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PREFACE

The web journal “Tampa Papers in Linguistics” (TPL) provides a platform for previously unpublished research on various linguistic topics. It mainly focuses on theoretical approaches to syntax, semantics, phonology, and pragmatics, and the exploration and explanation of distinctive phenomena in natural languages. All contributions may subsequently appear – revised or unrevised – in other media.

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On the Analysis of Echo Questions*

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Abstract: Echo questions are first and foremost questions, i.e. the speaker tries to get the hearer to close an informational gap. But unlike normal questions they convey the impression that the speaker reopens a gap that both speaker and hearer know has already been closed before. This ‘echo’ effect correlates with likewise distinctive formal features: Thus, in (German) echo \textit{wh}-questions, on which I concentrate, the \textit{wh}-phrase is positionally free, always bears the nuclear accent, the final contour is typically a rise, and these formal features may combine with all clause types to yield bona fide echo \textit{wh}-questions.

So far, the standard mode of analyzing echo (\textit{wh}-) questions has been discourse-based, i.e. their particular form and the echo effect are taken to be derivable from their being ‘quotes’ of a previous utterance, with a \textit{wh}-phrase and/or prosodic features added to mark the re-questioned aspect. The main aim of this paper is to show that this approach is mistaken, and that an analysis is feasible whereby the pragmatic properties of echo (\textit{wh}) questions are derived from their formal properties, notably their focusing properties, in a non-ad hoc way.

1. Echo \textit{wh}-Questions – The Problem

In this paper I investigate echo questions, my primary examples being echo \textit{wh}-questions in German. A typical example in dialogue context is provided by (1d).\textsuperscript{1}

   ‘Next month I’ll go to Africa, to a conference.’

b. B: Klingt aufregend. Wo findet die Konferenz (denn) STATT? (\)
   ‘Sounds exciting. Where does the conference take place?’

c. A: Die Konferenz findet in Ouagadougou statt.
   ‘The conference takes place in Ouagadougou.’

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\* Earlier versions of this paper were presented at the Humboldt University in Berlin (January 2010), at the Conference Sentence Types, Sentence Moods, and Illocutionary Forces (ZAS Berlin, October 2010), and at the Annual Conference of the Deutsche Gesellschaft für Sprachwissenschaft 2011 (Göttingen, February 2011). Thanks to all the audiences for valuable comments. Special thanks for constructive discussion and help with specific points are due to Michael Rochemont, Ilse Zimmermann, and Stefan Huber.

\textsuperscript{1} Capital letters indicate syllables bearing nuclear stress; ‘/’ vs. ‘\’ indicate rising vs. falling intonation. – Frequently used abbreviations throughout the paper are (in the order of appearance): E(wh)Q = echo (\textit{wh}-) question, E(wh)C = echo (\textit{wh}-) clause, EynQ = echo yes/no-question, EynC = echo yes/no-clause, EU = echoed utterance, MP = modal particle, EwhP = echo \textit{wh} phrase, +whP = interrogative \textit{wh}-phrase (= \textit{wh}-phrase marking normal \textit{wh}-interrogatives).
What is special about echo wh-questions (=EwhQs)? To find out, let us compare (1d) to its normal wh-question counterpart (1b): Clearly, both are constituent questions, i.e. the wh-word marks a position in the question proposition as unspecified/open, to be specified/closed by the respective natural answers. But beyond that there are salient differences.

The main pragmatic difference is the so-called ‘echo effect:’ Even if the EwhQ (1d) were heard out of context, listeners would infer that the questioned proposition is known to one or both of the participants in the conversation as having been closed before. Embedded in a context, this corresponds to the normal case which the name ‘echo question’ comes from: They take up previous utterances that imply closure of the respective wh-position, cf. (1c–d).

This pragmatic difference correlates with clear differences in form: Normal wh-questions must have a wh-phrase in clause-initial position, the nuclear accent is positionally free, and the final contour typically a fall. By contrast, the wh-expression in EwhQs is positionally variable, cf. (2), it must bear the nuclear accent, i.e. is minimally focused, and the final contour is typically a rise. Moreover, these distinctive echo features may show up with clause structures of all sorts, cf. the EwhQs in (3), whereas non-EwhQs are restricted to just the three clause structures in (4).

(2)  a.  Die Konferenz findet im Herbst WO statt? (/)  
‘The conference takes place in fall WHERE?’
b.  WO findet die Konferenz im Herbst statt? (/)  
‘WHERE does the conference take place in fall?’
c.  Die Konferenz findet WO im Herbst statt? (/)  
‘The conference takes place WHERE in fall?’

(3)  a.  Der und WAS tun? (/)  
‘Him and do WHAT?’
   (Der und Kartoffeln schälen.)  
   ‘Him and peel potatoes!’
b.  Nieder mit WEM? (/)  
‘Down with WHOM?’
   (Nieder mit Akin!)  
   ‘Down with Akin!’
c.  Hol bitte einer WAS? (/)  
‘Somebody please go and get WHAT?’
   (Hol bitte einer Brot!)  
   ‘Somebody please go and get bread.’
d.  Hat er auf WEN vertraut? (/)  
‘Did he trust WHOM?’
   (Hat er auf Glenn Beck vertraut?)  
   ‘Did he trust Glenn Beck?’
e.  Ob er auf WEN vertraut hat? (/)  
‘(You wonder) whether he trusted WHOM?’
   (Ob er auf Glenn Beck vertraut hat?)  
   ‘Did he trust Glenn Beck, (I wonder)?’
f.  Wer wird WO arbeiten? (/)  
‘Who is going to work WHERE?’
   (Wer wird in Kinshasa arbeiten?)  
   ‘Who is going to work in Kinshasa?’
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(4) a. V2 wh-interrogative (= normal wh-question):
Wo findet die Konferenz NÄCHstes Jahr statt? (\)
‘Where will the conference take place next year?’

b. V-final wh-interrogative:
   i. ‘Musing’ wh-question:
   Wo die Konferenz wohl NÄCHstes Jahr stattfinden wird? (\)
   ‘Where will the conference take place, next year, (I wonder).’
   ii. ‘Repeat’ wh-question:
   Wo die Konferenz NÄCHstes Jahr stattfinden wird? (\)
   ‘(You are asking) where the conference will take place next year?’

c. Infinitival wh-interrogative (‘dubitative’ wh-question):
Warum jetzt FLÜCHten? (\)
‘Why flee now?’

Further overt differences are illustrated in (5–6): (5) shows that EwhQs allow wh-expressions in positions that are illicit in normal wh-interrogatives, see the ungrammatical wh-question counterparts in (5a’–c’). (6) shows that, unlike normal wh-interrogatives, EwhQs are always main clause-bound: While (6a) in its entirety is an assertion with the wh-expression in situ having scope only over the complement, (6b) with the echo wh-phrase in the same position, in its entirety is an EwhQ; in other words, echo wh-phrases have always ‘root scope’ (cf. Sobin 2010).

(5) a. Ihm wird Karl WAS? (\)
   ‘Karl will do to him WHAT?’
   a’. * Wem wird KARL was?
   b. Lucas WER hat das gemalt? (\)
   ‘Lucas WHO painted that?’
   b’. * Lucas wer hat das geMALT?
   c. 1. Ein WAS hat er für Sue gekauft? (\)
    2. Er hat ein WAS für Sue gekauft? (\)
    ‘He bought a WHAT for Sue?’
   c’. * 1. Ein was hat er für SUE gekauft?
    * 2. Wo kaufte er für Sue ein WAS?

(6) a. Paul weiß, wer wem Geld schuldet.
   ‘Paul knows who owes money to whom.’
   b. Paul weiß, wer WEM Geld schuldet? (\)
   ‘Paul knows who owes money to WHOM?’

A first summary of the differences is given in (7); it will be made more precise as we go on.
(7) Distinctive features of echo wh-questions (vs. wh-questions like 4):
   a. W.r.t. interpretation
      ‘Echo effect:’ Question proposition known to discourse participants as having been closed before (or presented as such)
   b. W.r.t. form:
      (i) Wh-expression positionally variable
      (ii) Obligatory main accent/narrow focus on wh-expression
      (iii) Typically final rise contour
      (iv) Combination of (i-iii) with clause structures of all kinds
      (v) Wh-phrase positions specific to echo wh-questions
      (vi) Main clause boundedness (= ‘root scope’ of echo wh phrase)

Later revisions will make (7b) more precise w.r.t. (ii) (§3.1), eliminate (iii) (§3.2.2), and group (i), (iv), (v), (vi) under one descriptive generalization (§3.3.1), to be reinterpreted in §3.3.2.

What I presented so far, is well-known and entirely uncontroversial (see e.g. Altmann 1993, Reis, in press). What then is problematic about EwhQs? Mainly three issues stand out:

(i) What is the clause type status of EwhQs, i.e. are they
   (a) a subtype of wh-interrogatives,
   (b) an interrogative clause type of its own, or
   (c) just instances of the clause type they formally ‘echo?’
(ii) How does the echo effect come about?
(iii) How does their question interpretation come about?

My answer to the clause type question (i) will be (ic); as a consequence the answer to (iii) becomes a major problem. The solutions I will propose to (ii) as well as (iii) turn on the special focusing properties of EwhQs, – an idea that is by no means new; however, I will show that extant proposals based on them must be substantially modified in order to do the job.

Before taking up these issues, however, some methodological remarks are in order.

2. On Analyzing Echo Questions – Methodological Remarks

EwhQs (as well as echo yes-no-questions) typically take up an utterance made in previous discourse, and they often do it in quasi-literal form. This fact has led many echo researchers to take for granted that the echoed utterance (= EU) should be the basis of the grammatical analysis of the echo question (= EQ) itself, i.e. they subscribe to the methodological maxim (8).

(8) Syntactic EQ analysis is basically EU analysis.

What (8) amounts to is analyzing the structure of EQs more or less as a quote or “frozen [image]” (Sobin 2010) of the EU, with a wh-phrase plugged in and/or prosodic features added to mark the re-questioned part of the quote. To be sure, some differences between the original and the ‘quote’ have always been acknowledged, notably those that are pragmatically motivated such as the change from 1st to 2nd person and vice versa, cf. (9), however without affecting the basically quotational analysis at all.
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(9) A: Ich verdiene mein Geld in Ouagadougou. – B: Du verdienst dein Geld WO?
‘I earn my money in Ouagadougou. – You earn your money WHERE?’

This analysis is by no means a thing of the past, see for example the article by Sobin (2010), which basically offers just a slightly liberalized quotational analysis of E(wh)Qs, couched in minimalist syntactic terms.

What is wrong with such an analysis? From a generative perspective, it is wrong in principle, for a syntactic analysis that is discourse-based as in this case, commits the unforgivable sin of mixing language and communication. But it is also factually inappropriate:

First, the quotational analysis fails vis-à-vis the many cases of pure ‘content echoes,’ cf. the EwhQs in (10), which all take up some element of content inferable from the EU but in different linguistic form; in the extreme case, EU and EwhQ have no formal linguistic element in common at all, the necessary content link being exclusively provided by background knowledge; cf. (11). In order to achieve a quasi-quotational analysis in these cases, one would have to construe utterances like (10’a–c) and (11’), which are in line with the original EU as to content, and to which (10a,b,c) and (11) could have been a strictly quotational reaction. But these “source sentences” have clearly been derived from the form of the respective EwhQs, not from the form of the EU! Since they are obviously sufficient to yield a reasonable structural analysis, there is no reason why one should not analyze the structure of EwhQs generally in this way. Thus, cases like (10–11) yield a powerful argument against the quotational analysis and in favor of an autonomous analysis of clause structures having echo wh-interpretation.

(10) A: Übrigens, gestern hab ich Karl über Stoigber, seinen früheren Chef, reden hören, und weil ich es komisch gefunden habe, dass er ihn jetzt so lobt, ...
‘By the way, yesterday I heard Karl speak about Stoiber, his former boss, and since I found it strange that he praises him so much nowadays, ...’

B: (interrupting A):

a. Karl hat früher bei WEM gearbeitet? (/)
‘Karl worked formerly for WHOM?’

b. Karl hat sich WANN über diesen Bayernsepp ausgelassen? (/)
‘Karl held forth about this Bavarian type WHEN?’

c. Du findest WAS komisch? (/)
‘You find WHAT strange?’

(11) A: Hat Lisa schon etwas darüber gesagt, wie es ihrem Sohn am MIT gefällt? (/)
‘Did Lisa already say something about how her son likes MIT?’

B: Tom studiert jetzt WO? (/)
‘Tom is now studying WHERE?’

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2 See e.g. Sobin’s own summary of his approach (2010:144). For a critique of his approach, see Reis (in prep.).
Marga Reis

(10') a. A: Karl hat früher bei Stoiber gearbeitet.
   ‘Karl formerly worked for Stoiber.’
   B: __(10a)__

b. A: Karl hat sich gestern über diesen Bayernsepp ausgelassen.
   ‘Karl held forth about this Bavarian type yesterday.’
   B: __(10b)__

c. A: Ich finde, dass er ihn jetzt so lobt, komisch.
   ‘I find it strange that he praises him now.’
   B: __(10c)__

(11') A: Tom studiert jetzt am MIT.
   ‘Tom is now studying at MIT.’
   B: __(11a)__

A second argument comes from data like (12), which show that even exact quotes of the previous utterance may lead to unacceptable EwQs, for obvious reasons: The *wh*-phrase imposes restrictions of its own. *Wh*-expressions are invariably singular, hence the judgments in (12a); they are pronouns, and as such can be neither extraposed nor left-dislocated, hence the judgements in (12b,c).

   ‘Dwarfs have done that.’
   B: * Das haben WER gemacht? – √Das hat WER gemacht?
      Intended: ‘WHO did that?’

b. A: Karl hat behauptet, dass Tim Drogen nimmt.
   ‘Karl has claimed that Tim takes drugs.’
   B: * Karl hat behauptet WAS? – √Karl hat WAS behauptet?
      Intended: ‘Karl claimed WHAT?’

c. A: Den Gauck, den mögen die Linken nicht.
   ‘This Gauck, the leftists don’t like him.’
   B: * WEN, den mögen die Linken nicht? – √WEN mögen die Linken nicht?
      Intended: ‘WHO don’t the leftists like?’

