift* vs. U.S. *elevator*; U.K. *flat* vs. U.S. *apartment*). However, few people have gone further into these lexical differences between both varieties in order to identify words which exist in both varieties but with different meanings, such as *pants* or *faggots*. Rollings (2001) and Nicholls (2006) deal with this topic in their respective studies but they do not delve deeply into it. Considering this, the present paper aims at contributing to this fascinating field of research by analysing some of the most interesting false friends within the ‘so-considered’ main standard varieties of English: British and American English.

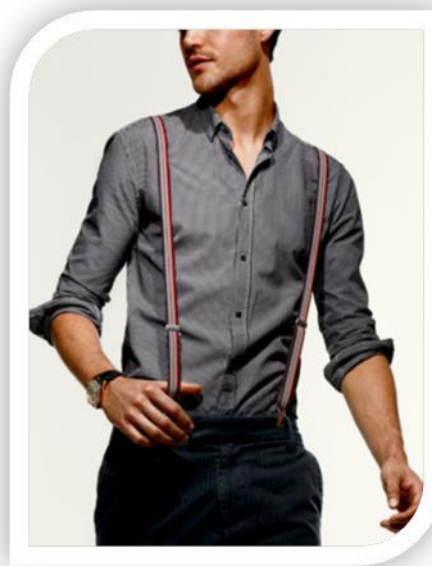
It is undeniable that intralingual false friends exist. Words like *biscuit*, *suspenders* or *faggots* are used both in British and American English but their meanings differ quite a lot. When used in Britain, a *biscuit* is a sweet and dry flat cake, *suspenders* are used by women to hold their stockings up and *faggots* are meatballs. However, when in America, things change. A *biscuit* is a small airy roll, not necessarily sweet, *suspenders* are straps traditionally used by men to hold their trousers up, and a *faggot* is a pejorative slang term for homosexual. As seen in these examples, it would be convenient to become aware of the existence of these words and try to interpret and use them correctly according to the context and the person we are talking to. With this in mind, I will start by referring to some of the most attention-grabbing cases of false friends between these two varieties and I will present them ordered by categories depending on the effects they may produce. Therefore, I will divide them into false friends which may cause hilarious situations, serious blunders and amazing divergences. In this last group, I will include words belonging to different semantic fields which are worthy of note.

4. INTRALINGUAL FALSE FRIENDS CAUSING HILARIOUS SITUATIONS¹

Among those intralingual false friends which may lead to hilarious situations, there are two words referring to articles of clothing (*pants*, *suspenders*) and one related to food (*buns*) which are worth analysing in this section.

Pants and *suspenders* are two nouns that may cause funny situations when used in Britain since these lexical items make reference to two different pieces of underwear in British English. As illustrated in Figure 1, any American asking for pants and suspenders in Britain would receive underpants and straps to hold stockings up. This may produce a quite funny situation as represented in the cartoon on the left in Figure 1. The American meaning of these words is different, *pants* are trousers, and *suspenders* are used for holding the trousers up. The picture on the right illustrates the American meaning of these words.

¹ “The Best of British. The American's guide to speaking British” is the name of an interesting website which lists over 1000 words that vary between the US and the UK. Although it does not mean to be scientific – as its designers explain “this site started as a simple list to amuse our friends when we moved to the USA” – it explains and illustrates some of the false friends to which I am going to refer with cartoons. In fact, the drawing in Figure 1 has been extracted from this website <http://www.effingpot.com/index.shtml>, last accessed on 5 February 2011.

(Figure 1) *Pants and suspenders in British and American English, respectively*British EnglishAmerican English

The plural form of *bun*, that is, *buns* is another interesting lexical item to comment on. The word *buns* is generally used to denote a small round sweet cake in England; for this reason an utterance, like *Charles couldn't take his eyes off Grandma's buns* might be considered as flattering to the eyes of a British person. However, when uttered in America, the sentence could have a quite different meaning. The American word *buns* in its plural form is a synonym for 'buttocks', that is, the fleshy part of the body on which a person sits. In this case, the hilarious situation takes place when a British person ignores the meaning of the word in America and uses it in an innocent way. Any American could take advantage of the situation and make a joke out of it. It is also necessary to remark that apart from that denotation, Americans also use the word *bun*, either in singular or in plural, to make reference to that the round type of bread which is eaten with hamburgers.

In this section, we have seen that plural nouns, such as *pants*, *suspenders* and *buns* are three interesting cases of false friends which might provoke hilarious situations and they are highly unlikely to be considered as offensive, except for the noun *buns*. The next section deals precisely with lexical items which could be neutral in one of the two varieties of English but offensive in the other.

5. INTRALINGUAL FALSE FRIENDS PROVOKING SERIOUS BLUNDERS

By serious blunders, I mean using terms that could be offensive in either of these two varieties of English. The focus here is on two British terms, *fag* and *faggot*, which are equivalent to one American slang word *fag(got)* and the adjective *pissed* which means a different thing in both places.

Regarding *fag*, it is a slang term in both countries and its meaning and use is completely different in both varieties of English. In the UK, *fag* is the colloquial term for cigarette, while in the US it is an offensive word for a homosexual. Thus, sentences like: *Charles casually asks if he can bum a fag* or *If you are stressed, grab a fag*, could bring about serious blunders and misinterpretations especially when used in America. With these utterances you are suggesting that you should make use of homosexuals either to satisfy your sexual needs or to avoid being stressed.

A similar example is the word *faggot*, the long form of *fag* in the US and it continues to be an offensive word to refer to homosexual people. On the contrary, a *faggot* is a meatball in the UK. *I like faggots* could mean *I like gays* or *I like meatballs* depending on where we are.

The adjective *pissed* (when used without *off*) is an insult and another term for *drunk* in Britain, as clearly shown in the following examples extracted from the British National Corpus (BNC):²

- (1) He'll never tell you he loves you unless he's **pissed**.
- (2) Totally **pissed!** We were in no fit state, or
- (3) I know her dramas, her traumas, and her fiascos I know her sober (but I know her better **pissed**).

On the other hand, in American English we have *pissed* or *pissed off*, with no difference, meaning 'annoyed', the same as British *pissed off*. See the following examples extracted from the Corpus of Contemporary American English (COCA):³

- (4) And, just like that, I was angry again. I was **pissed** at the cancer for giving me such a warped sense of what was OK in life,
- (5) "I wasn't mad because he dropped the ball," Tomlin said later. "That kind of mistake can happen to anyone. I was **pissed** that he'd lay on the ground, fake an injury and cost us our last timeout. My point was, Be a man! Grow up!"

6. INTRALINGUAL FALSE FRIENDS AND CONSPICUOUS DIVERGENCES

Intralingual false friends might not only produce serious misunderstandings or hilarious comments, but they may just denote different things or have different referents. In this section, I will analyse words of primary concern, mostly associated with food, items of clothing and other cultural elements, such as sports, road works or money-related matters.

Concerning the lexical items related to food, I will allude to the British traditional dish 'fish and chips'. As is well-known, 'fish and chips' is really popular in the UK and Americans are also very fond of this dish; however, and surprisingly, in American English, it is referred to as 'fish and fries'. The second term in the set phrase varies and this happens because the word 'chips' does not mean the same in both cultures. It is another example of a false friend between varieties of the same language. American *chips* are crunchy potatoes ('crisps' in British English), while British *chips* are long-shaped strips of potatoes. The American term for that is 'French fries'. Hence the change in the American label from 'fish and chips' to 'fish and fries'.

Still, in the field of food-related terms, we have two nouns that are worth mentioning: the words *biscuit* and *jelly* which refer to quite different realities in British and American English. Concerning the noun *biscuit*, English speakers refer to 'flat sweet cakes' as *biscuits* (US *cookies*) while in America, a *biscuit* is a 'small round flaky bread'. As for *jelly*, this is the name for coloured sweet food made from sugar in Britain while in US, this means jam, that is, a sweet soft food made by cooking fruit with sugar to preserve it. It is eaten on bread or cakes. In America, the trademark *jello* gives the name to this coloured sweet.

As regards terms connected with *clothing*, besides words such as *pants* or *suspenders* which have already been mentioned, there is another term that is worth mentioning: the noun

² *British National Corpus* accessed through Mark Davies's free online interface at <http://davies-linguistics.byu.edu/personal/>.

³ *Corpus of Contemporary American English* accessed through Mark Davies's website <http://davies-linguistics.byu.edu/personal/>.

vest. It denotes a different thing in America and in Britain. In the UK, a *vest* is a type of underwear for extra warmth or a cotton shirt for sport (as in *the official team vest*). However, in the US, a vest is a waistcoat, that is, a piece of clothing worn over a shirt, which covers the upper body but not the arms.

Regarding interlingual false friends in sports and in cultural domains, the words *football* or *pavement* denote different events and things in the UK and in the US. In both countries, *football* is a game played between two teams of eleven players. However, American football is played with an oval ball moved along the field by running with it or throwing it while European football consists of kicking a ball into the other team's goal. As regards *pavement*, in British English, *pavement* is the surface on one or both sides of a road, where people walk, while in America, the *pavement* is the surface of roads when covered with concrete or tarmac.

Another interesting noun is *bill*. It can be said that this false friend is produced by a semantic extension in the US use of the word, since *bill* is also used to refer to a piece of paper money, as in *a ten-dollar bill*. It is also necessary to point out that American people use the word *check* instead of *bill* in the context of restaurants. These differences must be taken into account while teaching English, and while learning it. Being aware of the semantic divergence between these two varieties is important for everyone who is interested in and/or working with language, such as language learners, language teachers and even professional translators.

7. SEMANTIC LINKS OF THESE INTRALINGUAL FALSE FRIENDS

It is obvious that the semantic characteristics of these intralingual false friends differ in both countries but we can establish semantic links between these words. I will summarize the most basic semantic differences between both varieties concerning the items analysed above.

As for the field of clothing, it is quite interesting to see how there is a shift in perspective in the use of some plural nouns in both varieties. Plural forms such as *pants* and *suspenders* as well as the singular noun *vest* move from referring to 'underwear pieces' of clothing in British English to 'outerwear articles of clothing' in American English.

Regarding food-related terms, the semantic difference alludes either to the way this food is cooked, see, *chips*, for instance, or to the food substances they refer to, note, for instance, words like *biscuit* or *jelly*.

Another attention-grabbing move is the one represented by the words *fag* and *faggot*. In British English, they are two different words. *Fag* is an informal word for cigarette and *faggot* is the name given to meat rolls. However, in America, they are the same word, *fag* is short for *faggot*, and they are pejorative terms defining a type of sexual orientation in American slang.

As regards food, the plural noun *buns* relates to a sweet bread roll in Britain, but the American term has taken on a different connotation and it might be used to denote a specific part of the body.

Other semantic changes are illustrated by the adjective *pissed* which denotes two different states, from a state of drunkenness in Britain to a state of annoyance in America; or by the noun *football* which means different sports to British and Americans.

Finally, *pavement* and *bill* have different referents in both varieties. On the one hand, *pavement* is where pedestrians walk, while in America it denotes the surface of a road where vehicles move; and, on the other hand, the meaning of *bill* has shifted in American English from the *sum which you owe in a restaurant* to a *banknote*.

8. THE EXISTENCE OF INTERLINGUAL FALSE FRIENDS: REASONS

At this point, I will look into some of the reasons for the existence of false friends between American and British English. The main cause for the differences between both varieties of

English can be explained through the theories of language change. The English language has 'landed' in America with the first British settlers and from that moment onwards, the language had the need to adapt to its new environment and respond to the new people's needs. Changes began to be perceived from the very beginning of the American history, which marked a different evolution of both varieties. Thus, the language of immigrants and the geographical distance between Britain and America also determined the evolution of the language. Hence, American English preserved some words (*gotten*) that died out in Britain, and the Americans coined new words for new inventions and social changes (for instance, in the automobile industry). The separate socio-cultural development and history of both countries have undoubtedly given way to the different meanings of these intralingual false friends. But I would not like to end this section without saying that both varieties have influenced each other throughout the years, especially now that we are in the era of the Internet and in the era of globalisation. In fact, British English has adopted many Americanisms into everyday language and, some British terms are used in America. This can be justified by the influence of TV programmes, the Hollywood industry and the information and communication technologies. For this reason, I do not firmly state that interlingual false friends are always going to be so, it is likely that the meanings of these words will one day merge, turning them into equivalent terms, as a result of the different processes of semantic and language change. What I can definitely say is that now, in the first quarter of the 21st century, there is evidence that these words have different meanings in both varieties. The mutual influence of both varieties onto each other, and particularly, the 'Americanisation' of British English is not restricted to the lexical component of the language, in fact, the influence of American English also affects English syntax to a lesser extent, as is the case of modal auxiliaries (Leech 2003), and these intralingual false friends are not exclusive of different varieties of English. They can also be perceived in different varieties of Spanish, such as Latin-American Spanish and Iberian Spanish (e.g. *concha* or *coger* have completely different meanings in both varieties of the language).⁴

To conclude, it is necessary to bear in mind that the existence of these semantic differences has implications in language teaching and learning. Teachers and students of English must know that there are particular items which have different meanings in both varieties and that they must be careful and act in accordance with the context of situation and with the variety of English they are using and/or learning.

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Referential Choice: Distribution of Subject Types in Russian Aphasic Speech

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Being an essential component of discourse structure, reference presents a very interesting topic for investigation. Some studies have been conducted on referential subject types in canonical non-pro-drop, sentence-based languages in both typical and atypical populations. This study addresses distribution of the subject types in narratives in Russian, an optional pro-drop, discourse-based language. Participants of the study include two experimental groups (non-fluent and fluent aphasic speakers) and a control group. The investigated distribution of full noun phrases, pronouns and zero forms in the syntactic position of the subject in narratives of non-fluent aphasic individuals appeared to be similar to those found in non-pro-drop Germanic languages in relation to high subject omission. On the other hand, fluent aphasic speakers, in addition, demonstrate the tendency of excessive use of pronominal subjects, which must be caused by general nomination problems present in fluent aphasia. Thus, it can be seen that distribution patterns of subject types in narratives of both Russian non-fluent and fluent aphasic speakers are deviant from those of non-brain-damaged respondents. However, presumably, different economy strategies are used by these two groups of aphasic individuals.

1. INTRODUCTION

Being an essential component of discourse structure, reference presents a very interesting topic for investigation. This research relates to Chomsky's (1981) distinction between innate linguistic universal 'principles' and language specific 'parameters', and focuses on the Pro-Drop parameter. Languages differ in whether they allow null subjects or not. English and Dutch, for example, are considered to be canonical non-pro-drop languages, which means that the position of the subject is necessarily filled in overtly. On the contrary, most Romanic languages (e.g. Spanish, Italian) are called canonical pro-drop languages in which overt subjects carry additional emphasis. Moreover, this classification is also completed with optional pro-drop languages (presumably like Russian) that generally permit subject drop but do not necessarily require it and even apply some discourse constraints to its use (Gordishevsky & Avrutin 2004).

Subject omission is possible in Russian, a topic-prominent and discourse-oriented language, only in certain pragmatic conditions, and no additional emphasis or meaning appear when a subject is preserved. Russian, however, does allow the omission of a subject if some contextual requirements are met: 'items recoverable from the context are frequently omitted on the surface' (Franks 1995: 307). That is to say, subject omission in Russian is the omission of the topical constituent in an utterance. Gordishevsky and Schaeffer (2002) argue that for the subjects in optional pro-drop languages to be empty, their referents must be recoverable either from linguistic or situational context. The presence of the linguistic or situational antecedent in the conversation (i.e. the referent having been mentioned, being at the centre of the discourse, or being clear from the context) provides the conditions for subject omission. Consider an example of such discourse subject omission from the National Corpus of the Russian language (Zdorenko 2009: 2):

- (1) My vstretimsja?
 we meet.1PL
 'Shall we meet?'
- Davajte, kak i dogovarivalisj.
 agreed.PI
 'Let's do it, as (we) already agreed.'

Person agreement is not marked in the verb in the second line of the dialogue. Nonetheless, the subject is omitted because it is identified in the previous clause. The same clause with the subject present would be fully possible, however, as it is neither redundant nor emphatic.

Exploring speech production in aphasic speakers, whose language is impaired due to selective cerebral injuries, is insightful as it can contribute to our knowledge about the mental representations and/or processing of language. Only a few studies compare the distribution of referential devices in subject position in groups of non-brain-damaged speakers and aphasic speakers. It is a well known fact that pronouns tend to be omitted by Broca's aphasic speakers in spontaneous discourse and there is a substantial amount of literature on the subject noun phrase omission in Broca's aphasic speech. The evidence for this is a high noun/pronoun ratio (Saffran *et al.* 1989) and the omission of pronouns in obligatory contexts. Up-to-date investigations of the distribution of full noun phrases (NPs), overt pronouns and zero forms in subject position, carried out with non-fluent (agrammatic) aphasic speakers of canonical non-pro-drop languages, have revealed the following tendencies. Group studies in Dutch and German (de Roo 1999, 2003; Kolk & Heeschen 1990; Tesak & Dittman 1991) show that aphasic speakers omit 0-47% subject pronouns in finite clauses, while healthy speakers omit only 1-5% (de Roo 2003). Such omission cannot be accounted for by the Tense underspecification as both the Tense and the Nominative case are available for the speaker. An analogue of zero subject pronouns in finite clauses in agrammatic speech (particularly in Dutch and German patients), however, is found in normal speech production as well and is called *the Topic Drop phenomenon*. De Roo (2002) speaks of the Germanic Topic Drop characteristic for Dutch, German, English and the Scandinavian languages (e.g. Cardinaletti 1990; Huang 1984). Such findings go in line with 'a reduced temporal window' for sentence processing (Kolk 1995) in agrammatic speakers. As a result, they apply elliptical constructions that are also characteristic of non-brain-damaged speech production.

2. RESEARCH QUESTION

As a topic-prominent language in which the information structure of discourse is important for the organization of an utterance, the Russian language is particularly interesting to look at in respect to the distribution and prevalence of referential devices. Little is known about the referential processes in Russian-speaking aphasic individuals. Therefore, the present study is a starting point in remedying the paucity of research in this area. Several research questions have been set within the framework of this study.

First, the issue of the extent to which Russian aphasic speakers lose/preserve their ability to refer to entities in the syntactic position of the subject is to be addressed in this study by comparing the patterns of subject types in the aphasic and non-brain-damaged control groups' speech. The general body of previous research on the distribution of subject types in aphasic individuals was focused on canonical non-pro-drop Germanic languages. Thus, one of the aims of the present study is to verify the distribution of subject types in a structurally different, optional pro-drop language like Russian (Gordishevsky & Avrutin 2004). Russian non-fluent aphasic speakers could be expected to follow the example of Dutch agrammatic patients who tend to omit subjects (de Roo 2003), for example. They could equally prove that

the referential choice does not present particular difficulty for the aphasic population and follow the normal speech pattern.

Second, previous research done on aphasic speakers has taken only non-fluent (agrammatic) aphasic individuals into consideration. This study aims to test both non-fluent (with impaired syntactic abilities) and fluent (with impaired word-finding) groups of Russian aphasic speakers. Thus, corresponding cross-group comparisons are to show whether the patterns of realizations and omissions of grammatical subjects vary among aphasia types.

3. METHOD

Participants

The present study is based on data from the experimental groups of non-fluent and fluent aphasic speakers with no uncorrected hearing or vision problems. The non-fluent participants comprised seven individuals (one woman and six men) and the fluent group consisted of five aphasic speakers (two women and three men). The patients range in age from 23 to 64 years old, with a mean age of 41 in the non-fluent group and 50 in the fluent group. The patients are aphasic due to a left hemisphere stroke, infarction, or craniocerebral injury. All the patients had been aphasic for at least three months when the tests were carried out. In order to obtain sufficient and interpretable data, no patients with severe forms of aphasia and/or apraxia of speech were tested. The data was collected at the Federal Center for Speech Pathology and Neurorehabilitation in Moscow.

Apart from the experimental groups, a group of non-brain-damaged control speakers was included in the study. A total of fifteen controls (eleven women and four men), all native Russian speakers, participated in the experiment. The age of the control participants ranges from 23 to 72. The mean age is 42. Table 1 summarizes the general information about the study participants.

(Table 1) *General information on the study participants.*

	Number		Mean age	Months post-onset	Handedness
	male	female			
Non-fluent aphasic speakers	6	1	41	> 3	right
Fluent aphasic speakers	3	2	50	> 3	right
Non-brain-damaged speakers	4	11	42	-	right

Materials

The distribution of subject types in spontaneous speech of the aphasic speakers was tested using narratives as a context. Narrative is a universal genre produced by different speakers of different cultures. This form of discourse is often preserved in patients with moderate and mild forms of aphasia and provides a good measure of patients' spontaneous speech.

In order to elicit spontaneous speech in a narrative task, subjects were presented with the twenty-four-page wordless picture book, 'Frog, where are you?' (Mayer 1969). The images tell a story of a boy, a dog and their pet frog that runs away one day. Throughout the story the boy and the dog are trying to find the frog. While they are searching for it in the forest they encounter many other animals. Eventually, they find their pet frog with a mate and many baby frogs. They take one of the baby frogs as their new pet and return home. This book has been quite successful in eliciting speech production in many cross-linguistic aphasiological and developmental studies (e.g. Losh *et al.* 2001).

Procedure

The experiment was carried out in the following way. First, the picture book was introduced to a patient and the researcher gave him/her instructions: 'Here is a book about a boy, a dog and a frog. We will first go through the book and look at the pictures. Then we will start again and I will ask you to tell me the story'. If patients experienced difficulties in producing the narrative, the researcher encouraged them without giving any linguistic cues that could hinder collecting reliable results in the experiment. Errors were not corrected and no feedback was given to the participants. The speech of the patients was digitally recorded and orthographically transcribed by the researcher. The same procedure was followed when testing non-brain-damaged subjects as well.

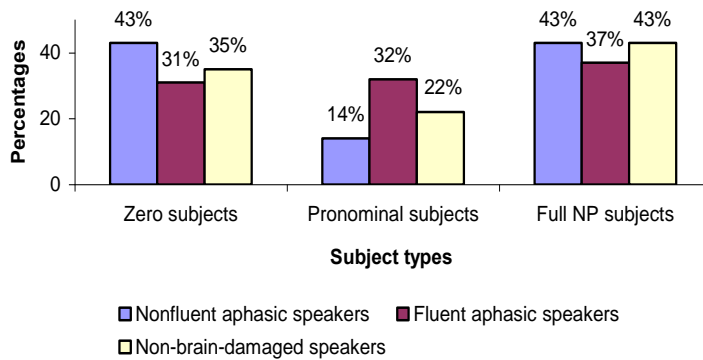
Once transcribed, the narratives underwent the segmentation procedure. Units of segmentation were defined as sequences of speech in which a finite verb is used. Utterance boundaries were determined by intonation contours and pause length. Following the exclusion criteria, all ambiguous forms, false starts, discourse markers (e.g. *skazhem* '(we) will say' = 'Let's say') and all kinds of repetition of a subject within one clause were omitted. Some rare occurrences of both nominal and pronominal subjects within the same finite clause were treated as cases of the nominal subject type. All imperative forms were also omitted from the count as well as subjects in impersonal constructions, such as third person plural forms (e.g. *govorjat* '(they) say'), second person singular, non-referential forms, and others (e.g. *mne kazhetsja* '(it) seems to me'). All the finite clauses that withstood the exclusion procedure were grouped into three categories according to the subject type, namely those containing a full NP, a pronoun, or a zero element as the subject.

Results

Let us consider the referential subject types one by one. Full NP subjects have the highest proportions among all the three subject types in the distribution patterns of all the three groups analyzed. However, the non-fluent aphasic and non-brain-damaged control groups are leading in the use of full NPs in the subject position with the rates of 43% of all the finite clauses, while the fluent aphasic speakers use full NP subjects in 37% of all the finite clauses (see Fig. 1).

Zero subjects are second to full NPs in the frequency of use by the groups tested. The proportions of zero subjects are highest in the non-fluent aphasic group (43% of all the finite clauses), while fluent aphasic and non-brain-damaged speakers have comparable proportions of zero subjects in their narrations (31% and 35% of all the finite clauses respectively).

As for pronominal subjects, they are used to a lesser extent in comparison to the other two subject types overall, and in the non-fluent aphasic and non-brain-damaged groups in particular. However, they are excessively, compared to the other groups, referred to by the fluent aphasic speakers (32% of all the cases, with 14% for the non-fluent and 22% for the non-brain-damaged groups).

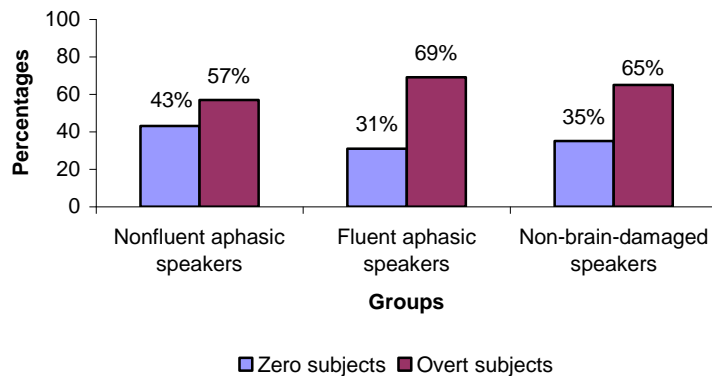


(Fig. 1) *Crossgroup comparisons of the distribution of the subject types (in percentages).*

In order to check for possible associations between the distributions of the subject types across the three groups analyzed, a chi-squared test was used to confirm a significant difference between the distribution patterns in the non-fluent and fluent aphasic groups, and the non-brain-damaged group ($\chi^2 = 62.53$, $df = 4$, $p < .001$). Further paired comparisons of the subject types and the groups of speakers revealed the following tendencies. The distribution patterns are significantly different when we compare the relation of zero and pronominal subjects in the non-fluent aphasic and non-brain-damaged groups ($\chi^2 = 13.33$, $df = 1$, $p < .001$), the fluent and non-brain-damaged groups ($\chi^2 = 9.61$, $df = 1$, $p < .005$), and, finally, the nonfluent and fluent groups ($\chi^2 = 29.99$, $df = 1$, $p < .001$). Compared to the distribution of zero and pronominal subjects in the control group (35% and 22% respectively) that can be taken as a norm, the non-fluent aphasic speakers show a higher proportion of zero subjects (43% of all the finite clauses) and lower proportion of pronominal subjects (14%). The fluent aphasic group, on the contrary, has an increased proportion of pronominal subjects equalling the proportion of zero subjects in their narration (31% and 32% respectively).

Another significant difference in the distribution patterns is observed when comparing pronouns and full NPs in the syntactic position of subject across all three groups consecutively: the non-fluent aphasic and non-brain-damaged groups ($\chi^2 = 6.46$, $df = 1$, $p < .05$), the fluent aphasic and non-brain-damaged groups ($\chi^2 = 10.90$, $df = 1$, $p < .005$), and, finally, the non-fluent and fluent aphasic groups ($\chi^2 = 19.93$, $df = 1$, $p < .001$). Here, the proportions of pronominal subjects are lower than those of full NPs in all the groups. However, the degree of discrepancy between these subject types varies across the participant groups: the largest difference is observed in the non-fluent aphasic group (14% of pronouns among all the finite clauses produced versus 43% of full NPs), the non-brain-damaged group takes the second position in this row (22% versus 43% respectively), whereas the fluent aphasic group demonstrates the comparable percentages for the two subject types (32% versus 37% respectively).

In addition, we compared the distributions of zero subjects and overt (pronouns and full NPs) subjects across the three groups. Chi-squared tests revealed a significant association between group and subject type, specifically when the non-fluent aphasic group was compared to the non-brain-damaged group ($\chi^2 = 7.30$, $df = 1$, $p < .01$), and when the non-fluent aphasic group was compared to the fluent one ($\chi^2 = 10.83$, $df = 1$, $p < .005$). The general tendency of zero and overt subject distribution is consistent for all the groups - overt subjects prevail. However, the degree of such prevalence varies: the largest discrepancy between zero and overt subjects is apparent in the fluent aphasic group (31% of zero subjects in the whole set of finite clauses produced versus 69% of overt subjects) and the least discrepancy is distinctive of the non-fluent aphasic group (43% versus 57% respectively). Fig. 2 illustrates the described variations.



(Fig. 2) Crossgroup comparison of the distribution of zero and overt subject types.

4. DISCUSSION

As shown above, the proportions of full NP subjects are high in each of the groups analyzed. Specifically, the percentages of full NPs in the position of the subject are equal in the groups of non-fluent aphasic and non-brain-damaged speakers (43% of all the finite clauses), which are in turn higher than the proportion of full NP subjects in the speech of the fluent aphasic group (37% of all the finite clauses), as shown in Fig.1. The prevalence of full NP subjects in all the groups tested proves full NPs to be a very stable referential device which is preserved in aphasia.

The proportion of pronominal subjects reaches its highest value in the fluent aphasic speakers (32% of all the finite clauses), which is considerably higher than that of the non-brain-damaged group (22% of all the finite clauses). The percentage of pronominal subjects is the lowest in the non-fluent aphasic group (14% of all the finite clauses produced). The two cross-group comparisons described above bring us to the thought that pronominal subjects may cause the most problems for the non-fluent aphasic Russian speakers. At the same time, they seem to be rather effortless for fluent aphasic individuals, who, according to the mean proportions, tend to use them even more frequently than non-brain-damaged individuals. See the following example from a fluent aphasic individual's speech sample:

- (2) (a) **Oni** prishli v les
they came-PL
'They came to the forest';
- (b) i krichit **etot** auau ... kak vot eto vot, da, praviljno?
scream-3SG this-MASC
'And this one screams auau ... how is this [called], yes, right?'
- (c) **Oni vse** krichat vot eto, v les ili kak eto ...
they all scream-PL
'They all are screaming this, into the forest or how [to say] this';
- (d) **oni** videli
they saw-PL
'They saw';
- (e) eto **ja** zabyla
I forgot-3SG.FEM
'I forgot this';
- (f) kak vot **eto** nazyvaetsja
this-NEUT call-PASS.SG
'How is this called?'
- (g) eto ... vot eti makarony letjat, no vot eti ...

- 'Well ... these spaghetti are flying, but well these...';
 (h) a, znachit, **oni** uvideli pchelok, da?
 they saw-PL
 'And, well, they saw bees, didn't they?'

Pronouns are reduced referential devices and are used only in the case of the referents' activation in the listener's mind. Thus, fluent aphasics, whose speech production is characterized by word-finding problems and distortion in the connections between the meaning and the form of words, might willingly overuse pronominal elements as a strategy.

Paired cross-group comparisons for the proportions of zero subjects reveal another interesting pattern. The percentage of zero subjects used by the non-fluent aphasic individuals (43% of all the finite clauses analyzed) is higher than that of the non-brain-damaged group (35% of all the finite clauses), which is in its turn higher than that of the fluent aphasic group (31% of all the finite clauses analyzed). Overall, the non-fluent aphasic group is characterized by excessive use of zero subjects in the narrations:

- (3) Nu i chego, v grjazj **Ø upali**, nu i sobaka tozhe.
 fell-PL

'And well, they fell into the mud, and the dog as well';

Eto, naverno, zmeja, naverno, ili net, ili derevo, naverno, vot, chto, tishe, **Ø ne znaju**.

not

know-1SG

'This is probably a snake, maybe, or not, or a tree, maybe, well, that, quiet, I don't know';

Ø poshel i **Ø prishel ustaliy**, **Ø ustali**.
 went-3SG.MASC came-3SG.MASC tired got tired-3PL

'He left and came tired, they got tired'.

To check for the difference in the distributions of zero subjects and overt subjects (pronouns and full NPs as a group) we carried out one more cross-group comparison. Differences in distribution patterns are observed between the non-fluent aphasic and non-brain-damaged control groups, and between the non-fluent and fluent aphasic groups. No such difference is found between the fluent aphasic and non-brain-damaged control groups. Looking at the mean proportions of zero and overt subjects in the groups, we see that the percentages of zero subjects are considerably lower than those of overt subjects (see Fig. 2). Thus, all the cross-group differences arise from a discrepancy between the subject types. The fluent aphasic and non-brain-damaged groups have comparable discrepancy between the proportions of zero (31% of the finite clauses in the fluent group, and 35% in the non-brain-damaged group) and overt subjects (69% and 65% respectively). Contrastingly, the non-fluent aphasic group (with 43% of zero subjects and 57% of overt subjects) differs both from the fluent aphasic group (31% and 69% respectively) and the non-brain-damaged control group (35% and 65% respectively). As can be seen, the percentage of zero subjects is higher in the non-fluent aphasic group in comparison to the fluent aphasic and non-brain-damaged groups.

Let us now look more closely at the above-described distribution patterns of zero and overt subjects in terms of the first research question. The non-fluent aphasic group shows clearly different distribution patterns. As non-fluent speakers have considerably more problems with grammatical entities than fluent individuals, a higher percentage of omitted subjects in the non-fluent aphasic speech in the sample of the present study is quite logical. These results are compatible with the findings for canonical non-pro-drop Germanic languages that non-fluent aphasic patients tend to omit subjects, applying (sometimes inadequately) elliptical constructions characteristic of the speech of non-brain-damaged speakers. Thus, the 43% of zero subjects reported in the present study lie within the 0-47%

range of subject omission that de Roo (2003) observed for non-fluent aphasic speakers of Dutch. The data collected in the group of non-fluent aphasic speakers of Russian demonstrate the similarity in the distribution of subject types (patterns of zero and overt subjects) with sentence-oriented non-pro-drop Germanic languages. Due to the choice of a reduced referential device, namely, a zero form, the processing load reduces significantly, which proves to be an effective strategy for non-fluent aphasic speakers (Kolk 1995). Similar to the findings of de Roo (2002), we can call such a subject omission strategy of normal speech production (present in language of non-brain-damaged speakers and overused by non-fluent aphasic individuals) a Topic Drop.

Now let us address the second research question raised in the present study, namely the difference in referential choice between non-fluent and fluent aphasic groups. The high percentage of zero subjects and low proportion of pronominal subjects characteristic of the non-fluent aphasic group is not observed in the fluent aphasic group. Moreover, the mean percentages of the subject types within the latter group do not differ significantly. No difference is found in the distribution patterns of zero and overt subjects in the fluent aphasic (31% of zero subjects and 69% of overt subjects in the sample of finite clauses) and non-brain-damaged groups (35% of zero subjects and 65% of overt subjects). This proves that, unlike non-fluent aphasics, fluent aphasic speakers do not resort to zero subjects in their speech more often than non-brain-damaged individuals. Instead, they tend to overuse pronominal subjects (in comparison to the other two groups given). The results obtained are in line with general observations of fluent aphasia, namely the preservation of grammatical and syntactic structures in speech output and mainly coherent speech production. The excessive usage of pronominal subjects corresponds to the general nomination problems in fluent aphasia.

5. CONCLUSIONS

This study investigated the distribution patterns of full NPs, pronouns and zero forms in the syntactic position of subject in narratives of aphasic speakers and non-brain-damaged individuals. Primarily, the aim was to study for the first time the distribution pattern of subject types in non-brain-damaged and agrammatic speakers of Russian, an optional pro-drop discourse-based language. The findings of the present research revealed similarities between the distributions of referential expression of syntactic subjects in Russian and previously studied non-pro-drop Germanic languages. In particular, the data analyzed showed high proportions of zero subjects in the speech of the non-fluent aphasic speakers. In this way, some positive evidence has been obtained on a Russian dataset for the tendency of subject omission by non-fluent aphasic speakers, noted for Germanic languages.

Besides adding Russian into the cross-linguistic framework of research on referential choice, the present study encompasses groups of both non-fluent and fluent aphasic speakers. The aim is to track any existing similarities and differences in the use of referential devices in the position of the subject between the two experimental groups. The group of fluent aphasic speakers demonstrates even proportions of the subject types within the group. No overuse of subject omission, observed in the non-fluent aphasic group, is found here. In addition to quite a high proportion of zero subjects, fluent aphasic speakers have yet another economy strategy in the speech production: they tend to excessively assign pronominal referential devices to referents in the position of subject.

Further research is clearly needed, however. First, the cross-linguistic approach to the research on referential choice in the subject syntactic position should be enlarged by more data from optional pro-drop languages. Qualitative investigation of types and contexts of zero subjects use in non-brain-damaged speakers in Russian is also required. This is needed in order to gain more extensive and reliable materials for showing the deviance of non-fluent aphasic speakers from the normal pattern.

