In particular, the prominence pattern of phonological phrases reflects the direction of branching in the language—initial prominence for left-branching (or complement–head) languages, and final prominence for right-branching (head–complement) languages (Nespor and Vogel 1986/2008). Infants appear to be sensitive to the different rhythmic patterns at this level of the hierarchy (Christophe et al. 2003). In addition, we find that the acoustic correlates of the two kinds of prominence patterns differ systematically; if prominence is initial, it is marked primarily by higher pitch and intensity, if final, primarily by duration (Nespor et al. 2008).

Indeed, these differing patterns for initial and final elements of a 'phrase' are proposed to be a basic perceptual Gestalt—the Iambic–Trochaic Law. Therefore, innate perceptual capacities might well direct the infant exposed to a given language to the correct word order of that language without any recourse to lexical information. Thus, we may account for the empirical observation that the earliest productions of infants respect the word order of their language.

More generally, we suggest that early perceptual capacities of infants can provide substantial information that aids the infant in acquiring grammar. Such perceptual capacities, coupled with distributional learning, might place strong constraints on the possible grammars, thus substantially easing the problem of language acquisition.

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10

Object clauses, movement, and phrasal stress*

HUBERT TRUCKENBRODT AND ISABELLE DARCY

10.1 Introduction

In this paper, we report the results of an experiment concerning the effect of object clauses on phrasal stress of the matrix verb. The presentation of the experiment is embedded in a discussion of the interaction of phrasal stress with movement in German.

Section 10.2 includes some background on stress assignment and an introduction to the interaction of syntactic movement with the assignment of phrasal stress. The experimental methods are laid out in Section 10.3, the results of the experiment in Section 10.4. The results are discussed in Section 10.5. Section 10.6 provides a summary.

10.2 Phrasal stress

10.2.1 *Our research question in the context of the two-level analysis of phrasal stress*

Narrow focus attracts stress in German. The cases of interest in this paper involve a wide focus, and the generalizations governing stress assignment within that.

Between a preverbal direct object and a following verb in clause-final position, nuclear stress in German (the strongest stress in the intonation phrase) is assigned to the object as in (1). This is the case as long as the object has not undergone syntactic scrambling. By contrast, nuclear stress is found

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on the verb if the verb is not preceded by a stressed argument. For example, the verb is stressed if it is preceded by a stressless pronominal object as in (2), or by an adjunct as in (3). See Krifka (1984) and Jacobs (1993) for discussion of the argument–adjunct distinction.

(1) [What happened?]
a. Peter hat ein Buch verkauft.
Peter has a book sold
'Peter has sold a book.'
b. # Peter hat ein Buch verkauft.

(2) [What happened to the book?]
a. Peter hat es verkauft.
Peter has it sold
'Peter has sold it.'
b. # Peter hat es verkauft.
c. # Peter hat es verkauft.

(3) [What happened?]
a. Peter hat während eines Seminars geschlafen.
Peter has during a seminar slept
'Peter has slept during a seminar.'
b. # Peter hat während eines Seminars geschlafen.

The literature contains different accounts of these stress-patterns.[1] The accounts that seem particularly revealing to us separate two phrasal prosodic levels, as indicated by single and double underlining in (1)–(3). The nuclear stress (doubly underlined) is merely the rightmost stress among beats of phrasal stress assigned at the lower level. This rightmost stress is strengthened by a rule (Gussenhoven 1983b; Selkirk 1995; Uhmann 1991). The crucial generalizations are therefore to be captured at the lower level (single or double underlining in (1)–(3)). The Sentence Accent Assignment Rule (SAAR) of Gussenhoven (1983b, 1992) assigns accents that pertain to that lower level: Within a focus, the SAAR assigns accent to each argument, modifier, and

[1] Accounts that concentrate on the search for primary sentence stress include Cinque (1993) and Zubizarreta (1998). The theory of focus feature percolation by Selkirk (1984, 1995) shares elements with the two-level accounts discussed in the text. A recent multi-level account is developed in Wagner (2005).

predicate *except for a predicate adjacent to an accented argument.*[2] The SAAR thus assigns accents to arguments inside of a larger focus, in particular to the subject and to the object in (1a), as well as to the subjects in (2a) and (3a). The SAAR further assigns accent to the adjunct (modifier) in (3a). The SAAR finally assigns accents to the verb (predicate) in (2a) and (3a), but, by the provision highlighted above, the SAAR does not assign accent to the verb in (1a), where it stands next to an accented argument. A more general formulation is offered as a reanalysis the SAAR in Truckenbrodt (2006a, 2007b):

(4) Stress-XP: Each lexical XP requires phrasal stress.[3]

In a DP such as [$_{DP}$ ein [$_{NP}$ Buch]] in (1), Stress-XP requires phrasal stress in the lexical NP, thus [$_{DP}$ ein [$_{NP}$ Buch]]. Stress-XP does not require anything of the functional DP, and so correctly does not require phrasal stress on a pronoun like [$_{DP}$ sie]. In this fashion, Stress-XP correctly enforces phrasal stress on the subjects in (1a)–(3a), the object in (1a) and the adjunct in (3a). The account in terms of Stress-XP reduces the prosodic argument–adjunct distinction to the syntactic distinction between arguments and adjuncts. Arguments of a verb are syntactically sister to V and are fully contained in the VP: [$_{VP}$ [$_{DP}$ ein [$_{NP}$ Buch]] verkauft$_{V}$]. Stress-XP does not require stress on the verb in this case: For one thing, the verb itself is a head and not a phrase, and so does not require phrasal stress by Stress-XP. For another, the VP satisfies Stress-XP by way of stress on Buch in the VP (which is independently required by the application of Stress-XP to the NP). The structure with an adjunct preceding a verb is syntactically different on standard syntactic assumptions insofar as the adjunct is adjoined to VP: [$_{VP}$ [während eines Seminars] [$_{VP}$ geschlafen]]. Here the verb is itself a VP, and thus requires stress by Stress-XP.[4]

In our experiment, we investigate whether an object clause has the same effect on the stress pattern as a DP-object argument. In (5), the verb *darlegen* follows an adjunct which cannot exempt *darlegen* from being stressed. Will the object clause that follows the verb *darlegen* in (5) exempt this verb from being stressed, in the same way in which the preceding DP object exempts the verb from carrying stress in (1a)?

[2] The full formulation of the SAAR in Gussenhoven (1992) is: 'If focused, every predicate, argument, and modifier must be accented, with the exception of a predicate that, discounting unfocused constituents, is adjacent to an argument' (p. 84). We return to other aspects of the SAAR.

[3] This constraint is originally from Truckenbrodt (1995). It is also employed in Samek-Lodovici (2005) and Féry and Samek-Lodovici (2006).

[4] See Truckenbrodt (1999) for the details of the application of the mapping constraints to adjunction structures.

(5) Der Manager will auf der Versammlung *darlegen*,
the manager wants at the assembly present
dass der Millionär die Firma verwalten soll.
that the millionaire the company administer should.
'The manager wants to suggest at the meeting that the millionaire administer the company.'

10.2.2 *Interaction of stress and movement*

On standard syntactic accounts,[5] the object clause is taken to be extraposed to the right by syntactic movement in a more or less obligatory process of extraposition. Thus, the object clause will also follow an auxiliary or modal after *glauben* as in (6).