Further restrictions, not illustrated here, come from their semantics and their XP status, usually forbidding their substituting for heads. In particular, EwQs like (13) are impossible, apparently because the echo *wh*-phrase targets an XP constituent that contains a trace. This suggests that *wh*-phrases are inserted into EwQ base structures on the same ‘deep’ level as normal *wh*-phrases in normal *wh*-clauses rather than being plugged in into the superficial structure. Additional data confirming this will be presented in 3.3 (cf. also Reis 1992). In sum, the form of EwQs is not determined by the utterance it reacts to, hence (8) cannot be correct.

(13) A: In Rom, sagt er, dass er damals tij gewohnt habe.
   ‘In Rome he said that he had lived at that time.’
   B: * In Rom sagt er WAS? (* as an echo question to A’s statement)

There is a third argument against (8), i.e. the echo effect. Adherents of (8) consider its existence by and large as a mere byproduct of the discourse position of EwQs, and thus automatically taken care of by the discourse-based analysis inspired by (8). But this is an illusion: As already
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mentioned, *wh*-questions in echo question form – see (7b) – receive the echo interpretation even out of context, i.e. even then they are invariably understood as re-opening a proposition that is known to the discourse participants as having been closed before. In other words, the echo effect of E(*wh*)Qs is not a mere discourse effect but triggered by their particular form; hence, it has an autonomous existence as well. As we will see shortly, this is confirmed by the existence of initiative echo questions, which an analysis based on (8) could not even begin to cope with.

In sum, analyses of E*wh*Qs based on (8) are fundamentally mistaken, and what is called for instead is their autonomous grammatical analysis. This is of course nothing but a vindication of the traditional generative way of handling the relation between grammar and discourse: We’ll start with the form type of E(*wh*)Q clauses, provisionally defined by the features listed in (7b), determine the essential features from this list, derive their invariable interpretive features, i.e. the questioning property and the echo effect, from (regular interpretive effects of) their form, and use this, together with the particular (propositional and extrapropositional) content, to define the discourse potential of specific E(*wh*)Qs, i.e. the class of utterances which this specific E(*wh*)Q can felicitously ‘echo question’ when appearing in actual discourse.

As a terminological consequence, I will henceforth strictly distinguish between *echo* *wh*-clauses (E*wh*Cs for short), i.e. clauses having the form provisionally defined by (7b), and the *echo* *wh*-question acts performed by them.

3. **Echo *wh*-Clauses and Echo *wh*-Questions – The Analysis**

3.1. **The ‘Echo Effect’ of Echo *wh*-Clauses**

First of all, let me make the focus characteristics of E*wh*Cs fully precise: What must be minimally focused in E*wh*Cs is not the *wh*-expression as a whole but its *wh*-part, as becomes visible in polysyllabic *wh*-expressions, of which German has quite a few; cf. (14).

(14) a. Karl wurde WARum/*waRUM gekündigt?

‘Karl was fired WHY?’

b. Karl hat WIEviel/*wieVIEL verdient?

‘Karl earned HOW much?’

c. Karl möchte WOfür/*woFÜR entschädigt werden?

‘Karl wants to get compensation for WHAT?’

d. Das soll inWIEfern/*inwieFERN ein Argument sein?

‘That’s supposed to be an argument in WHAT way?’

What is focused here? As is widely assumed,3 *wh*-words contain at least two meaning parts – (i) the interrogative operator meaning, and (ii) a specific meaning (in the case of *wer/wem*: person, in the case of *wohin*: direction, etc.) –, and these can be reasonably associated with the two parts

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3 This presupposes that the meaning of interrogative *wh*-words is not identical with that of *wh*-indefinites pure and simple (for critical discussions of this position, see Reich 2003:35–39, Haida 2008). Note that even in theories where the interrogativitiy of *wh*-words comes about by coupling indefiniteness with a focus feature (see Haida 2008, Truckenbrodt 2011a, 2011b), this focus feature must differ from the normal focus feature F in that it is ‘Q-related’ (see Truckenbrodt ibid.), which amounts to admitting what alone matters here: Interrogative *wh*-words have a specific interrogative meaning part. The same seems to be true for theories that, in terms of features, propose a much more fine-grained picture of interrogative *wh*-words (see in particular Grewendorf 2010).
of every *wh*-word form: the interrogative meaning with its *wh*-part and the specific meaning with its variable part. In other words, what is always minimally focused in *EwhCs* is the interrogative meaning, backgrounding everything else in the clause including the specific content of the *wh*-word. But then the ‘echo effect’ is practically derived: A clause having this focus-background structure projects onto every context of utterance that everything except the interrogative meaning is background information in the relevant discourse, i.e. ‘given’ in the sense of Schwarz-schild (1999) – which is exactly the echo effect common to all *EwhCs*.4

Capturing the echo effect this way has additional evidence in its favor: *First*, it covers the many cases of non-quotational *EwhQs* illustrated in (10–11) above: As is well-known, what counts as backgrounded, or ‘given’ information pertains to propositional content, not to the form in which it has been transmitted. Hence, if the echo effect is just a normal ‘givenness’ effect of focus structure, we should expect that echoing a previous utterance often, or even primarily, pertains to its content and only concomitantly to its form. The many non-quotational cases bear this out. *Second*, it explains why *EwhQs* convey the echo effect even out of context, and this also paves the way for accommodating initiative *in situ* *wh*-questions as a form of echo questions. As is again well known, focus-background structure does not simply reflect what is ±given but presents it as such. Thus, if I enter a room, and the first thing I hear somebody say is (15), I will just assume that having to bring down the garbage can is given from previous discourse, and what is in focus is only who is supposed to do it.

(15) Den Mülleimer soll TOM runtertragen.
‘TOM should bring down the garbage can.’

Hence, if the echo effect is just a focus-background effect, we should expect that there are initiative questions in *EwhC* form that have this effect as well. This prediction is rather clearly borne out by questions in *EwhC* form occurring in special questioning situations such as quizzes, rehearsing situations (e.g. in the classroom), interviews, courtroom interrogations, ‘make sure’ contexts, cf. (16).

(16) a. Konstantinopel wurde 1453 von WEM eingenommen?
‘Constantinople was captured in 1453 by WHOM?’

b. Und wenn ihr unsicher seid, dann lest ihr WO nach, Kinder?
‘And if you are not sure, then you look it up WHERE, kids?’

c. Und Sie sind jetzt seit WIEvielen Jahren politisch tätig, Mr. McCain?
‘And you have been in politics now for HOW many years, Mr. McCain?’

d. Und Sie nehmen an, dass der Angeklagte anschließend WOHin fuhr?
‘And you assume that, afterwards, the accused went WHERE?’

e. Zur Sicherheit: Den Bericht möchten Sie nochmals WANN haben?
‘Once more, just to make sure: The report, you would like to get it WHEN?’

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4 This account of the echo effect (and its advantageous consequences, see the discussion in the text) applies mutatis mutandis to *Eyes/noQs* (= *EynQs*) as well, the mutanda being that the entire question proposition is given, thus causing the echo effect. Since focus concerns a given constituent in *EynQs*, it has a contrastive role there, with the rise intonation supplying the ‘questioning’ interpretation for it; cf. Reis (in press) and below, section 3.3.4.
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What these contexts have in common vis-à-vis ‘normal’ wh-questions with insecure answer expectations is the fact that the addressees of quiz questions, courtroom interrogations, etc. are obliged to know, or are at least subject to a very strong expectation to know the closed proposition (= the answer). By the same token, the speaker is entitled to strongly expect/take for granted that the closed question proposition is given in the addressee’s mind. But this is just the echo effect projected, thus licensing the use of initiative questions in an EwhC form.

To be sure, there are also initiative uses of EwhCs in more normal questioning situations:

(17)  
A: Ich möchte mit Ihnen über die Themen fürs Mündliche reden.  
‘I’d like to talk to you about the subjects for the oral.’  
B: Klar, gut. Wird ja auch Zeit. Lassen Sie mal sehen: Sie sind WANN mit dem Schriftlichen fertig?  
‘Sure, ok. It’s about time, too. Let’s see: You’ll be done with the written exams WHEN?’

But on closer inspection, these are no counterexamples, for there is a subtle distinction between using EwhCs vs. normal wh-interrogatives even in situations like (17): Using EwhCs has a ‘connecting’ effect to previous discourse on the same topic, and often has a ring of politeness to it that normal wh-questions lack. We can relate these effects to the echo effect in the following way: Just as asking EwhC-questions in quiz situations, interrogations, etc. presupposes that someone is under the obligation to know the answer, i.e. that the closed question proposition is ‘given,’ so does asking them in situations like (17), the only difference being that it is the speaker that is under the obligation, not the hearer. If so, the connecting effect automatically follows – S must know the closed proposition from somewhere –, and so does the politeness effect: Asking a normal information question always puts the speaker into a weaker position than the hearer, but asking it in a form that conveys the impression that the speaker should already know the answer, makes the speaker’s position appear even weaker (having to ask again indicates some defect on his part) – and this is a prime source of politeness effects (see Goody 1978).

In sum, deriving the echo effect from the regular effect of the distinctive focus pattern of E(wh)Qs, seems to be correct.

A potentially serious objection to this result is raised by questions in EwhQ form like (18), cited in Ginzburg & Sag (2000:280–281) as examples of normal information-seeking in situ wh-questions (so-called ‘non-reprise’ vs. ‘reprise’ = echo uses of wh-in situ), where the answer, according to them, provides entirely new information.

(18)  
a. A: Well, anyway, I’m leaving. – B: OK, so you’ll be leaving WHEN exactly?  
b. A: I am going to buy a house. – B: And you are going to pay for it with WHAT?

However, as has been convincingly argued by Poschmann (2009), these in situ wh-questions are unlike normal wh-initial questions in that they can never be asked out of the blue but must con-
nect to what is given in previous discourse – the more the better, cf. (19); the so-called ‘context presupposition’ by which Poschmann accounts for this, is cited in (20).

   'Magda is going to Paris.'
B: a. ## Sie besucht WEN?
   'She’ll visit WHOM?'
b. # Und sie besucht WEN?
   'And she’ll visit WHOM?'
c. Und da besucht sie WEN?
   'And there she’ll visit WHOM?'
d. Und sie besucht diesmal WEN?
   'And this time she’ll visit WHOM?'
(Poschmann 2009:196)

(20) ‘Deaccent’ Presupposition:
“In situ wh-questions (in German and English) presuppose that the entire utterance is given in context.”6 (Poschmann 2009:200; translation mine)

To be sure, Poschmann herself still considers cases like (18–19) as fundamentally different from EwhQs. But since (20) is so close to the interpretation of the ‘echo effect’ given above, it seems to me that the opposite conclusion is warranted: Even initiative cases like (18–19) display a variant of the echo effect. This is not to deny the differences in strength of this effect to the reactive and other initiative uses of EwhCs. But since they seem systematically related to the different context conditions in question, this is no argument against this position.7

In sum, identifying the echo effect with the regular effect of the distinctive focus pattern of E(wh)Qs seems correct – which also confirms that in favoring an autonomous linguistic analysis we are on the right track: The particular echo effect of EwhQs is not a mere discourse effect but an interpretive effect of their particular form, and thus derivable from it.

3.2. The Clause Type Status of Echo wh-Clauses
3.2.1. Are Echo wh-Clauses (a Subtype of) wh-Interrogatives?
All modern analyses of German wh-interrogatives assume, with good reason, an interrogative feature (complex) in clause-initial position in addition to the wh-phrase – let’s call it the $Q/+wh$ feature as usual –, which does three things: It attracts one (and only one) wh-phrase to first position, it defines the scope for the wh-phrases in its domain, and it types the clause as syntactically and semantically interrogative. Thus, my claiming that EwhCs are not wh-interrogatives, amounts essentially to claiming that they lack this $Q/+wh$ feature.

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6 Poschmann (ibid.) explicates ‘given’ by citing Schwarzschild (1999:151):
“[…] this (GIVEN) does not preclude the possibility that the speaker could insinuate an antecedent, provided the hearer can accommodate it. […] the rules governing F-marking depend on what the speaker presents as GIVEN.”

7 In support of this position note that, according to Obenauer (1994), such a givenness presupposition is also obligatory for the analogous cases in French, where initiative in situ wh-questions are much more normal.
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There are very good arguments that this is the case (see also Reis 1991, 1992): The most obvious one is provided by the positional variability of *wh*-phrases in *EwhCs*. The generally accepted explanation for normal German *wh*-interrogatives always having a *wh*-phrase in initial position is that the $Q/+wh$ feature must be checked by a *wh*-phrase overtly moving to this position. Since *EwhCs* need no initial *wh*-phrases, the obvious conclusion is that there is no $Q/+wh$ feature to be checked; hence *wh*-phrases can remain in situ. A second, no less powerful argument is that *EwhCs* obey none of the island constraints on *wh*-scope binding between *wh*-phrases in situ and the $Q/+wh$ feature that hold in normal *wh*-interrogatives, cf. the Coordinate Structure Constraint constellations in (21a) vs. (21b). Neither do they exhibit intervention effects (Beck 1996, 2006), cf. (22a) vs. (22b).

(21)  
(a) Wh-Interrogatives:  
   * Wo aß KARL Linsen und was / welche Nudeln? (l)  
   Wo aß Karl Linsen und WAS / WEŁche Nudeln? (l)  
   ‘Where did Karl eat lentils and WHAT / WHICH noodles?’  
   Karl aß Linsen und WAS / WEŁche Nudeln? (l)  
   ‘Karl ate lentils and WHAT / WHICH noodles?’

(b) EwhCs:  
   ‘Where did Karl eat lentils and WHAT / WHICH noodles?’  
   ‘Karl ate lentils and WHAT / WHICH noodles?’

(22)  
(a) Wh-Interrogatives:  
   * Welches Buch hat NIEmals wer/welche Frau gelesen? (l)\(^{8}\)  
   Welches Buch hat niemals WER/WEŁche Frau gelesen? (l)  
   ‘Which book didn’t WHO / WHICH woman read?’

(b) EwhCs:  
   ‘Which book didn’t WHO / WHICH woman read?’

Note that so-called D[iscourse]-linked phrases, which are insensitive to some constraints on normal *wh*-interrogatives, notably to superiority effects, are still sensitive to the constraints exemplified in (21–22), cf. the respective versions with *welch*-phrases. By contrast, echo *wh*-phrases (= *EwhPs*) escape all scopal restrictions. Thus, the behavior of *EwhPs* in *EwhCs* cannot be equated with D-linked behavior, so the unselective binding mechanism for D-linked phrases employed in Pesetsky (1987) cannot be employed for *EwhPs* either. Rather, the facts suggest that there is no binding relation at all, hence again that there is no $Q/+wh$ feature imposing such a relation.