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Statistical approaches to hierarchical data in sociophonetics: The case of variable rhoticity in Scottish Standard English ^{*}

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Hierarchical data structures in variationist linguistics are given when, for example, each of a number of speakers makes several utterances of interest and individual observations are therefore not independent. Structures of this kind are often not fully reflected in the analytic tools used to model language variation. Against this background, the paper investigates the presence or absence of coda-/r/ in a hierarchically structured dataset produced by 27 middle-class speakers of Scottish Standard English (SSE). Two regression-based statistical techniques are compared: multiple logistic regression and a hierarchical generalized linear model (HGLM). The latter emerges as a model that is not only more correct in theoretical terms because it takes the nested structure of the data into account, but also detects cross-level effects that go unnoticed in multiple logistic regression. The most striking finding is, for example, that in prepausal position coda-/r/ is less likely to be deleted, an effect, however, that is not general but depends critically upon the age of the speaker and the dialect contact to which he or she has been exposed. The paper thus provides one example of the potential of HGLM to explain complex patterns of variation in hierarchically structured data.

1. INTRODUCTION

This paper aims to contribute to variationist linguistics in two ways. First, it investigates the partial loss of rhoticity, i.e. the vocalisation or deletion of the consonant /r/ in syllable codas (e.g. in *car*, *bird*) in Scottish Standard English (hereafter SSE). Secondly, it makes methodology a focus of attention and introduces the Hierarchical Generalized Linear Model (hereafter HGLM) as a statistical tool for the explanation of sociophonetic variation. The value and special quality of HGLM is demonstrated by comparing its results to those of a multiple logistic regression model (hereafter LR), which does not take the multilevel structure of the dataset into account.¹

The contribution as a whole will have to be a compromise: neither is it possible to present the full theoretical framework of HGLM, nor is it possible to include a review of the literature on rhoticity in Scottish English that goes beyond a cursory mentioning of a few relevant titles. Lastly, the analysis presented here is preliminary in the sense that it does not include all factors that are of theoretical interest or have been reported in the literature.

It is certainly a challenge to attempt to combine variationist insight with methodological advance. I would therefore refer readers who are interested in more detailed introductions to HGLM to the monographs by Raudenbush & Bryk (2002) or Snijders & Bosker (1999). For an application of these techniques in a full-scale linguistic study, see my more comprehensive work on selected features of the SSE accent currently in preparation.²

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¹ The HGLM analysis was produced using the program HLM 6.08.

² This includes analyses using both HGLM, i.e. a hierarchical model predicting categorical outcome variables, and HLM, i.e. a hierarchical model predicting continuous outcome variables.

2. HIERARCHICAL MODELS IN LINGUISTICS: PRELIMINARY CONSIDERATIONS

According to Snijders & Bosker (1999:1), “multilevel analysis is a methodology for the analysis of data with complex patterns of variability, with a focus on nested sources of variability.” *Nested* means that “[u]nits at one level are contained within units of another level” (Agresti & Finlay 2009:523). The basic statistical tool used to analyse nested data is the hierarchical linear model, which is a more complex relative of the (single-level) multiple linear regression model (Snijders & Bosker 1999:2), and its extension, the hierarchical generalized linear model, which is the multilevel relative of multiple logistic regression.³

The application of hierarchical models will provide analyses that (1) do not result in the loss of information, (2) do not result in statistical fallacies and violations of assumptions, and (3) are more accurate in the representation of predictable and unpredictable variation. I will briefly explain each of these points, using my dataset for illustration. Point (1), the loss of information, would result if, instead of looking at specific instances of the occurrence or non-occurrence of coda-/r/, speaker averages were calculated and analysed. It would then no longer be possible to take into account low-level information (e.g. the level of stress or the syntactic position of an observation). Point (2), statistical fallacies, would ensue if each observation was not only coded for lower-level characteristics (e.g. STRESS⁴), but also for characteristics of the next higher level (e.g. text style) or indeed for characteristics of the highest level, the speaker (e.g. AGE or GENDER). In this case, no information would be lost since all cases and all characteristics are accessible. However, this procedure would violate one of the basic assumptions of regression, namely the independence of observations, and would furthermore pool the entire un-modelled variation into a single error term (Luke 2004:6-7). Finally, point (3) refers to the option in multilevel models to model not only direct effects on the outcome variable at each level, but to include cross-level effects as well. For example, a question that could be answered with a multilevel model is “Does the predictor WORDLIST have a significant effect on the outcome, and if so, is it the same for men and women?” Indirect effects of this kind will not only be identified but quantified as well.

In agreement with Luke (2004:4), I would suggest that if data are multilevel in nature, their analytic techniques should also be multilevel in nature. While hierarchical data structures are just as common in the field of variationist linguistics as in the social sciences in general, I am under the impression that linguists’ choices of statistical tools very often do not fully reflect these structures. Luke (2004:2) describes most systems investigated in the social sciences as open systems in which it is not easily possible to control for complex sources of error and variability. I would argue that this also fully applies to variationist linguistics, and that multilevel models are a big step forward since they are better able to account for that complexity. The present paper is intended as a case in point.

3. DERHOTICISATION IN GENERAL AND IN SCOTTISH STANDARD ENGLISH

A concise definition of rhoticity is that by Harris (2006:357): “In non-rhotic systems, *r* is [...] said to be licensed in onsets but not in codas.” Conversely, in rhotic accents /r/ would phonologically be licensed in *all* environments. It seems helpful to interpret *license* quite literally as this implies non-compulsoriness of coda-/r/ in rhotic accents: it may (and usually will) occur, but the rule is to some extent variable. For variationist approaches, rhoticity is

³ For a general description of (multiple) linear regression see Bortz (2005:183-196) or Agresti & Finlay (2009:265-269, 321-355); for (multiple) logistic regression, see Agresti & Finlay 2009:483-512.

⁴ I render concrete predictor variables in small capital letters if they are used in this form for the present paper, thus: GENDER, STRESS, CONTACT. Descriptions of general factors that do not immediately constitute predictor variables will appear in normal script, thus: level of stress, text style, syntactic position (cf. section 5).

viewed as potentially variable in rhotic accents, with /r/ in weak syllables (*surprise, forget*) being particularly prone to be reduced or deleted (Scobbie 2006:340). In non-rhotic accents, coda-/r/ is generally of less interest unless the research is concerned with juncture phenomena (e.g. Allerton 2000; Brown 1988; Bauer 1984), the (re-) introduction of rhoticity in non-rhotic accents (Labov 2006; Feagin 1990), or special discourse-structuring functions coda-/r/ may fulfil in otherwise non-rhotic accents (French 1988).

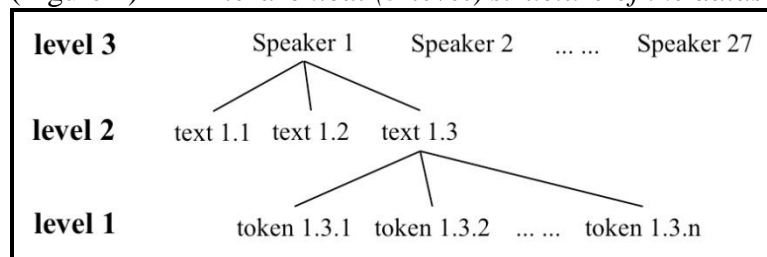
SSE is generally represented as a rhotic accent (e.g. Wells 1982:410; Jones 2002:26; Stuart-Smith 2008:57). These accounts clearly describe the general perception and classification of the accent as a whole and thus do not take away from the findings of empirical research showing that under certain conditions, rhoticity in SSE may be variable or prone to erosion. Suffice it to say that most of the predictors I include have in some way been found to be of relevance in Scottish accents of English in connection with this variability or partial derhoticisation. These include style (Johnston 1984; Schützler 2010b), PREPAUSAL POSITION (Romaine 1978; Stuart-Smith 2003; Lawson *et al.* 2008; Schützler 2010b), GENDER (Romaine 1978; Stuart-Smith 2003; Schützler 2010b), AGE (Johnston 1984; Stuart-Smith 2003; Schützler 2010b), and STRESS (Lawson *et al.* 2008, Schützler 2010b). However, comparing the findings especially of Schützler (2010b) for middle-class speakers with those of Romaine (1978), Stuart-Smith (2003) and Lawson *et al.* (2008) for working-class speakers suggests that for GENDER and PREPAUSAL, the effect on coda-/r/ may be rather different depending on the social class of speakers.

4. THE DATA AND THEIR HIERARCHICAL STRUCTURE

The data used for this study were collected in Edinburgh in 2008. Interviews were conducted with 27 speakers who were 17-62 years old at the time. The sample is middle-class throughout. Coda-/r/ was elicited in three speech styles: (1) a reading passage, (2) a careful speech component, and (3) a wordlist. The careful speech element consisted of a more spontaneous task based on the reading passage. The number of cases is fairly balanced between careful speech and reading passage with $N = 1073$ for the former and $N = 1192$ for the latter, but the number of cases in wordlist-style is considerably lower ($N = 294$). The wordlist had to be shorter as it was designed to target several different variables in a concise format (cf. Schützler 2009, 2010a, 2011).

Describing the data in a multilevel fashion, $N_1 = 2519$, i.e. there are 2519 level-1 units or individual cases. At level 2, the number of observations is $N_2 = 81$, i.e. there are 81 text units (3 per speaker) in which the individual observations at level 1 are nested. At the highest level, $N_3 = 27$ – these are the 27 speakers. This structure is shown in Figure 1.

(Figure 1) *Hierarchical (3-level) structure of the dataset*



The arrangement of level-2 units is perfectly regular, as there are always three text-units per speaker: reading passage, careful speech, and wordlist. At level 1, the number of cases/tokens varies not only depending on the text unit but in the case of careful speech also on the general productivity of a given speaker. Therefore, the diagram represents the maximal number of units as fixed at levels 3 and 2, but variable at level 1.

5. OUTCOME VARIABLE AND PREDICTOR VARIABLES

It is for present purposes assumed that coda-/r/ will be either present or absent. The value of the outcome variable thus denotes the probability of the articulation of coda-/r/ in a specific instance. While the phoneme /r/ is “prone to vary in many and subtle ways” (Scobbie 2006:338) and is therefore a challenge for sociophoneticians, this paper cannot do justice to the subtleties of variation that go far beyond simple presence or absence of the consonant. The full-scale analysis of coda-/r/ in SSE, from which the present methodological discussion is derived, treats the outcome not as binary but as a multinomial variable that can take one of several categorical values, e.g. approximant, tap/trill, or zero.

The independent (predictor) variables fall into three groups corresponding to the three levels of the model shown in section 4:

A. Social parameters (level 3)⁵

1. **GENDER** (male = 0, female = 1)
2. **AGE Y** (17-22 years old)
3. **AGE M** (40-47 years old)
4. **CONTACT**
5. **REGION**

B. Text type related parameters (level 2)⁶

6. **WL**
7. **TX**

C. Low-level/contextual parameters (level 1)⁷

8. **STRESS**
9. **PREPAUSAL**

6. THE MULTIPLE LOGISTIC REGRESSION MODEL

Logistic regression is similar to linear regression in that it represents a probable outcome as the sum of an intercept (baseline value or constant) and one or several products of predictor coefficients with predictor values. However, as the outcome in this case is not continuous but binary (coda-/r/ present or absent), no direct linear relationships between predictors and outcome are possible. LR therefore employs a link-function, the so-called logit-function:

⁵ The uncoded reference category for both age predictors is the group of older speakers, aged 52-62. CONTACT = 1 in the case of speakers who were (or are) exposed directly and extensively to speakers of Southern Standard British English (SSBE), either in their own families or during longer stays in England as students or in a professional capacity. CONTACT thus does not mean the more diffuse exposure to Southern English accents that is to be generally expected in Edinburgh. REGION 1 = 1 denotes speakers from “unmixed” Edinburgh backgrounds. Strictly speaking, the region of geographical provenance of a speaker would of course constitute a fourth level. Nevertheless, it was tested as a level-3 predictor, with very little effect (s. below).

⁶ The uncoded reference category in this case is the careful speech component of the sample.

⁷ STRESS was given categorical values of 0-3 which were treated as a scale in the analysis. STRESS = 3 corresponds to stressed syllables in focus stress position, STRESS = 0 is used for unstressed function words, and STRESS = 1-2 describes degrees of lexical stress weaker than focus stress. PREPAUSAL in my definition is at least partly synonymous with “utterance-final” or “before a speech pause” as used by other authors. It does not necessarily denote a following longer pause or a change of turn, (cf. French 1988) but simply a natural break in discourse or the end of a sentence.

$$\text{logit}_{HGLM}(r|1) = \ln\left(\frac{p(r|1)}{1-p(r|1)}\right)$$

The logit is the natural logarithm of the odds in favour of the occurrence of the outcome (articulated coda-/r/). The log-odds have the advantage that they are continuous (can take any value) and theoretically unbounded (with possible values of $-\infty < \text{logit} < \infty$). They are therefore clearly eligible for prediction by linear regression. A (multiple) LR using the logit link-function can therefore also be described as an indirect (multiple) linear regression, in which a continuous, linearly predicted pseudo-outcome is related to a true, non-linear outcome via the link-function. A multiple LR equation thus takes the general form:

$$\text{logit}(Y) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + r$$

In this equation, β_0 is the intercept, i.e. the expected outcome if all relevant predictors take the value zero. β_1 is the slope of the first predictor, i.e. the change in the outcome if that predictor increases by the value one, X_1 is the value of the first predictor which is multiplied by that predictor's slope, and r is the residual, or error term, i.e. the difference between the predicted value and the actually observed value of the outcome variable. The coefficients are calculated so as to minimize the average value of r across all cases.

The LR for the current analysis progressed in a backward fashion by including all predictors at the outset and deleting them from the model if non-significant. The sequence of deletion was: AGE M (after step 1; $p = .914$), REGION 1 (after step 2; $p = .629$), and TX (after step 3; $p = .586$). Table 1 represents the final model, in which 6 of the original 9 predictors are retained.

(Table 1) *Predicting articulation of coda-/r/: Multiple LR*

Variable	B	SE	Wald	df	p	Exp(B)
constant	.176	.0895	3.88	1	.049	1.19
GENDER	-.498	.0944	27.80	1	.000	.61
AGE Y	.157	.0951	2.72	1	.099	1.17
CONTACT	-.736	.1132	42.26	1	.000	.48
WL	.867	.1962	19.53	1	.000	2.38
STRESS	.458	.0531	74.34	1	.000	1.58
PREPAUSAL	1.720	.1799	91.45	1	.000	5.58

The model can also be written as a regression equation. It must be remembered that this does not directly predict the probability of the outcome, but the log-odds:

$$\text{logit}_{LR}(r|1) = .176 - .498 (\text{GENDER}) + .157 (\text{AGE Y}) - .736 (\text{CONTACT}) + .867 (\text{WL}) + .458 (\text{STRESS}) + 1.720 (\text{PREPAUSAL}) + r$$

Thus the log-odds in favour of articulated coda-/r/ for a young male speaker producing a prepausal token carrying focus stress are $.176 + .157 + 3*(.458) + 1.720 = 3.427$. The coefficients associated with GENDER, CONTACT and WL do not feature in this equation, because these two predictors take values of zero.⁸

The logit of 3.427 is not immediately meaningful, it only tells us that under the given circumstances it is very likely that coda-/r/ should be articulated, as the logit has a high

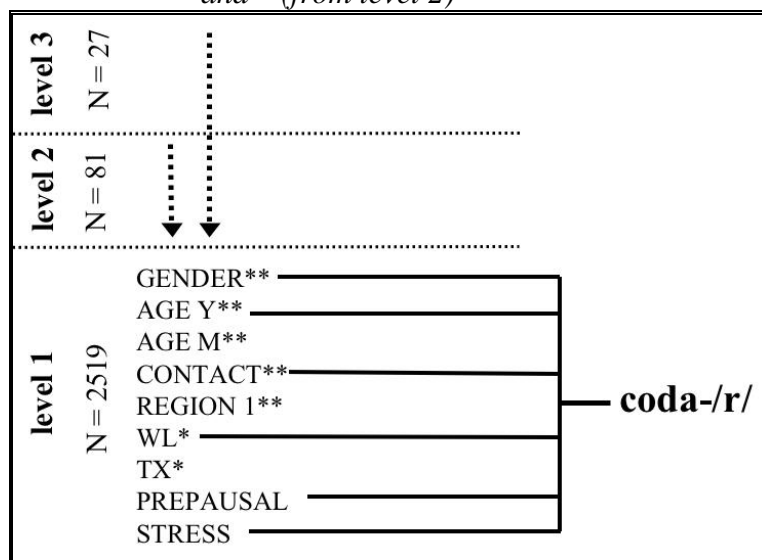
⁸ Theoretically, WL could have been included as an additional positive predictor, but since in my data all wordlist tokens were embedded in a carrier phrase and WL and PREPAUSAL were thus mutually exclusive, I decided against this.

positive value. However, it can be transformed into a probability value using the inverse of the logit link-function. This is called the logistic function and takes the following form:

$$p_{LR}(r|1) = \frac{e^{\text{logit}_{LR}(r|1)}}{1 + e^{\text{logit}_{LR}(r|1)}} \quad \text{In the above example, this is} \quad p_{LR}(r|1) = \frac{e^{3.427}}{1 + e^{3.427}} = .969$$

Under the given circumstances, the probability of articulated coda-/r/ is .969, or 96.9%. The example with the lowest possible probability is a female speaker exposed to contact who produces an unstressed token in non-prepausal position. The logit for this scenario is .176 - .498 - .736 = -1.058 which results in a probability of .258 or 25.8%. Figure 2 shows the LR model in diagram form.

(Figure 2) *Predicting articulation of coda-/r/: Schematic representation of LR. To indicate level of origin, disaggregated predictors are marked ** (from level 3) and * (from level 2)*



The diagram shows that all higher-level predictors have been assigned to the individual cases. The standard errors (and consequently the p-values) of level-2 and level-3 coefficients will therefore be underestimated, because they are based on an inflated number of observations.

7. THE HIERARCHICAL GENERALIZED LINEAR MODEL

Essentially, level-1 outcomes in HGLM are predicted using LR, but these predictions are conditional upon estimates made for higher-level units. Thus HGLM avoids both the loss of information characteristic of aggregated data and the violation of statistical assumptions characteristic of erroneously applied LR that assumes the independence of observations where it is not given (see sections 2 and 6). Not only the level-1 intercept can be modified depending on the higher-level unit to which an observation belongs, but the slopes can vary as well: HGLM is able to assess, for example, if the effect of PREPAUSAL is equal in the wordlist and the reading passage, and if its effect is the same between different speakers. Further, it can model the differences in slope or intercept at higher levels, using higher-level variables as predictors, before inserting them into the level-1 equation. Thus, in the present case of a 3-level analysis, the level-1 model is in fact a nested ‘model-within-a-model-within-a-model’ that reflects the nested structure of the data.

Table 2 shows the final model with seven of the original nine predictors. However, some of them have more than one function. TX and REGION 1 were found to have no effect that would have improved the model. Note that the degrees of freedom (*df*) take different

values for different predictors, depending on the number of observations made on the level to which a predictor belongs. Also note that there are now three error terms (E , RO , $U00$) instead of one: unlike LR, this model acknowledges that predictions at all three levels will to some extent be incomplete or imperfect.⁹

(Table 2) *Predicting articulation of coda-/r/: HGLM*

Fixed effects	Coeff.	SE	T	df	p
intercept	.234	.1444	1.62	24	.118
—— GENDER	- .474	.1845	- 2.57	24	.017
—— CONTACT	- .646	.2358	- 2.74	24	.012
— WL	.875	.2081	4.21	79	.000
STRESS	.465	.0550	8.45	2510	.000
PREPAUSAL	1.495	.3477	4.30	2510	.000
—— AGE Y	.850	.4327	1.96	2510	.049
—— AGE M	1.643	.6371	2.58	2510	.010
—— CONTACT	- 1.312	.4026	- 3.26	2510	.002
Random effects	σ	σ^2	df	χ^2	p
E	1.8138	3.2899			
RO	.2604	.0678	53	77.95	.014
$U00$.3725	.1388	24	70.21	.000
σ/σ^2 (fitted values)	1.1242	1.2638			

GENDER and CONTACT have a direct negative impact on the logit, i.e. female speakers and those extensively exposed to the SSBE accent tend to delete coda-/r/ more often than others. In wordlist style, coda-/r/ is less likely to be deleted as the coefficient of WL is positive, and the same is true for STRESS. Clearly, PREPAUSAL is the most interesting level-1 predictor: it depends on several level-3 predictors, namely AGE Y, AGE M, and CONTACT. Its intercept or baseline value is 1.495 which denotes its effect on the logit if the three variables affecting PREPAUSAL itself take value 0 (i.e. for for an older, no-contact speaker). However, if a case is nested in a young speaker or a middle aged speaker, the positive effect of PREPAUSAL will be magnified as the respective coefficient of AGE Y or AGE M will be added to that of PREPAUSAL. On the other hand, if CONTACT = 1, the effect of PREPAUSAL will be dramatically reduced.

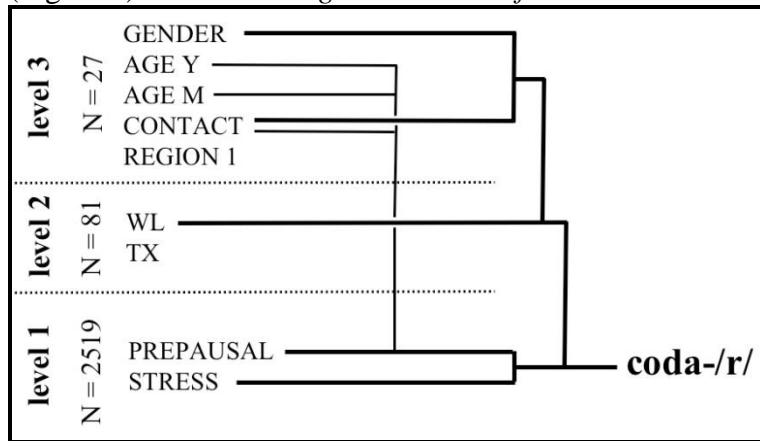
The logit of any individual case can be predicted using the following equation which contains both the direct intercept-effect and the three cross-level effects, the latter given in square brackets:

$$\begin{aligned} \text{logit}_{HGLM}(r|1) = & .234 - .474 (\text{GENDER}) - .646 (\text{CONTACT}) + .875 (\text{WL}) + .465 (\text{STRESS}) \\ & + [1.495 + .850 (\text{AGE Y}) + 1.643 (\text{AGE M}) - 1.312 (\text{CONTACT})] (\text{PREPAUSAL}) \\ & + e + r_0 + u_{00} \end{aligned}$$

For example, in the case of a young male speaker producing a prepausal token carrying focus stress (s. also section 6), the logit is $.234 - .474*0 - .646*0 + .875*0 + .465*3 + [1.495 + .850 + 1.643*0 - 1.312*0] = 3.974$, which is equivalent to a probability of .982 or 98.2%. Figure 3 shows this hierarchical generalized linear model in diagram form. It can be seen how the direct level-1 effects depend on level-2 effects, which in turn depend on level-3 effects. Also, the effect of PREPAUSAL depends on the age of the speaker and the level-3 predictor CONTACT.

⁹ Model fit, e.g. using R^2 , will be discussed below.

(Figure 3) Predicting articulation of coda-/r/: Schematic representation of HGLM



8. COMPARISON OF MODELS

In the way it treats the impact of higher-level predictors, HGLM is theoretically the more conservative of the two procedures compared in sections 6 and 7: it is more reluctant to recognise a significant contribution of higher-level variables because it does not disaggregate them onto a lower level and thus does not create an artificially enlarged number of independent observations. Nevertheless, there are several predictors that are not only identified by both LR and HGLM in the present analysis, but also have similar coefficients in both analyses, as Table 3 shows. This is especially true for GENDER, CONTACT, WL, and STRESS. The p-values for both GENDER and CONTACT are lower in LR, while WL is robust enough to produce very low p-values in both models, and the level-1 predictor STRESS is equally robust in both.

(Table 3) Direct comparison of coefficients in LR and HGLM

Variable	HGLM		Variable	LR	
	Coeff.	p		Coeff.	p
intercept	.234	.118	constant	.176	.049
— GENDER	-.474	.017	GENDER	-.498	.000
— CONTACT	-.646	.012	AGE Y	.157	.099
WL	.875	.000	CONTACT	-.736	.000
STRESS	.465	.000	WL	.867	.000
PREPAUSAL	1.495	.000	STRESS	.458	.000
— AGE Y	.850	.049	PREPAUSAL	1.720	.000
— AGE M	1.643	.010			
— CONTACT	-1.312	.002			

Beyond the direct predictors GENDER, CONTACT, WL and STRESS, there are some profound differences between the two models. For example, AGE Y is retained in LR as a direct predictor, albeit not a very valuable one: the coefficient is low, not significant at $p < .05$, and would normally be excluded. In HGLM, AGE Y does not feature as a direct (intercept) effect. However, this difference is partly explained when the predictor PREPAUSAL is inspected. In LR, this simply is a strong predictor, in HGLM it is not as strong but potentially enhanced by other level-3 predictors that have an effect on it. Here, AGE Y features as a slope predictor in combination with CONTACT and AGE M – the latter is a predictor not at all included in LR.

Statements about the amount of explained variation in both models based on values equivalent to the R^2 used in linear models have to be treated with caution, since in HGLM there are error terms at three levels and the calculation (and the theoretical concept) of

explained variance in these models is sometimes described as incompatible with the corresponding practices in single-level regressions (e.g. Luke 2004:58). However, using the R^2_{HGLM} proposed by Snijders & Bosker (1999:225), which is based on the three random effects and the variance of fitted values shown in Table 2, and comparing it to Nagelkerke's pseudo R^2 for LR, suggests that the hierarchical model is somewhat better in this respect: $R^2_{\text{HGLM}} = .266$ and $R^2_{\text{LR}} = .185$. HGLM appears to be more successful at the overall explanation of variation, but one should be careful with this comparison since both values are necessarily calculated differently.

What can be directly compared, however, is the number of correct predictions made by each model. For this purpose, a p-value describing the probability of a positive outcome (articulated coda-/r/) is calculated from the logit of each observation. The result is compared to a threshold value of $p = .500$ (equivalent to logit = 0). A value of $p \geq .500$ is interpreted as a predicted value of 1, a value of $p < .500$ is interpreted as a predicted value of 0. If the predicted value matches the binary outcome, the prediction is true. Table 4 compares the results of this test for the empty model (which simply predicts the majority outcome $Y = 1$ in each case), LR, and HGLM.

(Table 4) *Correctly predicted outcomes: empty model, LR, and HGLM (cut value at $p = .500$)*

Observed	Empty model			LR			HGLM		
	Predicted /r/	Predicted \emptyset	correct	Predicted /r/	Predicted \emptyset	correct	Predicted /r/	Predicted \emptyset	correct
/r/	1655	0	100.0%	1457	198	88.0%	1479	176	89.4%
\emptyset	864	0	0.0%	618	246	28.5%	633	231	26.7%
Total %			65.7%			67.6%			67.9%

The proportion of correct predictions is only a rough indicator: even in the empty model the number of correct predictions is not strikingly lower than in the other two models. But the trend is nevertheless clear. If nothing but the majority outcome is predicted, observations match predictions in 1655 cases (65.7%), if predictions are based on LR there are 1703 matches (67.6%), and if HGLM is applied there are 1710 matches (67.9%).

11. CONCLUSIONS

The comparison of analyses using LR and HGLM shows that, given the structure of the dataset under investigation, the latter is not only more adequate and legitimate for theoretical reasons, but also produces rather different results. For example, the coefficients of the two predictors GENDER and CONTACT have considerably lower p-values when LR is applied. This is the result of disaggregation: GENDER and CONTACT are characteristics of speakers, and estimating them based on the true number of speakers ($N = 27$), as HGLM does, results in a more conservative and realistic assessment of their levels of significance. While these predictors are significant in both analyses, this finding nevertheless points to the risk of committing a statistical type I error in LR: this procedure will more readily (but fallaciously) find coefficients to be significant than HGLM if they belong to a higher level.

In HGLM, AGE Y does not feature as a direct intercept predictor (as in LR), but as a slope predictor affecting PREPAUSAL. This partly explains why LR was not able to fully capture its effect: in this model it has a low coefficient and is statistically not significant. Putting it differently, LR identifies AGE Y as a weak (in fact untenable) *general* predictor while HGLM identifies it as a strong *specific* predictor. This can serve as an illustration of one main limitation of LR: the impact of all predictors is assumed to be directed at the outcome in the same way (although differing in magnitude). HGLM on the other hand is much better able

to model complexity, not only in terms of different levels, but also in terms of slope-effects, i.e. indirectness of effects.

Compared to LR, HGLM seems to some extent to be simply *different*. However, it also seems to explain rather more of the variability present in the data, and in this respect it is also *better*. Both the value of R^2 is – with all due caution – higher for the final model using HGLM, and the same is true for the number of correctly predicted outcomes, using a threshold value of $p = .500$ (or 50%).

As several predictors (GENDER, CONTACT, WL, STRESS) were identified as significant by both models and had coefficients whose estimated values were rather similar in both models, it seems that LR is able to capture intercept effects quite successfully, even if fallaciously applied to hierarchical data. However, some effects – and arguably the most interesting ones – elude the single-level approach, as has been shown for the effect of the level-1 predictor PREPAUSAL which was itself affected by three level-3 predictors. The new model introduced in this paper thus appears to be not only more adequate for theoretical statistical reasons. It also explains variability more successfully and brings to light highly interesting effects that would otherwise go unnoticed.

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On the Polyfunctionality of Copula Sentences in Japanese*

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This paper sets out the puzzle of the polyfunctionality of copula sentences in Japanese, and proposes a principled solution from the viewpoint of Semantic Incrementality. Some copula sentences have specificational and identity functions, and they display different behaviours in terms of connotation and anaphora. It is proposed that the single item *no* as a pronominal nominaliser captures the two functions uniformly, whereas their distinct properties can be reduced to Semantic Incrementality (i.e. the timing of copying a type-e term). The analyses have interesting implications for some ellipsis constructions.

1. INTRODUCTION

Copula sentences in Japanese and other languages have attracted a number of studies (Imada 2009, Nishiyama 2003, and references therein; see also Declerck 1988 and Moro 2006). This paper is an attempt to contribute to this growing body of research by setting out new data on the polyfunctionality of copula sentences (§2), and proposing a principled solution from the perspective of Semantic Incrementality (§3-5). The analyses have the bonus of accounting for some data on ellipsis constructions in Japanese (§6).

2. PUZZLE

Seraku (to appear) examines a certain type of copula sentences like (1). The predicate *nai* and the aspectual marker *teiru* form an open clause with a gap φ . This open clause is headed by *no*, which is marked by the topic particle *wa*. The category of *no* is discussed in §4.2.

- (1) [[φ_i *nai-teiru*] *no*]-*wa* *Tom_i da*.
 [[*cry-CONT*] NO]-TOP T. COP

This copula sentence exhibits various functions: specificational, identity, predicational, and descriptively-identifying in Declerck's (1988) sense (Seraku 2010). This paper focuses on the specificational and identity functions.

First, suppose the situation (2). Under this situation, the copula sentence (1) will have a **specificational** function; the reading in this function is illustrated in (3).

- (2) Situation: Mary is a teacher, giving lots of assignments to her students. One day, her colleague Jim tells Mary that one of her students is crying due to the amount of work. Mary asks who is crying. Then, Jim replies by uttering (1).

- (3) 'It is Tom that is crying.' (specificational)

In this reading, the content of *nai-teiru no* does not denote an entity; it denotes some type of variable, "X such that X is crying". The slot X is filled by the content of the pre-copula item *Tom*. This **filling** process is the core idea of specificational functions.

* I'd like to acknowledge insightful suggestions made by David Cram, Ruth Kempson, Jieun Kiaer, Yuji Nishiyama, and the participants of CamLing 2010. The author is responsible for any inadequacies in the paper.

Second, consider the situation (4). Under this situation, the copula sentence (1) will have an **identity** function; the reading in this function is something like (5).

(4) Situation: Mary is a teacher, giving lots of assignments to her students. Tom, one of her students, starts crying on his way home. Mary is walking in the same street, and sees a person crying. She approaches him, and realizes that he is her student, Tom.

(5) ‘The person who is crying is the same person as Tom.’ (identity)

In this reading, the content of *nait-teiru no* denotes an entity (i.e. a crying person), and the content of the pre-copula item *Tom* also denotes an entity (i.e. Tom); it is asserted that these two entities are equated. Unlike the filling nature of specificational functions, the core idea of identity functions is the **equation** process.

Despite the filling/equation divide, the two functions do look similar, and one might suppose that they are the same. In fact, a number of previous studies held this unitary view (Declerck 1988: 2-3); for a more recent analysis of this sort, see Heycock and Kroch (1999). The overall conclusion drawn in this paper respects the intuition behind this unitary view, but to conclude so just from the above examples can lead us to overlook some important linguistic facts. In what follows, we are going to see some clear asymmetries between the two functions.

First, (1) expresses some kind of connotation under the identity reading, but not under the specificational reading. The type of connotation is context-dependent (Seraku 2010; Yuji Nishiyama p.c.): for instance, if Mary hates a feeble man crying in public, the connotation will be derogatory; if Mary thinks of a crying person to be cute, the connotation will be a familiarity towards the person. The point here is that, though the type of connotation varies across contexts, connotations are found only in the identity reading.

(Table 1) *Properties of the copula sentence (1)*

Function	Connotation
specificational	absent
identity	present

Second, as observed in Nishiyama (2003: ch.3) and some others, the identity reading is in a sharp contrast with the specificational reading in terms of anaphora. *Nai-teiru no* in (1) can have an anaphoric relation with the personal pronoun *kare* (= ‘he’), as in (6); in this case, only the identity reading is possible. By contrast, if we use the impersonal pronoun *sore* (= ‘it’), only the specificational reading is possible, as in (7). Again, we observe another clear asymmetry between the two readings, as summarized in Table 2.

(6) [*Nai-teiru no, kare*]-*wa Tom da.*
 [cry-CONT NO he]-TOP T. COP
 *‘It is Tom that is crying.’ (specificational)
 ‘The person who is crying is the same person as Tom.’ (identity)

(7) [*Nai-teiru no, sore*]-*wa Tom da.*
 [cry-CONT NO it]-TOP T. COP
 ‘It is Tom that is crying.’ (specificational)
 *‘The person who is crying is the same person as Tom.’ (identity)

(Table 2) *Properties of the copula sentence (1)*

Function	Connotation	Anaphora
specificational	absent	<i>sore</i> (= ‘it’) / * <i>kare</i> (= ‘he’)
identity	present	* <i>sore</i> (= ‘it’) / <i>kare</i> (= ‘he’)

Thus, we cannot simply say that the two functions are the same unless we explain away these asymmetries. To the best of my knowledge, the pattern in Table 2 has not been explicitly noted, though some attention has been paid to the data on anaphora (Nishiyama 2003: ch.3).

In sum, while the specificational and identity functions look similar, the one differs from the other in some important respects. This ambivalent situation favours the analysis that captures the two functions uniformly without failing to derive the asymmetries. The rest of the paper explores this line of analysis from the viewpoint of Semantic Incrementality.

3. FRAMEWORK

This section introduces Dynamic Syntax (DS) as a model of Semantic Incrementality. DS is a grammar formalism of Knowledge of Language, which is defined as follows (Cann et al. 2005 and Kempson et al. 2001):

- (8) Knowledge of Language is a set of constraints on the growth of semantic structure, which a parser builds up online progressively by parsing a string of words in the order with respect to a particular context.

According to (8), semantic structure is built up **progressively** as the words are processed. This progressive growth of semantic structure is the dynamic nature of language use, and called **Semantic Incrementality**. It is assumed that language-users have tacit knowledge of this dynamic nature of language use; DS explicitly models this knowledge by construing it as a set of constraints on the dynamic nature of language use. In this sense, Knowledge of Language (i.e. competence) is defined with reference to Use of Language (i.e. performance). In general, Use of Language consists of comprehension and production, but this paper only concerns the former; see Cann et al. (2007) and Purver et al. (2006) for the latter.

Knowledge of Language within DS enables a **direct** mapping from words onto its semantic structure. The mapping is direct in the sense that there is no intermediate level of structure, such as syntactic structures. Thus, despite its name Dynamic Syntax, the “syntax” here is nothing over and above a set of constraints explicated in (8).

The growth of semantic structure is driven by combination of the three types of action:

- (9) a. General actions run by the DS system
 b. Lexical actions run by the parsing of lexical items
 c. Pragmatic actions run by pragmatic inference

The third type of action indicates that pragmatic inference intrudes into DS computations. A promising candidate for pragmatic explanation is Relevance Theory (Sperber and Wilson 1995). Thus, DS representations are, in fact, not only semantic but also pragmatic.