(6) ...dass die Maria glauben soll [CP dass der Werner die
that DET Maria believe should that DET Werner DET
Manu heiratet]
Manu marries
'...that Maria is supposed to believe that Werner is marrying Manu.'

This suggests that the object clause is also extraposed in (5). We therefore need to take the interaction of stress assignment and movement into account in assessing predictions about the case we are interested in.

For English, Bresnan (1971, 1972) has made a case that stress can reflect underlying, rather than derived, syntactic structure. This argument has been criticized (Berman and Szamosi 1972; Lakoff 1972; Gussenhoven 1992) but is adopted in the analysis of Selkirk (1995) and we adopt it here. Since the issue directly concerns the stress on the verb, we review some cases here.

To begin with, English has the argument–adjunct asymmetry discussed for German above, but in a more subtle fashion. The SAAR/Stress-XP, together with strengthening of the rightmost stress, are designed also to account for phrasal stress in English. The English verb, when preceding a stressed object as in (7a), does not require phrasal stress, while it requires phrasal stress when preceding an adjunct as in (7b) (the reality of this distinction was experimentally demonstrated by Gussenhoven 1983a).

(7) a. John was [VP teaching [NP linguistics]]
b. John was [VP [VP teaching] in [NP Ghana]]

This is the mirror image of the German contrast between (1a) and (3a), and it is predicted in the same way by the SAAR/Stress-XP. It is more subtle in

[5] See for example Sternefeld (2006: vol. 1, ch. III.8).

English for a variety of reasons. Among them: (i) The verb-final syntax of German lets the contrast come out as a contrast in regard to main stress, while the head-initial syntax of English lets the contrast emerge only as a contrast in non-nuclear phrasal stress. (ii) In English, German, and other languages, prenuclear lexical words that are not assigned phrasal stress by the SAAR/Stress-XP can optionally receive phrasal stress by what appears to be a process of gratuitous strengthening, so that the verb in (7a) can also receive gratuitous phrasal stress. This of course obscures the difference between (7a) and (7b). Gratuitous strengthening is not available in position following the predicted nuclear stress, so that the verb in (1a) cannot receive gratuitous stress, and the contrast to (3a) in German is more robust. To be sure, gratuitous strengthening also has the potential to obscure the stress pattern in (5).

We now turn to the interaction of movement and stress in English. The stresslessness of the verb in (7a), which is allowed due to the presence of the stressed object, can be retained if the stressed object is moved, as in the example in (8); see Bresnan (1971). Crucially, the verb *written* does not seem to require phrasal stress in (8a) even if it is new. This may be contrasted with an unstressed moved object as in (8b), which would not allow a stressless verb in its underived position, and, consequently, does not allow a stressless object after movement either.

(8) a. John asked [[what books]$_i$ she had written t_i]
b. John asked [[what]$_i$ she had written t_i]

We here recast Bresnan's account of this interaction in terms of *stress reconstruction*, using Stress-XP and a simple copy theory of movement and reconstruction, as in (9).

(9) a. John asked [[what books]$_i$ she had written [~~what books~~]$_i$]
b. John asked [[what]$_i$ she had written [~~what~~]$_i$]

If stress were calculated regardless of the silent copy, the VP [VP written t_i] would require stress on the verb in both (9a) and (9b) by Stress-XP. The stress difference between the two cases can be understood if stress assignment is reconstructed. In that case, the VP [VP written [~~what books~~]] in (9a) contains phrasal stress on the reconstructed object, and so does not require stress on the verb by Stress-XP. On the other hand, the reconstructed VP [VP written what] in (9b) would not be stressed on the pronominal object (cf. [written something]) so that stress falls on the verb here (with or without reconstruction). The argument, then, is that the stresslessness of the verb in (8a) is allowed due to stress reconstruction of a stressed argument.

In German, the interaction of movement and stress has not been studied, to the best of our knowledge. However, a range of standard observations, when confronted with the account in terms of Stress-XP, allow us to make some relevant remarks.

It seems that cases of displacement within the *Mittelfeld* do not reconstruct for stress. For example, certain objects of individual-level predicates are argued to be outside of VP for semantic reasons by Diesing (1992). These do not show stress reconstruction, as shown for an accusative-marked experiencer predicate in (10).

(10) Das hat einen Zuschauer gewundert.
that has a spectator surprised
'That has surprised a spectator.'

Scrambled constituents in the Mittelfeld, where they are stressed, never seem to reconstruct for stress: they never license a stressless verb; cf. (11).

(11) [What about the books?]
Peter hat manche Bücher schon gelesen.
#Peter hat manche Bücher schon gelesen.
Peter has some books already read
'Peter has already read some (of the) books.'

Thus, scrambling seems not to reconstruct for stress assignment.

On the other hand, V-to-C movement and movement of the subject to SPEC,CP do seem to reconstruct for stress assignment in German. By way of background, consider first the distinction between (12a) and (12b).[6] While different factors arguably play a role in the stressing of simple subject-verb clauses, it seems that one of them is unaccusativity, as argued by Uhmann (1991) (see den Besten 1983 for the syntactic analysis). This is plausibly relevant here: The nominative subject is a thematic object in object position in (12a), but not in (12b). With this, Stress-XP derives the stress patterns: The unaccusative VP [$_{VP}$ Otto kommt] contains stress on the argument in (12a), so that no stress is required on the verb by Stress-XP. On the other hand, the unergative verb is a VP [$_{VP}$ geigt] in (12b), so stress on the verb is here correctly forced by Stress-XP. If this analysis is correct, it is now important for the interaction of stress with movement that the intuitive difference between cases like (12a,b) is empirically retained under movement of the subject to SPEC,CP (Vorfeld) and fronting of the finite verb to C, as in (13a,b).

[6] The arguably related distinction between (13a) and (13b) is from von Stechow and Uhmann (1986: 308).

(12) a. [$_{VP}$]
dass Otto kommt
that Otto comes
'that Otto is coming'

b. [$_{VP}$]
dass Otto geigt
that Otto fiddles
'that Otto is playing violin (right now)'

(13) a. [$_{CP}$ DP C/V t t]
Otto kommt
Otto comes
'Otto is coming'

b. [$_{CP}$ DP C/V t t]
Otto geigt
Otto fiddles
'Otto is playing violin (right now)'

This suggests that both movement to SPEC,CP and movement to C reconstruct for stress. If they did not, the identical surface structural configuration of the two cases in (13a,b) would wrongly lead to identical stress patterns. Assuming stress reconstruction of both instances of movement as in (14), the constituents correctly inherit the different stress patterns assigned to them due to their different underlying syntactic configurations.[7]

(14) a. Otto kommt [$_{VP}$ ~~Otto~~ ~~kommt~~]
comes

b. Otto geigt ~~Otto~~ [$_{VP}$ ~~geigt~~]
fiddles

It therefore seems that movement of the subject to SPEC,CP and movement of the finite verb to C reconstruct for stress, while scrambling in the Mittelfeld does not reconstruct for stress.

In our experiment, the question whether the verb is stressed in (5) can be understood as the question whether CP-extraposition reconstructs for stress. If it does, we expect a stressless verb *darlegen* in (5) because the VP contains stress in the reconstructed CP. Without stress reconstruction, the VP projection of this verb contains only the verb *darlegen*. This verb is then expected to be stressed by Stress-XP.