This result implies of course that *EwhPs* are not quantifiers, for being quantifiers and having scope are two sides of the same coin. But how do we explain then that *EwhPs* always appear to have ‘root scope,’ see (7bvi), i.e. that the question proposition is always the entire clause? The problem disappears once we take note of the remarkably parallel behavior of so-called referential indefinites like (23a) – they escape all scopal restrictions and always have “widest scope” (even over quantifiers with strongest wide scope preference like *each*), cf. (23b) – and their analysis by Fodor & Sag (1982): As they show, referentially used indefinites behave like terms rather than quantifiers, and should be analyzed as such, i.e. as referential noun phrases just like referential definite (proper names, demonstratives, definite descriptions), which are non-scoping elements by nature, therefore outside the network of true quantifier scope relations, and thus interpretable as always having something like ‘widest scope.’

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\(^{8}\) These examples are inspired by the discussion of parallel English examples in Pesetsky (2001: §5.1).
Marga Reis

(23) a. A student [who, strangely enough, I knew from my home town] cheated on the exam/every exam.

   Each teacher overheard the rumor that a student [who, strangely enough, I knew from my home town] had been called before the dean.

What this suggests for EwhPs is clear: If we analyze EwhPs as terms, their interrogative ‘widest scope’ is accounted for without being a true scope effect. But can EwhPs be analyzed as terms? As shown below (3.3), there is striking evidence that they must be analyzed as such, so the present ‘no scope’ argument against positing Q/+wh for EwhCs is watertight.

This leaves checking the possible clause typing motivation for Q/+wh in EwhCs, i.e. asking whether EwhCs carry interrogative sentence mood. The main evidence against this comes from two sources. One is selectional behavior: Unlike bona fide wh-interrogatives EwhCs cannot be embedded under predicates selecting interrogative complements such as fragen ‘ask,’ egal ‘not matter (to),’ wissen ‘know,’ etc., cf. (24a) vs. (24b). Since complement selection is (at least) partially a semantic matter, this underlines that EwhCs are not only syntactically but also semantically distinct from wh-interrogatives, i.e. they lack wh-interrogative sentence mood. ⁹

(24) Ihr ist egal,  a. 1. √ warum Karl die Firma verlässt.
   ‘She doesn’t care’  2. √ WA RUM Karl die Firma verlässt.
   ‘why Karl is leaving the firm.’

   b. 1. * WARum Karl die Firma verlässt.
   2. * Karl WARum die Firma verlässt.
   3. * WARum verlässt Karl die Firma.
   4. * Karl verlässt WARum die Firma.

The other source of evidence is clause type sensitive lexical items: German items that can or must be licensed by interrogative sentence mood are e.g. the NPI jemals ‘ever,’ and in particular the modal particle denn, which is the litmus test for semantic interrogativity. ¹⁰ As shown by (25–25’), EwhCs, including the ‘informational’ in situ wh-questions cited above, fail this test as well.

---

⁹ It might be objected that parts of (24) do not suffer from clause type mismatch but from violating the first-position requirement for wh-phrases. This objection is met by the (bad) examples with EwhPs in first position, but these are open to a similar objection: Since verb-final EwhQs fulfilling the wh-first requirement do not exist (owing to the non-existence of verb-final declarative counterparts unheaded by a complementizer), the verb-final requirement for subordinate wh-clauses is always violated. Thus, the argument is completely watertight only if we assume (perhaps correctly) that complement selection always targets semantic complement mood no matter how expressed.

¹⁰ While denn does contribute interpretively to the interrogatives it appears in (introducing a ‘reactive’ bias, cf. König 1977), it is (unlike MPs nur, schon) totally unselective w.r.t. interrogative subtype distinctions (±rhetorical, ±deliberative, ±conducive, etc). In addition to its occurring in wh- and yes/no-interrogatives alike, this makes it an ideal test item for semantic interrogativity.
On the Analysis of Echo Questions

(25)  
a. Warum ist er denn HIER?
   'Why is he here?'
b. A: Magda fährt nach Paris. – B: Und wen beSUCHT sie denn da?
   'Magda is going to Paris. – And whom will she visit there?'
c. Warum sollte Paul jemals gehen?
   'Why should Paul ever leave?'

(25')  
a. * Er ist denn WARum hier?
b. * Und da besucht sie denn WEN?
c. * Paul sollte jemals WARum gehen?

In short, the overall conclusion is that EwhCs must not have Q/+wh, and hence are neither syntactically nor semantically a subtype of wh-interrogatives.

3.2.2. If Not a Subtype of Wh-Interrogatives, What Then?
This result leaves us with two options: Either E(wh)Cs are (i) an interrogative clause type of their own (see e.g. Wunderlich 1986, 1988), or (ii) instances of the clause type they formally ‘echo’ (see Reis 1991, 1992).

The tempting aspect of option (i) has always been that it would allow us to explain the invariable question use of E(wh)Cs in the orthodox way: Being a special interrogative clause type, they can be assigned a special interrogative sentence mood, say \( Q_E \), such that the echo question use of E(wh)Cs follows from it.\(^{11}\) The kind of evidence to look for in support of (i) is linguistic phenomena correlated with EwhQs, but not with normal wh-interrogatives as a clause type, thus needing \( Q_E \) as a licenser. The only obvious candidate is the typical rising intonation of E(wh)Qs: It is typically absent from wh-interrogatives, and has often been claimed to induce the echo question meaning all by itself. Moreover, rise contours appear in ‘exaggerated’ forms that are typically found in E(wh)Qs only (cf. Bolinger 1987, Oppenrieder 1988). However, given the results of Bartels (1999) (see also Truckenbrodt 2012) this leads nowhere for EwhQs:\(^{12}\) Not only did Bartels show that differences in intonation generally just serve to distinguish pragmatic subtypes of questions – including the different rise intonations of E(wh)Qs motivated by ‘failure to understand’ vs. ‘incredulity’ –, but she showed in particular that a bona fide subtype of EwhQs, so-called ‘reference questions,’ systematically have a fall contour, cf. (26).\(^{13}\)

---

\(^{11}\) There is reason to be skeptical from the start, for a constitutive element of semantic wh-interrogativity is a wh-operator-variable relation, implying that the wh-phrases have ‘interrogative scope’ – and as shown in 3.2.1, this property is arguably absent from EwhQs. For further elaboration of this point see Reis (in prep.).

\(^{12}\) EynQs do have obligatory rise intonation, but given Bartels’ results it would be wrong to relate this to a specific sentence mood feature; see the discussion in the text and section 3.3.4. Moreover, EynQs show completely parallel behavior with respect to the arguments supporting option (ii) for EwhQs, thus suggesting the same analysis.

\(^{13}\) The examples in (26) are German equivalents of Bartels’ English examples (1999: 212). – Another case in point is provided by the intonationally minimal pair in (i), a and b being both EwhQs. The difference is that the rise corresponds to assuming a set of answer alternatives whereas the fall conveys the speaker assumption that there are no plausible alternatives. Thanks to M. Rochemont (p.c.) for the data and their interpretation.

(i)  
a. You talked to WHICH girl? (/)
b. You talked to WHICH girl? (\( \backslash \))
(26)  a.  A: Fred wollte es nicht aufgeben.  –  B: Fred wollte WAS nicht aufgeben?  (\)
   ‘Fred didn’t want to abandon it.  –  Fred didn’t want to abandon WHAT?’  (\)

   ‘Did they finish their plates?  –  Did WHO finish their plates?’  (\)

Hence, rise contour is not a constitutive formal feature of E(wh)Cs in general, thus it cannot be used in setting up an E(wh)C clause type of its own.

Negative evidence against option (i) does of course not necessarily support option (ii). But there are data that clearly do. The first is the fact illustrated in (3) above: The defining EC features co-occur with all clause structures which German grammar allows for. This is only compatible with option (ii). Second, elements that are sensitive to sentence mood, such as modal particles (MPs), certain sentence adverbials, polarity items, are always licensed by the clause structure with which the EwHC features combine, but not by the EwHC features themselves, cf. (27). To clinch matters, there is not a single lexical element of this kind behaving in a uniform way vis-à-vis the entire range of EwHCs. Again, all this is only compatible with option (ii).

   Karl has MP MP MP ever cookbooks written
   Basic meaning: ‘Karl has written cookbooks.’

   EwHC:  B: Karl hat ja / halt / * denn / *jemals WAS geschrieben?
   Karl has MP MP MP ever what written
   Basic meaning: ‘Karl has written WHAT?’

   b.  Interrogative:  A: Ob Karl *ja / *halt / denn / jemals Gedichte geschrieben hat?
   if Karl MP MP MP ever poems written has
   Basic meaning: ‘(I wonder) if Karl has written poems?’

   EwHC:  B: Ob Karl *ja / *halt / denn / jemals WAS geschrieben hat?
   if Karl MP MP MP ever WHAT written has
   Basic meaning: ‘(I wonder) if Karl has written WHAT?’

In sum, E(wh)Cs do not form an interrogative clause (sub)type, rather, they are instances of the clause type they formally ‘echo.’ Hence, there is no interrogative sentence mood by which to explain their invariable question interpretation. But if so, what explains it then? This is the question to which I will now turn.

3.3.  The ‘Question Interpretation’ of Echo wh-Clauses

3.3.1.  The Status of Echo wh-Phrases
At first glance, the solution seems easy: Every EwHC contains a +wh-word, and as such it carries an interrogative meaning, which must become part of the interpretation of the entire EwHC at some point in their derivation – so what is the problem?

The problem is this: In normal wh-interrogatives, the phrase projected by this +wh-word (= +whP for short) interacts with the Q/+wh feature to create the interrogative quantifier-variable relationship that is at the heart of their wh-question interpretation. But if there is no Q/+wh in EwHCs to ‘activate’ the interrogative +wh-word meaning as I have argued in 3.2.1, EwHCs cannot get their wh-question interpretation in this way. Since this is the only way that is standardly
accepted, one might be tempted to embrace a kind of $Q/+wh$ feature for EwhCs after all. But this will not do, as becomes clear once we take stock of the distributional differences between $wh$-phrases in EwhCs vs. $wh$-phrases in bona fide $wh$-interrogatives (= EwhPs vs. $+wh$Ps) we found so far, see the summary in (28): First, EwhPs may appear in all types of clause structures, normal $+wh$Ps only in bona fide $wh$-interrogative structures, see above (3–4), and again (29a). Second, there is a marked distributional difference w.r.t. to $\pm$interrogative operator positions: Normal $+wh$Ps occur only in $+wh$ operator positions, see (24–24') and again (29b). Third, and the other way around, EwhPs occur only in non-operator XP positions, but in all of them, see (29c) plus the EwhPs occupying VP and NP slots illustrated in (5).14

(28) **EwhPs vs. normal interrogative wh-phrases (+whPs) – distributional differences:**

<table>
<thead>
<tr>
<th>Occurrence in</th>
<th>EwhP</th>
<th>$+wh$P</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. clause types $\neq$ $wh$-interrogatives (cf. 29a)</td>
<td>$+$</td>
<td>$-$</td>
</tr>
<tr>
<td>b. $+wh$-operator positions (cf. 29b)</td>
<td>$-$</td>
<td>$+$</td>
</tr>
<tr>
<td>c. all non-operator XP positions (cf. 29c)</td>
<td>$+$</td>
<td>$-$</td>
</tr>
</tbody>
</table>

(29) a. Peter ist WARum / *waRUM / *warum traurig./? (declarative structure)

‘Why is Peter sad?’

Spielt Paul WOmit / *woMIT /*womit./? (polar interrogative structure)

‘What does Peter play with?’

Sei WARum / *waRUM / * warum nett zu ihm./? (imperative structure)

‘Be nice to him why?’

b. Mir ist egal, *WARum / waRUM/warum er nicht kommt./?

‘I don’t care why he won’t come.’

c. Paul glaubt, WORauf / *woRAUF/*worauf könne man stolz sein./?

‘Paul believes that one could be proud of what?’

d. Paul, [dessen Meinung WOzu / *woZU/*wozu] bescheuert ist, ... /?

‘Paul, whose opinion on what is crazy, ...?’

These findings can be summarized as in (30):

(30) **Distributional generalization w.r.t. EwhPs vs. $+wh$Ps:**

$+wh$Ps show $+wh$-operator behavior throughout, EwhPs show $–wh$-behavior throughout (i.e. EwhPs may occupy all positions licensed for non-interrogative XP expressions of any kind$^{16}$ – NP, DP, PP, DegP, AP, VP, IP, CP – and only these).

---

14 EwhPs may even appear as word constituents (cf. Artstein 2002a, Poschmann 2009), which are clearly non-operator positions as well.

15 $+wh$Ps occupy apparent non-operator positions in multiple $wh$-interrogatives. But then they are a) bound to the filled $+wh/Q$ operator position, b) must still obey the categorial and positional restrictions on $+wh$Ps (e.g. no in situ $+wh$P may appear in a VP or NP slot, or in an XP position like in [*the best album since when*], etc.

16 Provided, of course, that an appropriate interrogative $wh$-word is available (e.g. XP-adverbials like *erstaunlicherweise* ‘amazingly,’ *leider* ‘unfortunately’ have no $wh$-counterpart).
The good news deriving from (30) is that we can now delimit the formal features defining EwhCs in a much more concise way, for (30) covers four of the six formal EwhC characteristics listed in (7b), here repeated as (31):

(31) Distinctive features of echo wh-questions w.r.t. form:
(i) Wh-expression positionally variable
(ii) Obligatory main accent/narrow focus on wh-expression
(iii) Typically final rise contour
(iv) Combination of (i-iii) with clause structures of all kinds
(v) Wh-phrase positions specific to echo wh-questions
(vi) Main clause boundedness (= ‘root scope’ of echo wh phrase)

(31i) is a mere reflex of the variable word order of -whXP phrases in German, (iv) of the occurrence of EwhPs in clause structures of all kinds, for all of them contain -whXP positions. Since the positions specific to EwhPs are exclusively -whXP positions (v) is also covered, and so is (vi), for the ‘root scope’ property follows from being terms, i.e. -whXPs, cf. 3.2.1, and (30) shows that EwhPs are just that. Since we have already excluded (iii) from the list of defining features in 3.2.2, we can replace (7b)/(31) by a much simpler characterization of EwhCs:

(32) Defining features of echo wh-clauses (EwhCs):
(i) Obligatory wh-expression in -wh XP position
(ii) Obligatory main accent/narrow focus on (wh part of the) wh-expression

The bad news is that (30) confirms beyond doubt that EwhPs are no interrogative quantifiers of any sort, which also means that no Q/+wh feature of any sort is around to bind them, otherwise the identical distribution of EwhPs and -whXP positions. Since EwhPs do not even interact with the Q/+wh feature where there is one, namely in EwhCs based on wh-interrogative structures. Hence there must be a significant difference between +whPs and EwhPs, which can only be formulated in the following way: +whPs are interrogative, EwhPs are not. To put it more clearly: While it is beyond doubt that the wh-words occurring in EwhCs are interrogative wh-words, the (minimal) EwhP as a whole is non-interrogative. Thus making use of EwhPs for explaining the invariable question interpretation of EwhCs does pose a considerable, almost dilemmatic, problem.