For illustration, let’s see how the string (10) is progressively mapped onto its semantic structure word-by-word.

- (10) *Mary-ga nai-teiru.*
 M.-NOM cry-CONT
 ‘Mary is crying.’

The initial state is (11), defined as an axiom.¹ “?t” is a requirement that the node should be decorated with type-t content. In this sense, the growth of semantic structure is goal-driven, the goal being to construct type-t content, or an interpretation of a string.

¹ For brevity, the GENERALIZED ADJUNCTION rule, which models embedded phenomena, is disregarded.

(11) Initial state

$$?t$$

Once the initial state is set out, the parsing starts. The first item is *Mary*. As Japanese allows permutations of arguments, *Mary* may be a subject or an object, etc. So, the node for *Mary* is structurally underspecified and gets fixed later. This fixation is made by the parsing of the case marker *ga*, which fixes the node for *Mary* as a subject. In (12), the subject node consists of two pieces of information. First, $(t, x, \text{Mary}'(x))$ is the content of *Mary*. “ t ” is an iota operator that binds the variable “ x ”, which is restricted by *Mary*'. Second, “ e ” states that the content at this node is of type- e : within DS, every quantified item is treated as a type- e term.

(12) Parsing *Mary-ga*

$$\begin{array}{c} \text{?t} \\ \diagdown \\ (t, x, \text{Mary}'(x)) : e \end{array}$$

The next item to be parsed is the predicate *nai* (= ‘cry’). Japanese being a pro-drop language, a predicate constructs an open proposition with slots for arguments. Thus, the parsing of *nai* updates (12) into (13), where a slot for a subject has been already identified.

(13) Parsing *Mary-ga nai*

$$\begin{array}{c} \text{?t} \\ \diagdown \quad \diagup \\ (t, x, \text{Mary}'(x)) : e \quad \text{nai}' : \langle e, t \rangle \end{array}$$

Finally, the general action called ELIMINATION composes the content at each daughter node by means of functional application, and the parsing of *teiru* puts aspectual information at the root node. The final state is (14); this structure is well-formed in that no outstanding requirements (i.e. “?”) remain (Cann et al. 2007).

(14) Parsing *Mary-ga nai-teiru*

$$\begin{array}{c} \text{nai}'(t, x, \text{Mary}'(x)), \text{CONT} : t \\ \diagdown \quad \diagup \\ (t, x, \text{Mary}'(x)) : e \quad \text{nai}' : \langle e, t \rangle \end{array}$$

Once a proposition is built up, it is subject to the process EVALUATION: each term stores a record of the proposition by enriching restrictors, and this record-storing results in an E-type interpretation of the term. To take (14) as an example, the proposition $\text{nai}'(t, x, \text{Mary}'(x))$ is evaluated as $\text{nai}'(a)$, where “ a ” is the E-type entity $(t, x, \text{Mary}'(x) \& \text{nai}'(x))$.

This section has articulated DS as a model of Semantic Incrementality: a parser builds up the interpretation of a string as each word is parsed left-to-right with respect to a specific context. Couched within this framework, the next section makes some proposals.

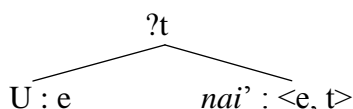
4. PROPOSALS²

4.1. Representation of Gap

Let me first clarify the notation of the gap φ (i.e. subject of *nai*) in (1), repeated as (15). The parsing of *nai* creates an open proposition with the meta-variable “U” at a subject node.

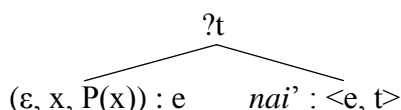
- (15) $[[\varphi_i \text{ } \textit{nai-teiru}] \text{ } \textit{no}]\text{-wa} \quad \textit{Tom}_i \text{ } \textit{da}.$
 $[[\text{ } \textit{cry-CONT}] \text{ } \textit{NO}]\text{-TOP} \quad \textit{T.} \quad \textit{COP}$

- (16) Parsing *Nai*



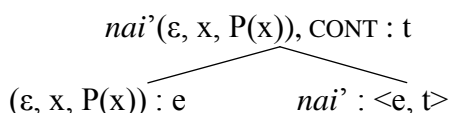
Following Kempson and Kurosawa (2009), Seraku (to appear) argues that a gap is notated as $(\varepsilon, x, P(x))$: “ ε ” is an existential operator binding the variable “ x ”, and “ P ” is a maximally abstract restrictor. $(\varepsilon, x, P(x))$ is a proto-term, unless a concrete restrictor is added, like, for instance, $(\varepsilon, x, P(x) \& \textit{man}'(x))$. Thus, the semantic structure (16) is updated into (17).

- (17) SUBSTITUTION of “U”



Functional application then takes place, and *teiru* puts the aspectual information CONT at the root node, as in (18). Regardless of whether the copula sentence (15) is going to be interpreted as specificational or identity, the parsing of *nai-teiru* yields the structure (18) in both cases.

- (18) Parsing *Nai-teiru*



Now that the proposition is built up, it is evaluated, as shown in (19). This evaluation process is crucial in our analysis, as will become clear in due course. “ P ” being an **abstract** restrictor, $(\varepsilon, x, P(x) \& \textit{nai}'(x))$ is identical to $(\varepsilon, x, \textit{nai}'(x))$.

- (19) $\textit{nai}'(\varepsilon, x, P(x)) \quad \text{EVALUATION} \rightarrow \quad \textit{nai}'(\varepsilon, x, P(x) \& \textit{nai}'(x))$

4.2. Lexical Entry of *No*

The next issue is the category of *no*. Following Cann et al. (2005: 285), Seraku (to appear) regards *no* as a pronominal nominaliser, whose entry is defined as (20).

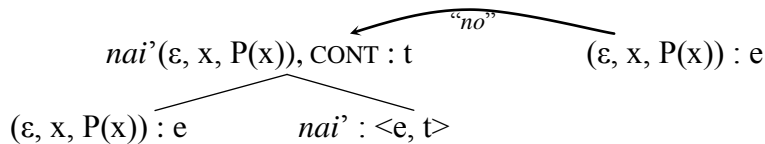
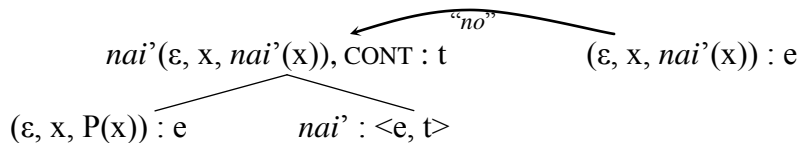
² This section and the next section elaborate and refine the proposals/analyses given in Seraku (to appear).

(20) Lexical entry of pronominal nominaliser *no*

IF	Ty(t)	
THEN	IF	Fo($\psi[a]$)
	THEN	make($\langle L^{-1} \rangle$); go($\langle L^{-1} \rangle$); put(Fo(a), Ty(e))
	ELSE	Abort
ELSE	Abort	

This entry states that if a type-t content has been built up, a parser should perform the three actions: (a) copy a type-e term within the type-t content, (b) create a type-e node linked to the type-t node, and (c) paste the type-e term at the type-e node.

Given this lexical entry, there are two ways the structure (18) can be updated. First, *no* can be parsed **before** the proposition is evaluated, as in (21). Second, *no* can be parsed **after** the proposition is evaluated, as in (22), where $(\epsilon, x, P(x) \& nai'(x))$ is notated simply as $(\epsilon, x, nai'(x))$ since they are equivalent (cf. §4.1).

(21) Parsing *Nai-teiru no* (parsing *no* **before** the EVALUATION)(22) Parsing *Nai-teiru no* (parsing *no* **after** the EVALUATION)

In this way, a type-e term may be copied before or after the EVALUATION. In the former case, the copied item is $(\epsilon, x, P(x))$; in the latter case, it is $(\epsilon, x, nai'(x))$. I advocate that this flexibility of tree transitions is a source of two different functions and their distinct properties. This idea is formulated in (23), and illustrated in the next section.

(23) The specificational/identity distinction is reducible to Semantic Incrementality, that is, the **timing** of copying a type-e term.

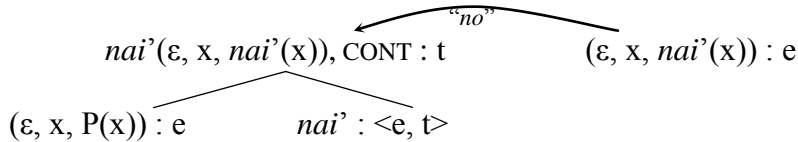
5. ANALYSES

5.1. Identity Function

As proposed in the last section, the parsing of *nai-teiru no* leads to either of the structures (21) or (22), depending on the timing of copying a type-e term. This sub-section argues that the identity function (24) comes from the structure (22), repeated as (25). (As for the structure (21), see the next sub-section.)

(24) [[*Nai-teiru*] *no*]-*wa* *Tom da.*
 [[*cry*-CONT] NO]-TOP T. COP
 ‘The person who is crying is the same person as Tom.’ (identity)

(25) Parsing *Nai-teiru no* (parsing *no* after the EVALUATION)



In (25), $(\epsilon, x, nai'(x))$ denotes an entity that cries. Thus, in the identity reading, some entity is denoted when we parse *no*. This is consistent with the intuition of native speakers that when they process (24) under the identity reading, they feel that they have not denoted anything before they parse *no*, but they have denoted something after they parse *no*.

Two caveats are in order. First, the operator can be strengthened. In (25), the term is a non-unique existential statement; if a context is set out in such a way that a parser can uniquely identify an entity that cries, the existential operator “ ϵ ” is strengthened as the iota operator “ ι ”. In this case, the term is updated into $(\iota, x, nai'(x))$.

Second, restrictors can be added pragmatically. For instance, if a parser pragmatically infers that what a speaker intends to denote is an entity that cries and is a man, the term will be pragmatically updated into $(\epsilon, x, nai'(x) \& man'(x))$. This updating is a pragmatic process, and thus the restrictors to be added are context-dependent; in another context, the term may alternatively be updated as, say, $(\epsilon, x, nai'(x) \& student'(x))$.

The above discussion answers the following questions, raised in §2:

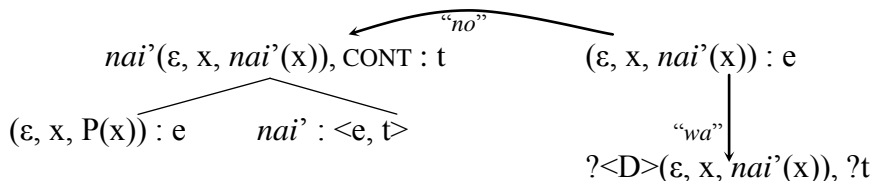
- (26) a. Why can we use the personal pronoun *kare* (= ‘he’), but not the impersonal pronoun *sore* (= ‘it’), in the identity reading?
- b. Why does the identity reading express a connotation of some sort?

As for (26a), the term in (25) denotes a human, given that *nai'* (= ‘cry’) is a human property. Thus, only the personal pronoun *kare* (= ‘he’) can be used. As for (26b), it is explained pragmatically, if we presume that a pronominal *no* primarily denotes “things” and that if it denotes a human, connotation emerges as a result of pragmatic inference: the denoted human is treated as if s/he were a thing, and, together with some contextual premise, it engenders a certain connotation, like “derogatory” (Seraku to appear). This pragmatic analysis correctly predicts that no connotations are detected in cases like (27), where *no*-headed part denotes a non-human entity, such as $(\epsilon, x, book'(x) \& kat'(x)(\iota, y, Tom'(y)))$.

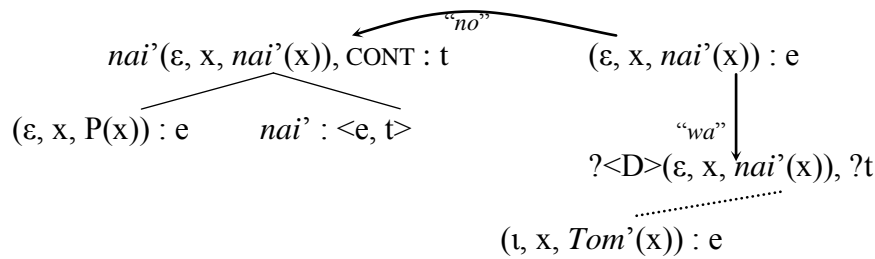
- (27) [Tom-ga kat-ta no]-wa takakatta.
 [T.-NOM buy-PAST NO]-TOP was.expensive
 ‘The one (e.g. book) which Tom bought was expensive.’

So far, we have parsed *nai-teiru no*. The next item is a topic marker *wa*, which updates (25) into (28); *wa* creates a type-t node, positing the requirement $?<D>(\epsilon, x, nai'(x))$, which requires that $(\epsilon, x, \&nai'(x))$ should be found somewhere below the node (Cann et al. 2005).

(28) Parsing *Nai-teiru no wa*



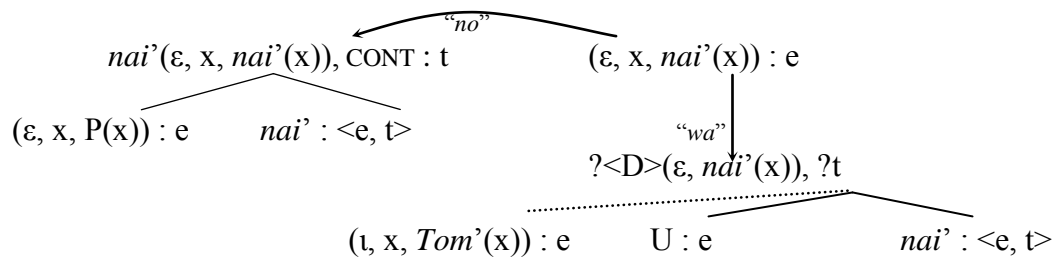
What comes next is the pre-copula item *Tom*. Since it is not case-marked, the node for *Tom* is structurally underspecified (cf. §3), as indicated by the dotted line in (29).

(29) Parsing *Nai-teiru no wa Tom*

Finally, we process the copula *da*. Purver et al. (2006) propose that *do* in English VP-ellipsis as in (30) decorates a node with a type- $\langle e, t \rangle$ meta-variable, which licenses the **re-use** of the actions associated with an antecedent predicate, that is, *cry* in (30).³

(30) *Tom cried, and Bill did too.*

Based on this insight, I shall maintain that the copula *da* decorates a node with a type- t meta-variable, which licenses the re-use of the actions associated with an accessible type- t item, in this case, *nai-teiru*.⁴ Thus, the parsing of *da* turns (29) into (31)⁵, where the actions associated with *nai* have been re-run.

(31) Parsing *Nai-teiru no wa Tom da*

As in the parsing of *nai-teiru*, the actions of *teiru* will be re-used once a full proposition is constructed; see (34).

The tree is currently being built up with reference to the term $(\epsilon, x, nai'(x))$, which is marked in bold in (32). Thus, the meta-variable “U” is substituted with this term, and (31) is updated into (32).

³ Re-use of actions is formally defined as the general action REGENERATION (Purver et al. 2006: §5).

⁴ This account of the copula *da* is similar to Cann’s (2006, to appear) and Cann et al.’s (2005: ch.8) account of the copula *be* in English in that both the copula *da* and the copula *be* are analyzed as introducing a meta-variable. In §6, some interesting implications for ellipsis constructions will be drawn from this treatment of the copula *da*.

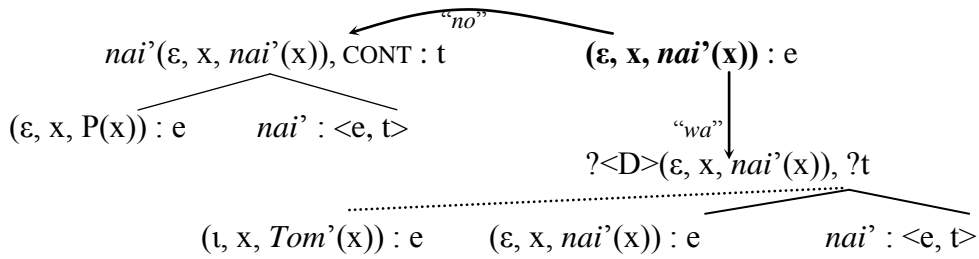
⁵ In English VP-ellipsis, a concrete predicate could be explicitly produced instead of *do*, as illustrated in (i). In the case of the cleft (ii), however, the type- t item *nai-teiru* cannot be explicitly uttered instead of *da*.

(i) *Tom cried, and Bill cried too.* (cf. *Tom cried, and Bill did too.*)

(ii) *[*Nai-teiru no*]-*wa Tom nai-teiru.* (cf. *Nai-teiru no wa Tom da.*)
[cry-CONT NO]-TOP T. cry-CONT

I tentatively conjecture that (ii) is unacceptable for the following reason. It has been widely held that a clause part of clefts (i.e. *Nai-teiru*) serves as presupposition whereas a pre-copula item (i.e. *Tom*) serves as focus. Consequently, once the topic marker *wa* is parsed, we can only utter focussed items. That is, *nai-teiru* cannot be uttered because it is not a focussed item. Instead, the “pro-form” of a type- t item, *da*, is uttered.

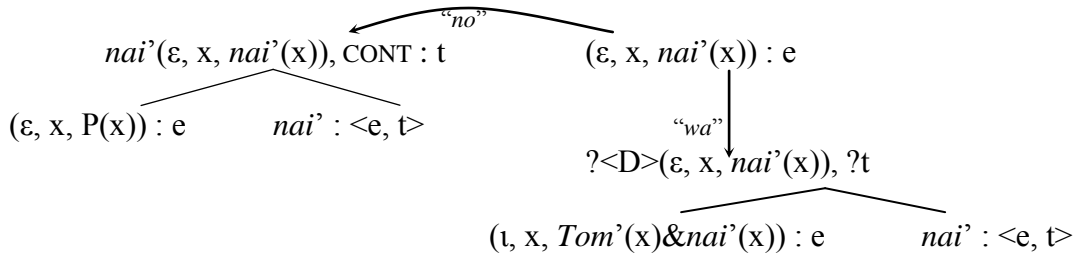
(32) SUBSTITUTION of “U”



This substitution process ensures that the requirement $?<D>(\epsilon, x, nai'(x))$ is satisfied.

The underspecified node is then unified with the subject node, as illustrated in (33). This is the general action MERGE. It was originally assumed that two formula values cannot be unified at one node (Cann et al. 2005: 65), but Cann et al. (2005: ch.8) and Cann (2006) claim that MERGE is possible if two nodes denote the same entity. Notice that the requirement is still satisfied in (33), since $(t, x, Tom'(x) \& nai'(x))$ entails $(\epsilon, x, nai'(x))$.

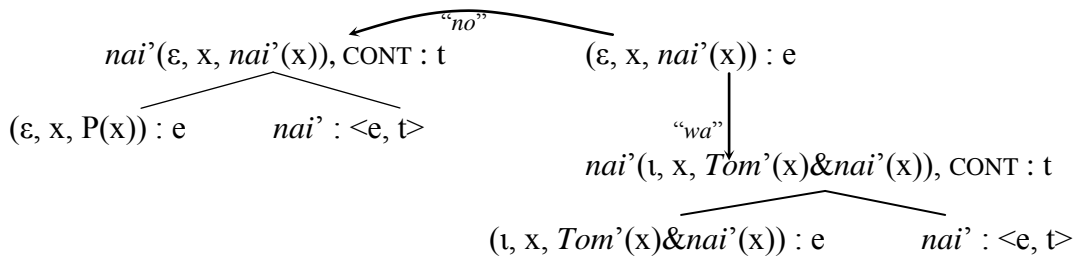
(33) MERGE



This unification process models the identity function. As emphasized in §2, the core idea of identity functions is the **equation** between two entities. In (32), $(t, x, Tom'(x))$ and $(\epsilon, x, nai'(x))$ denote two entities, and in (33), MERGE equates them by unifying their restrictors.

After functional application, the tree is an appropriate environment for re-using the actions of the aspectual marker *teiru*, which puts CONT at the root node.

(34) Final state



The analysis of the identity reading is summarized in Table 3.

(Table 3) *Analysis of the copula sentence (1)*

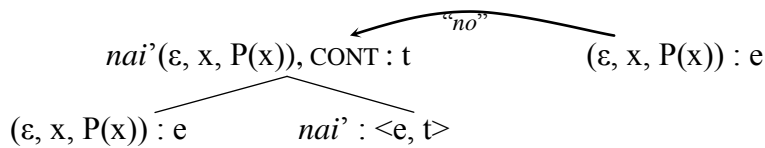
When <i>no</i> copies a term? after EVALUATION	Function	Properties
	identity	- connotation available - <i>*sore/kare</i>

5.2. Specificational Function

The last sub-section showed that the parsing of *no* after the EVALUATION gave rise to the identity reading. This sub-section demonstrates that if *no* is parsed before the EVALUATION, we will have the specificational reading (35). For ease of reference, the semantic structure, which results from the parsing of *nai-teiru no*, is cited again as (36).

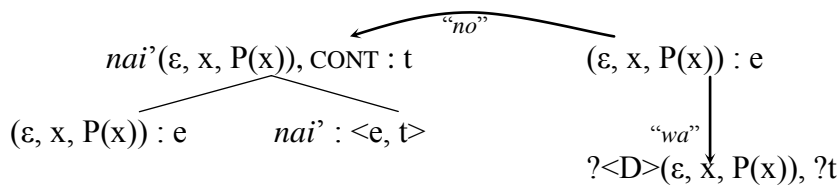
- (35) [Nai-teiru no]-wa Tom da.
 [cry-CONT NO]-TOP T. COP
 ‘It is Tom that is crying.’ (specificational)

- (36) Parsing *Nai-teiru no* (parsing *no* before the EVALUATION)



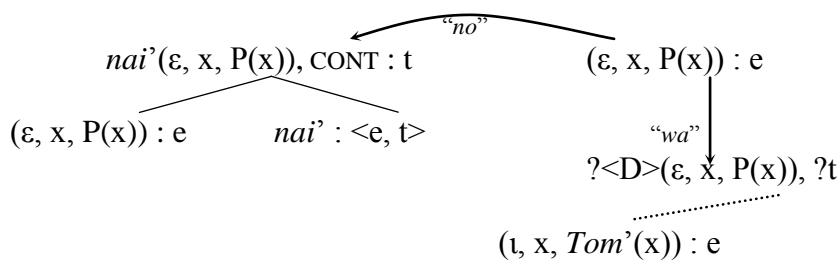
We then parse a topic marker *wa*. According to the standard DS analysis of *wa* (cf. §5.1), (35) is updated into (37), where $?<D>(\varepsilon, x, P(x))$ is a requirement that $(\varepsilon, x, P(x))$ should be found somewhere below the node.

- (37) Parsing *Nai-teiru no wa*



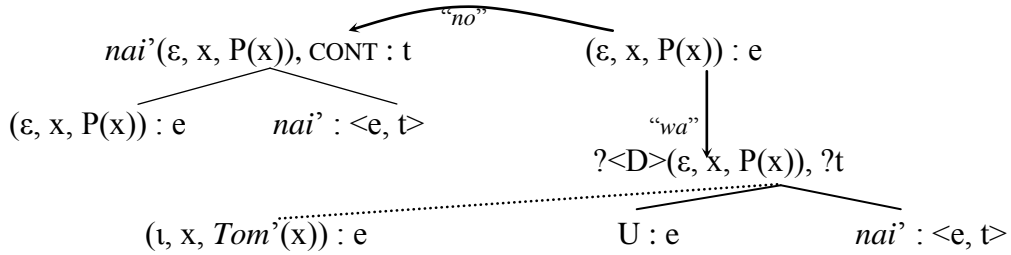
The next item to be parsed is *Tom*. As in the case of the identity function, the node for *Tom* is structurally underspecified.

- (38) Parsing *Nai-teiru no wa Tom*



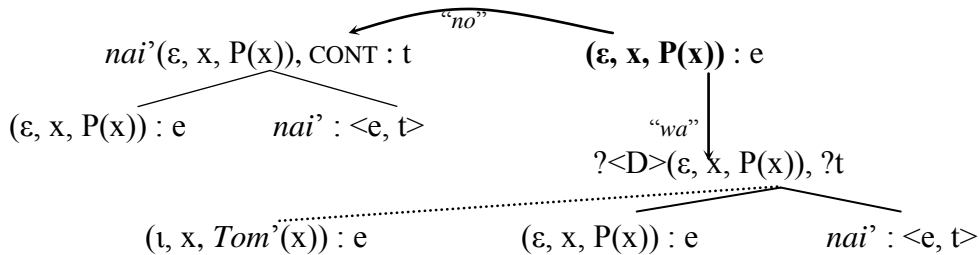
Again, as with the identity function, the copula *da* licenses the re-use of the actions associated with the predicate *nai* (= ‘cry’). The lexical actions construct an open proposition with the subject meta-variable ‘U’.

(39) Parsing *Nai-teiru no wa Tom da*



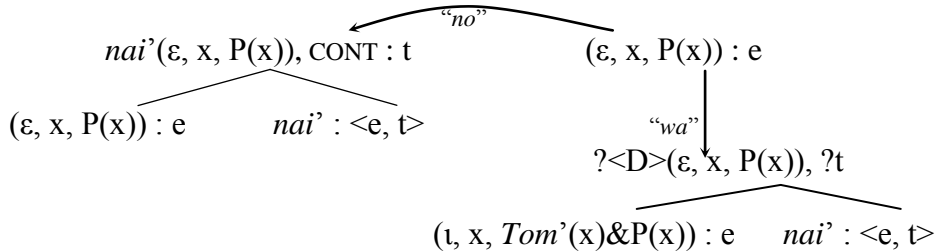
As shown in (40), the tree is being built up with reference to the term $(\epsilon, x, P(x))$, which is marked in bold. Thus, the meta-variable “U” is substituted with this term.

(40) SUBSTITUTION of “U”



As in the case of the identity function, MERGE resolves the structural underspecification.

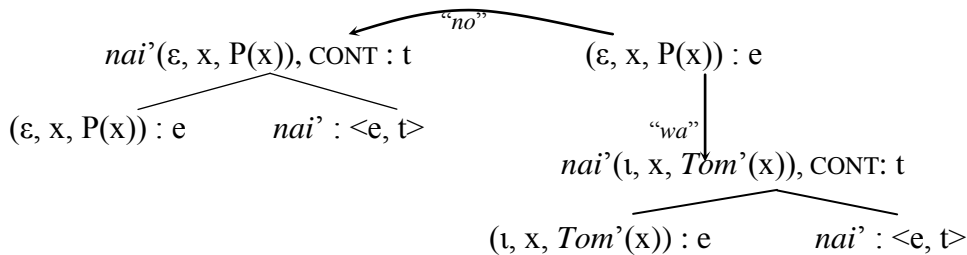
(41) MERGE



This unification process models the specificational function. As stressed in §2, its core idea is the **filling** process. $(t, x, Tom'(x) \& P(x))$ being identical to $(t, x, Tom'(x))$, the unification process is virtually seen as a filling process of “P” with Tom' .

Finally, functional application and the re-use of the actions of *teiru* turn (41) into the final state (42).

(42) Final state



This final state answers the following questions set out in §2:

- (43) a. Why are there no connotations in the specificational reading?
 b. Why can we use the impersonal pronoun *sore* (= ‘it’), but not the personal pronoun *kare* (= ‘he’), in the specificational reading?

As for (43a), the term induced by *nai-teiru no*, ($\epsilon, x, P(x)$) is a proto-term (cf. §4.1), and thus does not denote any human. This is why no connotations emerge, according to the pragmatic analysis in the last sub-section. As for (43b), the personal pronoun *kare* (= ‘he’) cannot be used, since the term does not denote a human. The reason why the impersonal pronoun *sore* (= ‘it’) can be used is not completely clear; I assume that *sore* serves as an anaphoric device for denoting the proto-term ($\epsilon, x, P(x)$).

The upshot is that the identity and specificational functions are dealt with uniformly by the single entry of *no* as a pronominal nominaliser while their differences are the regular result of Semantic Incrementality (i.e. the timing at which a type-e term is copied by *no*).

(Table 4) *Analyses of the copula sentence (1)*

When <i>no</i> copies a term?	Function	Properties
after EVALUATION	identity	- connotation available - * <i>sore/kare</i>
before EVALUATION	specificational	- connotation unavailable - <i>sore</i> /* <i>kare</i>

6. IMPLICATIONS

In Section 5, we assumed that the copula *da* licenses the re-use of the actions of a type-t item. This insight can also shed light on some ellipsis constructions in Japanese.

Let’s start with Stripping (Fukaya 2007 and references therein). A case in point is (44B), which is two-way ambiguous, as indicated in (45).

- (44) A: *Tom-ga Mary-o sonkeeshi-teiru.*
 T.-NOM M.-ACC respect-CONT
 ‘Tom respects Mary.’

- B: *Jim-mo da.*
 J.-too COP
 ‘Jim, too.’

- (45) a. ‘Jim also respects Mary.’
 b. ‘Tom also respects Jim.’

The parsing of *da* licences the re-use of the actions of *sonkeeshi* (= ‘respect’), which builds up an open proposition. If the node for *Jim* is merged with the subject node, the reading (45a) arises; if it is merged with the object node, the reading (45b) arises.

This analysis can be extended to (at least some cases of) Gapping and Sluicing. An example of Gapping is given in (46B).

- (46) A: *Tom-ga Mary-o sonkeeshi-teiru.*
 T.-NOM M.-ACC respect-CONT
 ‘Tom respects Mary.’

- B: *Iya, Jim-ga Nancy-o da.*
 no J.-NOM N.-ACC COP
 ‘No, Jim respects Nancy.’

In (46B), the copula *da* licenses the re-use of the actions of *sonkeeshi* (= ‘respect’), creating an open proposition. Then, the node for *Jim* is merged with the subject node, and the node for *Nancy* is merged with the object node.⁶

Finally, let’s turn to Sluicing (Takahashi 1994 and subsequent works).

- (47) *Boku-wa kinoo dareka-ni tegami-o oku-tta ga*
 I-TOP yesterday someone-DAT letter-ACC send-PAST but
dare-ni (da) ka oboete-nai.
 who-DAT COP Q remember-NEG
 ‘I sent a letter to someone yesterday, but I don’t remember to whom I sent it.’

In (47), the copula *da* licenses the re-use of the actions of *oku* (= ‘send’), which builds up an open proposition. The subject meta-variable is pragmatically substituted as the speaker, and the object node is merged with the node for *dare* (= ‘who’). The problem, however, is that the copula *da* is optional in Sluicing, as shown by the bracket in (47). Then, our analyses are only applicable to the case of Sluicing with the copula *da*. The treatment of Sluicing without the copula is left for future work.

Space prevents us from addressing intriguing properties of the constructions surveyed, such as the island-(in)sensitivity of Stripping and Sluicing (Fukaya 2007). Still, I hope to have made a preliminary justification for the more general applicability of our analyses to ellipsis constructions in Japanese.

7. CONCLUSIONS

This paper has set out the puzzle of the polyfunctionality of copula sentences in Japanese, and proposed the integrated analyses of the specificational and identity functions on the basis of the single item *no* as a pronominal nominaliser, which reduces the differences between two functions to the general property of language use, Semantic Incrementality (i.e. the timing of copying a type-*e* term). The analyses are corroborated by their applicability elsewhere to some ellipsis constructions.

Before closing, let me consider a potential alternative account and defend our analyses against it. In Japanese, the particle *no* has various usages; in addition to a pronominal usage in (48), *no* has a complementiser usage in (49).

- (48) *Tom-wa [akai no]-o tabeta.*
 T.-TOP [red NO]-ACC ate
 ‘Tom ate a/the red one.’
- (49) *Tom-wa [[Mary-ga kawaii] no]-o shitteiru.*
 T.-TOP [[M.-NOM cute] NO]-ACC know
 ‘Tom knows that Mary is cute.’

We may then come up with the following alternative. First, we could argue that *no* in (1) is a complementiser under the specificational reading. Then, *nai-teiru no* in (1) does not denote any human. Thus, the personal pronoun *kare* (= ‘he’) cannot be used, and no connotations arise due to the pragmatic analysis. Second, we could also argue that *no* in (1) is a pronominal

⁶ This paper sets aside the following type of Gapping.

(i) *John-ga Bill-nituite, sosite Mary-ga Susan-nituite hanashita.*
 J.-NOM B.-about and M.-NOM S.-about talked
 ‘John talked about Bill and Mary about Susan.’ (Abe and Hoshi 1997: 109, my modification)

under the identity reading. Thus, *no* denotes a human in some contexts, in which case we find some connotation and the personal pronoun *kare* (= ‘he’) can be used.

This type of analysis may be dubbed as an **ambiguity** account in that it resorts to the ambiguity of *no*. The ambiguity account is fine, to the limited extent that the data is accounted for. Our analyses, however, are to be preferred in the sense that they are crucially based on an independently motivated property of language use, Semantic Incrementality, making such an ambiguity an epiphenomenon.

One may object that the ambiguity of *no* is also independently motivated by (48) and (49), but these examples do not necessarily constitute adequate evidence. Seraku (to appear) points out that our single entry of *no* can model both pronominal and complementiser uses if we introduce event-variables of type-e (Gregoromichelaki to appear) into DS structures.

Overall, then, the Semantic Incrementality perspective provides us with a novel and promising way of approaching the issues raised by copula sentences in Japanese.

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Long-Distance Superiority and the Dependency of Arguments^{*}

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It has been claimed that in Japanese and Korean wh-constructions, superiority effects are exhibited when two wh-phrases are non-clause-mate arguments, while superiority effects do not appear when wh-phrases are clause-mate arguments (cf. Takahashi 1993 for Japanese; Kim 2006 for Korean among others). However, contrary to previous claims, it is observed that long distance wh-scrambling may display superiority effects even when two wh-phrases are clause-mates. To account for this paradoxical phenomenon, this paper shows that, based on the phase-based derivational theory developed in Chomsky (2001, 2008), the superiority effect emerges as a result of early Spell-Out. This analysis provides a unified explanation to the presence/absence of long distance superiority in Korean and Japanese. To make this analysis possible, the relative hierarchical ordering of arguments and the associated effect on Spell-Out are explored.

1. INTRODUCTION

The English wh-constructions below show that when more than two wh-phrases are present, the structurally highest wh-phrase must move to the Spec-CP position in order to obey the superiority condition (Chomsky 1973).¹ In recent minimalist approaches, the superiority condition has been held to be subsumed by economy conditions, such as the Minimal Link Condition (MLC) (Chomsky 1995; Kitahara 1997)² or the Closest Attract/Shortest Move so that the closest category can enter into a checking relation with its triggering head.

- (51) (a) **Who_i** did you think *t_i* would meet whom? (English)
(b) ***Whom_j** did you think who would meet *t_j*?
(c) ***Who_i whom_j** did you think *t_i* would meet *t_j*?
(d) ***Whom_j who_i** did you think would *t_i* meet *t_j*?

As with English, superiority effects are displayed in Korean and Japanese when a wh-phrase moves to cross over another wh-phrase in a higher clause (cf. Takahashi 1993 on Japanese, Kim 2006 on Korean among others). The relevant examples are given in (2).

^{*}I would like to thank the audiences at the CamLing conference in 2010 for useful questions concerning a previous version of this paper. I would also like to thank the members of the Syntax and Semantics Seminar Group at the University of York for their valuable comments and feedback. Most of all, I am thankful to Korean/Japanese informants for careful grammaticality judgments on their native language. All remaining errors are solely mine.

¹ Superiority Condition:

- (a) No rule can involve X, Y in the structure
... X ... [... Z ... WYV ...] ...
where the rule applies ambiguously to Z and Y, and Z is superior to Y.
(b) The category A is superior to category B if every major category dominating A dominates B as well but not conversely.

² Minimal Link Condition (Chomsky 1995: 311):



H(K) attracts α only if there is no β , β closer to H(K) than α , such that H(K) attracts β .

- (2) (a) ?* **Mwuessi-ul** John-nun **nwuku-eykey** [Mary-ka ti mekessta ko]
 What-ACC John-TOP whom-DAT Mary-NOM ate COMP
 malhassni?
 said Q
 ‘Whom did John ask that Mary ate what?’ (Korean)
- (b) ?* **Nani-o** John-wa **dare-ni** [Mary-ga ti tabeta to]
 What-ACC John-TOP who-DAT Mary-NOM ate COMP
 itta no?
 said Q
 ‘Who did John tell that Mary ate what?’ (Japanese)

However, when a wh-phrase is extracted from a single clause that contains another wh-phrase and moves to a matrix clause, superiority effects may be exhibited, contrary to the widely held views (Takahashi 1993; Kim 2006 among others). As shown below, (3b) and (4b), which have undergone clause initial wh-scrambling, are considered grammatically correct, but (3c) and (4c), which have undergone long distance wh-scrambling, are considered marginal to some native speakers of Korean and Japanese.