10.2.3 *Background from previous experiments*

The predictions of SAAR/Stress-XP have entered into the experiments reported in Truckenbrodt (2002, 2004, 2005, 2007a). The evidence from pitch accents reported there showed that these predictions are borne out in experimental

[7] It would not be enough to postulate that one but not the other of these two movement processes reconstructs for stress. If only movement of the subject to SPEC,CP reconstructed for stress, the verb in C could not 'inherit' the consequence of stress assignment in the VP in a way that distinguishes (13a) from (13b). If, on the other hand, only movement of the finite verb to C reconstructed for stress, there would not be a reason why the verb ends up unstressed in (13a).

settings, for simple cases: In sentences read as answers to the question 'What's new?', arguments and adjuncts (with lexical NPs) carry a pitch accent, and a clause-final verb that follows the direct object does not carry a pitch accent.

These pitch accents are downstepped (i.e. their high peaks are successively lowered). Intonation phrase boundaries (here: 'i-boundaries') can be detected by the interruption of downstep by upstep and reset (see Truckenbrodt 2002, 2007a; for downstep delimitation by larger phonological domains in other languages, see Ladd 1988; Laniran and Clements 2003; Pierrehumbert and Beckman 1988; van den Berg et al. 1992). Simply put (cf. (15)), in this pattern a medial i-boundary is indicated by a return to the initial height just *before* the i-boundary ('upstep'). Further downstep then proceeds from this upstepped level.

Truckenbrodt (2005) investigates environments for i-boundaries with this criterion, drawing on a single speaker. In the results, i-boundaries consistently occur at the right edge of clauses: at the right edge of a subject clause in the Vorfeld as in (15a); at the right edge of a relative clause of a constituent in the Mittelfeld as in (15b); and at the right edge of the first conjunct of embedded coordinated clauses as in (15c). At the same time, continuing downstep (no i-boundary) was found across the left edges of clauses, such as the left edge of the relative clause in (15b). Here the object1 that precedes the relative clause is not upstepped.

(15) a.

[ ][ ]$_1$ prosody
[subject clause] matrix clause syntax

b.

[ ][ ]$_1$
subject. ... object1 [relative clause] object2 verb

c.

[ ][ ]$_1$
subject verb [[object clause] and [object clause]]

The configuration of a single object clause, of particular interest here, was likewise tested. Here continuing downstep gave evidence for the absence of an

intonation phase boundary between matrix and embedded clause. This was found both with shorter matrix clauses as in (16) and with longer matrix clauses as in (17).

(16) [ ]$_1$
Der Werner hat dem Maler gesagt, dass er der Lola
DET Werner has the painter said that he DET Lola
das Weben zeigen will.
the weaving show wants
'Werner has said to the painter that he wants to show Lola weaving.'

(17) [ ]$_1$
Die Lena und die Hanne haben der Manu gesagt, dass sie
DET Lena and DET Hanne have DET Manu said that they
dem Maurer ein Lama malen wollen.
the bricklayer a llama paint want
'Lena and Hanne have said to Manu that they want to paint a llama for the bricklayer.'

This conforms to the generalization that right, but not left edges of clauses trigger an i-boundary in this data. The sentences in (16) and (17) also contain something close to, but not quite like our test case: a matrix verb (here *sagen*, 'say') followed by a complement clause. This verb did not carry phrasal stress. However, in these cases the matrix verb is preceded by an indirect object which itself has the possibility of exempting the following verb from being stressed. We compare the cases in (16) and (17) with our results in the discussion section below.

10.3 The experiment: Method

10.3.1 *Stimuli*

We used four conditions with near-minimal contrasts. Each condition contained eight sentences. One sentence from each condition is shown in (18). A list of all stimuli can be found in the appendix of this paper.

The verb *darlegen* constitutes the test case in (18). Condition O ('object') is a control condition in which this verb is expected to be unstressed, since it is preceded by a stressed direct object. Condition A ('adjunct') is a control condition in which the verb is expected to be stressed, since it is not adjacent to a stressed argument; it is preceded by an adjunct; the pronominal,

contextually given, object is naturally scrambled and unstressed here. Both of the control conditions O and A are followed by an adjunct clause (*auch wenn...*) so as to keep constant across all four conditions that there is continuation after the crucial verb. Conditions D and V are two test conditions. In both cases *darlegen* is preceded by an adjunct (in parallel to condition A), but in this case it is also followed by an object clause. The object clause is a *dass*-clause in condition D, and a V2 clause in condition V.

(18) *Condition O: verb preceded by direct object*
Der Manager will eine neue Strategie *darlegen*,
the manager wants a new strategy present
auch wenn er daran nicht so richtig glaubt.
also if he in-it not so properly believes
'The manager wants to present a new strategy, even if he doesn't fully believe in it.'

Condition A: verb preceded by adjunct
Der Millionär soll die Firma verwalten.
Der Manager soll das auf der Versammlung *darlegen*,
the manager should that at the assembly present
auch wenn er sich damit viele Feinde macht.
also if he REFL with-it many enemies makes
'The millionaire is supposed to administer the company. The manager is supposed to present that at the assembly, even if he makes many enemies with that.'

Condition D: verb followed by 'dass' object clause
Der Manager will auf der Versammlung *darlegen*,
the manager wants at the assembly present
dass der Millionär die Firma verwalten soll.
that the millionaire the company administer should.
'The manager wants to suggest at the meeting that the millionaire administer the company.'

Condition V: verb followed by V2 object clause
Der Manager will auf der Versammlung *darlegen*,
the manager wants at the assembly present
der Millionär soll die Firma verwalten
the millionaire should the company administer
'The manager wants to suggest at the meeting that the millionaire administer the company.'

The control conditions, then, should give points of comparison with an unstressed verb (condition O) and a stressed verb (condition A). In the test cases D and V, an unstressed verb (as in condition O) points towards stress reconstruction of extraposition; a stressed verb (as in condition A) points towards the absence of stress reconstruction.

10.3.2 *Production and perception tasks*

In order to ensure a neutral context, the stimuli of conditions O, D, and V were additionally preceded by a context sentence such as 'Imagine what I heard.' (see Appendix). In condition A the preceding sentence shown in (18) was assumed to sufficiently fulfill that function.

Six native speakers of German read the thirty-two stimuli in pseudo-randomized order, with ninety-seven filler sentences interspersed. They were given the instruction to read all sentences in a natural way, at a normal rate of speech. They read the whole set of 129 sentences twice.

The thirty-two test recordings were saved in separate files on a computer for a subsequent perception task to determine the stress, and for acoustic analysis.

In a perception task, twelve listeners (different from the speakers) judged the tokens that had been recorded as to the location of stress. They were paid for their participation. According to a short background questionnaire they were asked to fill out, none of them had any history of hearing disorder, and none of them grew up bilingually or spent a large amount of time (longer than two years) in a foreign language country. Each listener judged the recordings of first one speaker, then of a second speaker, then of a third speaker, in a listening session of about one hour total. This allowed the listeners to take into account speaker-specific phonetic strategies in realizing stress. The recordings of each speaker were pseudo-randomized in the presentation. Listeners A and B judged speakers 1, 2, and 3; listeners C and D judged speakers 2, 3, and 4; listeners E and F judged speakers 3, 4 and 5; etc. The order in which speakers were presented to each listener was rotated (1, 2, 3, or 2, 3, 1, etc.), so that the productions of each speaker were judged by six listeners, twice in first, twice in second, and twice in third position.