How can it be solved? So far, three types of solutions are on record: One was suggested, more or less in passing, by den Dikken (2003) (see also den Dikken & Giannakidou 2002), who postulates an interrogative operator feature that has scope just over the EwhP, thus locally binding its variable and thereby making it a happy interrogative wh-phrase that provides EwhCs with their interrogative meaning. The problem with this attempt is that it is completely ad hoc: Neither is it derived from the distinctive features of EwhQs, see (32), nor is there an explanation why generating interrogative sentence meanings in this way should be possible in EwhQs but nowhere else in the languages in question. A second solution, more or less unique to my early papers, accepts the syntactically non-interrogative status of EwhPs at face value, but tries to somehow make their still existing interrogative meaning part accessible such that the question interpretation can be derived from it as an implicature. While this attempt is somewhat less ad hoc (in
particular, the distinctive $\text{EwhC}$ focus pattern figures in deriving the implicature), I will just concede in hindsight that it was on the wrong track, at least quite inferior to the third type of solution, to which I will now turn: a strictly focus-based approach.

3.3.2. Echo $\text{wh}$-Clauses and Their Question Interpretation: The ‘Focus-Based Approach’

We owe the focus-based approach to Ron Artstein, cf. his seminal papers (2002a, 2002b). His starting point was the parallelism between focus semantics à la Rooth (1992) and $\text{wh}$-question semantics à la Hamblin (1973), which both turn on sets of propositional alternatives (generated by replacing the focused expression or, respectively, the $\text{wh}$-expression by expressions of the same semantic type): The meaning of focus is the set of alternatives to which the one expressed and focused belongs, cf. (33a), the meaning of a $\text{wh}$-question is the set of alternatives (alias set of possible answers) to which the correct answer(s) belong(s), cf. (33b). As is obvious from (33), the respective set of alternatives (in brackets) is identical.

(33)  
\begin{align*}
\text{a.} & \quad \text{Karl baut GERSte an.} \\
& \quad \text{‘Karl grows barley.’} \\
& \quad \{\text{Karl baut Gerste an; Karl baut Weizen an; Karl baut Roggen an; ...}\} \\
& \quad \text{‘Karl grows barley; Karl grows wheat; Karl grows rye; ...’} \\
\text{b.} & \quad \text{Was baut Karl an?} \\
& \quad \text{‘What does Karl grow?’} \\
& \quad \{\text{Karl baut Gerste an; Karl baut Weizen an; Karl baut Roggen an; ...}\}
\end{align*}

The close relation between focus and $\text{wh}$-question meaning also shows up in the restrictions on question-answer-congruence: Answers to a $\text{wh}$-question are appropriate if and only if the focus value of the answer corresponds to the set of alternatives denoted by the question; cf. (34).

(34)  
\begin{align*}
\text{A:} & \quad \text{Was baut Karl an?} \quad \rightarrow \quad \text{B: a.} \quad \text{Karl baut GERSte an.} \\
& \quad \text{‘What does Karl grow?’} \quad \rightarrow \quad \text{‘Karl grows barley.’} \\
& \quad \text{b.} \quad \# \quad \text{KARL baut Gerste an.}
\end{align*}

Artstein (2002b:99–100) uses this close relationship to propose “that both $\text{wh}$-[echo] and non-$\text{wh}$ echo questions [= $\text{EynQs}$] have the same kind of denotation, a set of alternatives arrived at by focus semantics.” The italicized part is important: Artstein proposes not only that both types of echo questions denote the same sets of alternatives, but also that these sets are focus-generated in either case,\(^{17}\) cf. (35).

(35)  
\begin{align*}
\text{A:} & \quad \text{Karl baut Gerste an.} \\
\text{a.} & \quad \text{B:} \quad \text{Karl baut GERSte an?} \\
\text{b.} & \quad \text{B:} \quad \text{Karl baut WAS an?} \\
\text{Set of alternatives for a as well as b:} & \quad \{\text{Karl baut Gerste an; Karl baut Weizen an; Karl baut Roggen an; ...}\}
\end{align*}

\(^{17}\) Poschmann spells this out like this: “Focus marking changes the marked expression into a variable. A lexicalized variant of such variables are $\text{wh}$-expressions.” (2009:92; translation mine).
If so, EynQs and EwhQs should accept identical answers, i.e. term answers as well as non-term answers, and this is by and large the case, cf. the last line in (35'). If normal question semantics were operative in echo questions, this should be impossible, but focus semantics condones it, because focus constructions have, in addition to their focus value, a normal semantic value as well.

(35')

\[\begin{align*}
\text{A:} & \quad \text{Karl baut Gerste an.} \\
\text{a.} & \quad \text{B:} \quad \text{Karl baut GERSte an? (/)} \\
& \quad \text{A:} \quad \# \quad \text{Ja.} / \lor \text{Ja, GERSte.} / \lor \text{Ja, du hast recht gehört.} \\
& \quad \quad \text{‘Yes.’/ ‘Yes, barley.’/ ‘Yes, you heard me right.’} \\
\text{b.} & \quad \text{B:} \quad \text{Karl baut WAS an? (/)} \\
& \quad \text{A:} \quad \# \quad \text{Ja.} / \lor \text{GERSt.} / \lor \text{Du hast recht gehört: GERSt.} / \lor \text{Du hast recht gehört.} \\
& \quad \quad \text{‘Yes.’/ ‘Barley.’/ ‘You heard me right: Barley.’/ ‘You heard me right.’}
\end{align*}\]

Artstein’s approach has further advantages: First, if the all-important feature of EwhPs is that they are focused, then – pace some loose ends – the entire distribution of EwhPs follows, for focused phrases are positionally variable, insensitive to island constraints, always have widest scope, and occur in clause structures of all kinds. In other words, the –wh behavior of EwhPs is automatically taken care of. Hence, the list of defining EwhC features can be reduced to (32ii). Second, if the question meaning of EwhCs is a purely focus semantic meaning, then it is per se independent of the underlying clause type: Every clause type has an information structure, therefore all of them can underlie echo questions, only the type of focus alternatives = answer alternatives is different, cf. e.g. the imperative example (36).

(36)

\[\begin{align*}
\text{A:} & \quad \text{Bau GERSte an, Junge!} \\
& \quad \quad \text{‘Grow barley, boy!’} \\
\text{a.} & \quad \text{B:} \quad \text{Bau GERSte an? (/)} \\
\text{b.} & \quad \text{B:} \quad \text{Bau WAS an? (/)} \\
& \quad \quad \text{Set of alternatives for a as well as b:} \\
& \quad \quad \quad \{\text{bau Gerste an; bau Weizen an; bau Roggen an; ...}\}
\end{align*}\]

All this is wonderful but the crucial question is still open: How come that focus may generate question meanings for E(wh)Cs but nowhere else in German or English? Artstein suggests a pragmatic answer based on the claims cited below, on which he builds a pragmatic derivation, roughly like (37) (cf. Artstein 2002a,b: passim).

“Echo questions must be entailed by previous discourse; focus is therefore not needed to mark givenness, and instead it is used to compute the question denotation […] The reason the wh-phrase of an echo question is marked with focus is that this is a strategy to arrive at the meaning of the echo question itself.” (Artstein 2002b: 98, 101)
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(37) Artstein’s derivation of the EwhC question meaning (schematized):

(i) Not only the deaccented propositional content is given but also, following Schwarzschild (1999), the \textit{wh}-phrase; thus the entire content of EynQs as well as EwhQs is given.

(ii) Despite (i), the minimal focus on the \textit{wh}-expression (EwhQs) or some -\textit{wh-} constituent (EynQs) marks the focused expression as ‘not given.’ The apparent violation of Grice’s 1st maxim of quantity by (ii) is avoided by assuming that focus serves a different communicative purpose, which is/must be identified as

(iii) The utterer of E(\textit{wh})Q wants to question this part of the clause.

From (i–iii) =>

\textit{Implicature:} Focus induces the question interpretation of E(\textit{wh})Qs.

Unfortunately, this is not the final answer to our prayers for Artstein’s account has two severe drawbacks, both ironically pertaining to focus: (i) Focus is assigned a different role in E(\textit{wh})Cs than it has elsewhere, cf. the quote above; (ii) the strategy of focus-based question formation it yields seems applicable to questions in general, so its being limited to E(\textit{wh})Qs (at least in German or English) remains unexplained. Neither (i) nor (ii) sit well with any of the focus or question theories Artstein started out with, so this is at best a halfway focus-based approach.\(^{19}\)

3.3.3. Echo \textit{wh-}Clauses and ‘Question Interpretation:’ A Revised Focus-Based Approach

So let us try to do better. The key is the observation introduced in section 3.1 that obligatory focusing of the \textit{wh}-expression does not pertain to the entire EwhP but just to its \textit{wh}-part, cf. again the diagnostic polysyllabic examples (14), here repeated as (38).

(38) a. Karl wurde WARum/*waRUM gekündigt? (/)

‘Karl was fired WHy?‘

b. Karl hat WIEviel/*wieVIEL verdient? (/)

‘Karl earned HOW much?‘

c. Karl möchte WOfür/*woFÜR entschädigt werden? (/)

‘Karl wants to get compensation for WHAT?‘

d. Das soll inWIEfern/*inwieFERN ein Argument sein? (/)

‘That’s supposed to be an argument in WHAT way?‘

So far, this observation has played no role for the analysis of E(\textit{wh})Qs, not even in focus-based approaches – EwhPs are taken to be in focus as a whole. In Artstein’s case this may be due to the near-total absence of polysyllabic \textit{wh-}words in English, although the focusing of phrasal expressions like \textit{how much}, \textit{what kind of tool, in which country}, etc. in English EwhCs follows exactly the same pattern (cf. Reis, in prep.). In German-based approaches this may be due to the fact that

\(^{19}\) An impressive attempt to optimize Artstein’s approach has been undertaken by Poschmann (2009). For reasons of space, I shall not discuss it at length but just point out the one aspect that is crucial for the present argumentation: When deriving the question meaning of E(\textit{wh})Qs, Poschmann (\textit{ibid.}:200–201) appeals to role switching of focus just like Artstein. Thus, her version of the focus-based approach fails at the same point as his.
in situ wh-phrases in German multiple wh-questions may exhibit wh-part focusing as well, thus suggesting that wh-part focusing is not a distinctive feature of German EwhCs to begin with, and thus no basis for their analysis. But this suggestion is misleading: While wh-expressions in multiple questions are never unaccented, cf. (39), they do not obligatorily bear main accent, cf. (39a–b'). And no matter whether they bear main or secondary accent, the accent does not necessarily, perhaps not even usually, fall on the wh-part, as shown by the bisyllabic wh-words in (39).

(39)  
a. Findet heraus, WER WANN woHIN/WOhin gefahren ist. –
   a'. Findet heraus, WER WANN woHIn/Wohin im gleichen BUS gefahren ist.
   ‘Find out who went where when (in the same bus).’

b. WER hat wieVIEL/?WIEviel verschwiegen? –
   b'. Wer hat wieViel/?Wieviel verSCHWEgen?
   ‘Who concealed how much?’

Thus, obligatory accent/focus on the wh-part is manifestly a distinctive feature of EwhCs, at least in German. At any rate, it is an obligatory feature, and this should be reflected in the focus interpretation of the respective EwhPs.

Why is this the crucial point here? Because the focus alternatives induced by the two focus patterns are different: When the entire wh-expression is in focus, the set of focus alternatives is potentially very large, cf. (40a), but when only the wh-part is focused, there are just the two alternatives \{QUESTION (...); NON-QUESTION (...)} given in (40b). And what is more, the question alternative is in focus, thus yielding the question meaning of EwhCs as a normal focus effect!

(40)  
a. Wohin/WoHIN geht Tim? (\)
   ‘Where does Tim go?’
   Set of focus alternatives:
   {Tim geht nach Paris; Tim geht nach London; Tim geht nach Berlin; Tim geht nach Rom ...}
   ‘Tim goes to Paris; Tim goes to London; Tim goes to Berlin; Tim goes to Rome ... ’

b. Tim geht WOOhin? (/)
   ‘Tim goes WHERE?’
   Set of focus alternatives:
   \{QUESTION (Tim geht ...); NON-QUESTION (Tim geht ...)\}
   or: \{OPEN x (Tim geht nach x); NOT OPEN x (Tim geht nach x)\}

This is just a rough indication of the alternatives in question; how this could be spelled out in formal semantic terms, I have to leave open. But there is at least one bit of additional evidence that my analysis is, in principle, on the right track: Standard German has one and only one interrogative wh-word that does not tolerate stress on its wh-part, namely: wieso (a more colloquial expression for warum ‘why’). As a consequence, it never occurs in EwhCs, cf. (41a), but only in normal wh-interrogatives, there however in initial as well as in situ positions, cf. (41b):

20 A case in point is Poschmann (2009), see previous note, who considers wh-part focusing as a mere formal marking of in-situ status of wh-questions (ibid.: 17–18).
On the Analysis of Echo Questions

(41)  
  a. Karl wurde WARum/*WIESO gekündigt? (/)
      'Karl was fired WHY?'
  b. 1. WIESO/WIESO wurde Karl gekündigt? (/)
      'Why was Karl fired?'
      2. [Findet heraus] wer wann wohin wieso versetzt wurde.
      'Find out who was transferred when where and why.'