- (3) (a) John-un [nwu-ka **mwuess-ul** mekesstako] malhass ni?
 John-TOP who-NOM what-ACC ate COMP said Q
- (b) John-un [**mwuessi -ul** nwu-ka ti mekesstao] malhass ni?
- (c) ok/?* **Mwuessi-ul** John-un [nwu-ka ti mekesstao] malhass ni?
 ‘Who did John say t ate what?’ (Korean)
- (4) (a) John-wa [dare-ga **nani-o** tabatato] ittano?
 John-TOP who-NOM what-ACC ate COMP said Q
- (b) John-wa [**nani -o** dare-ga ti tabetato] ittano?
- (c) ok/?* **Nani -o** John-wa [dare-ga ti tabetato] ittano?
 ‘Who did John say t ate what?’ (Japanese)

This suggests that speaker variation in grammaticality judgments of these data does exist regarding the presence and absence of superiority. Despite such discrepancies, the reason that (3c) and (4c) are considered to be grammatically correct is because the wh-phrase is believed to move in a successive cyclic fashion through the edges of the phases (i.e. CP and vP), as shown below.

- (5) (a) [CP Nani -o [TP John-wa [ν^*P ti [CP ti [TP dare-ka [ν^*P ti [VP ti tabe-]] ta]

 to] itta]] no] (=3(c))
- (b) [CP Mwuessi-ul [TP John-un [ν^*P ti [CP ti [TP nwu-ka [ν^*P ti [VP ti mekess-]

 ta] ko] malhass]] ni] (=4(c))

Given superiority effects in (2), (3c) and (4c), the question that must be addressed here is as follows: what limits the application of further operations to a wh-phrase resulting in superiority effects?

The main purpose of this paper is to provide an analysis of the presence and absence of superiority effects in Korean and Japanese long distance wh-fronting. This paper proceeds as follows: Section 2 details the nature of long distance wh-scrambling in Korean and Japanese. Section 3 lays out a phase-based derivation theory (Chomsky 2001, 2008) as the theoretical framework for this investigation. Section 4 presents a proposal that movement of arguments is induced by an EF on every functional head, contrary to Chomsky (2008). Section 5 analyzes the presence/absence of long distance superiority in Japanese and Korean based on the adopted framework. Section 6 draws a conclusion that superiority effects are a result of early Spell-Out which is in turn attributed to the relative hierarchical ordering of arguments (e.g., SOV/OSV).

2. LONG DISTANCE WH-FRONTING AS AN EF-DRIVEN MOVEMENT³

In English wh-constructions, an interrogative C has an uninterpretable wh-feature that acts as a probe for an element that bears an interpretable wh-feature. If the interrogative C finds such an element, C agrees with it, and the wh-phrase obligatorily moves to the Spec-CP position of the matrix clause in a successive cyclic manner through the edges of the phases in compliance with the Phase Impenetrability Constraint (PIC). In multiple wh-constructions, the structurally highest wh-element moves, and the rest of the wh-elements remain in situ.

Wh-fronting in Korean and Japanese differs from the English counterpart wh-movement as follows. First, Korean and Japanese wh-fronting do not involve obligatory wh-movement, in the sense that a wh-phrase does not need to move to the matrix Spec-CP position but can remain either in its base position (i.e., its theta position), as in (6a) and (7a), or land in an embedded clause initial position, as in (6b) and (7b). Since movement involves multiple applications of local steps, it is natural to expect that intermediate landing sites may vary.

- (6) (a) John-un [nwu-ka **mwuess-ul** mekesstako] malhass ni? (=3)
 John-TOP who-NOM what-ACC bought COMP said Q
 (b) John-un [**mwuessi-ul** nwu-ka ti mekesstao] malhass ni?
 (c) ok/?* **mwuessi-ul** John-un [nwu-ka ti mekesstao] malhass ni?
 ‘Who did John say t ate what?’ (Korean)
- (7) (a) John-wa [dare-ga **nani-o** tabatato] ittano?(=4)
 John-TOP who-NOM what-ACC ate COMP said Q
 (b) John-wa [**nani-o** dare-ga ti tabetato] ittano?
 (c) ok/?* **Nani-o** John-wa [dare-ga ti tabetato] ittano?
 ‘Who did John say t ate what?’ (Japanese)

Second, unlike in English wh-movement, in the Korean and Japanese wh-fronting, the sentence initial wh-phrase can be construed as a yes/no question as well as a wh-question (cf. Ishihara 2003; Sachiko Aoshima *et al.* 2003 on Japanese; Hwang 2006 on Korean) although the latter reading is more likely.⁴ Accordingly, ‘wh-movement’ in these languages cannot be a pure syntactic wh-movement involving feature checking, unlike in English in terms of its landing site and interpretation. Consider below.

³ In scrambling languages such as Hindi, Korean and Japanese, it is a well-known fact that clause initial scrambling can be A/A'-movement, while long distance scrambling is uniformly an A'-movement (Mahajan 1990; Saito 1992 among others). For the limited scope of this paper, I refer the reader to the above-mentioned references.

⁴ Takahashi (1993) argues that long distance A'-movement of a wh-phrase to the initial position of a clause headed by a [+Q] Comp counts as wh-movement in Japanese; thus, the scrambled wh-phrase in initial position in a matrix interrogative clause exhibits a scope-fixing effect. For a similar proposal, see Moon (1996).

- (8) (a) **Mwuessi-ul** John-un [Mary-ka ti mekessnun ci] alkosipeha ni?
 What-ACC John-TOP Mary-NOM ate Q want to know Q
 ‘What does John want to know whether Mary ate?’
 ‘? Does John want to know whether Mary ate?’ (Korean)
- (b) **Nani-o** John-wa [Mary-ga ti tabeta ka] siritagatteiru no?
 What-ACC John-TOP Mary-NOM ate Q want to know Q
 ‘What does John want to know whether Mary ate?’
 ‘? Does John want to know whether Mary ate?’ (Japanese)

An immediate question that arises here is what the driving force of long distance wh-fronting is. Considering the following multiple wh-constructions, the interpretations of wh-in-situ phrases in (9a) and (10a) are not the same as those of fronted wh-phrases in (9b–c) and (10b–c) in terms of wh-question-answer pairs. That is, if both of the wh-phrases stay in-situ it is more likely that both can take embedded scope ((9a) and (10a)), and if one of the two wh-phrases is fronted it is more likely that the fronted wh-phrase takes matrix scope ((9b) and (10b)) and the other wh-phrase in-situ takes embedded scope, and if both of the wh-phrases are fronted it is more likely that both can take matrix scope ((9c) and (10c)). The facts in (9)–(10) seem to clearly indicate that the fronted wh-phrases are relatively given focus interpretation than wh-phrases in-situ.

- (9) (a) John-un [**nwu-ka mwuessi-ul** mekessnun ci] alkosipeha ni?
 John-TOP who-NOM what-ACC ate Q want to know Q
Does John want to know [for which x, y] x ate y
 ?? [For which x, y] John wants to know whether x ate y
 ?? [For which x] John wants to know [for which y] x ate y
 * [For which y] John wants to know [for which x] x ate y
- (b) **Mwuessi-ul** John-un [**nwu-ka** ti mekessnun ci] alkosipeha ni?
 What-ACC John-TOP who-NOM ate Q want to know Q
 ?? Does John want to know [for which x, y] x ate y
 ? [For which x, y] John wants to know whether x ate y
 * [For which x] John wants to know [for which y] x ate y
[For which y] John wants to know [for which x] x ate y
- (c) **Nwukwu-ekey mwuessi-ul** John-un [Mary-ka ti tj cwuessnun ci] alkosipeha ni?
 Who-DAT what-ACC John-TOP Mary-NOM gave Q want to know Q
 ?? Does John want to know [for which x, y] Mary gave x y
[For which x, y] John wants to know whether Mary gave x y
 * [For which x] John wants to know [for which y] Mary gave x y
 * [For which y] John wants to know [for which x] Mary gave x y (Korean)
- (10) (a) John-wa [**dare-ga nani-o** tabeta ka] siritagatteiru no?
 John-Top who-Nom what-Acc ate Q want to know Q
Does John want to know [for which x, y] x ate y
 ?? [For which x, y] John wants to know whether x ate y
 ?? [For which x] John wants to know [for which y] x ate y
 * [For which y] John wants to know [for which x] x ate y

- (b) **Nani-o** John-wa [**dare-ga** ti tabeta ka] siritagatteiru no?
 What-ACC John-Top who-Nom ate Q want to know Q
 ??Does John want to know [for which x, y] x ate y
 ?[For which x, y] John wants to know whether x ate y
 * [For which x] John wants to know [for which y] x ate y
 [For which y] John wants to know [for which x] x ate y
- (c) **Dare-ni nani-o** John-wa [Mary-ga ti tj ageta ka] siritagatteiru no?
 Who-Dat what-Acc John-Top Mary-Nom gave Q want to know Q
 ??Does John want to know [for which x, y] Mary gave x y
 [For which x, y] John wants to know whether Mary gave x y
 * [For which x] John wants to know [for which y] Mary gave x y
 * [For which y] John wants to know [for which x] Mary gave x y (Japanese)

Thus, it is plausible to suggest that long-distance wh-scrambling in Korean and Japanese is an instance of focus movement.⁵ Note, however, that focus movement is not an obligatory operation involving feature checking, but rather an optional operation (i.e. non-agree-driven movement) that brings about interpretive effects (e.g. focus).⁶ Thus, long distance scrambling can be interpreted as triggered by edge features (EFs) (Chomsky 2008) as an instance of internal merge, as Chomsky (2001) states that “optional operations can apply only if they have an effect on outcome.” This will be discussed in more detail in Section 3.

⁵ The widely held view that wh-phrase and focused-element are closely related is also supported by Korean and Japanese in the sense that Korean and Japanese long distance scrambling are considered to be a kind of focus movement (Miyagawa 1997; Niinuma, 2000; Lee 2004 –the authors take scrambling to be feature driven movement). As shown in (i) and (ii), non-focused elements cannot undergo long distance scrambling (Lee 2004 on Korean; Niinuma 2000 on Japanese).

- (i) Q: John-un [**nwu-ka** ku chack-ul sassata ko] sangkakha ni?
 John-TOP who-NOM the book-ACC bought COMP think Q?
 ‘Who does John think bought the book?’
 A: ?? Ku chack-ul John-un [Mary-ka sassata ko] sangkakhanta.
 The book-ACC John-TOP Mary-NOM bought COMP think (Korean)
- (ii) Q: kimi-wa [**dare-ga** Peter-o aishiteru to] itta no?
 You-TOP who-Nom Peter-ACC loves COMP said Q
 ‘Who did you say loves Peter?’
 A: * Peter-o boku-wa [Mary-ga ti aishiteru to] itta
 Peter-ACC I-TOP Mary-NOM loves COMP said (Japanese)

It appears that clause initial scrambling also involves focus movement, on analogy with long distance scrambling.

- (iii) (a) **Nwu-ka** ku chack-ul sassata ni?
 Who-NOM the book-ACC bought Q?
 ‘Who bought the book?’
 (b) ?? Ku chack-ul Mary-ka sassae.
 The book-ACC Mary-NOM bought (Korean)
- (iv) (a) **Dare-ga** Peter-o aishiteru no?
 Who-NOM Peter-ACC loves Q
 ‘Who loves Peter?’
 (b) * Peter-o boku-ka aishiteru
 Peter-ACC I-NOM loves (Japanese)

⁶ Similarly, QR is non-agree-driven movement but has an effect on the output (cf. Chomsky 2001). Thus we see that feature matching and interpretive effects may be independent.

3. DERIVATION-BY-PHASE THEORY

3.1. Derivation by Phase

Chomsky (2000, 2001, 2004) proposes a theory of Agree that refers to a syntactic operation to erase uninterpretable features of probe and goal. To enter an Agree operation, both probe and goal must be active, and the probe must have a complete set of phi-features matching those of the goal in order to delete its uninterpretable features (Chomsky 2001). To implement an Agree operation, feature matching between a probe and a local goal must be made in a c-command relation. That is, in the probe-goal system, a head H with uninterpretable features probes down into the structure seeking an XP goal with matching features, minimizing the search space under the relation of the “closest c-command” (Chomsky 2000). Once the Agree operation between the probe and goal has been established, no further syntactic operations occur.

Since the Agree operation under the probe-goal system enables in-situ checking of features, displacement for feature-checking is unnecessary. Instead, the EPP features play a crucial role for displacement. Chomsky (2000: 106, 2001: 12) suggests that CP and v*P are each a strong phase, and makes the assumption that the heads of phases may be assigned an EPP feature that provides an “escape hatch” for successive-cyclic movement through the edge of a phase.

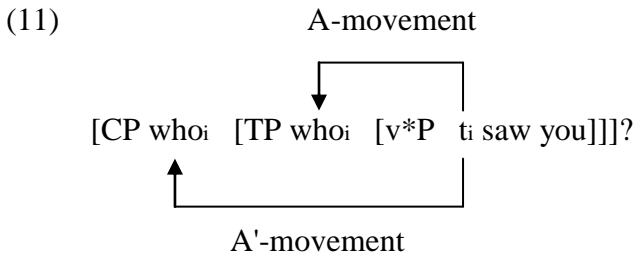
A potentially moveable element must be positioned on the edges of phases because the syntactic structure is spelled out by the phase in the course of derivation. That is, the potential mover must move to the edge of a head due to the Phase Impenetrability Constraint (PIC), which states that “the domain of a head X of a phase XP is not accessible to operations at ZP (the next strong phase); only X and its edge are accessible to such operations” (Chomsky (2001: 14). And the complement of the head of the phase is spelled out to PF and LF and thereby becomes impenetrable to further syntactic operations in the computational component.

Chomsky (2008) introduces another mechanism for movement by an edge feature (EF) by reformulating the EPP. The EF raises an XP to the phase edge without feature matching. Chomsky (2008: 139) stated, “For an LI to be able to enter into a computation, merging with some SO, it must have some property permitting this operation. A property of an LI is called a feature, so an LI has a feature that permits it to be merged. Call this the edge-feature (EF) of the LI.” As the EF-probe does not involve Agree, it is no longer assumed that the C-domain contains Agree-features such as wh-, Q-, Top-, Foc-features, etc.

3.2. Feature inheritance

The phase heads (PH) have Agree-features as well as EF; therefore, an internal merge (IM) is triggered by the phase heads (i.e., C and v*). T does not have ϕ -features in and of itself; rather, ϕ -features on C may percolate down from C to T because T lacks such features in the lexicon. This amounts to saying that T cannot inherit ϕ -features until C is merged and hence derivatively serves as a probe at the phase level CP. In a similar manner, the phase head v* transmits its Agree-feature to V, and the probe of an object with a structural case raises the object to Spec-V. This is the mechanism of feature inheritance.

The notion of feature inheritance leads Chomsky (2008) to claim that the A- and A'-movements that are triggered by a phase head proceed in a parallel fashion. In the case of wh-movement in (11) below, the A'-movement may not necessarily be followed by A-movement since only phase heads are assumed to have an edge feature and ϕ -features.



Specifically, the ϕ -features of T, inherited from C, and the edge feature of C raise the *wh*-phrase *who* to Spec-TP and Spec-CP, respectively, implying that there is no direct relation established between the *wh*-phrases in Spec-CP and in Spec-TP. What is significant here is that *wh*-movement goes through a successive-cyclic derivation via Spec-v*P and Spec-CP, not through Spec-TP.

4. PROPOSAL

As mentioned earlier, *wh*-phrases in Korean and Japanese can remain either in their merged position or land in an embedded clause initial position or move to a matrix clause. I assume that in Korean and Japanese, every functional head bears their own optional EFs driving Internal Merge (IM), extending Chomsky's proposal (2006, 2008) that only phase heads bear EFs driving IM, and thereby either the subject or the object may optionally be raised to Spec-FP in any order without feature matching. That is, it is assumed that a non-phase head T may also inherently bear its own EF driving IM.

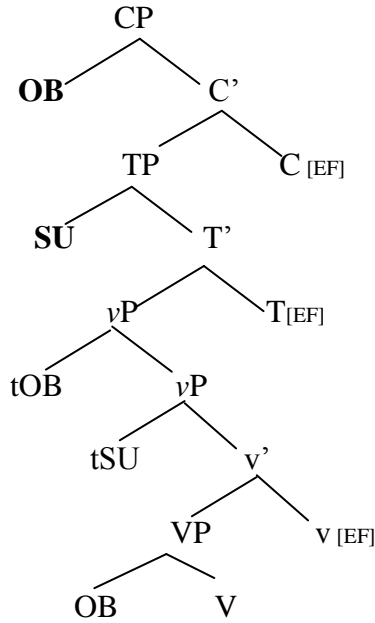
Keeping to this assumption, I show that the *wh*-phrase on the edge of a phase head can remain until the derivation finishes for the purposes of successive cyclic A'-movement, whereas the *wh*-phrase in the complement of a phase head cannot undergo further movement. In other words, movement from a non-phase-edge to a phase-edge gives rise to superiority effects, whereas movement from a phase-edge to a phase-edge overrides superiority effects.

Specifically, if the *wh*-subject moves to Spec-TP, the *wh*-object moves to the embedded Spec-CP via the outer spec of v*P, and ends up landing in the matrix Spec-CP (cf. (12a)). However, if the *wh*-subject remains in its base position, the *wh*-object moves to Spec-TP, and consequently ends up being sent to Spell-Out during the course of derivation (cf. (12b)). Thus, one strategy to avoid superiority effects is to extract the *wh*-object from Spec-v*P, and raise it to Spec-CP, skipping the Spec-TP position. In order to do so, the *wh*-subject must occupy the Spec-TP position.⁷

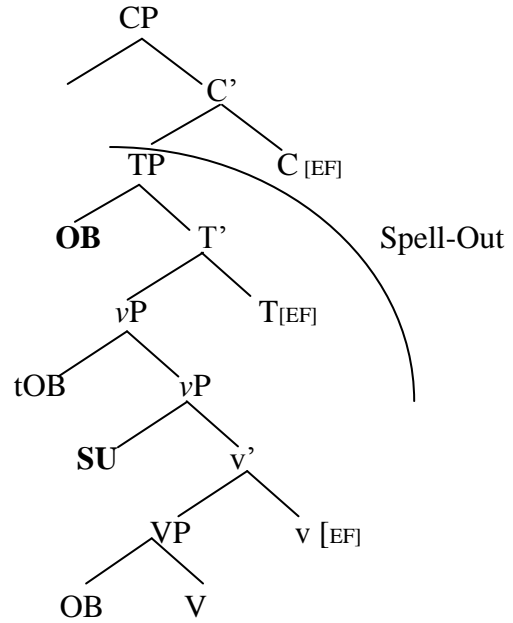
I thus argue that superiority effects emerge not because a certain case of scrambling involves syntactic *wh*-movement (Kim 1996; Kim 2006; Takahashi 1993), but because it is a result of early Spell-Out in the course of derivation, which is attributed to the relative hierarchical ordering of arguments (i.e., SOV/OSV). The early Spell-Out which straightforwardly follows from the PIC ultimately accounts for local *wh*-scrambling not necessarily feeding long distance *wh*-scrambling. With this in mind, let us turn to our analysis.

⁷ Since *wh*-expressions are inherently focused, it appears that *wh*-phrases tend to stay in their base position, i.e., *wh*-in-situ (thus, the fronted *wh*-phrases are likely to be interpreted as contrastive focus (cf. Choi 1996), compared to non-*wh*-phrases). If a *wh*-subject remains in-situ, a *wh*-object relatively moves to Spec-TP, and is consequently subject to Spell-Out in the course of derivation. On the other hand, if a non-*wh*-subject moves to Spec, TP bearing an EF (e.g. focus, topic, scope), a non-*wh*-object relatively moves to Spec-CP, and consequently undergoes a successive cyclic A'-movement. In this respect, I speculate that there is a difference between *wh*-phrases and non-*wh*-phrases.

(12) (a) **Subject raising to Spec-TP**



(b) **Object raising to Spec-TP**



5. ANALYSIS: SINGLE OBJECT WH-EXTRACTION⁸

Let us first look at the data in (2), which are repeated as (13).

- (13) (a) **?* Mwuesi-ul** John-nun **nwuku-eykey** [Mary-ka ti mekessta ko]
 What-ACC John-TOP whom-DAT Mary-NOM ate COMP
 malhassni?
 said Q
 ‘Whom did John ask that Mary ate what?’ (Korean)
- (b) **?* Nani-o** John-wa **dare-ni** [Mary-ga ti tabeta to]
 What-ACC John-TOP who-DAT Mary-NOM ate COMP
 itta no?
 said Q
 ‘Who did John tell that Mary ate what?’ (Japanese)

Recall that an edge feature on T triggers the subject or object. Supposing that the wh-object moves to the Spec-TP position, the derivation of (13a) proceeds as follows (the same analysis holds for Japanese).

- (14) (a) [_v*P Mary-ka [VP mwuess-ul mek-]]
 (b) [TP muwess-ul [_v*P toB Mary-ka mek-]essta]
 (c) [CP [_v*P John-un [VP nwuku-eykey [CP [TP muwess-ul [_v*P toB Mary-ka mek-]essta]ko] malhayss]]ni] → *Derivation converges at this point.*
 (d) * [CP [TP **muwess-ul** [_v*P John-un [VP nwuku-eykey [CP [TP <muwess-ul> Mary-ka t mek-]essta]ko] malhayss]]ni] → *Derivation crashes.* (Superiority effect)

In (14a), the wh-object is initially merged in the VP-internal position, and subsequently the wh-subject is externally merged at the inner spec of _v*P. At the stage of the derivation of (14b), the subject wh-phrase remains in Spec-_v*P and the wh-object moves to the edge of TP

⁸ The analysis of object wh-extraction is similar to that of subject wh-extraction. For the limited scope of this paper, I exclude the latter here.

via the outer spec of v^*P . In (14c), *nwukwu-eykey* ‘whom’ is merged in the matrix clause, and then the matrix subject, *John-un* ‘John’, is externally merged at the inner spec of v^*P . At this stage, the derivation converges. In (14d), the wh-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-TP because it is in the complement of the embedded CP, which has already undergone Spell-Out when the embedded C head is merged. Thus, superiority is respected in the derivation.

Let us now suppose that the wh-subject moves to the Spec-TP position. The derivation of (13a) proceeds as follows.

- (15) (a) [v^*P Mary-ka [VP mwuess-ul mek-]]
 (b) [CP mwuess-ul [TP Mary-ka [v^*P _{TOB} tsu mek-]essta]ko]
 (c) [CP [TP John-un [v^*P tsu [VP nwuku-eykey [CP mwuess-ul [TP Mary-ka [v^*P _{TOB} tsu mek-]essta]ko]mal-]hays]]ni]
 → *Derivation converges at this point.*
 (d) * [CP **mwuess-ul** [TP John-un [v^*P tsu [VP nwuku-eykey [CP <**mwuess-ul**> [TP Mary-ka [v^*P tsu mwuess-ulmek-]essta]ko]mal-]hays]]ni]
 → *Derivation crashes at this point.* (Superiority effect)

In (15a), the wh-object is initially merged in the VP-internal position, and the wh-subject is externally merged at the inner spec of v^*P . At the stage of (15b), the subject wh-phrase moves to the spec of TP, and subsequently the wh-direct object moves to the edge of CP via the outer spec of v^*P . In (15c), *nwukwu-eykey* ‘whom’ is merged as in matrix clause, and then the John-un ‘John’, occupies the matrix Spec-TP via the inner spec of v^*P . At this stage, the derivation converges. (15d) the wh-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-CP, because it is not accessible to operations at v^*P . The ungrammaticality of (13a) and (13b) can therefore be captured regardless of which argument moves to Spec-TP. Thus, superiority is respected in the derivation.

Let us then look at the data in (3c) and (4c), which are repeated in (16).

- (16) (a) ok/?* **Mwuessi-ul** John-un [nwu-ka ti mekesstao] malhass ni?
 what-ACC John-TOP who-NOM ate COMP said Q
 ‘Who did John say t ate what?’ (Korean)
 (b) ok/?* **Nani-o** John-wa [dare-ga ti tabetato] ittano?
 what-ACC John-TOP who-NOM ate COMP said Q
 ‘Who did John say t ate what?’ (Japanese)

Likewise, either the subject or the object can be attracted to Spec-TP due to the edge feature on T. Supposing that the object moves to Spec-TP, the derivation of (16a) proceeds as follows (the same analysis holds for Japanese).

- (17) (a) [v^*P nwu-ka [VP mwuess-ul mek-]]
 (b) [TP muwess-ul [v^*P _{TOB} nuw-ka mekess-]ta]
 (c) [CP [TP [v^*P John-un [CP [TP muwess-ul [v^*P _{TOB} nuw-ka mekess-]ta]ko]malhayss]] ni]
 → *Derivation converges at this point.*
 (d) * [CP [TP muwess-ul [v^*P John-un [CP [TP muwess-ul nuw-ka t mekessta-ko]] malhayss]] ni]
 → *Derivation crashes.* (Superiority effect)

In (17a), the wh-object is initially merged in the VP-internal position, and the wh-subject is externally merged at the inner spec of v^*P . At the stage of (17b), the subject wh-phrase stays in Spec- v^*P , and subsequently the wh-direct object moves to the edge of TP via the outer spec

of v*P. At the stage of the derivation in (17c), the matrix subject *John-un* is externally merged at the inner spec of v*P in the matrix clause and the derivation converges. In (17d) the wh-direct object *nwukwu-lul* ‘whom’ cannot raise to the matrix Spec-TP, because it is in the complement of CP that has already undergone Spell-Out when the embedded C head is merged. Thus, superiority is respected in the derivation.

Let us now suppose that the subject moves to Spec, TP. The derivation of (16a) proceeds as follows.

- (18) (a) [v*P *nwu-ka* [VP *mwuess-ul mek-*]]
 (b) [CP *mwuess-ul* [TP *nwu-ka* [v*P _{TOB} *tsu mek-*]*jessta*]*ko*]
 (c) [CP *mwuess-ul* [TP *John-un* [v*P _{TSU} [CP _{TOB} [TP *nwu-ka* [v*P _{TOB} *tsu mek-*]*jessta*]*ko*] *malhayss*]*ni*]
 → *Derivation converges at this point* (No superiority effect)

In (18a), the wh-object is initially merged in the VP-internal position, and the wh-subject is externally merged at the inner spec of v*P. At the stage of (18b), the wh-subject moves to the spec of TP, and subsequently the wh-object moves to the edge of CP via the outer spec of v*P. In (18c), the matrix subject, *John-un* ‘John’, moves to Spec-TP through the inner spec of v*P, and the object wh-phrase successive-cyclically moves to the edge of the matrix CP through the edge of the embedded CP. In this way, successive cyclic A'-movement captures the absence of superiority.

6. CONCLUSION

It has been claimed that in Japanese and Korean wh-constructions, superiority effects are exhibited when two wh-phrases are non-clause-mate arguments, while superiority effects do not appear when wh-phrases are clause-mate arguments (cf. Takahashi 1993 for Japanese; Kim 2006 for Korean among others). However, contrary to previous claims, we have seen that in Korean and Japanese, long distance wh-scrambling may display superiority effects even when two wh-phrases are clause-mates.

To account for this seemingly paradoxical phenomenon, it has been shown that, from the perspective of derivation by phase (Chomsky 2001, 2008), a wh-phrase at the edge of a phase can remain until derivation finishes for the purpose of successive cyclic A'-movement, whereas the wh-phrase in the complement of a phase head cannot undergo further movement because it is transferred to Spell-Out, in accordance with Full Interpretation (FI). Thus, movement from a non-phase-edge to a phase-edge gives rise to superiority effects, but movement from a phase-edge to a phase-edge overrides superiority effects.

This analysis provided a unified explanation to the presence/absence of long distance superiority in Korean and Japanese, considering long distance wh-fronting to be focus movement, not syntactic wh-movement (Kim 2006; Takahashi 1993), and consequently it has been argued that superiority effects are a result of early Spell-Out which is attributed to the relative hierarchical ordering of arguments (i.e. SOV/OSV) in Korean and Japanese.

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A Functional Approach to the Modal Adverbs *Certainly*, *Surely*, and *Definitely**

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The present paper discusses the use of modal adverbs from a functional perspective, paying particular attention to *certainly*, *surely*, and *definitely*. Though the three adverbs are nearly equivalent in meaning, the general tendency of their use turns out to be quite different. In order to investigate their distinctive functions, I have analysed data from a large-scale corpus and investigated three factors related to these adverbs: (i) whether they co-occur with modal verbs; (ii) whether they occur in an initial, medial, or final position; and (iii) whether the subject in the clause where they appear is a pronoun or full NP. I have demonstrated that the three adverbs fulfil different functions at the discourse-pragmatic level and that a functional approach is generally valid in analysing the use of modal adverbs, such as those dealt with in this study. I have also shown that the factors influencing their use are strongly associated with the parameters of modality and discourse.

1. INTRODUCTION

The modal adverbs *certainly*, *surely*, and *definitely*, as is well known, fall into the same semantic category and express a speaker's judgment about the certainty or probability of a proposition, as shown in (1a-c):

- (1) (a) That sort of gossip *certainly* should be condemned. (NEWS) (Biber *et al.* 1999: 854)
(b) He has *surely* made a mistake. (Huddleston & Pullum 2002: 767)
(c) Ruth was *definitely* at Goosehill School. (CONV) (Biber *et al.* 1999: 853)

As can be seen in (2), Huddleston & Pullum (2002) distinguish four levels of strength, according to the speaker's commitment: (i) strong, (ii) quasi-strong, (iii) medium, and (iv) weak. *Certainly*, *surely*, and *definitely* are all placed in the same category; namely, the strong one:

- (2) i. assuredly *certainly* clearly *definitely* incontestably indubitably ineluctably inescapably manifestly necessarily obviously patently plainly *surely* truly unarguably unavoidably undeniably undoubtedly unquestionably
ii. apparently doubtless evidently presumably seemingly
iii. arguably likely probably
iv. conceivably maybe perhaps possibly
(Huddleston & Pullum 2002: 768)

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In fact, the three adverbs are similar in form and nearly equivalent in meaning, as exemplified by (3a-c):

- (3) (a) If a further offence is committed, the offender will be punished, *certainly and surely*, both for the earlier and the subsequent offence. (BNC: EEC)
(b) I think that if you concentrate on really short term goals and practise things that are maybe a week away instead of a month away then you'll gradually, slowly but *surely, definitely* improve. (BNC: C9K)
(c) His plan was *certainly crazy and almost definitely doomed* to failure but it was his only option. (BNC: AMU)

We can, however, distinguish between them by considering their functions or their actual patterns of use. The reason for this is not difficult to see: in terms of language function and use, it is impossible that synonyms are interchangeable. Therefore, this study, by analysing corpus data, seeks to show the factors that are significant in predicting the use of each adverb.

2. PREVIOUS STUDIES

In this section, my attention will be confined to previous accounts of *certainly*, *surely*, and *definitely*, before commencing my own study. The works of Hoyer (1997) and Simon-Vandenberg & Aijmer (2007) reveal part of the syntagmatic behaviour of the adverbs. Hoyer (1997: 162) indicates that *certainly* collocates with all modals, although restrictions apply in the case of combinations with epistemic modals of possibility, as shown by (4):

- (4) *He certainly might/may be there. (Hoyer 1997: 162)

It is also pointed out that *definitely* remains too lexically loaded to occur in the environment of epistemic *must*, where *certainly* may be a more natural choice, as in (5a), and it is probably more emphatic in non-epistemic contexts, as in (5b):

- (5) (a) His behavior must certainly/?definitely bring him to grief sooner or later.
(b) I definitely won't do it and let that be an end to the discussion! (*Ibid.*: 163)

As for *surely*, Hoyer (1997: 191) states that "regardless of its syntactic position, *surely* functions to seek agreement in anticipation of some opposition and is not purely used for the reinforcement of truth-value; it also tends to precede a question". The examples below illustrate this point:

- (6) (a) Surely they couldn't have expected you to complete the project so soon (could they)? (*Ibid.*: 191)
(b) Surely the run must be nearly over now. (W. 11.2.203)

A similar view is expressed by Downing (2001: 263-68), who considers *surely* as mainly challenge and seeking agreement. Here are some examples:

- (7) (a) *Surely* you knew. How could you not have known? (the implication being that you did know) FS8 0413-0414 (w)
(b) It's the big things which matter, not the details, and those we *surely* have in common. GV8 2113 (w)

In this respect, Simon-Vandenberg & Aijmer (2007: 119) maintain that “*certainly* expresses certainty based on the speaker’s subjective assessment, while *definitely* expresses certainty based on the permanent nature of a state of affairs”. With regard to *surely*, they also argue that its functions depend on its position in the clause as well as the context. According to them, when *surely* is in initial position, where it frequently collocates with a modal verb, the speaker very clearly expresses an opinion on what is possible/likely or what is desirable (pp.135-137). On the other hand, when it is in medial position, *surely* is considered to lose its epistemic meaning and functions as an emphasiser or intensifier (pp.138-139). Simon-Vandenberg & Aijmer’s examples for *surely* in these cases are the following:

- (8) (a) *Surely* they just <,> should just up the prices though <,> (ICE-GB: S1A-055/67)
 (b) Los Angeles <,> and London <,> are *surely* deserving <,> of such architecture <,> (ICE-GB: S2A-040/76)

Taken as a whole, the existing literature interprets variously the employment of the three modal adverbs *certainly*, *surely*, and *definitely*; however, no key determinant of usage has been provided for them. This paper, therefore, proposes some new, clear guidelines for their use. The following sections embark upon a further interpretation of the functions of *certainly*, *surely*, and *definitely*, based on an analysis of a large body of language.

3. DATA AND METHOD

This corpus-based investigation enables us to use a quantitative analysis, thanks to the total number of occurrences of the three adverbs which we get. For this study, I chose the BNC (British National Corpus)¹ because of its large scale and wide range. I then investigated the instances of *certainly*, *surely*, and *definitely* in the BNC, utilising the following procedure. First, all occurrences of the three modal adverbs were extracted from the corpus. The search in the BNC yielded 18,118 occurrences of *certainly*, 6,032 of *surely*, and 3,056 of *definitely*. Second, I examined these occurrences and collected and enumerated all the examples functioning as sentence adverbs.² The results are presented in Table 1:

(Table 1) *Occurrences of the three expressions as sentence adverbs in the BNC*

Form	Frequencies
certainly	15,718
surely	5,369
definitely	2,350

These frequencies will be utilised in a quantitative analysis of the three modal adverbs in the following sections.

The factors considered are (i) whether the three adverbs *certainly*, *surely*, and *definitely* co-occur with modal verbs;³ (ii) whether they occur in an initial, medial, or final position;⁴ and (iii) whether the subject in the clause where they appear is a pronoun or full

¹ I made use of Mark Davies’s freely available on-line interface (<http://corpus.byu.edu/bnc/>).

² For this analysis, I excluded all the examples of such idiomatic phrases as “slowly but surely”, and those of the modal adverbs modifying not a clause but a phrase, in which a comma (,) intensifies the expressed meaning, as in the following:

Given the political will, a primitive nationalism can be generated by governments in a remarkably short space of time, *certainly* in less than a generation. (BNC:AE8)

³ My attention will be confined to the nine modal verbs: *can*, *could*, *may*, *might*, *shall*, *should*, *will*/*’ll*, *would*/*’d*, *must*, which Quirk *et al.* (1985:137) and Biber *et al.* (1999:73) classify as “central modal auxiliaries”.

⁴ In Høye (1997) and Quirk *et al.* (1985), the positions in which they appear are presented as follows:

NP. The first step is to count the number of their occurrences in each position, as well as with modal verbs and pronouns, and to calculate frequency counts. Next, in order to illuminate their functions in detail, I will examine the proportion of occurrences of *certainly*, *surely*, and *definitely* with each modal verb and pronoun.