The complete sentences with their contexts were played to the listeners. The crucial words for the task were printed on a sheet of paper. For the cases in (18) (in their order above), this would be as shown in (19). The listeners had to decide, for each token they heard, what the relation in strength of stress is between Part 1 (argument or adjunct) and Part 2 (verb). The options were (i) Part 1 is stressed more than Part 2 (which we counted as an unstressed

verb) and (ii) stress on Part 1 is smaller or equal to stress on Part 2 (which we counted as a stressed verb).

(19)

	Part 1	Part 2	Stress-relation: Part 1 > Part 2	Stress-relation: Part 1 ≤ Part 2
1.	neue Strategie	darlegen		
2.	Versammlung	darlegen		
3.	Versammlung	darlegen		
4.	Versammlung	darlegen		

new strategy present
assembly

We evaluate stress in our recordings by summing over listener judgments for each condition O, A, D, and V. In each of these conditions, there are eight tokens from each of six speakers, recorded twice (N=96 in each condition). Each of these tokens was judged by six listeners. There is thus a total of 576 listener judgments for each of the four conditions.

In choosing this method, we allow that the grammatical effect of the object clause on the stress or absence of stress on the verb enters into the experiment in two ways. First, in the way the speakers pronounce the sentences in accord with their internal grammar. Second, in case the stress relations are not entirely clearly audible in the productions, there may be a listener effect as well: Since the listeners hear the entire sentence, they may be biased in their judgments by their own internal grammar in favor of judgments that conform to that grammar. Since we are interested in the internal grammar of German speakers, we see no harm in allowing this grammatical knowledge to enter into both the production and the perception. In the end, our results do not bear specifically on either production or perception, but on the grammar that underlies both, by assumption.

Responses were coded manually into an analysis file. We computed the response rate of 'verb stressed' for each listener and compared it against the mean across listeners in each condition, in order to ensure that all listeners performed the task correctly. If the rates for a given listener exceeded two standard deviations from the mean, this listener was excluded and an additional listener was recruited for the task. In total three listeners were replaced. After the replacements, the twelve listeners on whom the following results draw were well within this tolerance range of two standard deviations.

The productions were acoustically processed with Praat. Variation in choice of pitch accents and boundary marking makes it difficult to give a detailed account of the acoustic results. We aim instead at giving an overall impression of the course of Fo. Labels were applied to delimit the initial subject of the main clause ('SU'), the preverbal argument or adjunct XP ('XP'), the following final verb of the matrix clause ('V'), and the following clause ('F'). Fo-measurements were taken manually at the following points: The highest peak in SU, the highest peak in XP, the highest peak in F. In addition, it was visually determined whether V showed rising or falling intonation (ignoring interpolation from material preceding V); for falling intonation, the highest point preceding the fall and the lowest point following it were measured. For rising intonation, the lowest point preceding the rise and the highest point after the rise were measured.

10.4 The experiment: Results

10.4.1 *Main perception result*

Figure 10.1 shows our main result of the perception part. It shows, for each of the four conditions, percentages of judgments as 'verb stressed'.

The control conditions A and O are clearly separated in the expected direction. The verb is mostly stressed in the A(djunct) condition, and mostly unstressed in the O(bject) condition. The separation is not absolute (condition

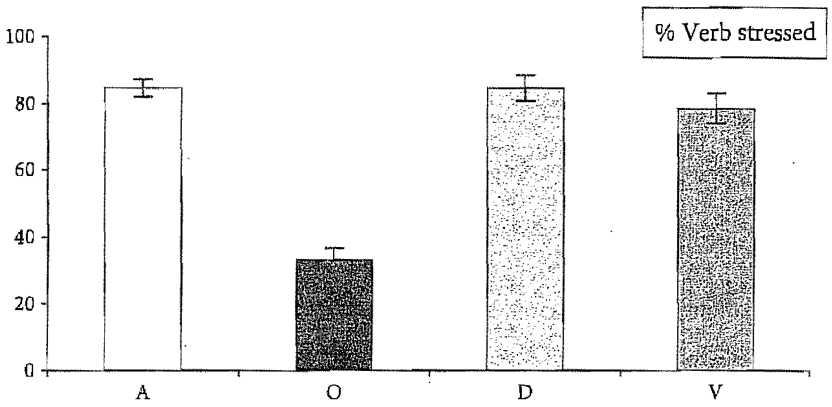

FIGURE 10.1 Percentage of 'verb stressed'-judgments for each condition (A: Adjunct; O: Object; D: dass-clause; V: V2-clause). Total number per condition out of 576 judgments: A: 488; O: 192; D: 487; V: 452.

O sentences are judged as 'verb stressed' in about 33 percent of cases, and condition A sentences are judged as 'verb stressed' in about 85 percent of cases).

Both test conditions D and V pattern with control condition A, and clearly differ from control condition O (condition D has 85 percent and condition V 78 percent judgments as 'verb stressed'). Thus, the verb is mostly stressed in the D and V conditions, in a way that resembles the verb next to an adjunct (condition A) and that differs from a verb next to an accented object (condition O).

10.4.2 *No effect of verb frequency*

It seemed possible to us that frequency might play a role in verb stress. Frequently occurring words like *sagen*, 'say', *glauben*, 'believe', might be more prone to being unstressed than rarer verbs like *murmeln*, 'murmur'. However, it turns out that there is no such correlation in our data.

Table 10.1 gives an overview of frequencies of the eight verbs used in our experiment. The frequencies are taken from the CELEX Database (Baayen et al. 1995). Figure 10.2 plots the responses from our experiment separately for these eight verbs. The plotting order in Figure 10.2 is from frequent to infrequent, following Table 10.1. (In some minor cases of discrepancies between written and spoken frequency, the written frequency was used for ordering the verbs.)

If frequency mattered, there would be a left-to-right trend in Figure 10.2. This does not seem to be the case for any of the columns in Figure 10.2. Verb frequency does not seem to affect verb stress in our experiment.

TABLE 10.1 CELEX-frequencies of the verbs of the experiment

	Written corpus	Spoken corpus	English translation
sagen	2043	6037	say
glauben	471	1832	believe
annehmen	136	60	assume
melden	125	80	report
vermuten	49	29	suspect
träumen	26	5	dream
murmeln	25	0	murmur
darlegen	22	5	present

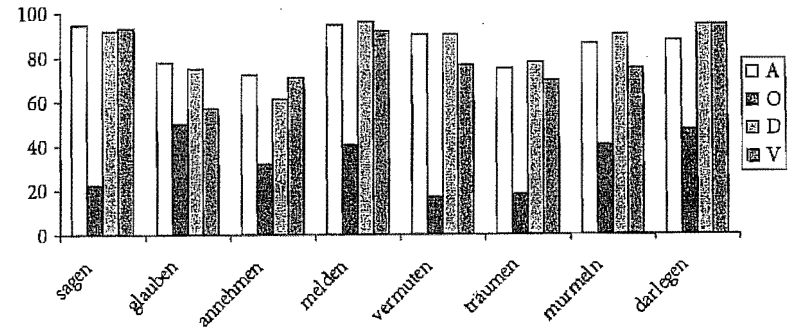

FIGURE 10.2 Response rate (%) as 'verb stressed' according to verb frequency (decreasing from left to right) and condition.