In explaining this singular behavior of *wieso*, what comes in handy is an old insight by T.N. Höhle (p.c.) that there are definite pronoun alternatives to all German *wh*-words but not to *wieso*:

(42)  
  wer – der
  who – the
  was – das
  what – that
  wohin – dahin
  where(to) – there(to)

  womit – damit
  what-with – that-with
  weshalb – deshalb
  why – therefore
  wie – so
  how – so

  inwiefern – insofern
  in-how-much – inasmuch
  was für (ein) – so (ein)
  what [for] (a) – such (a)
  wieso
  *daso/*soso
  how-so – there-so/so-so

This suggests that focus on the *wh*-part does induce just the two alternatives we assumed in (40b), and given (42), we can also formulate them in a simple way, cf. (43), the alternative terms indicating open vs. closed reference of the *wh*-expression in question. What this amounts to in formal semantic terms will, again, have to be left open.

(43)  
  Tim geht WOhin? (/)
  'Tim goes WHERE(to)?'
  Set of focus alternatives:
  {Tim geht wohin; Tim geht dahin}
  'Tim goes where(to); Tim goes there(to)'

3.3.4. Is a Strictly Focus-Based Approach to All Echo Clauses Possible?
Let us suppose then that this account for the question interpretation of EwhCs is on the right track. If we confine ourselves to EwhCs, this vindicates a solely focus-based approach for it does away with both focus stipulations which Artstein’s account of the EwhQ interpretation is based on (see 3.3.2): Not only is the *wh*-part focus property that it exploits clearly unique to EwhQs (at least in German and English) but, most importantly, focus would have the same Roothan interpretation throughout, including the *wh*-part focus on EwhPs. Moreover, the question meaning of EwhCs simply falls out as the focused alternative. Since the echo effect also falls out naturally from the EwhC specific focus pattern, this amounts to having a strictly focus-based approach to EwhCs viz. EwhQs in all relevant respects.

But this gain over Artstein’s original focus-based approach is paid with a loss in generality: The set of alternatives {QUESTION; NON-QUESTION} induced by *wh*-part focus on *wh*-words in EwhCs just cannot arise in EynCs where plain -wh constituents are focused. But without identity of the sets of focus alternatives induced by EynCs and EwhCs, a parallel focus-based derivation
of the question interpretation of EynCs, initially the biggest attraction of Artstein’s approach, is no longer possible.

On closer inspection, however, this is not bad news at all, for in forcing us to look for the correct approach to EynC question interpretation in different directions, it makes us see the importance of a different, wider parallel between EwhCs and EynCs: It is not focusing by itself that leads to the specific question interpretation of both, EwhQs and EynQs, but focusing together with the interpretive properties of their respective constitutive formal feature: In EwhCs it is the obligatory *wh*-phrase with which focus interacts, in EynCs it is the obligatory rising intonation. Artstein paid no attention to this factor at all but as shown in recent comprehensive studies of EynQs alias ‘declarative questions’ (cf. Gunlogson 2003, Poschmann 2009) and of fall [?] vs. rise [/] intonation of sentence types in general (Bartels 1999), rising intonation is sufficient, given the other properties of the respective EynCs (focusing, clause type), to systematically derive their question interpretation from the meaning of the [/] contour. There are different meaning assignments on record, perhaps the most attractive in this context being Bartels’ proposal that [?] vs. [/] signals assertion vs. non-assertion of a salient proposition (see also the elaboration in Truckenbrodt 2012): It provides not only the broadest coverage of the distribution of these contours (including their distribution over normal *wh*-questions and ±referential EwhQs, see above 3.2.2) but also a rather plausible account of the question interpretation of EynCs as the result of a pragmatic inference process starting from non-assertive marking coupled with addressee orientation.

If so, the divergence of question interpretation accounts for EwhCs and EynCs allows an important conclusion: The overt formal features found to be obligatory for EwhCs and EynCs respectively are in no case just constructional decoration but systematically involved in deriving the central interpretive features of both, i.e. their echo effect and their question interpretation. Thus, the fact that in this view question interpretation is due to different mechanisms in EwhCs vs. EynCs, is no disadvantage vis-à-vis the original focus-based approach but a mere consequence of its greatest advantage: its commitment to compositionality.

4. What Remains to Be Done
Even if the analysis of E(wh)Qs presented above is on the right track, there is still a lot to be done before we can be sure of anything. First, and closest to home, the facts about *wh*-phrase focusing/accenting and its possible pragmatic effects in normal *wh*-interrogatives are largely unknown even for a language as thoroughly researched as German – but we do need them in order to make sure, by way of comparison, what is really special about *wh*-phrase accent/focus in EwhCs, and what is not. Second, what we also need following Poschmann’s (2009) lead, is a much closer comparison with the formation of normal vs. echo *wh*-questions in strict *wh*-in situ languages, though with a somewhat dilemmatic purpose in mind: On the one hand, these languages may teach us how focus-generation of question meaning works in normal *wh*-questions; on the other hand, unless they also teach us something about how the differences between normal and echo *wh*-cases we observe in German or English can be derived, *wh*-phrase focusing in these languages may not be a suitable model for analyzing our echo *wh*-questions at all. Third, the biggest of all litmus tests is still waiting: placing the analysis of echo *wh*-questions presented above into the context of a full-fledged grammar. While this is the only way of testing whether or not it
is a viable analysis for echo wh-questions or at least a better one than others suggested so far, it is too big a task to even begin being tackled here. So let me leave it entirely to future research.

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The Internal Structure of Nouns, Nominals, and Gerunds: An Analysis of Their Relationship and Representation

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Abstract: Spectrums of lexical categories in languages are well-documented phenomena. Some constructions are “nounier” or “verbier” than others, though they might not fit purely into the categories of nouns or verbs. While these middle-ground constructions are recognized in the literature (see Ross 1973, e.g.), their representation is less studied in modern frameworks. I build on Abney’s (1987) dissertation concerning the DP in English, and place it into a Minimalist framework. In doing so, I propose the insertion of nominal and verbal projections at varying points in the syntactic hierarchy to represent selected nominal constructions, based on parallelisms in the hierarchical structures of nominal and verbal structures. Though the parallelism is not exact, I propose a dP projection to aid in the symmetry, presenting evidence to complete the spectrum on the nominal end. My investigation maintains the universality of nouns and verbs while providing an analysis of nominal forms using preexisting categories.

0. Introduction

With regard to the grammar of language, it is important to consider every type of construction with a mindset of “everything in its place, and a place for every thing.” That is to say, it is not enough to analyze only constructions that fit neatly into a pre-existing framework. It is necessary to account for the entire grammar of a language. In this paper, I analyze different types of deverbal nominal structures alongside purely nominal structures. Some of these nominal structures have distinct verbal properties that need to be accounted for. The study of certain constructions whose properties seem to classify them as neither entirely nominal nor entirely verbal is by no means novel (see, e.g., Ross 1973 for early work), but has been, perhaps, understudied in modern frameworks.

It has been well established that such constructions lie somewhere on a continuum between pure nouns and verbs, but it is less clear how to account for each point on the continuum given generally accepted syntactic models. With the advent of the Minimalist framework (Chomsky 1995, 2000, 2001, 2008), we may now look at these constructions under a new lens. I first provide an analysis of the representation of nominal structures using uninterpretable and unvalued features to account for the nominal/verbal variation in these constructions across a spectrum of “nouniness.” In doing so, I refurbish Abney’s (1987) strategy of embedding verbal projections within nominal structures using a structure where mergers and movement are based on

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1 This work contains selected sections from a Master’s thesis. The full thesis may be found in the University of Georgia Thesis and Dissertation archives.
feature checking. As a consequence of my analysis, I also provide an entirely syntactic and feature-driven approach to the origin of the /-ing/ morphology in gerunds and how it comes to appear in all the gerund constructions.

1. The Representation of Syntactic Categories

1.1. A Spectrum of Grammatical Categories

In his dissertation, Abney (1987) uses a spectrum of “nouniness” and “verbiness” to show different environments that motivate his proposal of a DP functional head. He cites Ross (1973) in proposing the following continuum:

![Figure 1: Ross’s (1973) Noun-Verb Continuum](image)

Concrete Noun | Action Nominal | Acc-ing | Indirect Question |
--- | --- | --- | --- |
Derived Nominal | Poss-ing | Infinitive | Tensed CP

Examples of each point along this continuum are given below in (1):

(1)  
- a. Concrete Noun: The chair bothered me.  
- b. Derived Nominal: His movement of the chair bothered me.  
- c. Action Nominal: His moving of the chair bothered me.  
- d. Poss-ing: His moving the chair bothered me.  
- e. Acc-ing: Him moving the chair bothered me.  
- f. Infinitive: To move the chair was an arduous task.  
- g. Indirect Question: I asked who moved the chair.  
- h. Tensed CP: He moved the chair.

After the purely nominal concrete noun (1a), the next most verbal construction is the derived nominal (1b), which is manifested by the addition of thematic arguments and nominal cases (genitive and of-case), similar to the arguments and case assigned in verbal phrases. The action nominal in (1c) then changes the head of the phrase from a derived noun to a gerund, which more clearly shows the verbal root since the /-ing/ morphology is consistent for all gerunds.

The /-ing/ ending in English is a multifaceted piece of morphology, in that it has multiple uses. For the purposes of this paper, I distinguish the gerund from the present participle, which may be used adjectivally (*The dripping paint bothered me*) or progressively (*The paint was drip-*)

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2 The Acc-ing construction can be marginal or, in some cases, ungrammatical for speakers of American English, especially in subject position. It is, however, accepted in other literature. Because of this, and because of its important place on the spectrum in (1), I feel it is important to include it as part of this analysis.

3 Following Adger (2003), I assume an of-case, which spells out an of for the complement to N. I further assume that this case is valued by n (in a split NP analysis), consistent with the valuation of accusative case on complements to V by v. Adger (forthcoming) further argues for of phrases as complement arguments in nominal structure.

4 The origin and significance of the /-ing/ suffix is discussed in more detail later. Until then, for ease of explaining other parts of the paper, I assume /-ing/ to be already attached in the numeration.
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*ping down the wall*). Both of these represent an ongoing or incomplete action. The gerund, however, is a more nominal construction, the distribution of which is illustrated throughout this paper. Although I do not focus more on this distinction, it is important to keep in mind that the discussion will focus on the gerund, and not the present participle.

The Poss-ing construction in (1d) is more verbal in that it changes the case of its internal argument from of-case (nominal) to accusative case (verbal), while still maintaining the gerund ending found in the action nominal.

The next two elements on the spectrum, Acc-ing (1e) and the infinitive (1f), do not show as obvious a progression, since both value accusative case on their external arguments, and it might appear that the only overt difference seems to be the /-ing/ ending on the verb in (1e). I maintain (with Ross 1973, Abney 1987) that Acc-ing is the more nominal for two reasons. First, it is appealing to be able to group the constructions containing gerunds together, in hopes of finding some unifying level of structure that they all share. Secondly, the entire Acc-ing construction, unlike the infinitive, is able to receive an external theta role and case marking in a sentence, similarly to how concrete nouns (and, in fact, all the nominal elements we have seen so far) are able to receive them. The verb *bother* in (1e) assigns an agentive role, whereas *be* in (1f) does not assign an external argument. Pires (2006) further points out that Acc-ing constructions cannot occur in positions that are caseless. He specifically points out passive clause complements, like those in (2):

(2)  
   a. * It was expected [Frank reading this novel].
   b. It was expected [that Frank would read this novel].

For passives with an expletive subject fulfilling the EPP, the complement position needs to be filled by a finite clause, as in (2b). Since the complement does not receive case, it may be filled by a finite CP which does not require it. Acc-ing, which requires case, will not receive case in the complement position, hence the ungrammaticality of (2a). More theoretical evidence for the distribution of Acc-ing being more nominal than the infinitive is given below.

Moving toward the most verbal elements, the indirect question (1g) values both nominative and accusative case within its CP, though it must appear as the object of a verb of inquiry. Finally, the tensed CP (1h), being the most verbal, stands on its own and does not necessarily occur as an argument of another verb. Essentially, it has no nominal qualities, just as a concrete noun (1a) has no verbal qualities. These final constructions that lie on the verbal end of the spectrum (infinitive, indirect question and tensed CP) are outside the scope of this paper, and are included here only to round out the spectrum.

1.2. Motivating Parallel Structure

As previously mentioned, this continuum deals with the varying degrees of “nouniness” and “verbiness” of constructions using only nominal and sentential projections (as opposed to, say, prepositional phrases), since there are not any other phrase types that fall between pure nouns and pure verbs on this spectrum. The observation that the different types of constructions we saw in (1a-h) transition so fluidly suggests that nouns and verbs are constructed with a similar hierarchy. This has also been proposed in previous literature. Abney (1987) states that a similarity in structure is
“[…] attractive for conceptual reasons, in addition to the empirical advantages it provides. Verb versus noun is the most fundamental opposition in grammar, and it is appealing to be able to assign the phrases built on the – sentence and noun phrase, respectively – parallel structure.”

(Abney 1987:25–26)

With the nouns and verbs themselves being the building blocks of their respective phrases, it is natural that NPs and VPs should be the most embedded projections for concrete nouns and verbs, and that purely nominal or purely verbal phrases respectively form their hierarchical structures from these projections. In keeping with a Minimalist framework, I look at these structures beginning with the most embedded phrases (NP and VP), and work up from there. With respect to phrasal structure, above the most embedded level of structure (NP/VP), verbs have been proposed to need a vP in their representation. In keeping with Adger (2003, forthcoming), I extend this level of structure to nominal phrases as well, saying that a nP is needed to assign a theta role to external arguments of nouns, and to assign of-case to internal arguments. The split NP and VP analyses provide further symmetry in the hierarchical structures of nominal and verbal phrases, as well as allow for consistent argument structure across the spectrum in (1).

Moving further up in the structure, above the vP/nP level, the verbal structure contains a functional head, T, which bears the verbal inflection and licenses nominative case on the nominal in its specifier position. This level of structure is a crucial piece of evidence in Abney’s influential dissertation, which provides arguments for an equivalent functional head D for nominal phrases. In modern theory, D assigns genitive case to the “possessor” in its specifier. This level is further motivated by the fact that only one item can appear in the respective functional head position (T and D), namely a modal verb (or the English infinitive marker) in T and a determiner in D.