4. RESULTS AND DISCUSSION

4.1. Modality

In this subsection, I explore the possibility that the three modal adverbs *certainly*, *surely*, and *definitely* occur with linguistic features which express modality more explicitly. Table 2 offers an overview of the relation of the three adverbs to modal verbs. As shown in it, *surely* displays a tendency toward a higher frequency of co-occurrence with modal verbs than *certainly* and *definitely*. The collocation with modal verbs suggests that the target expression implies modality, that is, the speaker's mental attitude toward the proposition. Therefore, the use of *surely* is to reinforce the meaning of modality. This function is evident in (9a-f):

(Table 2) *Frequencies and proportions of co-occurrence with modal verbs (BNC)*

Form	Total	Freq.	%
certainly	15,718	3,750	23.9
surely	5,369	2,327	43.3
definitely	2,350	430	18.3

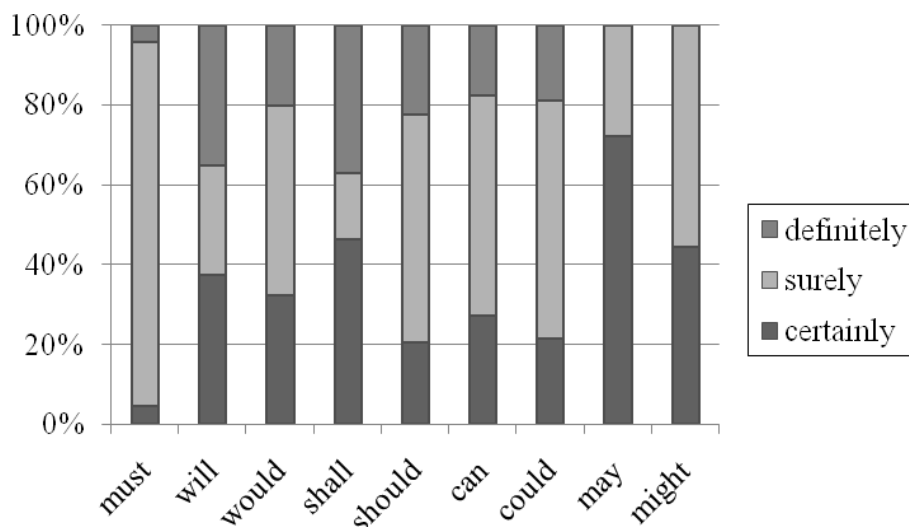
- (9) (a) It **will** *certainly* take a great deal of time. (ADP)
 (b) He **would** *certainly* never challenge Branson. (FNX)
 (c) It **would** *surely* take less effort to catch a fish itself. (A6T)
 (d) The answer to this question **must** *surely* be no. (GW1)
 (e) The tours **will** *definitely* go ahead. (AKV)
 (f) It **would** *definitely* be one of three teams, Sunderland, Bristol, or Coventry. (ARR)

The following figure illustrates the co-occurrence patterns between the three adverbs *certainly*, *surely*, and *definitely* and modal verbs. *Certainly* and *definitely* are more frequently correlated with *will* and *shall*, whereas *surely* is found to correlate closely with *must*. Moreover, we find an association of *surely* with the various modal verbs, indicating that it conveys varying degrees of probability.

<i>I</i>	(initial)	<i>Possibly</i> they may have been sent to London.
<i>iM</i>	(initial-medial)	They <i>possibly</i> may have been sent to London.
<i>M</i>	(medial)	They may <i>possibly</i> have been sent to London.
<i>mM</i>	(medial-medial)	They may have <i>possibly</i> been sent to London.
<i>eM</i>	(end-medial)	They may have been <i>possibly</i> sent to London.
<i>iE</i>	(initial-end)	They may have been sent <i>possibly</i> to London.
<i>E</i>	(end)	They may have been sent to London <i>possibly</i> .

(Hoye 1997: 148)

(Figure 1) The co-occurrence patterns between the adverbs and modal verbs ⁵ (BNC)



4.2. Discourse

This subsection illustrates the functions of each of the three modal adverbs from the perspective of discourse. To begin with, we must inquire into the positions where *certainly*, *surely*, and *definitely* occur. Biber *et al.* (1999: 872) show that there is a preference for stance adverbials⁶ placed in medial positions, as in Table 3.

(Table 3) Positions of stance adverbials across registers (based on Biber *et al.* (1999: 872))

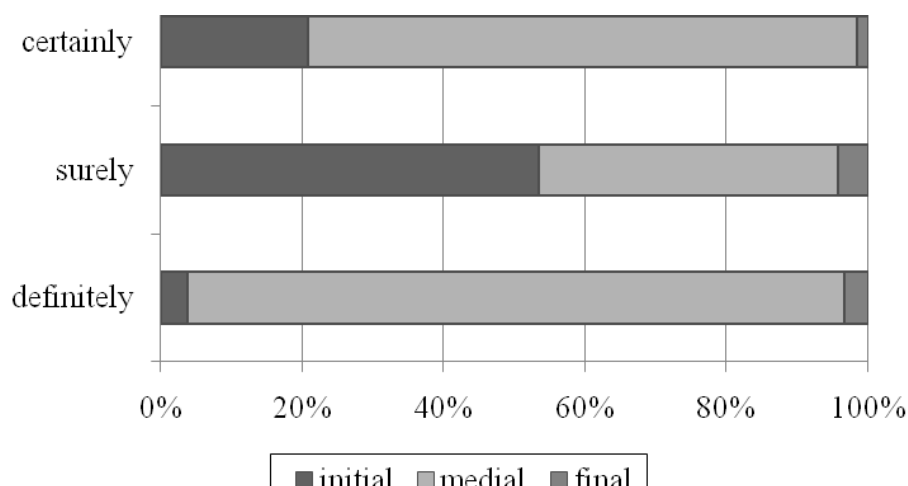
	% in initial position	% in medial position	% in final position
CONV	●●●	●●●●●●●●●●	●●●●●●●●
FICT	●●●●●	●●●●●●●●●●	●●●●
NEWS	●●●●●●●	●●●●●●●●●●	●●
ACAD	●●●●●●	●●●●●●●●●●	●

each ● represents 5%

Figure 2 illustrates the proportions of positions of the three adverbs, which are linguistically illustrated in (10a-i). Despite the above general trend of stance adverbials, we observe a higher overall proportion of *surely* occurring in the clause-initial position.

⁵ The data of Figures 1-3 are given in the appendix.

⁶ According to Biber *et al.* (1999), stance adverbials can be classified into three categories: epistemic, attitude, and style adverbials. For example, epistemic adverbials contain *probably, I think, in fact, really, according to ..., mainly, generally, in my opinion, kind of, so to speak*, other than *no doubt* and *undoubtedly*. Attitude adverbials include *unfortunately, to my surprise, hopefully*, and style adverbials *frankly, honestly, truthfully, and in short*.

(Figure 2) *Proportions of the positions of the three adverbs (BNC)*

- (10) (a) *Certainly* he has never given a hint that he knows anything. (ASN)
 (b) He's *certainly* got something to shout about. (K23)
 (c) That's usual, *certainly*. (G3E)
 (d) *Surely* there are more testing comparisons to be made. (FS8)
 (e) Egypt is *surely* the motif of the year. (G06)
 (f) That sounds odd though, *surely*. (KPV)
 (g) *Definitely* I have some ideas. (CK4)
 (h) He is *definitely* in contention. (CH7)
 (i) So it's a mapping *definitely*. (GYX)

As exemplified by (11a, b), a modal adverb positioned initially expresses the topic or theme of modality (Halliday & Matthiessen 2004; Hoyer 1997; Thompson 1985; Halliday 1970). (11a) and (11b) convey the same meaning in probability, but *possibly* in (11a) serves the discourse function of expressing the topic or theme. All things considered, there is a strong tendency for *surely* to function as the marker of the topic in discourse.

- (11) (a) **Possibly** it was Wren.
 (b) It **may** have been Wren. (Halliday 1970: 335)

Next, let us look at the subject in the clause where *certainly*, *surely*, and *definitely* appear. The quantitative distribution of the instances of the three adverbs among the clause subjects is presented in Table 4. These percentages clearly indicate that the proportion of *definitely* is the highest in relation to pronouns, as illustrated by (12a-f).

(Table 4) *Frequencies of co-occurrence with clause subject pronoun vs. full NP (BNC)*

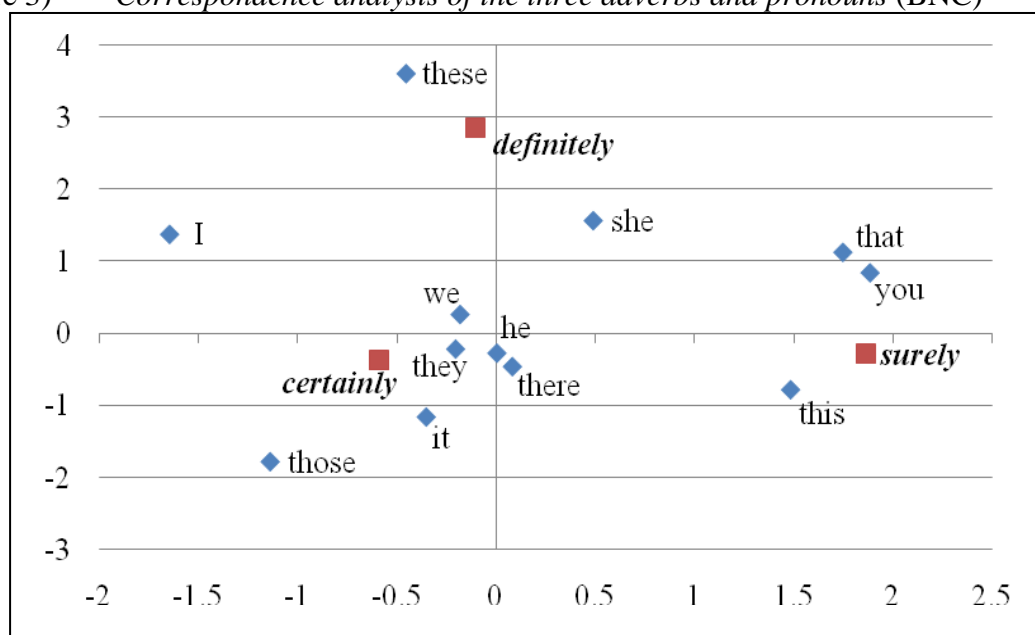
Form	Pronoun		Full NP		Total
certainly	8,693	(55.3%)	7,025	(44.7%)	15,718 (100%)
surely	2,838	(52.9%)	2,531	(47.1%)	5,369 (100%)
definitely	1,410	(60.0%)	940	(40.0%)	2,350 (100%)

- (12) (a) **It** is *certainly* crucial when it comes to choosing your venue. (ADK)
 (b) **They**'re *certainly* both splendid and talented professionals. (G36)
 (c) *Surely* **you** remember him. (ASN)

- (d) *Surely* **this** was something that had been threatening for years? (G16)
- (e) I'm *definitely* getting sick of writing silly love songs. (CHB)
- (f) Yes, **these** are *definitely* the ones I couldn't find. (JYA)

The following figure illustrates the co-occurrence patterns between the three adverbs *certainly*, *surely*, and *definitely* and pronouns. Because of the many kinds of pronouns as well as the differences in the occurrences of the three adverbs, it is difficult to grasp directly a clear-cut trend. For this reason, I have introduced a statistical technique called correspondence analysis (CA).⁷ In Figure 3, when two of the row and column variables are plotted at a relatively close range, we find a strong affinity or close association between them. *Certainly* is found to correlate closely with various pronouns, whereas *surely* is more frequently correlated with *you*⁸ and *this*. Moreover, we find an association of *certainly* with *it*, which seems to relate to the expression *it is certain*.

(Figure 3) Correspondence analysis of the three adverbs and pronouns (BNC)



It follows from what has been said that *certainly*, *surely*, and *definitely* convey nearly the same meaning in probability, whereas their functions differ at the discourse-pragmatic level. Succinctly, the use of *surely* serves multiple functions; namely, the modal and the discourse functions.⁹ The combinations with pronouns suggest that their preferences in the topic or theme of discourse are clearly different.

5. CONCLUSION

The present paper has investigated the distinctive functions of three nearly synonymous adverbs, *certainly*, *surely*, and *definitely*. In order to explore the factors that determine their use, I focused attention on the contexts in which they occur. In so doing, I analysed the data

⁷ CA, developed by Benzécri in the 1960s, is one of the examples of multivariate techniques which summarise the information of multivariate data. Alongside principal components analysis (PCA) and factor analysis (FA), CA analyses grouped objects and variables and offers a graphic display of them.

⁸ The use of *surely* with the pronoun *you* makes it fairly possible that *surely* fulfils the function of a speech act. The following are the examples of *surely* used as a metalinguistic device to confirm or emphasize information and understanding between the speaker and hearer, that is, to fulfil the interpersonal function:

- i. ..., but it would still be beautiful. **You** wouldn't destroy it, *surely*? (HNJ)
- ii. "**You** can wait until then, *surely*?" (EVC)

⁹ This is considered to correlate with its extensive use and high frequency in Britain, in contrast with in America.

extracted from the very large BNC corpus, which provides many instances of the three adverbs used in natural settings and leads to a more quantitatively refined method; namely, the CA statistical technique. Thus, the usefulness of this source for statistical analysis has been demonstrated.

I then examined the functions of *certainly*, *surely*, and *definitely* from the viewpoints of modality and discourse. I have demonstrated that the three adverbs fulfil different functions at the discourse-pragmatic level and that a functional approach is generally valid in analysing the use of modal adverbs, such as those dealt with in this study. I have also shown that the factors influencing their use are strongly associated with the parameters of modality and discourse. These fine-grained functional distinctions between *certainly*, *surely*, and *definitely* provide a significant base for the comparison of these three modal adverbs, permitting the establishment of clear guidelines for their use.

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Appendix: Data for Figures 1-3

Data for Figure 1

Modal verb	certainly		surely		definitely	
	Freq.	1,000 instances	Freq.	1,000 instances	Freq.	1,000 instances
must	82	5.2	553	103.0	11	4.7
will	1206	76.7	300	55.9	169	71.9
would	1403	89.3	706	131.5	130	55.3
shall	85	5.4	10	1.9	10	4.3
should	215	13.7	205	38.2	35	14.9
can	425	27.0	291	54.2	41	17.4
could	262	16.7	247	46.0	34	14.5
may	53	3.4	7	1.3	0	0.0
might	19	1.2	8	1.5	0	0.0
Total	3750		2327		430	

* The raw frequencies of modal verbs are given for each form, followed by the normalized figure of the number of occurrences per 1,000 instances.

Data for Figure 2

Form	Initial	Medial	Final	Total
certainly	3261	12218	239	15718
surely	2863	2275	231	5369
definitely	89	2183	78	2350

Data for Figure 3

Pronoun	certainly		Surely		definitely	
	Freq.	1,000 instances	Freq.	1,000 instances	Freq.	1,000 instances
I	1413	89.9	110	20.5	272	115.7
you	517	32.9	412	76.7	136	57.9
he	928	59.0	303	56.4	139	59.1
she	388	24.7	167	31.1	99	42.1
it	2531	161.0	672	125.2	270	114.9
we	671	42.7	198	36.9	115	48.9
they	771	49.1	224	41.7	115	48.9
this	380	24.2	245	45.6	57	24.3
that	336	21.4	255	47.5	93	39.6
these	36	2.3	9	1.7	12	5.1
those	13	0.8	2	0.4	1	0.4
there	709	45.1	241	44.9	101	43.0
Total	8693		2838		1410	

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The Application of Optimality-theoretic Pragmatics to the Reappraisal of the Role of *lɛɛw45* in Thai*

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This paper discusses the role of the particle *lɛɛw45* in Thai. *lɛɛw45* has been claimed to denote the perfective aspect (Kanchanawan, 1978 and Boonyapatipark, 1983). The reappraisal of the role of *lɛɛw45* in this paper, however, offers an argument against this claim. Basically, the actual data show that *lɛɛw45* in fact occurs in predicates of various types including those carrying imperfectiveness. Furthermore, the availability and the use of the alternative sentence without *lɛɛw45* to denote the same temporal properties of an event suggest that the addition of *lɛɛw45* is not mainly aimed at temporal effects. Rather, its presence generates a presupposition concerning the hearer's knowledge on the previous status of the topic. This is to suggest that this piece of knowledge is invalid and must be corrected. Based on optimality-theoretic pragmatics proposed by Blutner (2000) and its application in discourse particles and presupposition pioneered by Zeevat (2002, 2004, 2009), the paper exhibits the competitions between the alternative marked with *lɛɛw45* and the zero-marked alternative in particular contexts. The former wins in the context where a presupposition is required while the latter is preferred when only a factive report is required. Regarding its role in terms of temporality, *lɛɛw45* indicates the realisation of an event which corresponds to the concept of Event Realisation proposed by Bohnemeyer and Swift (2004). However, this temporal function is merely a requirement when *lɛɛw45* generates presupposition.

1. INTRODUCTION

Several studies have been carried out in order to explore the operation of *lɛɛw45*. In her study, Kanchanawan (1978) regards *lɛɛw45* as a post-serial particle which acts either as a perfective aspect marker or a past time marker while Scovel (1970) proposes that it denotes the completion of the event. Following these claims, in (1) it can be concluded that the addition of *lɛɛw45* to the sentence generates the perfectiveness of the event, thereby asserting that the event '*kiŋ22maay42 hak22*' or '*the branch break*' already happened before the time of utterance. Also, the presence of *lɛɛw45* enables the sentence to satisfy the truth-condition '*the sentence is true if and only if there was a branch and it broke at time t*'.

- (1) kiŋ22maay42 hak22 lɛɛw45
branch break
'The branch broke.'

Nonetheless, the perfectiveness as well as the completion of the event in (1) can still be derived even when *lɛɛw45* is not added. Moreover, in fact the presence of *lɛɛw45* offers other meanings which do not primarily concern temporality. The comparative analyses on the presence and the absence of *lɛɛw45* in predicates of various types provide supporting evidence for the current claim. They suggest that the two options yield the same temporal effects and importantly the former gives extra meanings.

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The first piece of evidence lies in achievement predicates. In an achievement like (1) perfectiveness can be reached even if the sentence is left unmarked. The reason is that a predicate of this type carries a default natural end point. The lexical aspect of the achievement verb suggests that the event happened and terminated within a small fraction of time. As such, the whole event naturally terminated before the utterance time. This thus denotes the perfectiveness of the event. Moreover, the absence of *lɛɛw45* in this type of predicate does not affect the sentence's value of being true in the truth-condition '*the sentence is true if and only if there was a branch and it broke at time t*' at all. It is also noteworthy that the addition of a past time expression, which refers to the exact event time, conveys the same temporal property of the event and still satisfies the truth-condition.

The second piece of evidence is derived from stative predicates. Unlike an achievement, a stative represents an event which continuously runs on the time line that overlaps the reference time. A definite end point is not identified. Generally, the unmarked alternative suffices to report the state of the topic at the reference time. This is illustrated in (2) in which the run time of the event '*the water be hot*' overlaps both the reference time and the utterance time. The predicate '*nam45 rɔɔn45*' or '*the water is hot*' asserts the current state of '*being hot*' of the water and thus denotes the imperfectiveness of the event. The marked alternative in (3) gives the same assertion as in (2). However, it also highlights the change of state from '*being not hot*' to '*being hot*' of the water. Even though the previous state of '*being not hot*' of the water is not discretely asserted through the sentence, the presence of *lɛɛw45* suggests that it is referred to covertly and an emphasis that the water has been changed to a new state is made.

(2) *nam45 rɔɔn45*
water hot
'The water is hot.'

(3) *nam45 rɔɔn45 lɛɛw45*
water hot
'The water is hot (previously it was not).'

The last piece of evidence is found in cases where *lɛɛw45* co-occurs with the progressive/imperfective aspect marker *kam33lan33*. This case is interesting due to the organisation of the predicate which seems to contain both imperfectiveness and perfectiveness.

(4) *maa45 kam33lan33 wiŋ42 pay33*
horse PROG run go
'The horse is running out.'

(5) *maa45 kam33lan33 wiŋ42 pay33 lɛɛw45*
horse PROG run go
'The horse is running out (previously it was not).'

In the unmarked version in (4), the overall nature of the event '*maa45 wiŋ42*' is determined by the progressive/imperfective aspect marker '*kam33lan33*' which suggests that the event time overlaps the reference time and the utterance time. The post-serial verb '*pay33*' is added to signal the direction of the action. This version thus depicts an ongoing event of the horse running out. Similar to (2), it reports the event as a fact. Considering (5), the co-existence of perfectiveness and imperfectiveness is probably assumed. However, in fact perfectiveness is not generated at all. Despite the presence of *lɛɛw45*, the ongoingness of the event still prevails and the progressive/imperfective reading can still be derived. Moreover, there is an

emphasis on the change of state of the horse which suggests that it is no longer in the state of 'not running' but is currently in the state of 'running'.

These findings have shown that, first of all, it is not always the case that *lɛɛw45* marks the end point of the event and suggests perfectiveness. Moreover, it can be embedded in a predicate with ongoing event and does not affect the imperfective reading. These findings suggest that the conventional claim that *lɛɛw45* denotes the perfectiveness or the completion of the event should be revised. Secondly, comparing the alternatives marked with *lɛɛw45* to the unmarked alternatives, the cases discussed above show that both varieties suggest the same temporal properties of the events. However, in each case while the unmarked alternative reports a fact involving the topic, the marked alternative gives a particular emphasis on the change of state of the topic.

These two major remarks lead to two research questions regarding 1) the reason behind the selection of the alternative marked with *lɛɛw45* as an appropriate utterance for a particular context and 2) the main role that *lɛɛw45* actually plays.

2. A COMPARISON BETWEEN MARKED AND UNMARKED ALTERNATIVES

In the previous section it has been pointed out that by adding *lɛɛw45* the previous state of the topic before the utterance time is covertly referred to and the change to the new state is emphasised. In order to provide clear explanations on these observations a further analysis is carried out.

- (6) plaa33thɔɔŋ33 taay33 lɛɛw45
 goldfish die
 'The goldfish died (previously it was alive).'

Similar to (1), the achievement in (6) shows that apart from the assertion that the event terminated before the reference time, the change of state of the goldfish from '*being alive*' to '*being dead*' is derived. The altered state, which is the subsequent result from the termination of the event '*the goldfish died at time t*', is highlighted. Such emphasis hints that the altered state of the topic is not consistent to what the hearer currently knows or expects. It can be assumed that the hearer's knowledge and expectation on the status of the goldfish before the utterance time, which is '*being alive*', is presupposed. The presupposition generated in (6) is drawn up in (7). (6) is true only under the condition proposed in (8).

- (7) 'There was a unique goldfish and before the utterance time it was expected to be in the state of being alive.'
- (8) '(6) is true if and only if there was a unique goldfish which was expected to be in the state of being alive and it died at time *t*.'

In order to confirm the existence of the above presupposition in the alternative marked with *lɛɛw45*, Levinson's (1983) tests are adopted. These tests are based on the concept that as presuppositions of a sentence are made up of background information, they must survive either in the case where the sentence is negated or where it becomes an interrogative. In order to make the assumption clear, in each test a comparison between the two alternatives is also provided.

- (9) plaa33thɔɔŋ33 may42 taay33 lɛɛw45
 goldfish not die
 'The goldfish did not die (previously it was expected to die).'

Similar to the case of the declarative marked with *lɛw45* in (6), (9) suggests that the whole event already terminated before the utterance time. It also signals the presupposition '*before the utterance time it was expected that the goldfish would die*' which contradicts the information offered in the assertion. The truth-condition of (9) is as follows:

- (10) '(9) is true if and only if there was a unique goldfish which was expected to die and it did not die at time *t*.'

As for the unmarked negation in (11), it just presents a fact about the goldfish, that is, it did not die. This fact does not generate a presupposition involving the hearer's expectation about the goldfish at all.

- (11) plaa33thooŋ33 may42 taay33
goldfish not die
'The goldfish did not die.'

In the case of interrogative, (6) can be transformed to an interrogative via the presence of the question word '*ru45yaŋ33*' as in (12). This question word is very interesting in that, first of all, semantically it sets the temporal boundary, that is, some point prior and up to the utterance time. In addition, pragmatically, it signifies that something is expected to happen at some point in this time boundary. In the case of (12), the goldfish is expected to die at some point in time before and up to the utterance time. The question is thus asked in order to check if the expected incidence has already happened. The truth-condition is proposed accordingly in (13). Interestingly, with the presence of the question word '*ru45yaŋ33*' the unmarked alternative is considered infelicitous while the alternative marked with *lɛw45* is obligatory.

- (12) plaa33thooŋ33 taay33 (lɛw45) ru45yaŋ33
goldfish die QUESTION
'Has the goldfish died?'

- (13) 'Is it the case that there was a unique goldfish which was expected to die and it died at time *t*?'

The question for the unmarked alternative can be generated as demonstrated in (14) by the addition of the question word '*may45*' which determines that the temporal boundary in the question covers only the time span before the utterance time. Thus, the question is supposed to refer only to one point in the past at which the event happened. It is asked in order to check if the event happened or not and does not suggest any expectation as the question word '*ru45yaŋ33*' does. Therefore, a reply marked with *lɛw45* is infelicitous.

- (14) plaa33thooŋ33 taay33 may45
goldfish die QUESTION
'Did the goldfish die?'

The results from the tests show that the presupposition generated by *lɛw45* survives in all sentences in the family. It is fairly clear in cases of negation and interrogative that the message conveyed in the sentence marked with *lɛw45* always contrasts with the presupposition.

From the comparisons between the alternatives marked with *lɛw45* and the unmarked alternatives, it is noticeable that a remarkable difference between them lies in the expectation on the state of the topic before the utterance time. This expectation is presupposed only in the alternative marked with *lɛw45*. This fact is twofold. Firstly, it is clear that the

presupposition carries the old information, which is the previous state of the topic, while the assertion yields the new information, which is the altered state of the topic. Secondly, the new information suggests that a correction is needed in order that the common ground that the interlocutors share will be updated and the conversation can be continued without confusion. In an unmarked alternative the need for a correction is not expressed. According to these facts, there are thus cases where the alternative marked with *lɛɛw45* is obligatory while its unmarked counterpart is unacceptable. Short dialogues in (15) to (17) exemplify this type of case.

(15) A: haay42 ʔaa33haan24 plaa33thɔɔŋ33 kan33thə22
 give food goldfish let us
 'Let's feed the goldfish.'

B: plaa33thɔɔŋ33 taay33 lɛɛw45 (*plaa33thɔɔŋ33 taay33)

(16) A: plaa33thɔɔŋ33 too33 khun42 maak42 chay42may45
 goldfish grow up a lot QUESTION
 'The goldfish has grown a lot, right?'

B: plaa33thɔɔŋ33 taay33 lɛɛw45 (*plaa33thɔɔŋ33 taay33)

(17) A: thəə33 naa42 ʔaw33 plaa33thɔɔŋ33 pay33 pra22kuat22
 you should take goldfish go contest
 'You should enter the goldfish to the show contest.'

B: plaa33thɔɔŋ33 taay33 lɛɛw45 (*plaa33thɔɔŋ33 taay33)

In (15), apparently there is a unique goldfish that both A and B know. As he expects that the goldfish is still in the state of being alive, A asks B to go feed the fish with him. Nevertheless, B knows that the fish is no longer in that state and in fact already died. He thinks it is necessary that A get the new information and the common ground be corrected. In order to assert the new information and suggest a correction he opts for the sentence marked with *lɛɛw45*. The same phenomenon also happens in (16) and (17) in which the antecedents uttered by A indicate that his expectation that the goldfish is still in the state of being alive is incorrect and needs to be replaced with the correct, new information, that is, the goldfish is now in the state of being dead. Due to the fact that a correction is vital, the unmarked alternative, which does not satisfy the intension of the speaker, is unacceptable and thus not chosen.

3. PRESUPPOSITION IN OPTIMALITY-THEORETIC PRAGMATICS

In the previous section, the presence of *lɛɛw45* has been proven to offer a presupposition and suggest a correction. In this section, the operation of *lɛɛw45* in such a respect as well as the motivation behind the addition of it to the sentence will be explored and explained under optimality-theoretic pragmatics. The constraints for presupposition which are innovated in accordance with the concept of this theory by Zeevat (2002, 2004, 2009) will be implemented.

The constraints are developed from the presupposition principles drawn from Heim's (1983) and Van der Sandt's (1992) theories of presupposition. The principles are aimed at solving the problem of presupposition projection by providing the conditions of the context under which the presupposition will be true. A summarised version of these presupposition principles are as follows:

- (18) (i) presupposition triggers have a presupposition p that must hold at the site of the trigger
(ii) p should be resolved to an accessible part of the context of the trigger
(iii) If this is not possible p should be accommodated (added to some context of the trigger)
(iv) p should preferably be added to the outermost context of the trigger if it is consistent there.

(Zeevat, 2009: 193)

Principle (i) requires that when a presupposition trigger is present in the sentence, it must offer a presupposition. Also, the truth of the presupposition must hold; otherwise, the speaker cannot use the trigger. Presupposition, according to principle (ii), must be generated in an accessible context. In other words, it must involve what is in the common ground or known both by the speaker and the hearer. Accordingly, it is resolved rather than accommodated. As accessibility is present, further presupposed information is deemed unnecessary and resolution is preferred over accommodation. However, if the context is not accessible and a resolution for the presupposition is not possible, principle (iii), calls for accommodation for that presupposition. Finally, according to principle (iv), presupposition should be added to the context in the way that does not make it inconsistent. This means that presupposition must be added to the context in which it is required but must be forbidden in the context that does not require it.

However, taking real situations into account, these four principles do not provide substantial reasoning behind the presence of presupposition in a sentence. With a closer look at the perspectives of both the speaker and the hearer, Zeevat (2002, 2004, 2009) incorporates the fundamental ideas of optimality-theoretic pragmatics proposed by Blutner (2000) which incorporates the neo-Gricean Q-principle and I-principle. The Q-principle, under which the speaker is obliged to make his contribution as informative as required, operates on form and blocking mechanism. It appraises all the possible syntactic tokens that the speaker could have used to express the intended meaning and block those that do not correspond to it. The I-principle, which asks the speaker not to make his contribution more informative than is required, operates on meaning. It assesses all possible meanings for the same syntactic token and allows the most coherent interpretation.

With the integration of production and comprehension in optimality-theoretic pragmatics, the four principles are transformed into four presupposition constraints: FAITH, PLAUSIBLE, *NEW, and RELEVANCE. These constraints have their merits from incorporating the perspective of the hearer into the speaker's production. Apart from the speaker's syntactic/semantic reasoning behind his production which is represented in the four principles, the constraints provide pragmatic reasoning. Generally, the hearer takes the position of the speaker and calculates what he could have produced and why he would have done so. While under principle (i), presupposition is demanded to be present at the site of the trigger, FAITH asks the hearer to take the speaker's position and consider the same syntactic expression he could have used to convey that presupposition. Following principle (ii) which specifies that presupposition must be in the common ground, PLAUSIBLE requires that the hearer consider plausible interpretations for the form the speaker uses. This constraint prevents the hearer from deriving the interpretations that exhibit the conflict between the current utterance and what is already known. Due to PLAUSIBLE, presupposition can be solved in the context and full accommodation is unnecessary and, therefore, resolution is preferred over accommodation. This leads to the third constraint, *NEW, which suggests that presupposition contains given or not new information and that an old referent is preferred. Accordingly, this constraint prohibits any further introduction of presupposed information. Lastly, according to principle (iv), presupposition should preferably be added to the context if it is compatible and indispensable there. Considering the hearer's perspective, it prompts him

to raise a question regarding the motivation behind the speaker's conveying presupposition. The final constraint RELEVANCE asks for the answer that captures the point why the presupposition and the function of the trigger are in priority. The four constraints are ranked as shown in (19):

- (19) FAITH >>PLAUSIBLE>>*NEW>>RELEVANCE

4. THE TRIAL OF PRESUPPOSITION CONSTRAINTS ON THE MARKED ALTERNATIVE

In this section, the use of $l\epsilon\epsilon w45$ as presented in Section 2 will be reanalysed in order to show how the four presupposition constraints are satisfied when $l\epsilon\epsilon w45$ is present. This will again be demonstrated through (6), which is restated in (20), and its presupposition in (7), which is restated in (21).

- (20) $plaa33th\omega\eta33$ $taay33$ $l\epsilon\epsilon w45$
 goldfish die
 'The goldfish died (previously it was alive).'

- (21) 'There was a unique goldfish and before the utterance time it was expected to be in the state of being alive.'

As discussed in Section 1, the alternative without $l\epsilon\epsilon w45$ in fact denotes the perfectiveness of the event '*the goldfish die*'. Also, as proposed, the presence of $l\epsilon\epsilon w45$ signifies the change of state of the goldfish from '*being alive*' to '*being dead*' as well as the presupposition in (21). The speaker utters the version marked with $l\epsilon\epsilon w45$ mainly to convey these two notions which finally lead to a correction in the common ground. The existence of the intended presupposition corresponds to FAITH which asks the hearer to consider the marked alternative as the appropriate syntactic token he would have uttered had he been the speaker. The hearer is also aware that had the speaker intended to communicate only the fact about the goldfish, the alternative without $l\epsilon\epsilon w45$ would have been selected. Considering the topic of the utterance, ' $plaa33th\omega\eta33$ ' or 'the goldfish' is definite. This suggests that there is a particular goldfish that both interlocutors know and it is thus already within their common ground. This means that the presupposition can be resolved in the accessible part of the context and thus represents PLAUSIBLE. Furthermore, the uniqueness of the goldfish consequently suggests an old referent. Therefore, full accommodation or the need for any additional information on the goldfish is unnecessary. This corresponds to the third constraint, *NEW. Regarding the truth-condition of the sentence, the truth-condition, '*there was a unique goldfish and it died at time t*' can be derived from both the alternative marked with $l\epsilon\epsilon w45$ and the zero-marked alternative. However, only when the speaker intends also to pass on the presupposition in (21) and suggest a correction on the relevant part of information in the common ground, $l\epsilon\epsilon w45$ is added. This represents an appropriate answer to the activated question regarding the rationale behind the speaker's selection of the alternative marked with $l\epsilon\epsilon w45$ that the hearer raises. The alternative marked with $l\epsilon\epsilon w45$ is chosen when presupposition is required while the unmarked alternative is preferred when only a factive report is required. Accordingly, the final constraint, RELEVANCE, is satisfied.

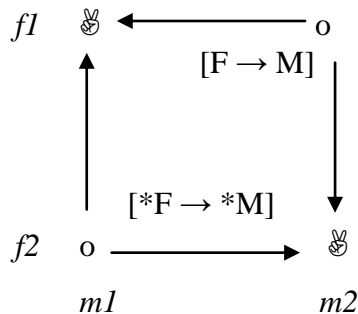
Besides the prevalence of presupposition in the utterance marked with $l\epsilon\epsilon w45$, it is also worthwhile to address another function of $l\epsilon\epsilon w45$ as a correction marker. While triggering presupposition, $l\epsilon\epsilon w45$ also marks the context of correction. In (20), the assertion denotes the change of state of the goldfish from '*being alive*', which is old and wrong information, to '*being dead*', which is new and correct information. The new information activates correction which requires that the common ground be updated. Such correction holds under the condition in (22):

(22) *correct* (CG, φ) holds iff $CG \models \neg\varphi$ (Zeevat, 2004: 184)

According to (22), a correction holds if and only if the common ground contradicts the assertion. In (20), the common ground entails that 'it is not the case that the goldfish, which was a unique one, died at a point before the topic time'. This obviously contradicts the assertion which suggests otherwise. As such, *lɛɛw45* marks the context of correction.

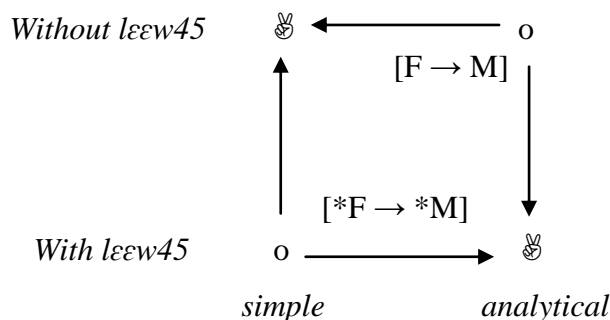
All of the analyses above indicate that the selection of the alternative with *lɛɛw45* and the unmarked alternative is dependent on the particular context in which one alternative is preferred over the other. This phenomenon can be concluded in terms of optimality-theoretic pragmatics which exhibits the competition between plausible alternatives in a particular context. A marked alternative, which represents complex form and analytical meaning or [$*F \rightarrow *M$], is optimal in a marked context while an unmarked alternative, which represents simple form and simple meaning or [$F \rightarrow M$], is optimal in an unmarked context. Such optimisation is illustrated in Figure 1.