10.4.3 *Uniformity of listener judgments*

In this section we assess the uniformity of the listener judgments for the individual tokens. For each token, the number of listeners that gave the judgment that we call 'verb stressed' for that token (6/6, 5/6, . . . , 0/6) were computed. The results are plotted in Figure 10.3. If, for example, six out of six listeners gave the same judgment for one token, this token is counted towards the first category 6/6.

In Figure 10.3, unanimous listener judgments appear at the very left (6/6) and at the very right (0/6). The approximate overall 'U-shape' of the plotted values shows that, on the whole, listener judgments were relatively uniform. This suggests that there was a good number of tokens that were produced with relatively clear cues as to the presence or absence of stress on the verb.

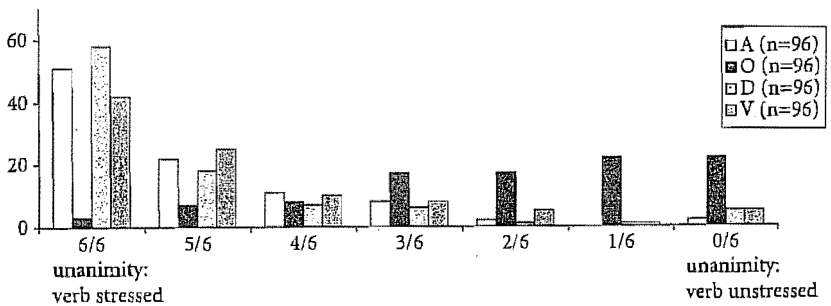

FIGURE 10.3 Homogeneity of judgments (as verb stressed) for six judgments per token. Absolute numbers are plotted for each condition.

Figure 10.3 also shows a 'left-right' asymmetry. The high columns of conditions A, D, and V under 6/6 are higher than the high column of condition O on the right. The higher values for condition O are more distributed across 3/6–0/6. We suspect that such a bias towards 'verb stressed' judgments resulted from our way of eliciting the listener judgments. As shown in (19), we asked the listeners to decide whether the preverbal part (in the following: 'XP') is stressed (a) more than the verb ('verb unstressed') or (b) less *or equal* to the verb ('verb stressed'). It seems possible that the inclusion of the 'equal' judgment with category (b) has led listeners to choose this category in cases of uncertainty. This would explain the asymmetry of the 'U' in Figure 10.3.

10.4.4 *Productions*

Figure 10.4 shows the production measurements. Each speaker is plotted separately. Recall that the main clause consists of SU XP V (ignoring unaccented elements), followed by a second clause (see (18)). The plots show measurements of the highest peaks of the main clause subject ('SU'), the main clause preverbal XP ('XP'), the verb ('L(H)', see below) and the highest peak of the following clause ('F'). Fo averages of the four experimental conditions are plotted. Each condition is based on sixteen tokens for each speaker, minus any missing values (see below). Variation in regard to an Fo fall or rise on the verb at the end of the main clause is handled as follows. The speakers plotted on the left showed a large majority of rises. For these speakers, only the utterances with such rises on the verb entered into the averages plotted. (Missing values due to this criterion: speaker BI: one utterance of condition A; speaker LU: four utterances of condition O; speaker PI: two utterances of condition A, five utterances of condition O.) The measurements of the rise are plotted as L and H. The speakers plotted on the right showed considerably greater variation between rises and falls. For these, only the L minimum of the verb is plotted, and the preceding or following H peak in the verb is not plotted. Note that the plots only partly approximate actual Fo contours insofar as there were typically low points in the actual contours separating the peaks that are plotted.

The measurements provide evidence that the main clause and the following clause were separated by an intonation phrase break in all four conditions. (This accords with the intuitive impression when listening to the productions.) There are three indications of this.

Consider first relative values for F, the highest peak in the second clause. Figure 10.5 on p. 206 shows two expectations about the scaling of the second clause. If, as in (a), there is no intonation phrase break preceding F, downstep between SU and XP is expected to be continued on the accented verb and on

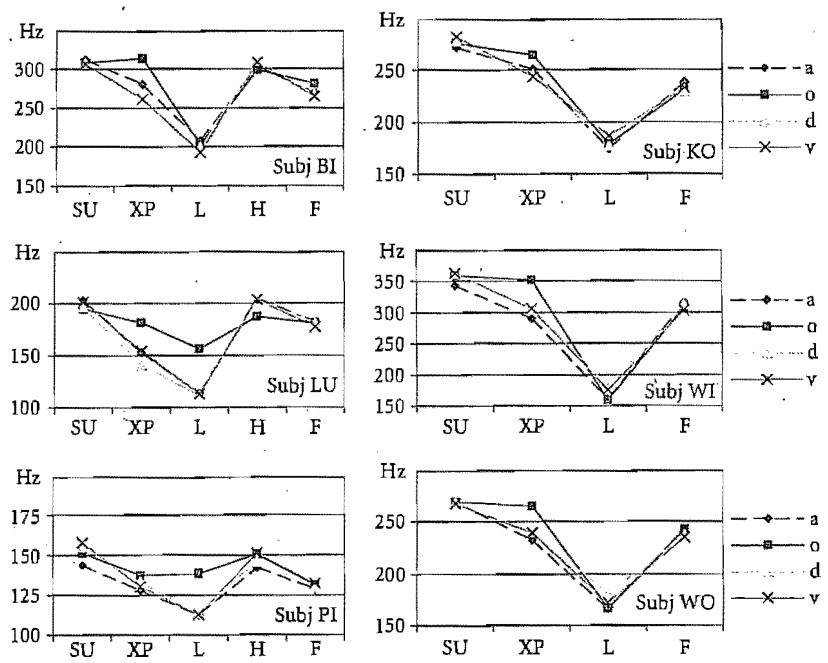

FIGURE 10.4 Measurements of the productions, plotted separately for the six speakers. SU: highest peak in the initial subject; XP: highest peak in the preverbal XP; LH: low and high extrema in case of a rise on the verb (plots on the left) otherwise L: minimum on the verb (plots on the right); F: highest peak in the following clause.

F in the second clause. Downstep across the left clause boundary was found in Truckenbrodt (2005). On the other hand, if, as in (b), the second clause is separated by an intonation phrase break, downstep on XP is not expected to be continued into the second clause. Instead, by the models of Ladd (1988), van den Berg et al. (1992), and Truckenbrodt (2007a) (see also Pierrehumbert and Beckman 1988), we expect that the second clause is itself lowered relative to the first clause by downstep. Estimating broadly, we may expect XP and F to be of comparable height in (b).

The plots in Figure 10.4 bear out the expectation of the intervening intonation phrase break. With the exception of speaker KO, the speakers do not show lowering between XP and F; rather, they show values of comparable height for XP and F.

The second indication for the presence of an intonation phrase break in all conditions can be seen in the value of H, plotted for the speakers in

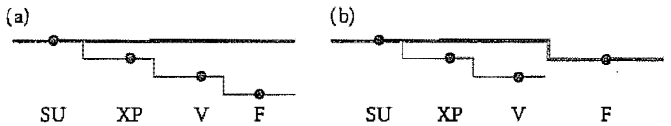

FIGURE 10.5 (a) Downstep within the same intonation phrase. (b) Downstep within a first intonation phrase, and partial reset of a second intonation phrase (i.e. downstep of the second intonation phrase relative to the first).