Verbal phrases also have a need for a higher level of structure, the CP, which values accusative case when it contains an overt for in C, serves as a key landing site for wh-movement, and acts as a phase boundary as discussed below. Nominal phrases, on the other hand, do not have a generally accepted projection above the DP. A possible hierarchy might then be (3):

\[ (3) \quad \begin{array}{l}
\text{Verbal:} & \text{CP} \rightarrow \text{TP} \rightarrow \text{vP} \rightarrow \text{VP} \\
\text{Nominal:} & \text{?P} \rightarrow \text{DP} \rightarrow \text{nP} \rightarrow \text{NP} 
\end{array} \]

Notice that if we are arguing for absolute equivalence, then there is a missing level in the nominal structure that equates to the sentential CP. Since it has been possible to motivate symmetry in the other hierarchical levels, it seems reasonable that we should be able to do the same at this level. I therefore assume the parallelism in (3), and propose that the ?P is a level of structure which I will call dP, giving a final parallelism like that in (3’):

\[ (3') \quad \begin{array}{l}
\text{Verbal:} & \text{CP} \rightarrow \text{TP} \rightarrow \text{vP} \rightarrow \text{VP} \\
\text{Nominal:} & d\text{P} \rightarrow \text{DP} \rightarrow \text{nP} \rightarrow \text{NP} 
\end{array} \]

\[ ^5 \text{Megerdoomian (2008) proposes a different parallelism, correlating DP to AgrP. She does not, however, postulate a correlate for the CP projection, which serves as an important part of verbal structure.} \]
This leaves open many questions, including why C and D share the property of acting as phase boundaries if they are not hierarchically equivalent structures. I return to this issue later.

2. A Survey of Individual Constructions
2.1. Concrete Nouns and Derived Nominals
In the following sections, I look individually at each construction and the features in its derivation. I then use these features to illustrate the placement of each construction on Ross’s spectrum. After brief descriptions of each construction, I provide Minimalist derivations to show the properties that each level of structure brings to the overall phrase. In doing this, I take a slight deviation from other work that has been done in this field. Pires (1999, 2006) begins on the verbal end of the spectrum, showing that infinitives and Acc-ing constructions (in his analysis, clausal gerunds) are verbal structures which are defective in certain areas, which makes them less sentential. I begin my analysis from the nominal end of the spectrum, showing that constructions that begin as nominals are essentially “infected” with verbal elements of structure, making them more sentential.

The concrete noun is a simple enough structure to represent syntactically. Using (1a) (repeated below) as an example, the noun appears in NP and the determiner appears in DP. There are no theta roles to be assigned, and there is no case valuation, at least at any level within the nominal domain.

\[(4)\]

a. The chair bothered me. (= 1a; Concrete Noun)

```
(4) a. The chair bothered me. (= 1a; Concrete Noun)
```

The movement of chair to n parallels movements of verbs into the vP for reasons of word ordering when other elements are present. Thus, I preserve the head movement from NP to nP for consistency, even when word order is not an issue.

Looking now at (1b), the head of the derived nominal phrase, movement, is clearly a noun derived from the verb move. That is to say, these forms use various types of derivational morphology to create deverbal nouns (cf. destroy:destruction, baptize:baptism, etc.). However, if derivation from one lexical class to another at least partly exemplifies a dichotomy between derivational and inflectional morphology, then one might be able to argue that /-ing/ is also derivational, as it is present in three different constructions on the continuum we are using to bridge the two lexical classes. I return to this later.
Another difference that separates the derived nominal from a concrete noun structure is the need for case and argument structure. For a chair movement event, in a construction that requires two arguments (as in 1b-h, excluding the concrete noun), there is a mover (Agent) and something that is being moved (Theme). Following Adger (2003), these thematic roles are assigned by both n and N to the external (agentive) and internal (theme/patient) arguments, respectively (comparable to the roles assigned by v and V in the verbal domain).

Case also needs to be valued on both the internal and external arguments. The n values the of-case on the chair, and the D values genitive case on he, causing it to be spelled out as his.

(5) a. His movement of the chair bothered me. (= 1b; Derived Nominal)

2.2. Action Nominals
I briefly discussed earlier that the action nominals differ from the derived nominals in that the most embedded head begins as a verb, rather than as a noun. Because of this, I propose that at the most embedded level of structure where moving needs to originate, there cannot be an NP. Rather, moving needs to start as a VP (assuming for now that the gerund morphology marking occurs already on the verb in the numeration) before it moves up into the next highest level, here the nP. The other requirements that we saw in the derived nominals earlier, however, remain the same. His is still valued with genitive case, so the DP needs to remain in the structure to value it. The chair is still valued with of-case, so the nP also needs to remain in the structure. Since we saw earlier that the NP and VP are equivalent levels of structure, we should be able to replace the NP level with a VP level, as shown in (6).
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(6) a. His moving of the chair bothered me. (= 1c; Action Nominal)

b. 

$$dP$$

$$d$$

$$dP \ [\text{gen}]$$

$$D$$

$$nP$$

his [Case: gen]

$$<he>$$

$$n'$$

$$nP\ [\text{of}]$$

moving

$$n$$

V

$$<\text{moving}>$$

DP

the chair [Case: of]

We will see as we continue with further structures that we can easily move our way up the spectrum towards more sentential structures by replacing equivalent levels of structures so that each construction’s respective features can be checked. In each case, the next highest level of structure substitutes a verbal projection for a nominal one to account for new verbal features.

2.3. Poss-ing

Moving further towards the verbal end of the spectrum, there is another instance of the gerund in the Poss-ing construction. The difference in this structure from the action nominal structure is that the chair here is no longer receiving of-case, but accusative case. Following the proposal from the end of the last section, I replace $$nP$$ with $$vP$$. This works well, since $$v$$ would then value the accusative case needed on the object the chair, while still leaving D to value genitive case to his. Since $$v$$ also assigns theta roles like $$n$$ did for the derived nominal and action nominal, requirements for argument structure are also satisfied.

(7) a. His moving the chair bothered me. (= 1d; Poss-ing)

b. 

$$dP$$

$$d$$

$$dP [\text{gen}]$$

$$D$$

$$vP$$

his [Case: gen]

$$<he>$$

$$v'$$

$$v [\text{acc}]$$

moving

$$v$$

V

$$<\text{moving}>$$

DP

the chair [Case: acc]
Abney (1987) cites Ross (1973) as saying that the generally accepted cut-off between nouns and verbs is between the Poss-ing and Acc-ing constructions. Abney, however, argues that Acc-ing constructions are actually slightly more nominal because of their occurrence in external argument position, and the need the phrase as a whole to be valued with case. Assuming the higher level of structure $dP$, I motivate this further in the following section.

2.4. Acc-ing

The Acc-ing construction changes the case of the subject from genitive (in Poss-ing) to accusative. In the Poss-ing construction, DP has a strong genitive case feature, but this is not assigned in Acc-ing. Since I am maintaining that the next highest level of structure changes to its verbal equivalent, then we need a TP in this functional position. It may be problematic, though, to determine where $him$ gets accusative case in this construction. It is here that I resort to the $dP$.

We saw earlier that Abney (1987:21) states that “verb versus noun is the most fundamental opposition in grammar.” Taking this fundamental opposition to be NP and VP, it makes sense to say that, as we move higher in the equivalent structures of nouns and verbs, the levels of structure become more alike. With $dP$ and CP being at the top of the respective hierarchies, it is logical to assume that they should share many properties. One of these properties of CP is that it can value accusative case, which is seen clearly in infinitive clauses with an overt for in the complementizer (e.g. *I arranged for $him$ to move the chair.*).

If $dP$ and CP are assumed to be alike enough to value the same case to the subject of their respective clauses, then the accusative case on $him$ can be easily accounted for. In this case, it might be tempting to say that the $dP$ level does not actually exist, and that CP stands as the sole phrase at the highest level of structure. CPs, however, allow for overt complementizers, that and for, whereas the $dP$ does not (e.g. *For $him$ moving the chair bothered me.*).

Proposing two different levels of structure (CP and $dP$) also allows us to assume that a projection exists above the TP in Acc-ing constructions. Pires (2006) uses the fact that Acc-ing cannot contain an overt complementizer to suggest that these constructions do not contain a CP. He also illustrates that these embedded clauses cannot appear as indirect questions. These are both sentential properties that a CP would introduce, so being able to propose a nominal head ($dP$) can illustrate that such constructions are nominal, in the sense that they do not have these necessarily verbal/sentential properties. This distinction between $dP$ and CP also results in a more pleasing symmetry between the nominal and verbal domains.

This means that the $dP$/CP level only values case in two constructions: $dP$ values Acc-ing and CP values the infinitive. In all the other constructions, it is the DP/TP level that values case. This means that for Acc-ing and infinitives respectively, there must be something about the TP level (since this level is consistent in both constructions) that is not allowing it to value its nominative case feature. For infinitives, this is an overt to in the T head, but the Acc-ing has nothing overt in T. One can account for these variables with some kind of null element sitting in T that blocks anything from appearing there overtly, and that T is non-finite, which would not allow T to value inflection on verbs. In order to encompass both of these properties, I propose that T is defective in Acc-ing constructions and that it is spelled out as $∅$. This prevents T from valuing inflection on the verb and nominative case on the external argument.

Having now motivated the need for a $dP$ level of structure and the accusative case it values, I give here the structure for Acc-ing constructions as shown in the tree in (8) below.
(8) a. Him moving the chair bothered me. (= 1e; Acc-ing)

b. 

\[
\begin{array}{c}
dP\ [\text{case}] \\
\downarrow \\
d \\
TP \\
\downarrow \\
him\ [\text{Case: acc}] \\
\downarrow \\
T' \\
\downarrow \\
T \ [\text{def}] \\
\downarrow \\
<\text{he}> \\
\downarrow \\
v' \\
\downarrow \\
v\ [\text{case}] \\
\downarrow \\
V \\
\downarrow \\
<\text{moving}> \\
\downarrow \\
\text{DP} \\
\downarrow \\
\text{the chair\ [Case: acc]}
\end{array}
\]

The remaining constructions (1f-h) contain a full verbal hierarchy, and do not play into the continuum that I have shown thus far in this section. For this reason, their properties and features are not discussed here.

In my analysis thus far, I have assumed that the gerund marker /-ing/ is already attached to the verb in the numeration. In the following section, I investigate this idea further and provide an alternative solution, as well as an analysis for the distribution of all of these nominal constructions in necessarily case-marked positions.

3. Feature Valuation

3.1 Valuing Inflection

Both nominal and verbal structures have unvalued features whose valuation is necessary for a complete derivation. I focus on inflection ([Infl:__]) in the verbal domain and case ([Case:__]) in the nominal domain. I show that, in building the derivation for the aforementioned constructions, these features need to be valued to account for the nominal and verbal properties of each.

Until this point, I have assumed gerund /-ing/ morphology to be attached already in the numeration. Since the morphology of the gerund is consistent across all verbs, I propose instead that there is a gerund feature that supplies the /-ing/ morphology for gerunds. A feature valuation rule like this would be less taxing on the memory and more economical for the derivation as a whole. It is necessary then to find the place where this feature originates, for all gerund constructions discussed in this paper, namely the action nominal, Poss-ing, and Acc-ing.

We have seen so far that there are two projections that are consistent among the action nominal, Poss-ing and Acc-ing: The dP and VP. It is appealing to include the dP as part of this analysis as well, not only because it is consistent across all the gerund constructions, but because it is a nominal projection, which explains why all gerund constructions still have the nominal property of appearing in necessarily case-marked positions. One might be hesitant, at first, to say
that /-ing/ is a feature on \(dP\), since \(v\) falls outside of the search space of the probe on \(d\). The T head below \(d\), however, would then inherit case to value on \(v\) (in the sense of Chomsky 2008).

On the other hand, /-ing/ has some strong traits that are characteristic of syntactic features. It cannot attach to just anything. It needs to attach to a verb. This means that the VP needs to be present in order to provide a verb for the gerund marker to attach to. The only structures that contain a \(dP\) and VP in the same hierarchy are precisely the structures that contain gerunds. Thus, whenever a construction contains both of these levels of structure, the verb moves from V to the \(n/v\) where the gerund /-ing/ marker presumably attaches. It is apparent that the appearance of the /-ing/ suffix is sensitive to the syntax, requiring the presence of two specific levels of structure, and that it determines the shape of a word in English.

I am proposing, then, that /-ing/ is a feature (say, [ing]), valuing the inflection feature [Infl:_] on the verb, since that feature is inherently present on verbs, and in the case of gerunds, it would be otherwise unvalued. This makes sense, since any other inflectional morphology would come from T, and my earlier proposal of a defective T would prevent this from being a problem for Acc-ing. If an [ing] feature is not valued by T, then the [Infl:_] feature remains unvalued at the time \(dP\) is merged. This should also hold given that, for the Acc-ing construction, the [Case:_] feature on the external argument of Acc-ing also remains unvalued until \(dP\) is merged.

This idea calls for a new kind of feature checking that crosses the morphology interface. This is a slightly more syntactic approach than other theories that have attempted to bridge this interface (e.g. Distributed Morphology). In the next section, (8’) depicts this feature.

3.2 Valuing Case
In the same way that I use [Infl:_] to account for verbal properties of gerunds, I also use feature valuation for nominal properties, namely [Case:_]. Acc-ing is the most verbal structure that must necessarily appear in a case-marked position, which means that there must be some level of structure on which an uninterpretable case feature can be valued. For that, I am proposing \(dP\).

Since case is an inherently nominal feature, it should consistently appear with nominal projections. In all the trees above, the only projection that is consistent across all constructions is \(dP\). Notably, this is also a nominal projection. I am proposing that not only is the \(d\) head important for assigning accusative to the subject of Acc-ing and valuing [Infl:_] on V, but it also carries an unvalued case feature [Case:_]. Working under the assumption that \(dP\) is a projection that appears in all nominal constructions, it then acts as a consistent projection on which case can be valued. (8’) shows a fully valued Acc-ing construction.
The Internal Structure of Nouns, Nominals, and Gerunds

(8')

\[
\begin{array}{c}
dP \left[ [ace][ing] \right][\text{Case:__}] \\
  \text{d} \quad \text{TP} \\
  \text{him} \quad \text{T'} \\
  \text{T'} \quad \text{vP} \\
  \text{T} \quad \text{[def]} \\
  <\text{he}> \quad \text{v'} \\
  \text{v} \quad \text{[ace]} \quad \text{VP} \\
  \text{move} \quad \text{[Inf: ing]} \\
  \text{v} \quad \text{V} \\
  \text{<move>} \quad \text{dP} \\
  \text{the chair} \quad \text{[Case: acc]} \\
\end{array}
\]

In this representation, I have even replaced the most embedded phrase *the chair* with a *dP*, since I assume this level to be necessary for all nominal case valuation. That is, case valuation on nominals always occurs at *dP*, which makes *dP* a necessary projection on all nominals.