Figure 1 *Optimisation under optimality-theoretic pragmatics*



The above mechanism is supposed to describe the competition between the alternative marked with *lɛɛw45* and the zero-marked alternative in which either of them can be chosen as optimal output. According to the nature of the alternative marked *lɛɛw45* which satisfies the four presupposition constraints and of the unmarked alternative which does not, general properties can be outlined. The unmarked alternative offers simple form and simple meaning while the alternative marked with *lɛɛw45* offers complex form and analytical meaning. The competition between them involves the existence of the speaker's need for presupposition and correction. In a marked context where such need is present, the alternative marked with *lɛɛw45*, which represents complex form and gives analytical meaning, becomes optimal. On the contrary, in an unmarked context in which the speaker merely wants to convey a fact, only simple form and simple meaning are required. In this case, the unmarked alternative is optimal. Figure 2 illustrates the optimisation in these two contexts.

Figure 2 *Optimisation of the alternative marked with lɛɛw45 and the unmarked alternative*



Further explanations on the above optimisation are provided through two real contexts in (23) and (24).

(23) A: haay42 ʔaa33haan24 plaa33thɔɔŋ33 kan33thə22
 give food goldfish let us
 'Let's feed the goldfish.'

B: plaa33thɔɔŋ33 taay33 lɛw45 (*plaa33thɔɔŋ33 taay33)

In (23), which is the restatement of (15), the antecedent uttered by A shows that he expects that the goldfish is still in the state of *'being alive'*. However, B deems it as invalid and contradictory with the truth that the change of state of the goldfish took place and the fish is in fact in the state of *'being dead'*. In such marked context, B's intention to induce the presupposition and suggest a correction is prioritised. Consequently, the marked sentence *'plaa33thɔɔŋ33 taay33 lɛw45'* which represents complex form and analytical meaning or [**F* → **M*] becomes optimal. Conversely, the unmarked alternative *'plaa33thɔɔŋ33 taay33'* which represents simple form and simple meaning or [*F* → *M*] is infelicitous and is thus blocked.

(24) A: tham33may33 thəə33 duu33 saw42 caŋ33
 why you look sad so
 'Why do you look so sad?'

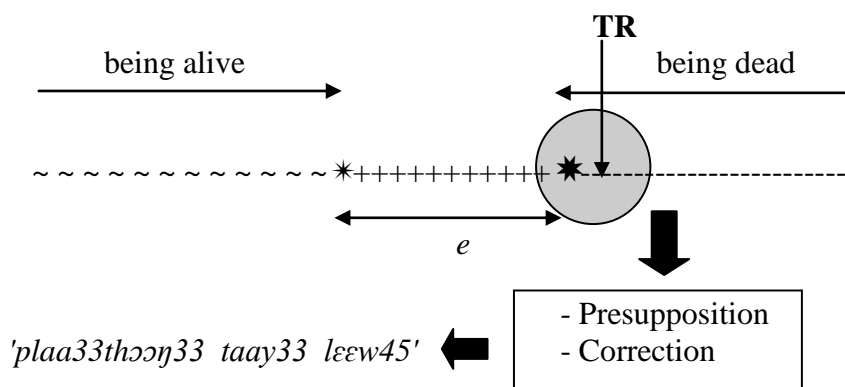
B: plaa33thɔɔŋ33 taay33 (*plaa33thɔɔŋ33 taay33 lɛw45)

Contrastingly, in the short dialogue in (24), the antecedent uttered by A does not demonstrate any expectation on the state of the goldfish. The utterance indicates that A only wants to know the cause of B's sadness. In such context, B just intends to tell A that he is sad because the goldfish died. Therefore, his reply is not aimed to offer any presupposition or correction. Accordingly, the unmarked sentence *'plaa33thɔɔŋ33 taay33'* which represents [*F* → *M*] becomes optimal while its marked counterpart *'plaa33thɔɔŋ33 taay33 lɛw45'* which represents [**F* → **M*] is infelicitous.

5. *lɛw45* AND ITS TEMPORAL FUNCTION

Although, as shown in the previous sections, *lɛw45* actually plays its primary role in offering presupposition and suggesting correction, it is worthwhile to address its role in temporality. In order to do so, the whole process in which the sentence marked with *lɛw45* in (20) is selected to represent the event *'the fish died at time t'* will be discussed. An illustration of the process is provided in Figure 3.

Figure 3 *The selection of the alternative marked with lɛw45*



The whole process starts with the occurrence of the event '*the goldfish die*'. Before the event time the goldfish was in its original state of '*being alive*'. The event took place and terminated within a short moment prior to the reference time. It subsequently led to the new state of the goldfish, that is, '*being dead*'. At this point, the termination of the event and the change of the state of the goldfish are realised. Such realisation indicates that new information is obtained. It then prompts the need for the presupposition concerning the hearer's old knowledge on the previous state of the topic and for a correction. This finally results with the addition of *lεw45* to the utterance. *lεw45* performs its temporal function at the stage of realisation. It links the run time of the event to the reference time. Adopting the concept of Event Realisation proposed by Bohnemeyer and Swift (2004), the semantics of *lεw45* involving temporality is proposed in (25).

$$(25) \quad [[l\epsilon w45]] = \lambda P_{\langle s,t \rangle} \lambda t_2 \lambda e \exists e' [P(e) \wedge P(e') \wedge e' \leq_{EE} e \wedge \tau(e') \leq t_{TOP}]$$

When *lεw45* is applied it is required that the event *e* as well as its subpart *e'* fall under the predicate *P* and the run time of *e'* is included in the topic time *t_{TOP}*.

This semantic function of *lεw45* is secondary. The realisation of the event and the change of state of the topic is a requirement which facilitates *lεw45*'s further operation in the pragmatic stage in which presupposition and correction are required.

6. CONCLUSION

Comparing the alternative marked with *lεw45* with the zero-marked alternative, it is found that the presence of *lεw45* generates presupposition regarding the hearer's expectation on the state of the topic which is in fact invalid and needs to be corrected. Contrastingly, the zero-marked alternative only reports the fact of the topic. This provides the answer for the first research question concerning the motivation behind the use of the alternative marked with *lεw45*. *lεw45* is preferred over zero-marking in the context where presupposition and correction, which are compatible with complex form and analytical meaning, are required. However, it is defeated by the zero-marking in the context in which only a factive report, which comes with simple form and simple meaning, is required. This phenomenon can be explained through optimality-theoretic pragmatics. Also, it leads to the answer to the second research question concerning the main role of *lεw45*. *lεw45* plays its primary role in pragmatic domain and thus the use of it is pragmatically motivated. Its temporal role is secondary; it is merely a requirement when *lεw45* carries out its pragmatic function.

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Referential null subjects in German*

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This paper is about referential null subjects located in Spec-CP of German finite V2 clauses, and it argues that in contrast to 3rd person subject gaps, 1st and 2nd person null subjects are grammatical *out of the blue*. No context or gesture is needed to identify the omitted referent. By using several diagnostics for my claim, I will show that this *out of the blue*-drop (OBD) of 1st/2nd person subjects is neither ‘classical’ *pro*-drop, nor topic drop, and not (English style) diary drop, and that 1st/2nd and 3rd person null subjects are syntactically and pragmatically two different phenomena. Furthermore, I will present empirical data from which I derive that 1st/2nd person referential null subjects in Spec-CP are licensed by discrete inflectional endings notwithstanding apparent syncretisms within the German verbal inflectional paradigms, and suggest a solution why OBD is restricted to Spec-CP of V2 clauses.

1. INTRODUCTION

It is standardly assumed (cf. Huang 1984, Fries 1988, Cardinaletti 1990, Rizzi 1994) that referential null subjects in German can be omitted in all persons and that the well-formedness of this dropping process, commonly referred to as topic drop, is dependent on the presence of a salient antecedent within the discourse, which licenses and identifies the gap and its reference.¹ (1) illustrates typical examples, (a) for a missed subject, and (b) for a missed accusative object:

- (1) Kennst du **den Hans**?
Know you the Hans?
(a) Na klar, is’ mein Nachbar.
Of course, [he] is my neighbour.
(b) Ne, kenn’ ich nicht.
No, [him] know I not

The gaps in (1) are only grammatical when a (non-)linguistic antecedent is given—without it, the gaps are not licensed, nor can the gapped referent be identified, (2):

- (2) (a) * Is’ mein Nachbar.
(b) * Kenn’ ich nicht.

So, neither a 3rd person subject, nor a 3rd person accusative object can be dropped without an antecedent which agrees in person and number features with the gap. However, as (1a) shows, case agreement is not a necessary condition for topic drop.²

In contrast to the data in (1) and (2) which show that an antecedent must be obligatorily given when a referential 3rd person subject or object is left out, (3) suggests that there are occurrences where this obligation does not apply, i.e. subject drop is possible without

* For helpful comments and discussions I would like to thank Werner Frey, André Meinunger and Peter Staudacher. All errors are mine.

¹ The antecedent of a topic drop gap is marked **bold** and the gap itself is referred to by an underline [].

² For case agreement between antecedent and gap, see Bayer et al. (2001) and Trutkowski (forthcoming).

a contextually given, salient discourse antecedent.³ Yet, as (3) shows, this only holds for 1st and 2nd null subjects, not for 3rd person subject and objects gaps (as was already shown in (2)):

- (3) (a) Ø Komme/Kommst/*Kommt am besten nachher vorbei. 1./2./*3. Sg.
 [I/You/*He,She,It] Come/Come/Comes at best later along
 (b) Ø Kommen/Kommt/*Kommen am besten nachher vorbei. 1./2./*3. Pl.
 [We/You-pl/*They] Come/Come/Come at best later along
 ‘It would be best if I/you/he,she,it/we/you/they came along later.’

Besides the constructed example in (3), corpus data confirm the intuition that 1st and 2nd person subject gaps can be licensed and identified without a (compatible) antecedent, (4)⁴-(5):

- (4) Wolfram Müller – Ø Nutzen jetzt unsere Stärken (News heading)
 Wolfram Müller – [We] exploit now our strengths
 (<http://www.deutscher-leichtathletik-verband.de/index.php?NavID=1&SiteID=28&NewsID=21594>)
- (5) (a) Ø Bist mir so nah (Song title, pop singer Sandra Weiss)
 [You] are me so close
 (b) Dann: „Die lässt sich die Haare trotzdem so schneiden. Ø Kennst sie doch.“
 Then: “She gets REFL the hair nevertheless in this way cut. [You] know her PRT”

DWDS Corpus, BZ, 22.01.2005, S.3

In contrast to 1st/2nd person null subjects, no positive evidence from corpora can be given for *out of the blue* constructed referential 3rd person null subjects.

So, the question arises if *out of the blue* licensing of 1st and 2nd person referential null subjects in German is enough to classify German as a *pro*-drop language. The answer is, at least partly, negative. Nonetheless fresh data suggest that the hitherto assumed classification of German as a non-null subject language (cf. Biberauer 2010, Holmberg & Sheehan 2010) has to be amended for an adequate account of the empirical data.

In the following subsections I will show that *out of the blue* omission of 1st/2nd person referential null subjects in Spec-CP of a finite V2 clause is not

- (i) (Italian-style) *pro*-drop
 (ii) (German style) topic drop
 (iii) (English style) diary drop

but, instead, a separate phenomenon within German syntax, best characterized as *out of the blue* drop or restricted *pro*-drop. After having shown that German *out of the blue* drop cannot be analysed along the lines of the above mentioned constructions I will outline the licensing and identification conditions by which one can account for referential 1st/2nd person null subjects in German and give reasons for why they are restricted to Spec-CP of V2 clauses.

To avoid clashes with other phenomena I will refer to the process by which antecedentless preverbal null subjects in finite V2 clauses are licensed and identified as *Out of the Blue Drop* (OBD).

³ I will refer to instances where the drop is well-formed independently of the presence of an antecedent by the symbol [Ø].

⁴ In (4) only a 1st person plural interpretation of the gap is possible (though the verb form is syncretic and would also allow a 3rd person plural interpretation).

1.1. OBD is not *pro*-drop

In contrast to older stages of German (e.g. Old High German, cf. Axel 2007, Axel/Weiß to appear), today spoken varieties of Standard German show no *pro*-drop in the German Mittelfeld. This can be shown by the contrast in (6):

- (6) (a) /quidis zi uns thesa parabola/ (Axel 2007: 308, ex. (25a⁵))
say-2SG to us this parable
 ‘are you telling this to us?’
 (b) *Wollt *pro* uns Märchen erzählen?
Will [you-PL] us fairytales tell? [=Are you kidding us?]

Furthermore, in finite V2 declaratives, OBD is not licensed postfinitely, when the prefield is occupied by another constituent, e.g. a time adverbial as in (7), nor is OBD licensed in embedded clauses where C° is occupied by a complementiser, (8):

- (7) *In 20 Minuten sind *pro* wieder da.
In 20 minutes are [we] again here.
 (8) *Ich glaube, dass *pro* komme später.
I think/believe, that [I] come later

1.2. OBD is not topic drop

In what follows I will show that 1st/2nd person OBD would have been wrongly analysed in terms of topic drop. The crucial data contrasts given in (9) and (10) show that unlike 3rd person subjects, 1st and 2nd person subjects can be freely dropped:

- (9) [[**Hans**] und [**ich**]] haben den Film schon gesehen.
Hans and I have the film already seen
 (a) Ø komme deshalb etwas später.
[I] come therefore a bit later
 (b) *Ø kommt deshalb etwas später.
[He] comes therefore a bit later
 (10) [[**Hans**] und [**du**]](, ihr) seid ja schon seit 20 Jahren zusammen.
Hans and you(, you-pl) are indeed already for 20 years together
 (a) Ø Kannst ihm wohl nichts mehr vormachen, oder?
[You] cannot him probably nothing more put over, right?
 (b) *Ø Kann dir wohl nichts mehr vormachen, oder?
[He] cannot you probably nothing more put over, right?

The logic behind these data is the following: As it is not reasonable to assume that arguments within coordinated structures like (9) or (10) behave differently, the constraint which blocks the contextually given arguments from being singled out in order to act as gap identifying antecedents must apply equally to all members of a coordinated expression. So the grammaticality of the 1st person subject gap in (9a) and the 2nd person subject gap in (10a) must be due to a process which is sensitive to the distinction between 1st/2nd and 3rd person subjects, and formally licensed without a salient antecedent—therefore it cannot constitute an instance of topic drop (as a topic drop gap is only licensed and identified by the presence of

⁵ Axel (2007:313) points out that the datum (6a) constitutes unambiguous evidence for a postfinite null subject since “in this sentence type [i.e. yes/no interrogatives—ET] overt subject pronouns never appear prefinally”.

an extra-sentential antecedent, cf. Huang 1984, Rizzi 1994). If the process of deriving 1st/2nd person subject gaps were the same as for 3rd person subject gaps, the (b) sentences in (9)/(10) would be expected to be grammatical too, contrary to fact.

Furthermore, (11a) shows that a 1st person singular null subject is licensed even though the 1st and 3rd person singular forms are syncretic⁶ (I will come back to this point in section 2), and even binding cannot alter the ungrammaticality of (11b):

- (11) [[**Hans**] und [**ich**]] haben den Film schon gesehen.
Hans and I have the film already seen
 (a) Ø_i Will deshalb lieber Zuhause bleiben (und mich_i entspannen).
[I] will therefore rather at home stay (and myself relax)
 (b) *Ø_i Will deshalb lieber Zuhause bleiben (*und sich_i entspannen).
[He] will therefore rather at home stay (and himself relax)

Crucially, in a Spanish example from Cole (2009: 567) which is parallel to (11), the null subject is not licensed, because the ambiguity conflict which arises from the 1st/3rd person syncretism cannot be resolved:

- (12) ??Juan y yo llegamos tarde. Ø Tenia mucho que hacer.⁷
Juan and I came late. [I/He] had.IMP a-lot to do

The contrast between (11) and (12) further supports the claim that, contrary to Spanish,⁸ in German 1st (and 2nd) person null subjects are derived differently from 3rd person null subjects. Otherwise it would be not possible to explain why the syncretisms in (11) play no role in licensing a 1st person null subject. On that basis, I will assume that 3rd person null subjects are excluded from the licensing/identifying conditions which apply to OBD (1st/2nd person null subjects) and conclude that (13) holds:

- (13) OBD Hypothesis I (valid for Standard German only):
 (a) 1st and 2nd person referential null subjects need no (non-)linguistic antecedent to be formally licensed in Spec-CP (i.e. the prefield) of a finite V2 clause.
 (b) OBD applies exclusively to 1st and 2nd person subjects.

The reason why apparent syncretisms (between 1st/3rd and 2nd/3rd persons) do not rule out the otherwise ambiguous reference for 1st and 2nd person null subjects can be explained by the fact that although both dropped OBD subjects and (topic) dropped 3rd person subjects and objects appear in the very same position (i.e. Spec-CP), they are nonetheless in complementary distribution regarding their licensing conditions (*out of the blue* versus *antecedent-dependent*).

1.3. OBD is not diary drop

In the following I will give some arguments which speak against a diary drop analysis of OBD.

Diary drop is said to be a register phenomenon (cf. Haegeman 1997, 2007, Haegeman & Ihsane 1999, 2001, Weir 2008). It occurs most notably in diaries, telegrams, letters,

⁶ In German, modal verb conjugation displays syncretisms between 1st and the 3rd person singular present tense.

⁷ Thanks to Núria Bertomeu for the Spanish datum.

⁸ Cole (2009: 568) shows that among other languages, also in Serbian, Amharic, Arabic (and for some speakers also in Italian (within the present subjunctive tense)) a null pronoun is excluded in patterns like (11)/(12).

autobiographies, emails and text messages. Examples for English diary drop are given in (14):⁹

- (14) [ec₁] Came to England a couple of days ago, [ec₁] thought I've only got one brother, blood's thicker than water, I'll pay a visit. [ec₁] Called at Malbite Street, [ec₁] got the address from Mrs Whatever-hername-is, [ec₃] said it was care of Rider. Rider, I thought, I know that name, it's Geoff's friend and employer Billy. [ec₃] Doesn't call himself Billy any more, though.

Symons, Julian, *The Plot against Roger Rider*, datum from Haegeman (2007), her example (5b)

Instantiating a parallelism between (15) and the German data given in (9), we see that English diary drop gaps behave differently when compared to German OBD:

- (15) Hans and I have already seen that movie.
 (a) [ec_{1pl}, *ec_{1sg}, *ec_{3sg}] will therefore come a bit later.
 (b) *[ec_{3sg}] is therefore coming a bit later.

In English it is not possible to derive a 1st or 3rd person singular null subject from a context like in (15). This is so even though the preferred reading for null subjects in English is one in which they are interpreted as 1st person singulars. However, the gap in (15a) can only be interpreted as 1st person plural.¹⁰

Furthermore, (16) shows that in English only 1st person singular null subjects are possible in an *out of the blue* context:

- (16) (a) [ec_{1sg/*1pl/*2/*3}] Wish you were here Song title of Pink Floyd
 (b) [ec_{1sg/*1pl/*2/*3}] Feel so real Song title of Steve Arrington

(17) shows that even when 1st person singular interpretation is ruled out, 2nd/3rd person interpretation is not possible. (18) shows once more that diary drop is different from German OBD:

(17) *[ec_{2/3}] Have driven me crazy!

(18) *Peter Smith – [ec_{1pl}] Will now deploy our strengths. (compare to (4))

Moreover, the aforementioned 1st person default interpretation device for 'out of the blue' uttered sentences which contain a diary gap seems to hold also for Swedish, a Germanic SVO language: The following examples cited by Sigurðsson (to appear, his example (24)), suggest that Swedish could be a diary drop language as well. And like in English, the 'standard' interpretation is one where the empty subject is interpreted as referring to the 1st person singular (Sigurðsson, to appear: 12). According to Sigurðsson, 2nd and 3rd persons are hardly omissible in Swedish (as in English, cf. Haegeman & Ihsane 2001).

- (19) (a) [ec] Ligger [ec] bara på stranden.
lie.Ø-AGR just on beach.the

⁹ I will adapt Haegeman's notion of a diary drop gap as an empty category, noted as [ec], with a subscript, referring to the person and number (if necessary) for which the gap stands.

¹⁰ This gap can be derived from the German context in (9) as well: (i) *Hans und ich haben den Film schon gesehen. Wir/Ø/_ Kommen deshalb etwas später* (=you-PL). The analysis which is at hand here is one in terms of OBD, or topic drop (via the salient antecedent).

- (b) [ec] Kommer [ec] strax.¹¹
come.Ø-AGR right-away

So what the data in (16)-(19) reveal is that English (and maybe Swedish too) displays a (nearly grammaticalised) default 1st person singular interpretation of empty subjects (referentially equivalent to the speaker/author).¹² Following Cole (2009: 570), I will assume that regarding null subjects a preferred interpretation will be chosen, if neither recovery by unique agreement, nor recovery by a suitable antecedent is possible (in that order). Is the preferred interpretation not the required one, an overt pronoun must be used.

As for the omission of 2nd person subjects, this is another aspect which further differentiates diary drop from OBD: though possible, as in (20)-(21), 2nd person subject drop is quite infrequent in English. Most of the examples cited refer to 1st or 3rd persons.

- (20) He lives up the road a couple of miles, Pebwater Farm, [ec₂] can't mistake it...

Symons, J. (1967). *The Progress of a Crime*, from Haegeman (2007), example (5c)

- (21) (a) [Have] [ec₂] Seen any good movies lately?
 (b) [Have] [ec₂] Read any good books?

Strasser, T. (2000). *Give a Boy a Gun*, p.110

Haegeman and Ihsane (1999:121) relate the rarity of 2nd person diary drop to the fact that “diary writing rarely addresses an interlocutor directly”—thus, it seems that the discourse function of English diary drop is first and foremost not to focus equally on speaker and hearer, but instead, to emphasise on the speaker by maintaining its perspective within the discourse. In the above data, 2nd person diary drop is licensed by the presence of a discourse antecedent (towards whom the direct speech is directed), or by questions (which address an interlocutor directly).¹³

Turning now to dropped 3rd person subjects, (22), partially a repetition of (14), shows that 3rd person subjects in English need a salient antecedent to be licensed.¹⁴

- (22) [ec₁] got the address from Mrs Whatever-hername-is, [ec₃] said it was care of Rider.
 Rider, I thought, I know that name, it's Geoff's friend and employer Billy. [ec₃] Doesn't call himself Billy any more, though.

Without an antecedent, no referential index can be assigned to the 3rd person null subjects in (22),¹⁵ hence they would be interpreted as 1st person subjects, by default (if made possible by inflection and context).

Concluding from the discussion above, an analysis of OBD in terms of diary drop does not seem to be an option.

¹¹ I render Sigurðsson's original notation.

¹² See also Weir (2008: 27).

¹³ Haegeman (2007: 3) also cites an example with generic interpretation: (i) ‘No, it wouldn't do for me. Sharing everything with your neighbours, [ec₂] haven't even got a bit of garden to call your own except for that pocket handkerchief out there. ...’ (Symons, J. (1967). *The End of Solomon Grundy*. London: The Crime Club, 30)

¹⁴ Therefore, I hypothesise that as in German, in English (at least) 3rd person diary gaps have to be analysed differently from 1st (and 2nd) person gaps.

¹⁵ Trivially, 3rd person pronouns, be they covert or overt, can never be interpreted *out of the blue*, not even in *pro-drop* languages, like Polish, where inflectional morphology is maximally distinct (person, number and gender):

(i) *Ø/*Ona mówiała po polsku.

Ø/She spoke in Polish (‘She spoke Polish’)

2. GERMAN OBD – LICENSING AND IDENTIFYING CONDITIONS

By OBD I refer to the omission of 1st and 2nd person singular/plural subjects in Spec-CP of a German V2 clause. However, I do not want to exclude that there may exist languages where (a smaller set of) null subjects is licensed by a process similar and comparable to German OBD.¹⁶

In this section, I will show that (23) holds (not only for Standard German) and derive the validity of (23) by two independent pieces of evidence.

(23) OBD Hypothesis II

OBD is licensed by non-syncretic verbal inflections which distinctly mark person and number features of the subject.

It is generally assumed that German verbal inflectional paradigms show a lot of syncretisms which disallow distinct identification, or one-to-one correspondence, respectively, of spelled out form and person/number features (cf. Müller 2005, Fuß 2009).

Syncretisms within the German inflectional paradigms are marked bold in the table beneath:

(Table 1) *Inflectional paradigms, indicative present/preterite active, German können= ‘can’; sagen= ‘say’; kommen= ‘come’; tragen= ‘wear’; sein= ‘be’*

	<i>Modal conjugation</i>	<i>Weak conjugation</i>	<i>Strong conjugation</i>	<i>Strong-umlauting conjugation</i>	<i>Suppletive conjugation</i>
1.Sg	kann/konnte	sage/sagte	komme/ kam	trage/ trug	bin/ war
2.Sg	kannst/konntest	sagst/sagtest	kommst/kamst	trägst/trugst	bist/warst
3.Sg	kann/konnte	sagt/sagte	kommt/kam	trägt/ trug	ist/ war
1.Pl	können/konnten	sagen/sagten	kommen/kamen	tragen/trugen	sind/waren
2.Pl	könnt/konntet	sagt/sagtet	kommt/kamt	tragt/trugt	seid/wart
3.Pl	können/konnten	sagen/sagten	kommen/kamen	tragen/trugen	sind/waren

As table 1 shows, with regard to syncretisms, three different conjugation classes have to be distinguished. These are (i) the modal conjugation, (ii) the strong/weak conjugation, and (iii) the strong-umlauting conjugation and the suppletive conjugation of auxiliary verbs:

(Table 2) *Systematic syncretisms within German inflectional paradigms*

<i>Syncretism</i>	<i>Number</i>	<i>Conjugation class</i>	<i>Tense</i>
1.Sg / 3.Sg	singular	all conjugation classes	preterite
		modal conjugation classes	present
1.Pl / 3.Pl	plural	all conjugation classes	all tenses
3.Sg / 2.Pl	mixed	weak/strong conjugation classes	present

The first piece of evidence in favour of the view that 1st and 2nd person Spec-CP null subjects are licensed by inflection, independently of an antecedent, was already presented in section

¹⁶One such case might be Icelandic, where referential null subjects are also limited to Spec-CP, and distinctly marked inflections determine their reference unambiguously—contrary to e.g. English and Swedish (see Sigurðsson, to appear). S. claims that these Icelandic null subjects are only *constrained*, but not *preconditioned* by agreement. He cites the following examples: (i) a. __ Ligg __ bara á ströndinni. (1sg); b. __ Liggjum __ bara á ströndinni. (1pl) [= ‘I am/We are just lying on the beach’]. However, as (ia/b) can be uttered *out of the blue* whereby the null subjects’ reference is unambiguously determined by inflection and not by context (a salient discourse antecedent), their interpretation seems to be made possible exclusively by inflection.

1.1. The main point there was that in contrast to 3rd person null subjects, 1st/2nd person null subjects are licensed though there is no salient discourse antecedent to which the gaps could possibly be linked. This was shown by the data in (9)-(11). Together with the Spanish example in (12) these data made clear that licensing conditions for German 1st/2nd person null subjects differ from those for 3rd person null subjects, a division which does not hold for *pro*-drop languages.

Regarding 3rd person null subjects, one could claim that at least quasi-argumental instances of 3rd person null subjects can be dropped in German and put forward the following datum:

- (24) _ Regnet ja wirklich übelst grad'.
 [*It_{expl}*] rains indeed really very-bad at-the-moment

However, such a sentence can only be uttered when the situation the speaker refers to is the current discourse topic, i.e. (24) is only possible when uttered while looking out of the window. To capture (24), I will assume that the expletive ‘es’ represents the current discourse topic—see Falk (1993: 172) for the view that in a wider sense situations which are represented by expletives can also be topics, and—consequently—can be topic-dropped.

That this is indeed the right way to account for (24) is proven by (25). Here, no situational discourse topic (a weather situation) is available, hence an expletive weather-*it* cannot be dropped:

- (25)*_ Regnet bestimmt, wenn wir in Urlaub gehen.
 [*It_{expl}*] rains for sure, when we on holiday go

So, from the data presented so far we can infer that only 1st/2nd person subject gaps in CP-Spec of finite V2 clauses can be licensed without reference to an antecedent, *out of the blue*.

The second piece of evidence will be given by dialects—in this case, Swabian. As table 3 shows, in this (Southern German) dialect only singular verb forms are distinctly marked. Plural forms are identical for all persons.

(Table 3) *Inflectional paradigms, indicative present active; Swabian könne=‘can’; sage=‘say’; komme=‘come’; trage=‘wear’; sei=‘be’; the personal pronouns are: I/Du/Er,Se,Es/Mir/Ihr/Se*

1.Sg	koa/konnt	sag/ sagte	komm/ kam	trag/ trug	ben/ war
2.Sg	koasch/konntesch	sagsch/sagtesch	kommsch/kamsch	trägsch/trugsch	bisch/warsch
3.Sg	koa/konnt	sagt/ sagte	kommt/ kam	trägt/ trug	isch/ war
1.Pl	könnet/konntets	saget/saget	komet/kamet	traget/truget	sen/waret
2.Pl	könnet/konntets	saget/saget	komet/kamet	traget/truget	sen/waret
3.Pl	könnet/konntets	saget/saget	komet/kamet	traget/truget	sen/waret

So, from the hypothesis in (23) we would predict that due to syncretisms within all conjugation classes in plural number, OBD should only be possible with 1st and 2nd person singulars. This is borne out by the data in (26):

- (26) (a) Passet uff, Ø komm glei nüba. (1st Sg)
 Take care, [*I*] come soon along
 (b) Ø Bisch wirklich a Liebe. (2nd Sg)
 [*You*] are really a lovely-one_{fem}
 (c) *Ø Kommt net. (3rd Sg)
 [*He*] comes not

- | | | |
|-----|---|----------------------|
| (d) | *Ø Gebet nix.
[We] give nothing | (1 st Pl) |
| (e) | *Ø Kommet wohl immer z' spät.
[You-PL] come surely always too late | (2 nd Pl) |
| (f) | *Ø Sen wieder net `komme.
[They] are again not come | (3 rd Pl) |

The Swabian data also show that it is neither sufficient nor necessary to assume speaker/hearer features to capture the OBD phenomenon, as it is solely determined by discrete inflectional endings.¹⁷

Finally, one aspect concerning the syncretism problem should be mentioned: as 3rd person subject gaps are only derivable via a salient antecedent (i.e. by topic drop), 3rd person subject gaps are excluded from OBD anyhow, and it does not matter whether there are some inflectional forms which are syncretic with the 3rd person or not. If this mattered, neither 1st nor 3rd (respectively, neither 2nd nor 3rd) person subjects would be able to be dropped, since syncretisms constitute a symmetric relation. Note also that there are no syncretisms between 1st and 2nd persons within any German conjugation class.

3. GERMAN OBD – THEORETICAL CONSIDERATIONS

In this section I will say something about the nature of the empty pronoun involved in OBD, and try to give an explanation for why referential null subjects in German are only licensed in Spec-CP of finite V2 clauses. Furthermore, I will close with a suggestion on how to integrate German within the classes of null/partial/non-null subject languages.

In section 1 and 2 it was shown that 3rd person null subjects in German have to be recovered via an extrasentential antecedent (like dropped objects) by which the gap's content can be identified. Seeing that fact in the light of 3rd persons pronouns identification in general or e.g. with regard to the identification of 3rd person null subjects in *pro*-drop languages (Samek-Lodovici 1996, Frascarelli 2007), one can be tempted to qualify German as a very 'economical' language which does not license 3rd person subjects by (unnecessarily) distinct inflectional morphemes, as 3rd person null subjects have to be identified by a salient discourse antecedent anyway.

Regarding the nature of the empty element involved in OBD, I will assume a silent pronoun, *pro*, being licensed by discrete inflectional endings which are marked for person and number. The configuration by which OBD-*pro* is licensed is a Spec-Head configuration whereby the verb in C° carries the person/number specifications of the empty subject (located in Spec-CP) and stands in an Agree relation with it. The OBD gap cannot be PRO, as the well-formedness of OBD is not dependent on a controlling (matrix) argument. Furthermore, it cannot be a trace, as we had to assume that an empty category c-commands a trace. A bound empty operator is also not at hand, as empirical data has proved that Spec-CP subjects in finite environments are well-formed *out of the blue*.

With regard to the positional restriction of OBD, the first assumption I will make refers to German sentence structure. I assume that in finite V2 clauses the finite verb has moved to C° and any constituent preceding the finite verb is located in Spec-CP. I do not share the view that German has a designated subject position, but instead assume a *Haider*-like sentence structure for German (see e.g. Haider 2010), whereby in embedded sentences

¹⁷ Note that all occurrences of null subjects which are blocked due to syncretisms can be topic dropped, as e.g. in (i):

(i) Warum bisch denn so sauer **auf ons**?
Why are you PRT so angry on us?
 Ha, _ kommet halt immer z'spät.
 INTERJ, [you-PL] come PRT always too late

introduced by a complementiser, the subject as well as all arguments/adjuncts are located within the VP/adjoined to it.

I must start by admitting that for every instance of OBD I have to allow a topic drop analysis when a salient discourse antecedent is contextually given. At the moment this option cannot be excluded (except for cases when 1st/2nd person null subjects are uttered *out of the blue*). However, an analysis which assumes 1st/2nd person subject drop to be topic drop has to include the more or less uneconomical process of ‘person conversion’, which is due to the lack of person agreement between antecedent and gap,¹⁸ shown in (27):

- (27) (a) Wo bist **du**?
Where are you?
 _ Bin hier.
 [I] am here
- (b) Wo habe **ich** mich versteckt?
Where have I myself hidden?
 _ Bist hinter'm Schrank.
 [You] are behind-the cupboard

To account for the positional restrictions for OBD I will offer a rather global constraint to explain the impossibility of OBD within the Mittelfeld (i.e. the ‘IP domain’ up to the CP in German). Assuming that OBD in the Mittelfeld would be an option, we would have to allow topic drop and ‘Mittelfeld-OBD’ at the same time. This, however, would yield structures like (28b):

- (28) Wo sind denn **die Kinder**?
Where are PRT the children?
- (a) Die haben wir nicht gesehen. (overt pronouns)
Them have we we not seen
- (b) * _ haben_{1sg/3pl} Ø nicht gesehen. (covert pronouns)
 (i) [Them] have [we] not seen (topic drop and OBD)
 (ii) [They] have not see (topic drop or OBD)

Then, (28b) could be either understood as indicated in (28bi), ‘We haven’t seen them’ (with the dropped object (derived from the subject *Kinder* in the context) in Spec-CP, and the dropped OBD-subject in the Mittelfeld, or as translated in the second gloss, (28bii), meaning ‘The children didn’t see’ where the antecedent *Kinder* is interpreted as a dropped subject (*Die* ‘They’), in Spec-CP.

Such ambiguities would arise (i) since both subjects and objects can undergo topic drop, and (ii) due to syncretisms within verbal inflectional morphology. Due to these facts, German OBD must be restricted to the same position as topic drop, in order to prevent such ambiguous structures. The positional restriction to Spec-CP is forced by discourse conditions on topic drop, as Spec-CP is “the only position in which an empty element can fail to have a clause internal identification, and is available for discourse identification” (Rizzi 1994: 162).

The last note refers to the question of whether German should still count as a non-null subject language (see the contributions in Biberauer, Holmberg, Roberts and Sheehan 2010). The evidence that it is not seems to prevail, as the differences from non-null subject languages like English and Swedish are too apparent to put German within this class. Furthermore, it was shown that licensing of null subjects in the latter languages follows different regularities.

¹⁸ If we stipulated a general ban on ‘person conversion’ for topic drop we could also derive the ungrammaticality of dropped 1st/2nd person null objects (which is commonly assumed in the literature, see e.g. Cardinaletti 1990, Steinbach 2007, Sigurðsson to appear).

On the other hand, German lacks a generic null subject, which differentiates it from partial null-subject languages, and, of course, German is by no means a null-subject language.

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Shapes and placement of gestures by Germans in descriptions of motion events*

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Based on how different languages verbalise motion events they can be divided into two main categories: satellite-framed (e.g. English) and verb-framed languages (e.g. Spanish) (Talmy 1985; Slobin 2004). According to, for example, McNeill and Duncan (2000), this should be reflected by the constituents with which gestures coincide. However, previous research (van Hoof 2000; Vrinzen 2003; Boot 2003) suggests that even two satellite-framed languages can differ in their gesture placement. Therefore, Experiment 1 of the present study compares three Germanic languages with regard to gesture placement. Together, the three previous studies and this paper indicate that a categorisation based on speech cannot necessarily be applied to gestures.

In Experiment 2, the German participants' gesture shape was investigated. The data were coded according to a scheme designed by Müller (1998). Results suggest that gesture shape is as rule-bound as gesture placement.