Figure 10.4 on the left. In condition O (with the verb unstressed), this is plausibly the value of a boundary tone at the end of a prosodic domain here. In conditions A, D, and V, this is either a boundary tone or the end of a rising pitch accent on the stressed verb. The high scaling of this point interrupts the pattern of downstep. In the model of scaling of Truckenbrodt (2007a), the scaling of such a boundary tone or accentual rise to the height of the initial peak is analyzed as upstep; and is direct evidence for its status as a boundary tone or nuclear accent of an intonation phrase (i.e. of a prosodic domain that includes the initial peak). The presence of such high tones at the end of the main clause verb in all conditions is thus evidence of the presence of an intonation phrase break at the end of the main clause.

The third indication of the medial intonation phrase breaks relates to the clearest systematic difference across the four conditions and is seen in point XP in Figure 10.4. In conditions A, D, and V, this point is lowered (downstepped) relative to the initial peak on SU. In condition O, on the other hand, the values of XP in Figure 10.4 are either not lowered relative to SU or lowered less than in the other conditions (with the partial exception of speaker PI). In conditions A, D, and V, the constituent XP is a PP adverbial followed by a verb that is (according to the perception results) mostly stressed; here the matrix clause is phrased (SU)(XP)(V). In condition O, the constituent XP is a preverbal object and the following verb is unstressed (by general expectations and by the perception results). The matrix clause is phrased (SU)(XP V). The greater height on XP in this condition O is expected if the matrix clause forms a separate intonation phrase: In that case, the preverbal object is the nuclear stress of an intonation phrase, and its pitch peak can be expected to receive a boost in height due to prominence (Pierrehumbert 1980). In the model of Truckenbrodt (2007a), it would be scaled as upstepped, i.e. as returning to the height of the initial peak.

Taking the evidence for stress from the perception results and the intonation phrase break from the production results together, the typical phrasing

of the four conditions in our recordings is as shown in (20) (see (18) for the examples in full length and for glosses of these examples).

(20) O:
[x][x]
(x)(x)(... x)
Der Manager will eine neue Strategie darlegen, auch wenn er daran nicht... glaubt.
'The manager wants to present a new strategy, even if he doesn't fully believe in it.'

A:
[x][x]
(x)(x)(x)(... x)
Der Manager soll das auf der Versammlung darlegen, auch wenn er... Feinde macht.
'The manager is supposed to suggest that at the meeting, even if he makes enemies with that.'

D:
[x][x]
(x)(x)(x)(... x)
Der Manager will auf der Versammlung darlegen, dass der M. die Firma verw. soll.
'The manager wants to suggest at the meeting that the millionaire administer the company.'

V:
[x][x]
(x)(x)(x)(... x)
Der Manager will auf der Versammlung darlegen, der M. soll die Firma verwalten.
'The manager wants to suggest at the meeting that the millionaire administer the company.'

No prosodic differences between object *dass*-clauses ('that'-clauses) and object V2 clauses are evident in the results.

The medial i-boundary is not surprising in the conditions O and A, where the second clause is an adjunct clause that may be classified as 'unintegrated' in the sense of Reis (1997). The medial boundary is surprising in the test conditions D and V, where the second clause is an object clause.

10.5 Discussion

10.5.1 *Experimentally supported conclusions*

We found in the perception results that the verb is stressed in the test conditions D and V: the object clause does not seem to exempt the verb

from receiving phrasal stress. We found in the production results that the object clause at issue is separated by an intonation phrase break.

The stress on the verbs from the perception results shows that CP extraposition did not reconstruct for stress in our data. However, the surprising i-boundary around the object clause makes it difficult to generalize this conclusion and to maintain that CP extraposition generally does not reconstruct for stress. It is possible (and we assume this to be the case) that one intonation phrase could not reconstruct for stress into another one. Thus, if stress reconstruction would include reconstruction of the strongest stress of an intonation phrase in its original strength, stress reconstruction from $[\ldots \underline{\underline{x}}]_1[\ldots \underline{\underline{x}}]_1$ to $[\ldots[\ldots \underline{\underline{x}}]_1 \underline{\underline{x}}]_1$ would result in the illegitimate representation of an intonation phrase (the outer one) with two prosodic heads (nuclear stresses). Consequently, we cannot draw a general conclusion, directly supported by experimental evidence, about stress reconstruction of extraposition.

The surprising i-boundary is itself very interesting. We think it cannot be an artifact of our experimental design. In particular, the design was not such that the subjects were biased towards productions with two intonation phrases. In the list of 129 pseudo-randomized sentences that included the thirty-two productions of interest and ninety-seven fillers, the sixteen sentences with object clauses were elicited alternating with fifty biclausal sentences, two triclausal sentences, and sixty-one monoclausal sentences. Further, the production of these sentences was interrupted by preceding context sentences (monoclausal in all cases). We therefore believe that the i-boundary comes out of the sentences themselves.

Instead of a general answer to our test question, we have found something else that we think is interesting: the patterns of phrasing in (20) that include the i-boundary preceding the object clauses in conditions D and V.

We pursue our test question in a more tentative way in the following section, drawing on intuitive prosodic judgments together with the experimental results.

10.5.2 *Tentative account*

When setting up the experiment, we did not find either the rendition with the stressed verb (as found in our results) or the rendition with an unstressed verb as in (21) below unnatural. We still find this to be so, and we now include this as a stress judgment into our discussion. Further, in the subtle way in which such judgments are possible, we find there to be a preference concerning the interaction with intonation phrases. Given a stressless verb, there is a

preference for the absence of a medial intonation phrase. This is indicated at the end of (21).

(21) [Der Werner hat auf dem Treffen gesagt, dass er der
DET Werner has at the meeting said that he DET
Lola das Weben zeigen will]$_1$
Lola the weaving show wants
'Werner has said at the meeting that he wants to show Lola weaving.'
[SU ADJ V CP] > [SU ADJ V][CP]

When the verb is stressed, as in our experimental results and as in (22), there is an inverse preference: a medial intonation phrase is more natural than its absence, as in (22). This corresponds to our experimental results, with a stressed verb and a medial intonation phrase break.

(22) [Der Werner hat auf dem Treffen gesagt,]$_1$ [dass er der
'Werner has said at the meeting that he wants to show
Lola das Weben zeigen will]$_1$
Lola weaving.'
[SU ADJ V][CP] > [SU ADJ V CP]

When we now replace the adjunct with an indirect object, as in (23), we have a sentence of the kind recorded in Truckenbrodt (2005). The verb was stressless there, which seems to be a natural rendition, and which comes with a preference for the absence of a medial i-boundary as shown. In the experimental results in Truckenbrodt (2005), there was likewise no medial i-boundary.

(23) [Der Werner hat dem Maler gesagt, dass er der
DET Werner has the painter said that he DET
Lola das Weben zeigen will]$_1$
Lola the weaving show wants
'Werner has said to the painter that he wants to show Lola weaving.'
[SU IO V CP] > [SU IO V][CP]

If we go by these judgments, the different experimental results of Truckenbrodt (2005) as in (23) and of the present experiment as in (22) would seem to be real differences in preferred phrasings, rather than differences that would stem from different experimental conditions or speaker-specific preferences.