4. **Implications for Phasehood**

A significant consideration for any proposal of additional structure to the syntax is whether the additional level is phase-defining or not, and how it fits into previous accounts of phase-defining categories of the nominal and verbal domains. The idea that syntax is built cyclically has been proposed by syntacticians for decades. In its most recent instantiation (Chomsky 2000, 2001, 2008), the idea of the syntactic phase has been worked into the Minimalist framework. That is, as the derivation is being built, features are checked and valued along the way. As soon as a phase-defining head is merged, all the uninterpretable features in the complement to the phase-head must be checked and valued, so that this complement can be spelled out and become impenetrable to any further operation of the syntax that would be caused by further heads being merged. If features are left unchecked or unvalued when a phase-defining head is reached, the derivation will crash.

Much work has been done in the past on phases in sentential phrases, but phasehood in nominal phrases is significantly less studied. Each phase contains a phase-defining phrase, which includes its head, any adjuncts, and its specifier(s) which remain accessible to operations outside of that phase. This is known as the phase “edge.” Anything more embedded than this is not accessible to operations. Items within a phase have the ability to become accessible if they can move to this phase “edge.” This concept is known as the “Phase Impenetrability Condition (PIC).” The most widely accepted phase-defining categories for the verbal domain are CP and *vP* (Chomsky 2000 and others). For nominal phrases, Chomsky (2001) writes:

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6 Gallego (2005) explores the possibility that TP serves as a phase-defining category in Romance languages.
Marcus Berger

“Considerations of semantic-phonetic integrity, and the systematic consequences of phase identification, suggest that the general typology should include among phases nominal categories.”
(Chomsky 2001:14)

While Chomsky does not elaborate much further on this topic, I assume (with Haegeman 2004, Lee-Schoenfeld 2007)\(^7\) that D also serves as a phase boundary. As stated above, this analysis, in conjunction with my analysis of dP, does not provide for absolute parallelism between nominal and verbal/sentential structures.

If this is assumed, however, we encounter a slight problem. Appealing first to the [Infl::__] and [ing] features that we have proposed for gerund structures, the derivation is complete at the dP projection. In this case, the [Infl::__] feature at the vP/nP level is not valued until the dP level is merged. Once that feature is valued, all the features on that head should be checked, and it is spelled out. If this is true, then phrases that contain a gerund would not be spelled out until the phase-defining head d is merged. However, when dP is merged, it is merged with an unvalued [Case::__] feature. As shown below, however, d does not have the ability to act as an intermediate landing site for cases of extraction. There are properties, then, that show that d should act as a phase and other that show that it cannot.

\(^9\)

a. * Sven doesn’t know [who, dating t\(_i\)]. (Acc-ing, d head in embedded clause)
b. Sven doesn’t know [who, to date t\(_i\)]. (Infinitive, C head in embedded clause)

There is more to be said about the role of phasehood with respect to the constructions on this continuum, and I hope that further analysis will reveal the accuracy of these claims. While theory may predict one outcome, empirical evidence will reveal the true nature of the beast.

5. Conclusion

This analysis has examined constructions along the nominal/verbal spectrum. I have shown that parallel hierarchies between nominal and verbal phrases can be used to create correspondences between them. By individually replacing these correspondences, I have shown that the features of nominal and verbal projections account for the properties of each construction along the continuum. In doing so, I used equivalent structures, as well as other motivations, to propose a new level of structure: the dP. I then used the structures I had built to propose the origin of the gerund marker [ing] in dP. The [ing] feature I proposed is able to assign inflectional morphology to the [Infl::__] feature on the verb in cases of the gerund, as it was not previously valued due to the defectiveness of T (specifically in Acc-ing constructions). In the same way, I proposed that the accusative case for the subject of an Acc-ing construction must also be valued by dP.

I then introduced certain consequences of my analysis that should be the subject of future research to be done in the area. I showed that, given the generally accepted view of phase boundaries, nominal constructions in my analysis do not fit a widely proposed analysis of DP (or, in fact, any nominal projection) as a phase boundary. This calls for significant work to be done in the field of nominal phases.

\(^7\) See also Svenonius (2004) for further discussion of this and other similar ideas.
While the analyses presented here are primarily Anglocentric, the principles of Universal Grammar predict that these properties should be represented in some manner in other languages, though their precise manifestation is yet to be determined. This provides for a variety of future research topics. For the time being, however, I hope to have been successful in extending previous analyses of English (more or less) nominal phrases into a Minimalist framework.

References

The German Dative of Inaction

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Abstract: A German applicative argument interpreted as a Dative of Inaction (DI) seems to denote an indirect, unintentional causer. However, I argue that no such causative event is actually present in the derivation of the DI structure by comparing the behavior of clearly causative sentences and DI sentences. I provide a mono-eventive analysis of the DI building on Pylkkänen’s (2002) high applicative template. Furthermore, I show that the fact that DIs can only occur with certain unaccusative verbs follows from a selectional requirement that prevents agentive Voice to merge with the DI projection.

1. Introduction
In this paper, I provide an analysis for the German Dative of Inaction (DI). An example is given in (1); the Dative of Inaction is underlined.

(1) Der Oma zerbrach die Vase.
    the.DAT grandma broke the.NOM vase
    ‘The vase broke on grandma.’
    (= Hens 1997:192, ex. 2)

In this sentence, the referent of the dative constituent is understood as failing to prevent the event of the vase breaking from happening. In other words, the grandma did not (intentionally) break the vase but she also did not act in such a way that the breaking was prevented. It is in that sense that she is responsible for the broken vase. Note that the translation provided by Hens is slightly misleading because on here is not to be understood as “affecting (positively or negatively).” A more adequate translation would be “Grandma let the vase break” (see Rosengren 1975 for possible issues with this translation due to the available modal interpretations of let) or “The vase broke on grandma’s watch.” I will use this latter translation for original examples or examples without a provided translation.

The German DI construction is remarkable, first, because of its rather complex interpretation (the referent failed to prevent an event from happening), especially since German has several other interpretations available for dative constituents (cf. Bosse 2011 and Hole 2008, among

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1 This name is taken from Hens (1997). In other languages, similar constructions have been discussed under the label unintentional causer (see also Schäfer 2008 and references cited therein).
many others). Second, as shown below, the distribution of the DI is very limited, namely to certain unaccusative verbs (also see Schäfer 2008).

This paper is organized as follows: I first discuss the major features of the Dative of Inaction in section 2. Following that I address the question on whether the DI involves causation. I conclude that it does not, in part by comparing its behavior to the clearly causative behavior of the Japanese adversity causative. I provide an analysis of the German DI in section 4. Then, I discuss some consequences of the analysis as well as a few open questions before concluding the paper in section 6.

2. Features
There are three major features of the DI that need to be accounted for: its status as an applicative argument, its meaning, and its distribution. In this section, I describe each of these features in detail.

The DI is an applicative (“free”) dative, i.e. the dative constituent is not selected by the verb but is seemingly freely added to the sentence. Using the omission test on example (1) shows that the dative constituent is not obligatory (cf. Hole 2008 for the omission test) because the sentence is grammatical without the dative constituent.

(2) Die Vase zerbrach.
   the.NOM vase broke
   ‘The vase broke.’

Sentence (2) is grammatical and does not implicate that there was someone who was supposed to prevent the event from happening. Consequently, the dative constituent in (1) can be characterized as an applicative argument because its presence is not required by the verb (or a preposition). This, in combination with the fact that its meaning is not semantically implied, indicates that it is a true applicative argument.

A second feature of the DI is that it can only occur with non-agentive (unaccusative) verbs that are resultative or bounded (Hens 1997, Rosengren 1975, Hole 2008), alternatively known as “unmarked anticausative verbs” (Schäfer 2008). This characterizes the verb *zerbrechen* ‘break’ in (1). In example (3), a transitive verb is used, and the DI interpretation is not available; only the affected experiencer interpretation of the applicative dative is possible (see Bosse 2011 and Bosse et al. forthcoming).

(3) # Alex zerbrach mir Bens Vase.
   Alex.NOM broke me.DAT Ben’s vase
   ‘Alex broke Ben’s vase on/affecting me.’ (affected experiencer)
   not available: ‘Alex broke Ben’s vase on my watch.’

If an agentive (unergative) verb is used, the DI is also not licensed:

Many of the observations discussed in this paper are similar or identical to those reported in Schäfer (2008) but were made independently.
The German Dative of Inaction

(4) * Das Kind hat mir gespielt.
    the.NOM child has me.DAT played
    intended: 'The child played on my watch.'

A non-resultative unaccusative verb does not license a DI either:

(5) * Der Hund hat mir existiert.
    the.NOM dog has me.DAT existed
    'The dog existed on my watch.'

If an unaccusative verb denotes a non-agentive, resultative event that cannot be prevented, the DI is ruled out as well:

(6) * Der Ton verklängt mir.
    the.NOM tone faded.away me.DAT
    'The tone (of music) faded away on my watch.'
    (= Rosengren 1975:214, ex. 11; my translation)

In this example, the event of fading away is non-agentive and resultative but, under normal circumstances, it is impossible to prevent a tone from fading away. Due to this, the DI is not licensed. The sentence is acceptable however if one considers a dream or a situation in which it is possible to prevent the fading away of tones.

This observation about the event needing to be preventable also shows that the dative referent must be able to act (so (s)he could prevent the event). If the dative constituent denotes an entity that cannot act volitionally, the DI is not acceptable (cf. Hole’s “percipience requirement” 2008; also see Schäfer 2008).

(7) * Der Baum ist der Sonne/Erde verrottet.
    the.NOM tree is the.DAT sun/soil rotten
    'The tree rotted on the sun’s/ soil’s watch.'

This sentence, too, is acceptable if the sun/soil acted volitionally as, for instance, in a children’s story.

In short, the Dative of Inaction is highly restricted in its occurrence: It can only occur in certain unaccusative sentences (for passives, see below). The limited distribution of this applicative dative as well as its “failure to prevent”-meaning and applicative status need to be accounted for.

In addition, there is a question whether the DI construction involves causation: Rosengren (1975:214) mentions “eine Art von kausaler Beziehung zwischen dem Dativ und der Aussage im übrigen” (‘a kind of causal relation between the dative and the (remaining) proposition’) as part of the meaning of the DI. In contrast, Hens (1997) states that the DI involves no causative meaning. Also the brief discussion about how to properly translate and/or paraphrase DI constructions (section 1) hints at this issue as, for instance, using let might point to an indirect or unintentional causer. But does the DI construction really involve causation?
3. **Causation**

In this section, I address the question of whether the analysis of the German DI should include a causative event and/or a(n indirect/unintentional) causer. As mentioned in the previous paragraph, researchers have had differing opinions on that question (also see Schäfer 2008), and paraphrases and translation of the DI structure often rely on *let* (or its equivalence) which can be used to mark indirect causation (see section 1).

Before addressing the German DI, I discuss the behavior of the Japanese adversity causative; a construction whose causative analysis is hardly disputed, partly due to the overt causative morpheme (see Pylkkänen 2002 and Harley 2008). The Japanese adversity causative is exemplified in (8).

(8)

<table>
<thead>
<tr>
<th>Taroo-ga</th>
<th>musuko-o</th>
<th>sin-ase-ta.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taro-NOM</td>
<td>son-ACC</td>
<td>die-CAUSE-PAST</td>
</tr>
</tbody>
</table>

‘Taro’s son died on him.’

(= Pylkkänen 2002:81 ex. 155)

In this example, the Japanese causative morpheme -*sase*- can indicate indirect causation by the referent of the nominative-marked constituent: *Taro let his son die* (Harley 2008). In this interpretation as well as the fact that the verb itself does not select for the indirect causer, the Japanese adversity causative is similar to the German DI.

Pylkkänen (2002) and Harley (2008) agree that the Japanese adversity causative construction is bi-eventive: It involves a causative event in addition to the verbal event. Pylkkänen shows that it is possible to state the causing event overtly in Japanese, while it is not possible to state an agent (9); that fact is taken to show that there is indeed a causative event (and not any other agentive event) present.

(9)

a.  | Taroo-ga | senseoo-ni-yotte musuko-o | sin-ase-ta. |
    | Taro-NOM | war-by son-ACC | die-CAUSE-PAST |
    | ‘Taro’s son was caused to die on him by the war.’ |

    | Taro-NOM | Hanako-by son-ACC | die-CAUSE-PAST |
    | ‘Taro’s son was caused to die on him by Hanako.’ |

(= Pylkkänen 2002:82-83 exx. 158a, 161)

Consequently, Pylkkänen provides the following analysis for the Japanese adversity causative. The causative event is introduced by a CAUSE head which attaches above the VP and below Voice. The denotation of the CAUSE head is given in (10). It introduces the causing event and establishes that the causing event causes the verbal event. Voice can then introduce the causing event as shown in the sample derivation in (11).³

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³ Note that this example provided by Pylkkänen (2002) does not include the applicative indirect causer of (9).
The German Dative of Inaction

(10) \[[\text{CAUSE}]\] = \(e \rightarrow \text{f}_{\text{VS}, \text{TS}} \cdot \lambda \text{e}. (\exists \text{e'})[\text{f(e')} & \text{CAUSE(e,e')}]\)

(11) \[
\begin{array}{c}
\text{VoiceP} \\
\text{the war} & \text{Voice'} \\
\text{Voice} & \text{CAUSE-P} \\
& \text{CAUSE} \\
& \text{VP} \\
\text{die} & \text{Taro}
\end{array}
\]

\[[\text{VP}] = \lambda \text{e}. \text{Dying(e)} & \text{Theme(e,Taro)}\]
\[[\text{CAUSE}] = \lambda \text{f}_{\text{VS}, \text{TS}} \cdot \lambda \text{e}. (\exists \text{e'})[\text{f(e')} & \text{CAUSE(e,e')}]\]
\[[\text{CAUSE-P}] = \lambda \text{e}. (\exists \text{e'})[\text{Dying(e')} & \text{Theme(e',Taro)} & \text{CAUSE(e,e')}]\]
\[[\text{Voice}] = \lambda \text{x}. \lambda \text{e}. \text{e} = \text{x}\]
\[[\text{Voice'}] = \lambda \text{x}. \lambda \text{e}. (\exists \text{e'})[\text{Dying(e')} & \text{Theme(e',Taro)} & \text{CAUSE(e,e')}] \\
& \& \text{e} = \text{x}\]
\[[\text{VoiceP}] = \lambda \text{e}. (\exists \text{e'})[\text{Dying(e')} & \text{Theme(e',Taro)} & \text{CAUSE(e,e')}] \\
& \& \text{e} = \text{the war}\]

The denotation of VoiceP states that there is an event of (the) war which causes another event which is a dying event and Taro is the theme of this dying event.