1. INTRODUCTION

When communicating, human beings need to draw from their mental lexicon and grammar rules in order to utter a clear message. However, we hardly ever say the exact same thing twice. Baker (2002: 13) mentions creativity to be “one of the characteristics of the human linguistic competence”. The first sentence of this paper, for example, has probably never been uttered in exactly this way, although it consists of elements (e.g. words) that are not unique and it abides by the grammatical rules of the English language. This view is shared by, for example, Chomsky (1965: 6), who states that “...an essential property of language is that it provides the means for expressing indefinitely many thoughts and for reacting appropriately in an indefinite range of new situations”. Coulthard (2004) even emphasises that people are very unlikely to recount an event in exactly the same way twice, even when little time has elapsed between the two retellings.

Because of these infinite possibilities, there are not only many different ways of phrasing something, but there are also several possibilities for individuals to emphasise different parts of the same utterance when only considering the words that are produced. That is, the way in which certain parts of utterances are emphasised is exactly the way a speaker intends. Thus, Fox (2001) reports that the duration of pitch peaks in accented syllables indicates whether or not the speaker intends to finish his/her turn. Furthermore, Tomlin et al. (1997: 68) claim that speakers “always [have] some *purpose* or *goal*” (emphasis by Tomlin et al.) when they say something. Thus, when a speaker talks about a drawing, the goal can be to comment on the quality of the drawing, or on what can be seen in the drawing. Both descriptions are about the exact same thing, but will differ drastically from each other. Tomlin

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et al. (1997: 70) go on to explain that speakers may want to "...steer the listener's attention to particular referents and propositions..." by means of "focus organisation".

The same principle holds for descriptions of motion events. Every language has its own way of describing them in speech and gestures. For instance, English speech expresses the path of a movement in the verb and the manner in a satellite (see below), while French does this the other way round. Based on this observation, Talmy (1985) divides all languages into two groups: verb-framed (e.g. Romance languages, Japanese and Korean) and satellite-framed languages (e.g. Chinese and Indo-European languages minus the Romance languages). Two languages placed in different categories are expected to be different, but two languages viewed as belonging to the same category are somewhat less expected to show different patterns. Categorical similarity in one way (i.e. satellite- or verb-framed; based on speech) does not necessarily mean that motion events are gestured about in the same way. For example, Chinese is categorised as satellite-framed. Nevertheless, its gesture placement tends to follow the topic-initial pattern of the verbal language (McNeill & Duncan 2000). Therefore, a categorisation that is based on speech does not necessarily hold for the gesture placement in a language.

This research attempts to extend this conclusion to German. Like the other Germanic languages discussed in this paper (Dutch and English), German is categorised as a satellite-framed language and is therefore expected to show similar gesture patterns to (at least one of) these languages. The research question Experiment 1 of this paper is:

On which constituents do German, English and Dutch native speakers place path-gestures when describing motion events in a cartoon-retelling task?

The language-specific tendencies that were found in previous studies (e.g. van Hoof, 2000; McNeill & Duncan 2000; Stam 2006) suggest that gestures are not as random parts of language as they seem to the untrained eye. However, it is yet unclear whether these tendencies also apply to a more detailed aspect of gestures: their shape. Müller (1998) presents a coding scheme, by which gesture shapes can be coded for their shape in much detail. She notes that gestures can represent different things in different ways. Therefore, she divides the gestures she studied into four modes of representation. These modes of representation stand for the way in which gestures depict something. The research question of Experiment 2 is:

How similar are the shapes of representational gestures on motion events with different speakers?

Before we elaborate on how these research questions will be answered by this study, it is important to explain some of the concepts that are used in the questions, beginning with the term *gesture*. Here, gestures are viewed as deliberate movements of the hand(s), which are part of the communication process and are related to the speech they coincide with. The focus of this paper is on hand gestures, as they are the most common type of gesture (McNeill 1992) (cf. Gullberg (2010) on methodological reflections regarding gesture research and Kimbara (2008) on the choice for gestures of the hands only).

Representational gestures, which have a direct relation to the speech content and denote, for example, a concrete object (e.g. *ball*) or action (e.g. *to walk*) have been investigated most frequently. This is probably attributed to the fact that they can usually be linked directly to what they represent. For instance, when both hands are shaped as if they are holding a large ball when the speaker is referring to someone carrying a bowling ball, it is very likely that the hands indeed represent holding a bowling ball, and not, for example, holding a large bowl or vase. This is why this study focuses on representational gestures.

Representational gestures are what McNeill (1992) classifies as *iconic*, *metaphoric* and *deictic* gestures. Iconic gestures have the closest relation to speech and represent a concrete concept, such as an object. Metaphoric gestures are slightly more abstract, as they denote more abstract concepts such as emotions. Finally, deictic gestures are pointing gestures. McNeill mentions one additional category: *beats*. These gestures move “along with the rhythmical pulsation of speech” (McNeill 1992: 15).

Another important concept is *motion event*, and related to that, the division of languages into *satellite-* and *verb-framed*. A motion event is ‘(a) movement(s) by one or more person(s) or object(s) in a certain way’, for example, someone who kicks a ball away. Motion events are popular objects of research because the movements in motion events are more likely to elicit gestures in retelling tasks than, for example, still objects (Gullberg 2007). Also, motion events have been elaborately examined with regard to speech in numerous languages by many researchers (e.g. Brown 2003; Narasimhan 1998; Slobin 1996, 2004). Most research in this area focuses on Talmy’s (1985) typology of what he calls verb-framed and satellite-framed languages. In verb-framed languages, the trajectory (or: path) of the motion is expressed through the verb, while satellite-framed languages generally express the path through the satellite.

According to Talmy (1985: 102) satellites are related to the verb root and form a “verb complex” with the verb. This is best illustrated by an example. (1) is an English sentence in which the satellite is in italics; (2) presents the same sentence in French with the satellite italicised.

- (1) John swims *across* the river (Kellerman 2006)
 (2) Jean traverse la fleuve *en nageant*
 John travels-across the river swimming

Motion events can be described as having several constituents. Besides the motion, motion events consist of a figure, a path, a ground and a manner or cause. This is best illustrated by an example. We first use an English example by author and then repeat (2), so we have a satellite-framed and a verb-framed language, respectively. Note that the verb displays different constituents of the motion event in each language.

- (3) The cat walks up the stairs
Figure: the cat
Motion and manner: walks
Path: up
Ground: the stairs
 (4) Jean traverse la fleuve en nageant
Figure: Jean
Motion and path: traverse
Manner: en nageant
Ground: la fleuve

In order to discuss the gesture placement of Dutch, German and English and how this is related to the constituents of these languages, the differences in constituent order need to be explained. German and Dutch are rather similar with regard to their constituent order. In both languages, the satellite (denoted in italics) usually follows a verb (underlined) in main clauses (see (5) for German and (6) for Dutch). Furthermore, the satellite can precede a verb in subordinate clauses (see (7) and (8)). These examples also illustrate the fact that the verb and satellite can be separated in both languages, although this is limited to subordinate clauses in German but not in Dutch.

- (5) Er stellt sich *auf* die eine seite vom Katapult (participant 34JM)
“He steps on the one side of the catapult”
- (6) De vrouw steekt de straat die voor haar huis ligt *over*
“The woman crosses the street in front of her house” (no satellite in English)
- (7) ...die für Strassenbahn *oben über* die Strassen laufen (participant11SE)
“...that are above the street for the train”
- (8) Er staat stroom *op* de tramkabels [main clause] | die *over* de straat lopen [subordinate clause]
“Electricity runs through the train cables | that are above the street”

English differs from these two related languages. Here, the satellite follows verb in both main and subordinate clauses and cannot be separated from verb (see (9) and (10)).

- (9) The dog runs *up* the street
(10) * The dog runs the street up

For clarity, this paper is divided into two main sections. Section 2 describes the hypothesis, method and results and discussion of Experiment 1 on gesture placement. In section 3, these elements of Experiment 2 are elaborated on. Finally, a general conclusion is provided.

2. EXPERIMENT 1

Based on the literature related to language-specific tendencies with regard to gesture placement and Talmy’s (1985) categorisation of languages into verb-framed and satellite-framed, we can hypothesise the following concerning Experiment 1:

If Dutch and German speakers place the majority of their gestures on the same constituents, the difference between these languages and English may indeed be caused by a difference in the constituents' order.

In order to test this hypothesis, an experiment with a cartoon re-telling task was conducted.

2.1. Method

The data were collected by the author at Düsseldorf University in Germany. All participants were students of the university and their native language was German. They were paid € 5.00 for their participation.

Each of the 25 sessions was conducted by two people: a speaker who watched a Tweety and Sylvester cartoon (Canary Row, divided into eight clips; Freleng 1959) and a listener who was unable to see or hear the cartoon. After watching a clip (ranging from 25 to 79 seconds), the speaker recounted to the listener what happened in the clip. The speaker then watched the next clip, and recounted the events in the new clip, and so on, until all eight clips had been watched and retold. The Appendix presents a description of each clip. The listener was a new participant in every session.

All sessions were recorded with a video camera, which was placed in such a way that the speaker’s body was visible from a little below the knees to slightly above the head. The camera was directly in front of the speaker, at a distance of approximately two to three meters. The listener sat about one meter to the front and right of the camera, so the speaker’s gestures were clearly visible to the camera, but the speaker did not look directly into it. This way the speaker was less likely to be distracted by the camera.

After recording all data on a digital video camera, the recordings were digitised using Windows Movie Maker. Each file contained the data from one speaker. Then, the speech about movements was transcribed in Elan (a digital sound and video annotation tool developed at the Max Planck Institute for Psycholinguistics). Next, the transcribed parts were watched at a normal pace for any hand movements. If these were detected, the part was played again frame by frame (25 frames per second) and the exact timing of the stroke of the gestures¹ as compared to the speech was determined. Some movements were dismissed as being other movements than gestures (e.g. playing with the headphones).

After having marked where exactly the strokes of gestures depicting only the path of a motion began and ended, the utterances were watched with the sound turned on to determine with which words the gestures co-occurred and the syntactic function of these words. These functions were divided into ten categories: 'finite verb', 'non-finite verb', 'satellite', '[finite verb + satellite]', '[finite verb] + [satellite]', 'ground noun phrase (NP)', 'figure NP', 'pause', 'sentence' and 'other'.

2.2. Results and Discussion

There were a total of 726 gestures in 63:45 minutes of speech time. The average gesture rate was eleven gestures per minute, but the range was quite large: between approximately six to twenty gestures per minute. There were nineteen usable sessions, as some listeners were not native speakers of German and one speaker did not gesture at all.

As was explained above, the collected German data is to be compared to previous research on gesture placement. Four studies have been selected, which investigate Dutch and/or English: van Hoof (2000), Boot (2003), Vrinzen (2003) and Stam (2006). Table 1 presents an overview of the results of all four studies. The categories of the different studies are adapted to fit a kind that can be applied to all studies. Thus 'finite verb' and 'non-finite verb' of the present study are combined to form 'verb'. The category displayed as 'silence/pause' in this table includes only unfilled pauses in van Hoof, Boot and Vrinzen, but include both filled and unfilled pauses in the present study. 'Sentence' of this study and 'verb + satellite + ground noun phrase' and 'satellite + ground noun phrase' of Stam are placed in the 'other' category. Furthermore, Vrinzen and Stam do not differentiate between the figure and the ground noun phrase. Therefore, the results of their 'noun' categories are displayed in 'Ground NP' (which in these studies thus means both ground and figure noun phrase).

(Table 1) *Summary of the findings of van Hoof (2000), Boot (2003), Vrinzen (2003), Stam (2006) and the present study, with the largest category italicised and in bold*

	Van Hoof		Boot	Vrinzen		Stam	Pres. study
Syntactic function	Dutch	English	Dutch	Dutch	English	English	German
Verb	28%	<i>27%</i>	<i>19%</i>	<i>22%</i>	<i>32%</i>	<i>26%</i>	14%
Ground NP	0%	0%	13%	17%	3%	24%	9%
Figure NP	<i>44%</i>	15%	9%	-	-	-	15%
Satellite	7%	15%	<i>18%</i>	<i>22%</i>	14%	21%	<i>18%</i>

¹ Gestures consist of three to four phases, as explained by McNeill (1992) and Seyfeddinipur (2006). The phases are the preparation phase, the stroke, a possible pre- or post-stroke hold, and the retraction phase. In this paper, Seyfeddinipur's definition of the four phases is followed. The stroke has been described as the part of the gesture that seemed to "display the meaning of the gesture" by McNeill (1992: 107).

[Verb Satellite] +	7%	19%	2%	5%	21%	15%	5%
[Verb] [Satellite] +	0%	8%	-	1%	1%	-	1%
Other	14%	15%	43%	34%	28%	15%	38%
Total (numeral)	98	99	101	101	99	34	726

As can be seen in Table 1, speakers of English tend to place their gestures on the verb. The speakers of German seem to prefer the satellite, but the data for the speakers of Dutch are inconclusive. They either prefer the figure NP (van Hoof) or they choose either the verb or the satellite (Boot and Vrinzen).

This means that our hypothesis, *If Dutch and German speakers place the majority of their gestures on the same constituents, the difference between these languages and English may indeed be caused by a difference in the constituents' order*, may have some truth to it. For Dutch and German, both the satellite and the figure NP have been found to be (one of) the constituent(s) with which many gestures coincide. Yet, Dutch also shows similarities with English. In all three studies including English, the verb was the largest category for this language and both Vrinzen and Boot found the same category to be among the largest in their Dutch data. It thus seems that Dutch is like a bridge between English and German, in that it shows similarities to both languages with regard to gesture placement.

3. EXPERIMENT 2

Because of the balance we saw above between language-specific tendencies (or rules) and differences caused by human creativity, Experiment 2 investigates how these elements are related to gesture shape. McNeill (1992) believes that the lack of strict rules strengthens gestures' communicative purpose, as this allows the speaker to highlight only important or striking parts of the message instead of "[including] features solely to meet standards of form" (1992: 132). This theory is highly relevant to the present study, since this might be exactly what applies to gesture shapes. Certainly, there are some iconized gestures with a standardised shape, such as 'thumbs up', but it is questionable whether such rules apply to all gestures. It is very possible that the exact shape of (representational) gestures is not rule-bound at all, like the exact production of verbal language. Everyone has their own tone of voice and they may produce *cat* with a slightly more aspirated [k] one time compared to a previous production. Still, the word will probably be recognised as *cat* (or rather, a version of *cat*) no matter how high or low someone's voice is and regardless of the amount of aspiration on the [k]. Even when the [k] receives no aspiration at all, it will probably still be recognised as a version of /k/.

This study makes similar generalisations with regard to gesture shape. Shapes that are rather similar are given the same label (see Method below). According to Kendon (2004: 3) a gesture can seem "to be something that is spontaneous and created through the whim of the individual, [but] at the same time it can be shown to be regulated and subject to social convention".

This study aims at testing this claim by investigating whether the shape of gestures can indeed be compared to the exact production of verbal language in that there definitely are some general tendencies (e.g. word order in English or the aspiration of the /k/), but that some differences are still allowed between individuals and between utterances by individuals. The hypotheses of Experiment 2 are:

1. *Gestures of the same mode of representation are more likely to be similar than those of two different modes.*
2. *The shape of a gesture is influenced by the way in which the action is presented to the speaker.*
3. *Gesture shape is just as rule-bound as more general features of gestures are, so there must be similarities between different speakers' gestures.*

3.1. Method

In this experiment, the same data were used as in Experiment 1. However, all gestures on motion events were investigated and not only those that depicted the path of a motion.

The “sameness” of the gestures was further coded as objectively as possible according to a scheme designed by Müller (1998), which distinguishes the articulators (shape, orientation, movement of the hand and the location in the gesture space) and the modes of representation (trace, enactment, mould and representation). A trace is a two-dimensional representation of an object or action. For example, it follows the path of a motion and indicates nothing else. In an enactment, the hands of the producer represent the hands (or, in case of the animals in the cartoon, the front paws) of the agent. When a person produces a mould, he or she seems to mould the air into the shape of the object being described as if working clay and making a three-dimensional representation of the referent. And in a representation, the hands represent something other than hands, such as feet.

Difficult cases were discussed with one or both supervisors of my second MA thesis (M. Swerts and L. Mol). An instance of such a case was one in which more than one mode of representation could be assigned to a single gesture. For example, when participants explained that Sylvester was holding Tweety while they fell down, this action was often accompanied by a gesture in which the hand was in a fist and moving downward. This then represented both an enactment (e.g. Sylvester's hand holding Tweety) and possibly a trace (e.g. the downward motion of the characters) or a representation (e.g. the hand represents Sylvester's body moving downward). It was decided that these gestures were to be categorised as ‘enactment’ as there was no doubt about the enactment element being present.

3.2. Results and discussion

In Experiment 2, there were 1010 gestures in total, which displayed 42 different shapes, divided over seven categories. This time there were eighteen usable sessions, since one of the videos was damaged and could no longer be re-investigated. This section will deal with each of the three hypotheses of this Experiment in turn.

With regard to the first hypothesis, Table 2 presents the results of the hand shapes and how frequently they occur in each mode of representation. Per mode, the relative frequency of the number of gestures (%G) and that of the number of participants producing this shape (%P) in a particular mode of representation are indicated. Thus, 80% of all enactments have the shape ‘fist-like’ and 100% of the participants produced this shape. The final rows show both the relative and the absolute numbers for each mode of representation and every hand shape category. The right-most column states the total absolute frequencies per hand shape.

(Table 2) Summary of the different hand shapes per mode of representation, with the most frequent hand shape per mode of representation italicised and in bold

	Hand shape →	Fist- (like)	Flat hand	Point- ing	Ball	Pipe	Walk- ing fingers	Other	Total (#)
Enact	%G	80%	9%	3%	11%	7%	0%	3%	312
	%P	100%	44%	7%	61%	56%	0%	17%	18
Mould	%G	0%	59%	0%	12%	18%	0%	12%	17
	%P	0%	39%	0%	6%	17%	0%	11%	11
Trace	%G	4%	41%	47%	1%	3%	0%	4%	628
	%P	39%	100%	100%	22%	44%	0%	50%	18
Repres- entation	%G	9%	32%	2%	6%	2%	42%	8%	53
	%P	22%	39%	6%	17%	6%	17%	11%	15
Total	#G	254	309	303	40	44	22	38	1010
	%G	25%	31%	30%	4%	4%	2%	4%	100%
	#P	18	18	18	13	14	3	12	18
	%P	100%	100%	100%	72%	78%	17%	67%	100%

As can be observed in Table 2, in general, most gestures (628; 62%) are traces. Enactments also occur frequently (312; 31%) as compared to the other two modes of representation (mould: 17 (2%) and representation: 53 (5%)).

Also, Table 2 indicates there is a significant difference between the four modes of representation with regard to the shapes that occur in each mode ($\chi^2 = 1083,109$; $p < 0,001$). Most enactments are fist(-like) gestures. Obviously, the moulds are usually flat-hand shapes²; the representations most frequently are ‘walking fingers,’ and finally, traces usually have either a pointing shape or a flat hand³. However, it should be noted that the fact that the enactments are usually ‘fist(-like)’, and especially the representations are often ‘walking fingers’, is not likely to be generalisable to all enactments and representations. This result seems to be specific to the corpus of the present study.

Based on the findings in Table 2, hypothesis 1, *Gestures of the same mode of representation are more likely to be similar than those of two different modes*, seems to be correct. No unique gesture shapes have been found in the data and, with the exception of ‘trace’, in each mode of representation there was one shape that was more frequent than the other shapes. The mode of representation ‘trace’ has two possible hand shapes, which can both be viewed as a type of pointing (in German (as well as in English and Dutch), it is possible to point using a flat hand shape).

Regarding hypothesis 2 of this experiment, eleven gestures that were produced by at least 50% of the participants have been selected. Table 3 gives an overview of the actions accompanying these gestures and how frequently these shapes occur in the mentioned mode of representation. The table also shows the relative frequency of the gesture shapes in this mode of representation.

² As moulds ‘shape’ the air in 3-D, a flat hand shape of the hand is (almost) required.

³ There was no significant difference between these two shapes, occurring in the mode of representation ‘trace’: $t_{17} = -0,606$; $p = 0,277$ (paired samples t-test).

(Table 3) *Common gestures and the actions they represent. # indicates the number of occurrences; % represents this number relative to the total number of occurrences of this gesture*

Action in cartoon	Gesture (mode of representation)	#	%
Sylvester grabbing Tweety	Closing fist (enactment)	17	100%
Sylvester climbing up the drain pipe	Curled fingers, like holding pipe (enactment)	23	59%
Tweety holding/throwing down a bowling ball with both hands	Fingers slightly curled and spread like holding something large (enactment)	36	80%
Sylvester holding Tweety	Hand closed like holding something small in fist - vertical (enactment)	90	100%
Granny hitting Sylvester with her umbrella	Hand closed like holding something small in fist - diagonal/horizontal (enactment)	51	96%
E.g. Sylvester looking for Tweety by lifting carpets, etc.	Hand closed like index finger and thumb are holding something (enactment)	42	100%
E.g. Sylvester rolling down the street	Index finger extended, rest in fist (trace)	13 8	95%
E.g. Sylvester walking up and down the street	Index finger extended, rest relaxed (trace)	81	100%
E.g. Sylvester being kicked out by hotel guard	Slightly curled, spread fingers (trace)	59	84%
E.g. Weight hitting Sylvester	Straight, closed fingers (trace)	65	77%
E.g. Sylvester fleeing from train	Straight, slightly spread fingers (trace)	80	82%

In all enactments (the first six shapes), the action performed by the participant is of course the same as that of the character in the cartoon. The other gestures usually represent several actions, but the traces are (almost) always produced in the same direction as the movement in the cartoon. It seems logical that the hand shapes of the enactments tend to represent one action and the hand shape of the traces can refer to different actions: namely the enactments are exact copies of the hand movement the participants saw in the cartoon, while the traces are two-dimensional representations of actions, which can be actions of more than the hand. Therefore, it is interesting to observe that the enactments all represent an action of the hands only, while all of the traces refer to movements of the entire body. Thus, the movement of Sylvester grabbing Tweety (a movement of the hands only), is never represented by a trace, although it is theoretically possible to only refer to the trajectory of this movement in a gesture. Perhaps the actions represented by enactments were considered to be so important for the story-telling by the participants that they needed a copy in a gesture instead of only a representation of the frame of the object or the trajectory of the movement.

Based on these results, hypothesis 2, *The shape of a gesture is influenced by the way in which the action is presented to the speaker*, seems to be incorrect. The shape of a gesture does not seem to be influenced by the way in which the action is presented to the speaker, but rather by the action itself.

The third and general hypothesis of Experiment 2, though, *The shape of representational gestures is just as rule-bound as more general features of gestures are*, seems to be true. Many similarities could be found between the shapes of the gestures produced by the different participants and no unique gestures were found. Therefore, it seems that the shape of representational gestures has to follow a tendency, as does the gesture coincidence with speech. However, one should take into consideration that gestures that were not related to motion events were ignored in this study. Also, it is possible that non-representational gestures may produce different results.

4. CONCLUSION

In this paper we saw two experiments. The first investigated gesture placement in German, Dutch and English and the second was a detailed research of the shapes of gestures by Germans.

The results of the first experiment indicate that typologically similar languages can differ in their gesture placement. Namely Dutch, German and English are all classified as satellite-framed languages with regard to their speech according to Talmy's (1985) categorisation. This means that language typologies based on speech alone should be termed 'speech typologies', as their categorisation scheme may not apply to all aspects of language, such as gestures.

The second experiment showed us that gesture shape is connected to the mode of representation of the gesture. The way in which actions are presented to speakers if they recall an event does not seem to influence gesture shape. Rather, the type of event (e.g. is it an action of just the hand or of the entire body?) tends to be the prime stimulus for the shape of a speaker's hand when (s)he is gesturing about motion. Thus, the shapes are influenced by what the speaker is trying to convey.

In general, these experiments show that both gesture shape and gesture placement seem to be bound by certain (language-specific) tendencies. Differences were found between the German data and the data of studies including English and/or Dutch. Furthermore there were quite some similarities between the hand shapes of the gestures of the participants. If there were no tendencies governing hand shape, there would have to be vast differences between individual speakers and at least some shapes that were produced only by a single person should have been present. Yet, these results were not found, thus we can conclude that there must be rules or tendencies to gesture shape and placement.

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APPENDIX

Description of the clips in alphabetical order.

Bell boy

Granny calls downstairs to the lobby to have her bags picked up. Sylvester goes upstairs dressed as a bell boy and he picks up the suitcase and the covered cage he finds in the room. He throws away the suitcase and takes the cage into an alley, where he removes the cover. It turns out Granny hid inside the cage and she chases Sylvester down the street, hitting him with her umbrella.

Bowling ball

Sylvester first walks up and down the street, deliberating how he can get up to Tweety's window. He then climbs up to Tweety's window through a drainpipe. Tweety sees this and throws a bowling ball into the pipe. The ball crashes into Sylvester, causing him to swallow it. Sylvester flies out of the drain with the ball inside his stomach and he rolls down the street straight into a bowling centre.

Entrance

Sylvester runs down his building and crosses the street into Tweety's building. He is kicked out by someone and lands in a garbage heap.

Granny

Sylvester climbs up to Tweety's window on top of the drainpipe. Tweety is swinging on his swing in his cage on the window sill. When he sees Sylvester, Tweety flees inside and Sylvester runs after him. Sylvester is then quickly thrown out of the window by Granny, who shouts after him, waving her umbrella.

Monkey

Sylvester sees an organ grinder with a monkey and lures the monkey around the corner of a wall. There he steals its clothes and climbs up the drainpipe dressed as a monkey. Tweety flees inside and Sylvester looks for him in the apartment. There, Granny gives him a penny and as he thanks her by lifting his hat, she hits him over the head with her umbrella.

Swing

Sylvester first makes mathematical drawings of his plan, before he attempts to swing across the street from his building into Tweety's. Unfortunately, he miscalculated and he crashes into the wall next to Tweety's window and falls down.

Tram

Sylvester tries to make his way to Tweety's window by climbing up an electricity pole and rope dancing across the street. Then a tram comes up and chases Sylvester, giving him an electric shock every time it catches up to him. As the camera moves down, it turns out Granny and Tweety are steering the tram.

Weight

Sylvester builds himself a see-saw-like construction, on which he places himself. He then throws a heavy weight on the other side of the see-saw and flies up to Tweety's window. There he grabs the bird and falls down again on the see-saw. This causes the weight to fly up again and as Sylvester walks away with Tweety, the weight hits his head and Tweety is free again.

Abduction or Inertia? The logic of syntactic change*

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Two assumptions often considered principles of inquiry in historical generative syntax are that linguistic change is abductive (Andersen 1973) and that syntax is inert (Longobardi 2001). In this paper it is demonstrated that these two notions, if meaningfully interpreted, are not compatible: if we wish to develop a coherent theory of language acquisition and change, we must abandon one or the other. The conclusion reached is that neither abduction nor inertia is a necessary or useful concept in diachronic syntax. I suggest that we should abandon both, instead treating syntactic change on its own terms.

Two assumptions often considered principles of inquiry in historical generative syntax are that linguistic change is abductive (Andersen 1973) and that syntax is inert (Longobardi 2001). In this paper it is demonstrated that these two notions, if meaningfully interpreted, are not compatible: if we wish to develop a coherent theory of language acquisition and change, we must abandon one or the other, with important consequences for the way we conceptualize syntactic change.

The paper is structured in four sections. In the first I present abduction, as introduced into the linguistic literature by Andersen (1973), and outline problems with the notion. Section 2 does the same for the concept of inertia. In Section 3 I outline how, and why, the two concepts are mutually incompatible. Section 4 concludes.

1. ABDUCTION AND ITS PROBLEMS

The notion of abduction as a form of inference originated with the American semiotician and philosopher Charles Sanders Peirce. Andersen (1973) was the first linguist to incorporate it into a theory of language change. The following is his exposition (highly problematic, as I will demonstrate), which many linguists have followed (e.g. Lightfoot 1979; McMahan 1994; Roberts 2007: 124–5).

Andersen (1973: 774–776) distinguishes three modes of inference: deductive, inductive, and abductive. He proposes that they can be distinguished using Aristotelian syllogisms. Deductive inference, a familiar concept, ‘applies a law to a case and predicts a result’ (1973: 775), as in the syllogism in (1).

(1)	Case	Socrates is a man		P
	Law	All men are mortal		$P \supset Q$
			\approx	
	Result	Socrates is mortal		$\therefore Q$

Inductive inference, in Andersen’s terms, ‘proceeds from observed cases and results to establish a law’ (1973: 775), as in (2).

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(2)	Case 1	Socrates is a man	P_1
	Result 1	Socrates is mortal	Q_1
	Case 2	Abraham Lincoln is a man	P_2
	Result 2	Abraham Lincoln is mortal	Q_2
	Case 3	Michael Jackson is a man	P_3
	Result 3	Michael Jackson is mortal	Q_3
			\approx
	Law	All men are mortal	$P \supset Q$

Crucially, Andersen claims (1973: 775) that ‘these two modes of inference share two important characteristics: first, the conclusion contains nothing which is not given in the two premises; second – and this is a natural corollary – if the premises are true, the conclusion is certain to be true.’

Abductive inference, the mode that is key to Andersen’s proposal, ‘proceeds from an observed result, invokes a law, and infers that something may be the case’ (1973: 775). This is illustrated in (3), which can be seen to be equivalent to the logical fallacy of affirming the consequent.

(3)	Result	Trout swim	Q
	Law	All fish swim	$P \supset Q$
			\approx
	Case	Trout are fish	$\therefore P$

Andersen claims that a) unlike induction and deduction, abduction is fallible, and b) abduction can form hypotheses and ‘originate new ideas’, while deduction and induction are merely processes of hypothesis *testing* (1973: 775). It is easy to demonstrate that abduction is indeed fallible. If the result ‘Trout swim’ is replaced by ‘Otters swim’ in the abductive syllogism (3) above, the conclusion becomes ‘Otters are fish’. Despite the correctness of the premises, the conclusion is false, showing that the mode of reasoning involved is flawed. Andersen takes abduction to underlie language acquisition, and such flawed abductions to underlie language change.

There are serious problems with this model, however. Indeed, Deutscher (2002) demonstrates that Andersen (1973) was critically confused about abduction, and concludes (2002: 484) that ‘the term “abductive innovation” is neither adequate nor necessary for a typology of linguistic innovations’. To begin with, Deutscher shows that Andersen’s claim that deductive and inductive inference are both infallible is clearly false. To see that enumerative induction is also fallible, we might try replacing the word ‘mortal’ with ‘dead’ in the inductive syllogism (2) above. The conclusion then is ‘All men are dead’; once again false, despite the correctness of the premises. Both enumerative induction and abduction are forms of fallible *ampliative* inference in modern philosophical terminology (Deutscher 2002: 471). This error is Andersen’s, not Peirce’s, since Peirce explicitly differentiated deductive inference from the fallible inductive and abductive modes (Deutscher 2002: 477). Indeed, the ‘problem of induction’ has been widely recognized in philosophy since Hume (1910 [1748]).

Furthermore, Peirce himself was not terminologically consistent throughout his life: Burks (1946: 301) observes that ‘the variation to be found in his views on abduction is ... typical of Peirce’s writings’. Specifically, in his early work, Peirce ‘felt bound to express his very general notions within the straitjacket of Aristotelian logic’ (Deutscher 2002: 471); cf. the syllogisms (1)–(3) above. In his later work, however, Peirce’s notion of abduction was much more general: he viewed it as the process by which any creative hypothesis was formed (Deutscher 2002: 474). This later view is given in (4).

- (4) Peirce's later notion of abduction: 'The surprising fact, C, is observed; But if A were true, C would be a matter of course; Hence there is reason to suspect that A is true.'

This notion is in no way coextensive with the syllogism in (3): what is 'a matter of course' has nothing to do with laws, cases or results. Andersen (1973), however, mixes up the two notions – hence his claim that induction and deduction are processes used only for testing hypotheses formed by abduction.

This terminological mess has led to mass confusion among historical linguists. Consider the following example of abductive reasoning given in Trask's *Dictionary of historical and comparative linguistics* (2000):

'I have heard people saying things like "books" and "trees"; therefore there must be a rule of English that nouns are pluralized by adding -S.'

This is not an example of abductive inference but of enumerative induction in its narrowest, Aristotelian sense, as in the schema in (2): jumping from cases and results to infer a law (Deutscher 2002: 481). Although it may be consistent with Peirce's later notion of abduction as given in (4), it is in no way consistent with the schema in (3). Another problematic definition is that given in the glossary to Roberts (2007):

'Change caused by the fact that learners only have access to the output of a generative grammar ... and to Universal Grammar ... with no direct access to the grammar itself. The combination of primary linguistic data ... and Universal Grammar may lead the learner to abduce a system which is distinct from that underlying the primary linguistic data by reanalysis ...' (2007: 445)

The notion of abduction used here is essentially as broad as the notion of change itself, since it is entirely possible for deductive and/or enumerative-inductive inference to lead the learner to postulate a different system from that giving rise to the primary linguistic data (PLD). The insight that children have no access to the grammar underlying the language they are trying to acquire is, of course, an important one, and crucially associated with Andersen (1973) as well as Lightfoot (1979), but this was not what Peirce (or Andersen) ever meant by 'abduction'.

Deutscher concludes that the term is misused and indeed useless in linguistics, and that the way linguists use it is out of step with its more general use in philosophy and science, where the term has largely been replaced by the more general notion of 'inference to the best explanation' (cf. e.g. Lipton 2000). He does, however, make one important qualification:

'The questions that Peirce raised about the nature of inference still stand at the core of any theory that attempts to explain language learning and change. How are hypotheses for new linguistic rules formed in the mind? How does a language learner decide between alternative rules that can explain the same surface form? What, from the point of view of the language learner, represents the 'best explanation' for his/her input?' (2002: 484).

The notion of abduction may not even be useful in this sense, though. Lass (1997: 335–336) expresses doubt that abduction or indeed any form of inference can be used to model language change, given that in his view language change is not carried out by an agent who can 'act' or 'abduce'. Even assuming that language change can be reduced to language acquisition (which Lass himself (1997: 337) vigorously denies), it is far from obvious that children *choose* to acquire language. There is substantial experimental evidence (e.g. Kisilevsky *et al.* 2003) that the process of language acquisition seems to begin before birth, suggesting that it makes more

sense to view it as an automatic biological-mechanical algorithm in the tradition of cognitive science rather than as the result of any conscious action on the part of the acquirer.

Although a much-mentioned buzzword, then, it is not clear that ‘abduction’ in fact means anything at all, or that it is of any use in the study of language change.

2. INERTIA AND ITS PROBLEMS

The origins of the notion of inertia as applied to language change lie in work by Keenan (1994, 2002, 2009), who expresses the idea as in (5).

- (5) ‘Things stay as they are unless acted upon by an outside force or DECAY’
(Keenan 2002: 327; emphasis his)

Longobardi (2001) goes a step further, proposing what he terms the ‘Inertial Theory’ of syntactic change. He claims this has empirically testable consequences, and might turn out to be ‘empirically false or only partly correct’ (2001: 278). The cornerstones of the theory are set out in (6)–(8).

- (6) ‘syntactic change should not arise, unless it can be shown to be *caused* – that is, to be a well-motivated consequence of other types of change (phonological and semantic changes, including the disappearance of whole lexical items) or, recursively, of other syntactic changes’
(7) ‘linguistic change proper ... may only originate as an interface phenomenon’
(8) ‘*syntax*, by itself, is diachronically completely inert’
(Longobardi 2001: 277–278; emphases his)

The idea of inertia has received widespread attention in the literature on diachronic syntax; it is discussed by, among others, Lightfoot (2002: 130), Hróarsdóttir (2002, 2003), Ferraresi & Goldbach (2003), Ingham (2006: 257), Roberts (2007: 232), Jäger (2008), Waltereit & Detges (2008), Biberauer & Roberts (2009: 74), Reintges (2009), Axel & Weiß (2010), Sundquist (2010), Breitbarth *et al.* (2010) and Meisel (in press).

It seems desirable, following the view of Lightfoot (1979, 2002) that there are no principles of history and that ‘there is no theory of change to be had independent of theories of grammar and acquisition’ (2002: 127), to reduce the Inertial Theory to properties of the faculty of language and to acquisition. However, it turns out that such a reduction is impossible. This is so because when working on syntactic change we have to assume (9) and (10).

- (9) Acquirers do not have access to the grammar of the ‘target’ language.
(10) Experience plays a direct role in the acquisition of syntax.