A possibility to address in the comparison between (22) and (23) is that the number of beats of phrasal stress could be the cause of their difference. With

an additional beat of phrasal stress on the verb in (22), the prosodically longer structure might be more likely to fall apart into two intonation phrases than (23). However, prosodically longer versions of sentences like (23) were also among the stimuli in Truckenbrodt (2005), as shown in (17), and these also consistently showed the entire utterance in a single intonation phrase. Inversely, the intuitive preference shown in (22) persists when (22) is prosodically shortened (by pronominalizing the subject and having it given in the context, or by omitting the adjunct). Thus, prosodic length does not seem to be the decisive difference between the two cases.

Our impression, then, is that there is an 'integrated' pattern as in (21) and (23) that involves a stressless verb, i.e. stress reconstruction of extraposition, and that also involves the absence of a medial i-boundary. This seems to contrast with a 'non-integrated pattern' as in (22), which involves the absence of stress reconstruction and the presence of a medial i-boundary.

We think it is not impossible that these two patterns correspond to two different landing sites of extraposition, as schematically shown in (24).

(24) a. adjunction to matrix CP (non-integrated)
[x]$_1$ [x]$_1$
[[matrix cl.]$_{CP}$ [object cl.]]$_{CP}$
stress reconstruction blocked

b. extraposition within matrix CP (integrated)
[x]$_1$
[matrix cl. [object cl.]]$_{CP}$
stress reconstruction not blocked

If the extraposing object clause adjoins all the way at the top to the matrix clause CP, as in (24a), we would expect separate intonation phrasing because the object clause would, for the purpose of phrasing, follow the matrix clause (see Truckenbrodt (1999) for the role of adjunction; Truckenbrodt (2005) for constraints that would have that effect). The right edge of the matrix clause would introduce an i-boundary, preceding the object clause. Stress reconstruction of the object clause would be blocked by the intonation-phrase status of the object clause. If, on the other hand, the extraposing object clause adjoins any lower as in (24b), it would be contained in the matrix clause for the purpose of phrasing. It would then plausibly be phrased with the object clause. Stress reconstruction would not be blocked by a medial i-boundary and would then apply, leading to a stressless verb. Some support for this hypothesis can be seen in (25). When a negative quantifier in matrix subject position binds a pronoun in the object clause, the preference for separate phrasing seems to go away, even if a stressed verb is chosen. In this case, adjunction to the matrix clause CP would destroy the c-command relation between the quantifier and

the pronoun. Choice of a lower adjunction site would allow the c-command relation, and lead to the integrated intonation phrasing.

(25) [Niemand$_7$ hat auf dem Treffen gesagt, dass er$_7$
Nobody has at the meeting said that he
der Lola das Weben zeigen will]$_1$
DET Lola the weaving show wants
'Nobody$_7$ has said at the meeting that he$_7$ wants to show Lola weaving.'
[SU ADJ V CP] > [SU ADJ V][CP]

The comparison of the experimental results of Truckenbrodt (2005) (see (23)/(24b)) and our current results (see (22)/(24a)) still suggests a surprising difference in preference. Why would the integrating pattern be preferred when an indirect object precedes the verb, as in (23), but the non-integrating pattern when an adjunct precedes the verb, as in (22)? It is tempting to relate this to an independent prosodic difference between indirect object and adjunct. The adjunct, as was seen in (3), is normally followed by a stressed verb. An indirect object, on the other hand, at least optionally exempts a following verb from being stressed:

(26) What happened with the book?
a. Peter hat es einem Kind geliehen. Or:
b. Peter hat es einem Kind geliehen.
Peter has it a-DAT child lent
'Peter has lent it to a child.'

To connect this to the difference between integrated and non-integrated intonation phrasing, we need to introduce a property of stress reconstruction we have not yet addressed: stress reconstruction of an element with phrasal stress must not cross another element with phrasal stress! Consider (27), an example from Bresnan (1971). In our terms, stress reconstruction of the wh-phrase into the VP satisfies Stress-XP and thereby allows the verb to remain stressless. Gussenhoven (1992: 82, 84) noted that this effect is observed only when the embedded subject *Helen* is contextually given, and correspondingly unaccented (and the remainder of the sentence new). If the embedded subject carries its expected phrasal stress (here: due to Stress-XP), only the stress pattern in (27b) is possible. Here the verb is stressed. Stress reconstruction of the wh-phrase seems to be blocked across an intervening element with phrasal stress, here *Helen*.

(27) a. John asked [what books Helen had written __]
b. John asked [what books Helen had written __]

Here then, is how the difference between a preverbal adjunct vs. preverbal indirect object might lead to different preferences in intonation phrasing. If stress reconstruction of extraposition is possible, it may still be hard to process, because it needs to be anticipated: the element to be reconstructed follows the verb. This is different from leftward movement, where the element to be reconstructed is encountered before the reconstruction site and before the verb in the VP. If stress reconstruction of extraposition is hard to anticipate, speakers pronouncing the sequence [...adjunct $\_\__i$ V CP_i] may prefer to stress the verb because of the difficulty of anticipating stress reconstruction. However, given that choice, i.e. given a stressed verb, stress reconstruction of the CP across the verb is blocked! It is blocked in parallel to (27b): stress reconstruction of phrasal stress may not cross another phrasal stress. If stress reconstruction is the incentive for low extraposition and for choice of the integrated pattern (24b), this incentive will have gone away with a stressed verb. If there is a weaker incentive for high extraposition, this will then be chosen instead.[8]

On the other hand, in the sequence [...indirect object $\_\__i$ V CP_i], the indirect object licenses a stressless verb regardless of stress reconstruction. The assumed problem of anticipating stress reconstruction will here not bias towards stressing the verb. If the incentive for low extraposition is stress reconstruction, this choice can still be made and stress can be reconstructed (though without an effect on the verb).

Thus, if an adjunct before a verb biases towards a stressed verb, and an indirect object before the verb biases towards an unstressed verb, stress reconstruction will be blocked in the first case but not in the second case. If the option of stress reconstruction guides preferences in adjunction sites and thereby intonation phrasing, this may be the cause of the difference found in the two experiments.

10.6 Summary

The presentation of our experiment and the discussion of its results gave us opportunities to discuss the interaction of movement and stress. We employed an account in which the SAAR of Gussenhoven (1983b) is analyzed in terms of Stress-XP plus the possibility of stress reconstruction. Stress-XP is from Truckenbrodt (1995), for the interaction of movement with stress we

[8] In the account of Truckenbrodt (2005), this incentive could be satisfaction of the otherwise suppressed constraint Align-CP,Left in position of adjunction to CP.

draw on Bresnan (1971). We argued that German movement of the finite verb to C and movement of the subject to SPEC,CP reconstruct for stress, while German scrambling does not reconstruct for stress. We also reviewed that stressed elements intervene in stress reconstruction.

Our experiment sought to determine whether extraposition of an object clause reconstructs for stress. The experiment led us to discover and document the prosodic pattern in (28) in German. The perception part of the experiment shows the stress on the matrix verb. The analysis of the productions brings out the unexpected medial i-boundary. The pattern is found for object clauses that are *dass*-clauses ('that'-clauses) as well as for object clauses that are V2 clauses. It is compared to two control conditions in our experiment.