These assumptions are uncontroversial: acquirers are not telepathic, and the acquisition process makes use of evidence. As noted in Section 1, the observation in (9) was an important part of Andersen (1973). Now in order for the Inertial Theory to work, (11) would also have to hold:

- (11) The acquisition of syntax is a deterministic process.

The intended meaning of (11) is that, for any temporally ordered set of sentences (PLD), any and all learners exposed to it will converge on the same grammar (a one-to-one or many-to-one mapping; cf. Lightfoot 2006: 89): there is no ‘‘imperfect’’ learning or ‘‘spontaneous’’ innovation’ (Longobardi 2001: 278). Clearly (11) is necessary for any version of the Inertial Theory, since imperfect learning and spontaneous innovation cannot be said to be caused by

other types of change or by interface phenomena: the falsity of (11) entails the falsity of (6)–(8). It must be noted, however, that many algorithms for syntactic acquisition (e.g. Gibson & Wexler 1994, Yang 2002) do not assume that the acquisition of syntax is deterministic in this way. While the unambiguous triggers model of Fodor (1998) and cue-based models such as that of Lightfoot (1999, 2006) are compatible with determinism, the Trigger Learning Algorithm of Gibson & Wexler (1994), upon which the diachronic model of Niyogi & Berwick (1995) is based, relies on the existence of local maxima to explain change: the learning algorithm contains a ‘roll of the dice’ which may lead learners irretrievably astray in a certain proportion of cases. Similarly, the probabilistic component of the model developed by Yang (2002) may lead to the acquirer assigning different weights to certain hypotheses than the individuals from whose competence the PLD is generated. It is also not the case that (11) is coextensive with the Inertial Theory, since (11) makes no predictions about any relation between grammars diachronically, unlike the statements in (6)–(8).

Assuming (9), (10) and (11), the following scenario illustrates how the Inertial Theory must be false: imagine a child whose parents’ grammar requires V-to-C movement in *wh*-questions. Now let us suppose that the parents never needed or wanted to ask direct questions in the presence of the child (for whatever reason), and therefore that the PLD includes no relevant examples. The child therefore fails to acquire V-to-C movement in *wh*-questions in her grammar. The scenario may be unlikely to occur, but, crucially, cannot be argued to be impossible for any principled reason.

Syntactic change has clearly occurred in the above scenario. Is this change ‘caused’, in the terminology of (6)? The answer is unclear: if there is a cause, it is clearly whatever motivated the fluctuation in the trigger experience. But this is not necessarily a well-motivated consequence of other types of change. Here it is essentially chance that has ‘caused’ the change; even assuming determinism in acquisition as in (11), there is simply no guarantee that the PLD will contain relevant examples. The claim that syntactic change does not arise unless caused, as phrased in (6), then, makes predictions that are too strong. The scenario is even more of a problem for (7), since there can be no question that the change in this scenario might have originated as an ‘interface phenomenon’: no semantic or morphophonological change preceded it. Finally, if (6) and (7) are false of this scenario, then (8) is also false: syntax is not ‘diachronically completely inert’. While the assumption in (11), that acquisition is deterministic, *may* be tenable, then, the Inertial Theory as proposed by Longobardi (2001) is not.

There may be a deeper problem even with the application of the ‘pretheoretical’ notion of inertia. (5), Keenan’s claim that things stay as they are unless acted on by an outside force or decay, applies not only in linguistics, as he stresses; in fact, the formulation is very similar to that of Newton’s (1687) first law of motion. The problem is that, if the Chomskyan view that traditional conceptions of ‘language’ are incoherent is accepted (as, implicitly, by Keenan 2002 and Longobardi 2001, and those in the generative community making use of the notion), there is no clear sense in which a language is diachronically a ‘thing’. Under this view, I-language is the object of study, and each generation has to acquire a grammar anew, as Lightfoot (1979, 2002: 117, 2006) has consistently argued. In other words, if the I-language thesis is accepted and there is no meaningful entity above the level of the individually instantiated grammar, there is no reason we’d *expect* inertia to hold in language change.

Inertia, and the Inertial Theory of Longobardi (2001), therefore suffer from a number of crippling problems, suggesting that, like abduction, the concept may be of little use in the study of language change.

3. THE INCOMPATIBILITY OF ABDUCTION AND INERTIA

As we have seen, the notions of abduction and inertia are highly problematic in their own right. In this section I demonstrate that the two notions are mutually incompatible: no theory

of abduction with empirical content is compatible with any theory of inertia with empirical content, as the assumptions that underlie them are conflicting.

In particular, the assumption of determinism in (11), and therefore also the Inertial Theory, cannot easily be reconciled with abduction or inference to the best explanation. Broadly speaking, abduction, and inference to the best explanation, emphasize the creativity of acquirers, while determinism denies the possibility of such creativity. Recall that (11) is intended to mean that, for any temporally ordered set of sentences (PLD), any and all learners exposed to it will converge on the same grammar. But if learning takes place by abduction or inference to the best explanation, how can this be guaranteed? As emphasized by Deutscher (2002), Peirce's late notion of abduction as in (4) and inference to the best explanation are forms of ampliative inference, and as such are, *definitionally*, not deductively valid; see, for example, the definition in the *Routledge Encyclopedia of Philosophy* (Craig 1998). So if learning takes place by abduction or inference to the best explanation, unless all people can be guaranteed to abduce in precisely the same way (cf. Lass 1997: 335) it cannot be deterministic, and syntax therefore cannot be inert.

One might try to save the compatibility of abduction and inertia in the following way: one could argue that abduction/inference to the best explanation applied regularly in language acquisition, in that, given a set of conditions R , the criteria for the best explanation would always apply in the same way and the same explanation would be adduced by each acquirer. This would equate to adopting the idea, mentioned with some scepticism by Lass (1997: 335–6), that all people could be guaranteed to abduce in a uniform manner. Notationally this would look something like the following:

$$\begin{array}{l}
 (12) \quad P \supset Q \\
 \quad \quad R \supset (Q \supset P) \\
 \quad \quad Q \\
 \quad \quad R \\
 \hline
 \quad \quad \therefore P
 \end{array}$$

In other words, there exists a law $P \supset Q$ (as in the syllogistic schematization of (3) in Section 1), say 'If x is a man, then x is mortal' or 'If x is the head of a head-final phrase, then the phrase that is x 's complement is head-final' (cf. Holmberg 2000, Biberauer, Holmberg & Roberts 2007, 2008 for discussion of this putative linguistic universal, which is in fact certainly more complex than this if it holds at all). But in a certain set of circumstances, represented by the boundary conditions R , it is legitimate to flip the rule around and to infer that 'If x is mortal, then x is a man' or 'If the phrase that is x 's complement is head-final, then x is the head of a head-final phrase'. (Biberauer, Holmberg and Roberts (2007, 2008) demonstrate that the latter is *not* a universal.) Then if R obtains, and if Q obtains (i.e. if x is mortal or if the phrase that is x 's complement is head-final), then we infer P , that x is a man or that x is the head of a head-final phrase. While of course this system isn't guaranteed to produce 'truth', it is fully compatible with the assumption of determinism in (11). Assuming that $R \supset (Q \supset P)$ is shared by all acquirers, whenever R and Q are both the case, P will also be.

What's the problem with this solution? Well, in one important sense there is no problem at all: it's a deductively valid inference. Crucially, however, if we apply this logic then we have reduced this instance of 'inference to the best explanation' to deductive inference. But since inference to the best explanation is definitionally *ampliative*, what we've argued is actually that if language acquisition works in this way it is *not* a case of ampliative inference, inference to the best explanation or abduction, but rather a deductive process. It then becomes redundant and meaningless to refer to the acquisition process as 'abductive'. By

formulating abductive inference in such a way as to be compatible with the determinism of (11), we have in fact done away with the notion of abduction entirely.

Alternatively, we could abandon the notion of determinism in (11), and with it any notion of ‘inertia’, whether that of Keenan (1994, 2002, 2009) as in (5) or that of Longobardi (2001) as in (6)–(8). But (11) is an ontological claim, and if we deny it, we are making the opposite claim: that there are random ‘rolls of the dice’ involved in language acquisition; cf. Bresnan & Deo’s (2001) ‘Fallacy of Reified Ignorance’ and the discussion in Hale (2007). This amounts to abandoning any hope of coming up with a fully causal explanation for acquisition phenomena, and to abandoning Popper’s Principle of Causality: ‘the simple rule that we are not to abandon the search for universal laws and for a coherent theoretical system, nor ever give up our attempts to explain causally any kind of event we can describe’ (Popper 1968: 67; cf. the discussion in Lass 1980: 101–103). This does not necessarily mean that insight into the patterns behind the data is impossible in linguistics, as Lass (1980) argues; it could conceivably be the case that this deductive-nomological mode of explanation is inappropriate to language acquisition. However, even if (11) turns out to be empirically untenable (and I know of no evidence falsifying it for syntax), there is still a case to be made that something like it should be adopted on methodological grounds, as is done in e.g. microeconomic theory, where the many contingent factors affecting individuals’ decisions are abstracted away from and uniformity is assumed. Such a methodological decision is implicitly taken in general linguistic theory, where it is normally assumed that whatever constitutes the human capacity for language is biologically invariant across the species, despite the fact that other organs (e.g. the eye) are known to vary between individuals in subtle ways. In other words, perhaps it’s methodologically more responsible to argue, as Einstein (1971 [1926]) put it in a letter to Max Born regarding quantum mechanics, that ‘*He* does not throw dice’.

4. CONCLUSION

In Section 1 I argued, following Deutscher (2002), that the notion of ‘abduction’ in linguistics is confused, misused, and out of step with philosophy and other sciences. It may well be the case that abduction (or inference to the best explanation) is not relevant to language acquisition at all (Lass 1997). In Section 2 I argued that the notion of ‘inertia’, insofar as it has content as a hypothesis, e.g. the Inertial Theory of Longobardi 2001, cannot hold if we take even a broadly Chomskyan world-view, since it presupposes a relation between grammars diachronically that cannot be guaranteed to obtain. Even a weaker claim, the assumption of determinism in acquisition (11), is far from uncontroversial (cf. also Walkden 2010). In Section 3 I argued that no version of inertia with empirical content is compatible with any version of abduction (or inference to the best explanation) with empirical content, since the assumption that language acquisition proceeds deterministically excludes the possibility that the type of inference involved is ampliative.

My conclusions for syntactic change are: The notions and buzzwords surrounding ‘abduction’ and ‘inertia’ are unhelpful, and it is a logical necessity to abandon at least one of them. In my view, we should stop talking about abduction, we should stop talking about inertia, and we should start taking seriously the task of coming up with syntactic learning algorithms that are compatible with what we know about language acquisition and language change. Borrowing terms and metaphors from philosophy and other sciences may be useful on occasion, but in the case of ‘abduction’ and ‘inertia’ it has led only to confusion and time-wasting. Sometimes it’s better to talk about language on its own terms.

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Lexical Development of German-Turkish bilinguals: A comparative study in written discourse

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This longitudinal study presents the contrastive analyses of lexical development of Turkish-German bilinguals in written discourse in respect to lexical richness and diversity. In order to compare the different text lengths and the relation of types and tokens, as measurement methods, Guiraud (G) and Advanced Guiraud (AG) are used, which factor in age, genre, language and (Turkish) instruction and are proven with an analysis of variance (one way). Results show that lexical measures of diversity, word and text length are sensitive to age. Genre and Turkish instruction seems to play a limited role in lexical usage.

1. INTRODUCTION

This paper analyses the “Lexical Development of German-Turkish bilinguals: A comparative study in written discourse”. This study is an empirical analysis of corpus data, which were collected through a cross-linguistic multilingual development study of trilingual 7th, 10th and 12th graders at a “Gymnasium”, ‘college preparatory’ in Berlin¹. Additionally, questionnaires are also included into the analysis to ascertain sociolinguistic background information of pupils.

Previous studies in lexical development and richness were mostly focused on monolinguals. In this field, only a few studies were based on bilinguals and the effect of Turkish instruction on the linguistic development of bilinguals. The focus of this longitudinal study is on the measurement problems of lexical richness and the lexical development of bilinguals in Germany with a Turkish migration background. This paper is based on one of the aspects of an ongoing project of later language development and multiliteracy in first, second and third languages (LLDM and MULTILIT). It aims to characterise the development of lexicon in L1 Turkish (mother tongue, usually the weaker in written language) and L2 German (usually the dominant written language) of second and third generation Turkish-German bilingual adolescents born of immigrant parents in Germany.² Furthermore, the correlations of Turkish instruction will be analysed as far as possible.

It has been shown in different studies that measuring the lexical richness and development is difficult for many reasons. There are various methods to measure lexical richness in spoken or written discourse. This study is a preliminary step to establish these methods with bilinguals within the frame of the LLDM and MULTILIT projects. We compare lexical diversity and text length in both languages in written discourse and in two genres (narrative and expository).

1 The Project Later Language Development of Multilinguals (LLDM, 2007 - 2009, Free University of Berlin), was coordinated by Carol Pfaff and Mehmet Ali Akinci and funded by DAAD-PHC and the ongoing project Multiliteracy (MULTILIT 2010-2012, University of Potsdam & Free University of Berlin.) is coordinated by Christoph Schroeder and Mehmet Ali Akinci and funded by DFG-ANR.

2 The first study with the available data was based on L1 Turkish by Pfaff *et al.* (2010).

2. METHODOLOGY

Before introducing the methodology of this study we want to establish what lexical richness (LR)/ lexical diversity (LD) is. There are many different approaches for defining these items. As noted by McCarthy & Jarvis (2007), among others, LD is often used as an equivalent to lexical richness, lexical variation and vocabulary diversity. "Lexical diversity (LD) can be described as the range and the variety of vocabulary deployed in a text by either a speaker or a writer" (McCarthy & Jarvis 2007: 459). LD is relevant for a wide range of aspects, such as writing skills, vocabulary usage and lexical knowledge. It describes the quality of vocabulary content of the learner's output.

The indicators of the LR in a text are the amount of 'low frequency' words used, the relation between types and token, range of vocabulary and command of different semantic fields.

2.1. Measuring lexical richness

Lexical richness is a phenomenon that has been traditionally measured by a wide variety of different methods. The measurement of lexical diversity has been often calculated with so-called Type Token Ratio (TTR), which shows the ratio of different word types and the total text length of a spoken or written discourse. On the other hand, it has been criticised for its instability and sensitivity to text length (see Daller *et al.* 2003: 199f). "Thus, when TTR is used to compare any two texts, the longer text generally *appears* to be less diverse" (McCarthy & Jarvis 2007: 460, emphasis in original). Therefore, other methods have been tested and it has been proven that they are not producing reliable information about lexical diversity. Recently, *vocd* (vocabulary diversity), a computational measuring tool of CLAN (MacWhinney 2000), did not perform to the expectations of measuring lexical richness either (see McCarthy & Jarvis 2007 for a detailed discussion).

In this study, different text lengths will be compared, but TTR makes it difficult to examine texts with contrastive lengths, as it has been observed that the ratio between types and tokens decreases by increasing text lengths. We believe that the index of Guiraud (G)³ could be a better measure than TTR and it "seems to be the most stable for language learner data" (Daller *et al.* 2003: 200). Jarvis (2002) stated that it is "designed to adjust [its] respective lexical indices in accordance with the length of the text, so that short and long texts are comparable."

According to Daller *et al.* (2003), besides the quantitative measurement, a qualitative measurement will also be added to the methods by including the analysis of basic and advanced vocabulary (advanced Guiraud (AG)⁴).

From a linguistic perspective, the problem is the definition of basic/advanced vocabulary. As stated in Arnaud (1984), basic vocabulary is considered to be a list of frequent words used at the college preparatory level. As noted by Daller *et al.* (2003: 201) and others, advanced vocabulary is uncommon and can be an indicator of higher language proficiency. Meara and Bell (2001) claim that "[p]eople with big vocabularies are more likely to use infrequent words than people with smaller vocabularies." Moreover, structural differences make this problem even more complicated (as in the present study Turkish vs. German). The methods will be adapted from those, which were investigated in the study of Daller *et al.* (2003). For German, a basic word list for German as a foreign language (Oehler 1992) and for Turkish, a vocabulary list, which was created by seven teachers of Turkish as a foreign language, will be used.⁵

3 The index of Guiraud uses the square root for relating types and token: $G = \text{types} / \sqrt{\text{token}}$ (see Guiraud 1954).

4 AG=advanced types/ $\sqrt{\text{advanced token}}$ (see Daller *et al.* 2003).

5 For the study of Daller *et al.* (2003) a group of seven teachers of Turkish as a foreign language were considered to be judges. They classified the given types of the study in basic and advanced vocabulary. Later,

2.2. Data collection

The procedures for data collection and the analysis of the study were adapted from those used in a major international cross-linguistic study of first language development of monolinguals carried out in seven countries by Berman and Verhoeven (2002, 2005, 2007) as summarised by C. Goldfus (2005), review of Berman (2004).

A video without dialogue about everyday problems between people at school was shown. There are sounds in the background, like a bell ringing, students laughing, etc. It takes place at a generic school with a class of pupils and teachers dressed in non-distinctive clothing. The video shows copying during a test, fighting during breaks or in the school yard, vandalism, ostracism and taking money dropped by a teacher.

The video is the basis for the data elicitation. The pupils were asked to produce oral and written texts in German, English and L1 (Turkish) in two modes (oral and written) and in two genres: narrative and expository. It was made clear that pupils should not retell the events in the film, but mention their personal experiences and general opinions parallel to the video.

The two text genres, expository and narrative, were chosen because they provide information on the students' language skills and are the most commonly found in school curricula, i.e. expository and narrative writing.

As stated in Pfaff (2009) all the participants were requested to complete questionnaires in German. The goal of the questionnaires was to gather information on individual language practices outside of school and other background information like regional, educational and occupational background of parents, where Turkish was learned, initial contact with L2 language, choice with interlocutors and cultural and literacy practices in L1, L2, L3. It also includes a self-rating of their proficiency in the languages they speak (for further discussion about questionnaires see Baker 2006).

3. THE STUDY: DEVELOPMENTAL COMPARISON OF LEXICON IN WRITTEN DISCOURSE IN TURKISH AND GERMAN OF BILINGUAL ADOLESCENTS

3.1. Participants

All the pupils were born in Berlin, in a multiethnic neighborhood⁶ with a Turkish migration background. Their family language is Turkish (L1) and German is an (early) second language (L2) (for the further discussions see Pfaff 2009: 217). The target groups are 10th and 12th graders, attending regular classes in Berlin. We analysed a longitudinal sub-sample of narrative and expository written texts of seven pupils in Turkish and German: 10th & 12th grades (2008, 2010) from a Gymnasium in Berlin-Kreuzberg.

In the questionnaires, some children reported having had Turkish instruction. In some schools, Turkish is offered as an additional foreign language⁷, but it often occurs outside of

their judgments were checked against the basic list of Turkish (Tezcan 1988). This vocabulary list didn't include all the vocabulary that we found in our data. We used the list of words in the texts analyzed by Pfaff *et al.* (2010), which has been judged by two native speaker linguists Mehmet Ali Akinci and Seda Yılmaz.

6 Inner-city districts of Berlin – such as Kreuzberg, Neukölln or Wedding – have a large migrant population of mostly Middle-Eastern origin (Turkish, Arabic, Kurdish, and Persian). In Kreuzberg for example 84.4% of the pupils had a home language other than German. Sources: German Federal Office for Statistics, Microcensus 2005 on the population with a migrant background in Germany; German Federal Ministry of Internal Affairs, Report of the Independent Committee on Immigration; see also Wiese (2009).

7 In Germany, Turkish instruction differs according to the state, school system, and institution (Turkish Consulate or educational system). As a result Turkish is offered as afterschool classes as “Muttersprachlicher Unterricht” ‘mother tongue instruction’ (in elementary school) and “Ergänzungs- und Wahlpflichtunterricht” ‘additional/supplement instruction’, such as Turkish as a foreign language (secondary school). In order to get into a class of Turkish as a foreign language, pupils must have knowledge of Turkish at a certain language proficiency. Basically, it is intended for children, who have Turkish as a mother tongue, but it is also open to

the regular school curriculum, i.e. in after school classes (for discussion see Schroeder 2003). Furthermore, some of the pupils in this study take Turkish as a second foreign language. They all have had different Turkish instructions: Some take Turkish in an elementary school, some as a second foreign language in secondary school, while others did not have Turkish instruction (see table 1).

(Table 1) *Background information of the pupils*

PSEUD	SEX	AGE 10 th	AGE 12 th	TR INSTR	PLACE OF BIRTH	PLACE OF RESI- DENCE	L1	First exposure to German
VED	m	15;08	17;08	No	Berlin	Kreuzberg	TR	Kindergarden
ASI	f	17;08	19;08	No	Berlin	Kreuzberg	TR	School
NES	f	16;04	18;04	No	Berlin	Kreuzberg	TR	School
SER	m	16;02	18;02	Elementary	Berlin	Treptow	TR	Family
ISM	m	16;01	18;01	Elementary	Berlin	Kreuzberg	TR	Family
HAC	f	16;01	18;01	Secondary	Berlin	Kreuzberg	TR	Family
YAS	m	16;02	18;02	Elementary	Berlin	Kreuzberg	TR/KU	Family

3.2. Research questions and hypotheses

Our research is oriented on the following questions pertaining to the lexicon:

- a. Do lexical measures of diversity, word and text length differ according to genre (narrative vs. expository)?
- b. How does the lexical usage of bilinguals differ in Turkish and in German?
- c. What, if any, cross-linguistic influences in the lexicon are found in Turkish and German?

On the basis of our literature review, we expect measurements of text length and lexical richness to reveal expected differences according to age/grade, genre and the extent of instruction in Turkish. We formulated the following hypotheses for both languages (a-e), for German (f) and for Turkish (e), which we will test:

With increasing age, the text length increases

With increasing age, the vocabulary becomes more diverse and advanced.

Expository texts are longer than narrative texts.

Expository texts have more diverse and advanced vocabulary than narrative texts.

(As a result of typological differences) text length is longer in German than in Turkish.

Having Turkish instruction does not make a difference in text length and use of advanced vocabulary in German texts.

The pupils with Turkish instructions produce longer texts in Turkish and more advanced vocabulary than those without instructions.

3.3. Results

Using the methods of G and AG (Daller *et al.* 2003) we carried out an analysis of variance (one-way) and analysed text length with regard to age, genre, language and instruction in Turkish.

Figure 1: Text length (index of G) by age, genre and language

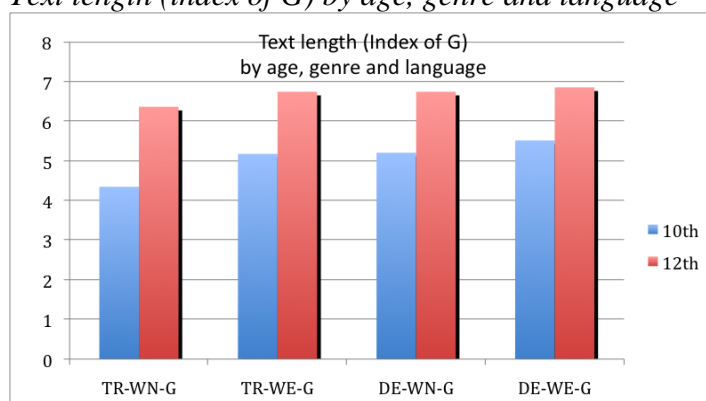
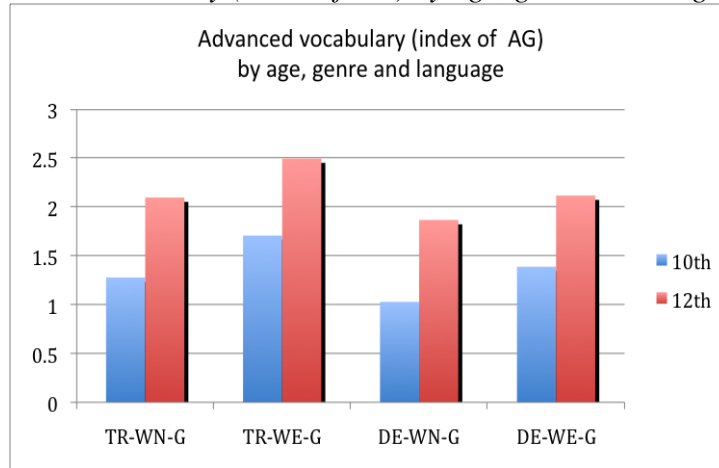


Table 2 shows that there is a high significance in age – the older the pupils get, the longer the text they produce ($p=0.01^{***}$; see also figure 1). It is significant ($p=0.05^*$) that in general German texts are longer than Turkish. In the 10th grade the difference can be seen clearly, whereas in the 12th grade the difference is not significant.

The average expository text length is in both languages in the 10th and 12th grade longer than in narrative texts, but statistically not significant ($p=0.83$ n.s.). German expository texts of the 12th graders have almost similar length (see figure 1). Our analysis of basic and advanced vocabulary shows heterogeneous results: Parallel to the degree of the text lengths, the increase of advanced vocabulary usage with age is highly significant ($p=0.01^{***}$).

The usage of advanced vocabulary is higher in both languages and grades in expository texts (see figure 2), but statistically not significant ($p=0.11$ n.s.). However, there is a remarkable difference between the usage of advanced vocabulary in Turkish and German in the 12th grade, which will be discussed in detail in the following section.

Figure 2: Advanced vocabulary (index of AG) by age, genre and language



According to the pupils' questionnaires, we compared two groups of pupils, those who had Turkish instruction, and those who did not. While there are no significant differences in the text length ($p=0.354$, n.s.) and in the use of advanced vocabulary (0.813, n.s.) in German texts, surprisingly, it appears that having had Turkish instruction does not make a significant difference in text length ($p=0.556$ n.s.) and lexical diversity ($p=0.167$, n.s.; see figure 3): 12th graders expository texts in Turkish are longer than the texts produced by the pupils who have Turkish instructions. The amount of advanced vocabulary is even slightly higher in students who did not have any Turkish instruction, except in the 10th graders narrative texts (see figure 4).

Figure 3: Advanced Vocabulary with and w/o Turkish Instruction

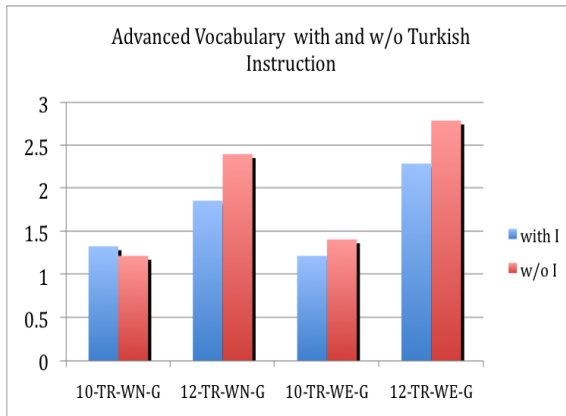
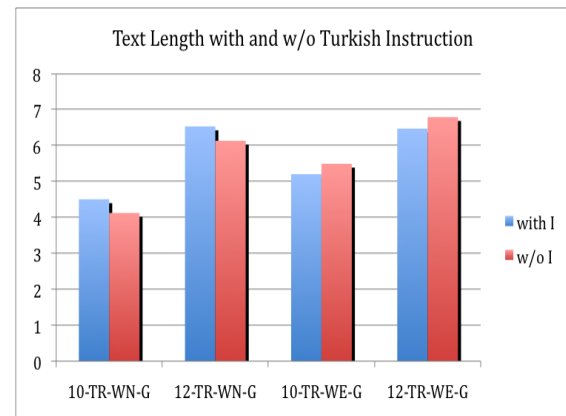


Figure 4: Text Length with and w/o Turkish Instruction



(Table 2) *Differences in regard to text length (G) (Anova one way)*

Measure	Mean	F-ratio	F-prob
Age	37,25	43,71	.000
Genre	1,56	1,83	.184
Language	3,79	4,45	.04
TR instruction (DE texts)	1,07	.89	.354
TR instruction (TR texts)	.417	.359	.556

p < 0,05*)=significant

(Table 3) *Differences in regard to advanced vocabulary (AG) (Anova one way)*

Measure	Mean	F-ratio	F-prob
Age	11,79	43,46	.000
Genre	.72	2,65	.11
TR instruction (DE texts)	.035	.057	.813
TR instruction (TR texts)	.67	2,07	.167

To summarise, referring to our research questions, our results show that measurement of lexical diversity, word and text length differ according to age and genre. The question remains open what causes the usage of advanced vocabulary in German and Turkish to differ and what causes the lack of differences in Turkish text production with and without Turkish instruction.

Furthermore, we also compared the lexical usage in Turkish and in German texts. In the Turkish texts, we noticed there is a rare use of archaic words, eg. *mahiyet* ‘character’ instead of *karakter*, *iç yüz*, *öz* etc. The reason for this might be due to the usage of a Turkish variety with interlocutors, who are mostly family members (first/second generation) in the Turkish Diaspora. On the other hand, it is difficult to define those words as basic/advanced vocabulary, since we do not have evidence if the pupil has another (standard) lexical item for it.

On the lexical level, there is no use of German loan words but a small amount of orthographic transfer from German vocabulary in the Turkish texts, whereas no cross-linguistic influences of Turkish in German texts are found. According to us, this is due to the dominance of German language in the school setting and the subject of the stimulus video (‘everyday school problems’).

4. DISCUSSION

The analysis of our data has led us to conclude that the index of G might be useful to show the lexical development in one language, but it is not completely reliable for comparing two typologically different languages. Turkish is an agglutinative language, because of its morpho-syntactic structure, the content of one (e.g. German) sentence can be expressed with only one word. In comparison with German, the index of G cannot show much about lexical richness and development. Here we are confronted with the sensitivity of measuring and comparing text lengths cross-linguistically.

We have found that there is a (remarkable) difference in advanced vocabulary usage in the 12th grade, between Turkish and German texts, but these results do not reveal anything about lexical development. At this point we need to reconsider the dichotomy of basic/advanced vocabulary.

Moreover, we used word lists, which have been developed for early L1 or L2 acquisition for German and Turkish varieties, spoken in Germany. In this case, existing word lists, which were used for lexical richness and development, caused problems because of the different varieties of the languages. Our participants have been raised in an environment such as Berlin Kreuzberg (see chapter 3.1), where the participants themselves may or may not use Turkish extensively in their daily lives (see Pfaff *et al.* 2010). As proposed by Pfaff *et al.* (2010) a survey of teachers of Turkish as a foreign language and teachers of Turkish heritage language for bilingual children with a Turkish background in Berlin would be useful to judge their lexical competence according to their variety – this also counts for the German variety.

Another possibility would be to focus on internal criteria to refine the notions of basic and advanced vocabulary. The analysis of morphological complexity for example can give more various possibilities to define lexical richness according to the linguistic background than word lists do. In this study we consider morphological complex lexical items and nominalization as an advanced linguistic ability independent from word lists, which can be also seen as advanced vocabulary. The following examples taken from the LLDM/MULTILIT data give an idea about this approach:

(Table 4) *Morphological complexity and nominalizations in Turkish and German*

	<i>Turkish</i>	<i>German</i>
<i>Morphological complex items</i>	<p>“düşürttüğü” (ASL, 12th, we) düş-ürt-tüg-ü fall-CAUS-PCTP-POSS.3SG ‘...that s/he made fall’</p> <p>davranışları (KEM, 12th, we) davran-ış-lar-ı behave-NMLZ-PL-POSS.3SG ‘his/her behaviors’</p> <p>izlediğimiz (NIH, 12th, wn) izle-diğ-imiz watch-PCTP-POSS.1PL ‘...that we watch’</p> <p>değişiklik (NIH, 12th, we) değişik-lik different-NMLZ ‘difference’</p>	<p>“türkischstämmig” (ASL, 12th, wn) türkisch-stämm-ig turkish-root-ADJ ‘somebody with turkish roots’</p> <p>“Geldbesitzer” (VED, 12th, we) Geld-besitz-er Money-own-NMLZ ‘somebody who owns money’</p> <p>“zurückgegrüßt” (VED, 12, we) zurück-ge-grüßt back-PCTP-greet(3SG)</p> <p>“Schullaufbahn” (YAS, 12, we) Schul-lauf-bahn school-move-path ‘school career’</p>
<i>nominalizations</i>	<p>“dışlamaması” (ASL, 12th, we) dışla-ma-ma-sı exclude-NEG-NMLZ-POSS.3SG ‘her/his non-exclusion’</p> <p>“bitmeyen” (AYH, 12th, we) bit-me-yen finish-NEG-PCTP ‘not finishing’</p> <p>“görülmesi” (SER, 10th, wn) gör-ül-me-si see-PASS-NMLZ-POSS.3SG ‘its being seen’</p>	<p>*”Mobbung” (VED, 10, wn) mobb-ung mob-NMLZ ‘mobbing’</p> <p>“Schülersein” (YAS, 12, we) Schüler-sein pupil-be ‘being a pupil’</p> <p>“Streitschlichterin” (ASL 10, wn) Streit-schlicht-er-in conflict-arbitrate-NMLZ-FEM ‘somebody who arbitrates a conflict’</p>

These complex morphological items show the pupils' linguistic abilities at a lexical level. We think that the more complex a structure is, the more advanced the structure becomes at the semantic-lexical level. On the other hand, these examples are frequent in everyday speech, but if we look at the word structure, then the derivational complexity can be seen. However, this approach is also not useful enough to analyze/compare the typologically different languages at the same level, but it can solve the reoccurring problems within word lists.

As acknowledged, there are only a few studies about the effect of Turkish instruction on the linguistic development of bilinguals. The study of Boos-Nünning & Karakaşoğlu (2005) shows that there is no significant correlation between “Herkunftssprachenunterricht” (community language teaching) and the self-rating proficiency of the participants in Turkish as their mother tongue. The evaluation of FörMig⁸ shows (focusing on the transition from elementary to secondary school) a significant difference between Turkish bilinguals with and without Turkish instructions with regard to the lexicon. On average, the texts of the pupils with Turkish instruction contain more diverse vocabulary than those without Turkish

⁸ FörMig (Förderung von Kindern und Jugendlichen mit Migrationshintergrund) is a national pilot program supporting children and young people with an immigrant background.

instructions (see Reich 2009: 79f.; Klinger *et al.* 2008). Contrary to these results, in this study we didn't find any significant difference in text length and in advanced vocabulary in both languages correlating with Turkish instruction. In order to find concrete answers about why having Turkish instruction did not cause changes in the Turkish texts, more information about the course structure⁹ and the pupils' motivation is needed. In any case, there is no influence¹⁰ of Turkish instruction in German texts with regard to text length and the use of advanced vocabulary.

5. CONCLUSION & FUTURE ASPECTS

In this study, the two typologically different languages – Turkish and German – were compared. The adaptation of the methods, which were used by Daller *et al.* (2003), couldn't avoid problems caused by this difference. We also agreed on including qualitative along side the quantitative measurements (Daller *et al.* 2003). However, the results of our study show that the segmentation of the vocabulary in the dichotomy basic/advanced – in our research – is not useful. In the future there may be a need to rethink these notions and to find, as we proposed, other criteria for the word lists. If it is necessary to use a word list to measure the lexical richness and development, then there is need for a word list for the migrant language, spoken in Europe as a different variety of Turkish.¹¹ In general, it is necessary to investigate the lexical development of bilinguals and the effects of Turkish instruction in L1 and L2 as well.

Apart from a comparison of the lexical development of Turkish and German we have shown that there is a remarkable progress in each language with age. This gives an opportunity to support the lexical development with didactic aspects.

The next step will be to analyze also the spoken data to see the difference between written and spoken discourse and to include English as first foreign language. We believe that there is a cross-linguistic interaction between all three languages.

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⁹ There are different structures of the Turkish course. E.g. reading, writing, grammar, cultural studies...etc.

¹⁰ Hopf (2005) and Esser (2006) raised the discussion, that having mother tongue instruction would influence the development of L2 negatively.

¹¹ Instead of ignoring the development of the Turkish language in Europe as a minority language, (see Boeschoten 2000; Rehbein 2001 and the recent and the repeated discussion about the acquisition of Turkish in Germany) it would be helpful to accept the reality that Turkish has a variety, which developed in Europe. Moreover, it is useful to create a Turkish dictionary for Turkish as an immigrant language, e.g. in cooperation with Türk Dil Kurumu (TDK).

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List of abbreviations:

3SG=third person singular
1PL=first person plural
ACC=Accusative
ADJ=Adjective
CON=Connector
CAUS=Causative
DE=German
FEM=Feminine
NEG=Negation
NMLZ=Nominalization
PCTP=Participle
RC=Relative Clause
TR=Turkish

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