(28) [x][x]$_I$
[Subject... Adverb V [object clause]]

While extraposition did not reconstruct for stress in our material, the experimental results do not allow us to conclude that extraposition generally does not reconstruct. It seems possible that it does not reconstruct for stress in the presence of an i-boundary that separates the extraposed material.

In the more tentative part of our discussion, we also drew on intuitive judgments and compared the results to those of Truckenbrodt (2005). This somewhat larger (but more uncertain) picture was seen to suggest that extraposition does indeed reconstruct in the absence of a medial i-boundary. An integrated prosodic pattern (no i-boundary, stress reconstruction) and a non-integrated pattern (i-boundary, no stress reconstruction) may go back to different syntactic extraposition sites. We suggested that the preferences for a non-integrated pattern in our experiment may relate to a difficulty in anticipating stress reconstruction.

Appendix

Condition O: verb preceded by stressed object

01
Gestern ist mir Folgendes zu Ohren gekommen.
Die Maria soll eine Verleumdung glauben, auch wenn sie sie in der Boulevard-Presse gelesen hat.
02
Vor kurzem hab ich Folgendes mitgekriegt.
Die Lola soll wirres Zeug träumen, auch wenn sie schon Medikamente dagegen nimmt.

03
Ich habe vorhin Folgendes gehört.
Die Jana wird einen Unfall melden, auch wenn sie das sehr ungerne tut.
04
Stell dir das mal vor.
Der Leon hat eine Verschwörung angenommen, auch wenn er sich die Ereignisse anders erklären konnte.
05
Gestern hab ich Folgendes mitgekriegt.
Die Lola soll einen Mord vermuten, auch wenn das sehr unwahrscheinlich ist.
06
Heute morgen habe ich Folgendes gehört.
Der Mörder soll Zaubersprüche murmeln, auch wenn er sich damit nur lächerlich macht.
07
Letzte Woche hab ich Folgendes gehört.
Der Manager will eine neue Strategie darlegen, auch wenn er daran nicht so richtig glaubt.
08
Gestern hab ich Folgendes gehört.
Der Jonas soll Dummheiten sagen, auch wenn er damit nur Spott erntet.

Condition A: verb preceded by adjunct

a1
Der Werner heiratet die Manu.
Die Maria soll das seit Juli glauben, auch wenn er nichts davon gesagt hat.
a2
Die Lara organisiert die Gala.
Die Lola soll davon seit langem träumen, auch wenn es dafür wenig Anhaltspunkte gab.
a3
Der Jan hat eine Wohnung verwüstet.
Die Jana wird das auf der Versammlung melden, auch wenn sie das gar nicht gerne tut.
a4
Der Jonas wird nörgeln.
Der Leon hat das seit einer Weile angenommen, auch wenn er ihn noch nicht gut kennt.
a5
Die Maria gewinnt eine Reise.
Die Lola soll das in der Sendung vermuten, auch wenn sie sonst nicht so leichtgläubig ist.
a6
Die Heldin wird bald umkommen.

Der Mörder soll das in seiner Laube murmeln, auch wenn die Zuschauer das nicht hören können.
a7
Der Millionär soll die Firma verwalten.
Der Manager will das auf der Versammlung darlegen, auch wenn er sich damit viele Feinde macht.
a8
Der Leon hört laute Musik.
Der Jonas soll das seit dem Sommer sagen, auch wenn keiner ihm wirklich glaubt.

Condition D: verb followed by 'dass' object clause

d1
Gestern ist mir Folgendes zu Ohren gekommen.
Die Maria soll seit Juli glauben, dass der Werner die Manu heiratet.
d2
Vor kurzem hab ich Folgendes mitgekriegt.
Die Lola soll seit langem träumen, dass die Lara die Gala organisiert.
d3
Ich habe vorhin Folgendes gehört.
Die Jana wird auf der Versammlung melden, dass der Jan eine Wohnung verwüstet hat.
d4
Stell dir das mal vor.
Der Leon hat seit einer Weile angenommen, dass der Jonas nörgeln wird.
d5
Gestern hab ich Folgendes mitgekriegt.
Die Lola soll in der Sendung vermuten, dass die Maria eine Reise gewinnt.
d6
Heute morgen habe ich Folgendes gehört.
Der Mörder soll in seiner Laube murmeln, dass die Heldin bald umkommen wird.
d7
Letzte Woche hab ich Folgendes gehört.
Der Manager will auf der Versammlung darlegen, dass der Millionär die Firma verwalten soll.
d8
Gestern hab ich Folgendes gehört.
Der Jonas soll seit dem Sommer sagen, dass der Leon laute Musik hört.

Condition V: verb followed by V2 object clause

v1
Gestern ist mir Folgendes zu Ohren gekommen.
Die Maria soll seit Juli glauben, der Werner heiratet die Manu.

v2
Vor kurzem hab ich Folgendes mitgekriegt.
Die Lola soll seit langem träumen, die Lara organisiert die Gala.
v3
Ich habe vorhin Folgendes gehört.
Die Jana wird auf der Versammlung melden, der Jan hat eine Wohnung verwüstet.
v4
Stell dir das mal vor.
Der Leon hat seit einer Weile angenommen, der Jonas wird nörgeln.
v5
Gestern hab ich Folgendes mitgekriegt.
Die Lola soll in der Sendung vermuten, die Maria gewinnt eine Reise.
v6
Heute morgen habe ich Folgendes gehört.
Der Mörder soll in seiner Laube murmeln, die Heldin wird bald umkommen.
v7
Letzte Woche hab ich Folgendes gehört.
Der Manager will auf der Versammlung darlegen, der Millionär soll die Firma verwalten.
v8
Gestern hab ich Folgendes gehört.
Der Jonas soll seit dem Sommer sagen, der Leon hört laute Musik.

11

Optimality Theory and the theory of phonological phrasing: The Chimwiini evidence

CHARLES W. KISSEBERTH

11.1 Introduction

An important source of data on the interface of phonology and other aspects of linguistic structure (morphology, syntax, focus) is the Bantu language Chimwiini. This language is closely related to Swahili and has been spoken in the southern Somali town of Brava (=Mwiini) for several centuries. The historical evidence indicates that Swahili-like language forms were spoken as far north as Mogadisho in historical times, but the speakers in Brava were the only ones on the mainland to maintain their language in the course of the Somali expansion. Unfortunately, being a cultural and linguistic minority in Somalia, the people of Brava were targets during the Somali civil war in the 1990s and large numbers of speakers fled Brava and eventually formed diaspora communities in Kenya and Great Britain and the United States, though many remain in refugee camps in Kenya and there are still speakers remaining in Brava.

In 1974, Mohammad Abasheikh (a native speaker of Chimwiini who was doing a Ph.D. in linguistics at the University of Illinois at the time) and I presented a short account of various phonological phenomena in Chimwiini based on data we had collected in the preceding year (Kisseberth and Abasheikh, 1974, henceforth K&A). In this paper, we argued that vowel-length alternations in the language could only be understood on the assumption that the sentences of this language are organized into (phonological) phrases. This paper presented a laundry list of the situations under which long vowels had to shorten, but it clearly established that the domain in terms of which these rules of shortening apply is larger than the word but not necessarily as large as