Harley (2008) provides further support for this bi-eventive analysis of the Japanese adversity causative. She states that VP-adverbs can modify the caused event (verbal event) as well as the causing event. Furthermore, two separate verbal events can be conjoined by using ‘-ka’ or underneath a single causing event. Thus, the Japanese adversity causative has several bi-eventive properties.

Since Pylkkänen’s analysis involves a causing event which is existentially quantified, this event should not be able to be the target of negation (cf. Bosse et al. forthcoming). Consider the following two English examples:

(12) a. John melted the ice.
    b. John didn’t melt the ice.

Sentence (12a) is typically analyzed as a causative sentence, paraphrased as John acted in such a way that the ice melted, with the denotation given in (13).

(13) \[[12a]] = \lambda \text{e}. \text{DO(e)} & \text{Agt(e, John)} \& (\exists \text{e'}) \text{MELT(e')} \& \text{Pat(e', ice cream)} \& \text{CAUSE(e, e')}\]

The negation of this causative sentence (12b) can only be used to negate the existence of the causing event (John did not act in such a way that the ice melted). Crucially, sentence (12b) cannot mean that John acted in such a way that the ice did not melt. In other words, the melting
event cannot be the target of sentential negation, i.e. the existentially quantified event cannot be negated in a causative construction.

Unfortunately, this test cannot easily be applied to the Japanese adversity causative because the negation of this structure is judged as very strange. However, I will use this observation about English along with the bi-eventive behaviors displayed by the Japanese adversity causatives to discuss causation with respect to the German DI. Below I show that, as Hens (1997) states, the German DI does not involve causation.

First, if there are two events, namely a caused and a causing event, a VP-adverb should be able to modify either event (as Harley 2008 stated for Japanese adversity causatives). However, in the German DI construction an adverb does not lead to ambiguity. It can only modify the verbal event, as expected if that is the only event.

(14) Der Oma verrottete der Baum schnell.
the.DAT grandma rotted the.NOM tree fast
‘The tree rotted fast on (the) grandma’s watch.’
not available: ‘Fast, the grandma let the tree rot.’

Second, unlike Harley (2008) claimed for Japanese, there is no causation scoping over conjoined events. The responsibility of preventing the event from happening is only associated with one of the conjoined events, as shown in sentence (15).

(15) Der Baum verrottete der Oma und die Vase zerbrach.
the.NOM tree rotted the.DAT grandma and the.NOM vase broke
‘The tree rotted on (the) grandma’s watch and the vase broke (not on her watch).’

Third, sentential negation can target all aspects of the event. There is no caused event in the DI construction that cannot be targeted (cf. the discussion of (12)).

(16) Der Oma verrottete der Baum nicht.
the.DAT grandma rotted the.NOM tree NEG
‘The tree didn’t rot on (the) grandma’s watch.’

This sentence can mean that the tree rotted but it did not happen while grandma was in charge of the tree or that the tree did not rot. The sentential negation can pick out all elements in the denotation.

Finally, it is not possible to introduce an overt causing event to a sentence with a DI using wegen ‘because of’ or von ‘by’;

4 Thanks to Satoshi Tomioka for this judgment.
The German Dative of Inaction

(17) a. * Der Oma verrottete der Baum wegen der Hitze.
   the.DAT grandma rotted the.NOM tree because of the heat
   not available: 'The tree rotted on grandma’s watch because of the heat.'
   marginal: 'The tree rotted because of the heat on/affecting (the) grandma.'

b. * Der Oma verrottete der Baum von der Hitze.
   the.DAT grandma rotted the.NOM tree by the heat
   intended: 'The tree rotted by the heat on grandma’s watch watch.'

As Schäfer (2008) points out it is possible to state a causing event using the preposition durch ‘due to.’ However, as he discusses, introducing causative events seems to be one function of that preposition and is not specific to DI (or causative) constructions. The phrase auf Grund (von) ‘due to’ seems to behave similarly. Thus, it is not clear that the examples in (18) are similar to the Japanese ones in (9).

(18) a. Durch die Hitze verrottete der Oma der Baum.
   through the.ACC heat rotted the.DAT grandma the.NOM tree
   'Due to the heat, the tree rotted on grandma’s watch.'

b. Auf Grund der Hitze verrottete der Oma der Baum.
   on ground the.GEN heat rotted the.DAT grandma the.NOM tree
   'Due to the heat, the tree rotted on grandma’s watch.'

These four facts about the German DI construction point to the conclusion that it is a mono-eventive construction. There is no evidence for a second, causative event with the referent of the DI being the (indirect or unintentional) causer of said causative event. Based on the discussion in this section, I contend that the analysis of the German DI does not require the inclusion of a causative event (in addition to the verbal event). I provide an analysis of the mono-eventive DI in the following section.

4. Analysis

I propose an analysis for the German DI in which the DI is a high applicative argument, following Pylkkänen’s (2002) classification of applicative arguments. These high applicative arguments attach above VP and below Voice, and they do not denote a transfer of possession. This semantic characterization fits the DI (see section 1); the syntactic characterization of a high applicative argument is ideal for the DI, as argued for below.

I propose that there is a phonologically null head Resp(onsible) which attaches between VP and Voice. The DI is merged in the specifier position of this head. Semantically, the Resp head introduces that its argument is responsible for the verbal event. No second event is introduced. The Resp head and VP combine by event identification (Kratzer 1996). The exact semantic denotation of this head is given in (19) and a full derivation (below tense) is shown in (20).\footnote{German is standardly analyzed as being verb-final. This has no effect on my analysis.}

5 German is standardly analyzed as being verb-final. This has no effect on my analysis.
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(19)  a. \([\text{Resp}] = \lambda x. \lambda e. \text{Responsible}(e, x)\)
b. That the individual \(x\) is responsible for event \(e\) is true iff it is possible that \(x\) could have acted to prevent the event from happening (in case the event happened).

(20)  a. Der Oma zerbrach eine Vase.
the.DAT grandma broke a.NOM vase
‘The vase broke on grandma.’
\(=\) Hens 1997:192, ex. 2
b. VoiceP
   Voice-[agentive] RespP
      DI \(\text{Resp'}\)
      Resp VP
        V zerbrach eine Vase

c. \([\text{VP]} = \lambda e. \text{BREAK}(e) \& \text{Thm}(e, \text{the vase})\)
\([\text{Resp}] = \lambda x. \lambda e. \text{Responsible}(e, x)\)
\([\text{Resp'}] = \lambda x. \lambda e. \text{BREAK}(e) \& \text{Thm}(e, \text{the vase}) \& \text{Responsible}(e, x)\)
\([\text{RespP}] = \lambda e. \text{BREAK}(e) \& \text{Thm}(e, \text{the vase}) \& \text{Responsible}(e, \text{grandma})\)
(Resp and VP combine by event identification.)

Thus, VoiceP denotes a breaking event of the vase for which the grandma is responsible (in that she did not act to prevent it). There is no second event or a causer. In other words, my analysis of the German DI is that it is a high applicative argument and that it contributes only another participant for the event denoted by the verb.

In the following section, I show how my analysis is suited to account for the features of the DI presented above.

5. Consequences
As discussed in sections 2 and 3, the main features of the DI that its analysis need to account for are its status as an applicative argument, its meaning, and its limited distribution. In this section, I show how my analysis accounts for these features. Furthermore, I address some further predictions of my analysis as well as a few open questions.

5.1. Core Features and Predictions
The first feature of the DI that my analysis addresses is the DI’s status as an applicative (non-selected) argument. This is represented in my analysis by the optional Resp head which merges between VP and Voice. According to Pylkkänen (2002), high applicative arguments can generally occur with unergative and static verbs. This is not true for the DI: It is restricted to bounded/resultative verbs that are non-agentive (“unmarked anticausatives”, see section 2). This re-
The German Dative of Inaction

quirement is reflected in my analysis by a selectional requirement that allows only non-agentive Voice (Voice[^agentive]) to select RespP. Agentive Voice cannot select RespP. Consequently, all transitive and unergative verbs cannot license the DI despite it being a type of high applicative argument.

The analysis of passive sentences proposed by Bruening (2012) further shows that DIs require non-agentive Voice. He argues that passive sentences have an agentive Voice head which ensures that the agent is present semantically. The realization of the agent is then suppressed syntactically. Following this analysis for passives, my analysis of the DI predicts that passive sentences should not license a DI because there is an agentive Voice head. This prediction is in fact borne out: The dative constituent in (21) cannot be interpreted as a DI.

(21) Der Oma wurde die Vase zerbrochen.
the.DAT grandma became the.NOM vase broken
'The vase was broken on/for grandma.'
not available: 'The vase was broken on grandma’s watch.'

If only non-agentive Voice can select RespP, then this limits the distribution of the DI drastically because most active sentences (transitive, unergative) require an agentive Voice head as do passive sentences (according to Bruening). The selectional requirement on Voice therefore also explains the limited distribution of the DI – the second feature of the DI that needed to be explained (besides its meaning and its status as an applicative argument).

The last major feature, the meaning of the DI, is explained by the phonologically null Resp head. It carries the meaning of someone failing to prevent an event, and it introduces the needed individual into the derivation (in its specifier). The meaning of “responsible” is defined in such a way that the referent of the DI must be able to act, yet does not cause the event to come about. This is in accordance with the observations presented in section 3 that there is no causative event present in the DI construction.

My analysis makes another prediction, namely one regarding the interpretation of wieder ‘again’ in sentences with DIs. Beck and Johnson (2004) show that again picks out nodes of type <s,t> in the tree; i.e. again can attach to nodes of this type and indicate that only the event lower in the structure is repeated. In the tree in (20), there are two nodes of type <s,t>, namely VP and RespP. This predicts that two readings should be possible when the DI co-occurs with again:

(22) a. VP repetition: The event happened before with someone else or no one in charge.
b. RespP repetition: The event happened before with the same person in charge.

These predictions are in fact borne out. Sentence (23) includes a DI and wieder ‘again.’ The sentence can mean that the ice was melted before and then it melted again while the salesman was in charge (VP attachment), or that the ice melted twice while the salesman was in charge of it both times (RespP attachment).

---

6 VoiceP with non-agentive Voice is likely to be of type <s,t> as well but since Voice[^agentive] does not introduce a new event participant, the reading obtained by attaching again will be indistinguishable from again attaching to RespP.
Furthermore, it is not possible to use *again* to indicate that the person in charge was responsible for two different events. In other words, there is no causative event that *again* can modify with the exclusion of the verbal event. This is shown in sentence (24). The sentence can only mean that the ice had melted on the salesman’s watch previously and now did so again. Crucially, the sentence cannot mean that *again* refers to two different events (namely, the flower rotting and the ice melting) linked by the same causer.

(24)

Dem Verkäufer ist eine Blume verrottet und dann ist ihm wieder das Eis geschmolzen.

The salesman is a flower rotted and then is him again the ice melted

‘A flower rotted on the salesman’s watch and again on his watch the ice melted.’

Another prediction by my analysis that is borne out concerns an observation made by Hens (1997). He argues that the DI always has an adversity interpretation. This can be seen from sentences like (25): In this sentence, a positive adverb scopes over the whole sentence (including the DI) and cannot alter the meaning that there was a failure (namely to prevent the event) on part of the grandma.

(25) Zum Glück ist der Oma die Suppe verbrannt.

For the luck is the grandma the soup burned

‘Fortunately, the soup burned on grandma.’

(= Hens 1997: ex. 25b)

This sentence can only mean that the grandma failed to prevent the soup from burning and that this unfortunate event turned out to be advantageous or fortunate in some way; it was a blessing in disguise. Crucially, the sentence cannot mean that the burning of the soup by itself is considered a positive or intended event. Thus, unlike the German affected experiencer which can be understood as having an adversity or a beneficial interpretation depending on the context (Bosse 2011, Bosse et al. forthcoming), the DI cannot “adjust” its meaning pragmatically; the “failure to prevent an event”-meaning prevails. This is reflected in my analysis in the denotation of the Resp head. Since the “failure to prevent an event”-meaning is the core meaning, this meaning cannot be changed pragmatically. This also accounts for the oddity of the two following examples provided by Hens:7

7 Hens marks each with an asterisk but explains in the text that they are semantically and/or pragmatically odd on a DI reading. The sentences are grammatical as affected experiencers. Consequently, I changed the judgment markings.
The German Dative of Inaction

(26)  a.  # Dem Gärtner ist das Unkraut verwelkt.
       the.DAT gardener the.NOM weeds withered
       ‘The weeds withered on the gardener.’

   b.  # Beim Backen ist mir der Teig pünktlich aufgegangen.
       at.the baking is me.DAT the.NOM dough on.time risen
       ‘When I was baking, the dough rose on me on time.’

       (= Hens 1997:202-203, exx. 22, 23)

Both sentences in (26) are semantically and/or pragmatically odd. Sentence (26a) is odd due to the fact that the withering of weeds is generally perceived to be a positive event. The DI denotes that the gardener failed at preventing the withering. This yields the pragmatically odd interpretation (in a typically situation) that it would have been better if the gardener had acted in a way that kept the weeds alive. Similarly in sentence (26b), the failure to prevent a usually desirable outcome (of the dough rising on time) causes the semantic/pragmatic oddity of the sentence stating that it would have been preferable if the referent of the DI had acted to prevent it.

In short, my analysis cannot only account for the three major features of DIs but also makes the correct predictions for again-modification and high, positive adverbs. Yet, there are some unresolved issues concerning my analysis of the German DI. These are addressed in the following subsection.

5.2.  Remaining Issues

The first issue that my analysis cannot fully account for is Rosengren’s (1975) observation that not all events that the DI seems to occur with are undesirable events. The verb *gedeihen* ‘flourish, blossom’ can license a dative that is seemingly identical to the DI except the failure to act results in a (typically) desirable outcome; Rosengren therefore provides an analysis for sentences with this verb that is separate from the analysis of the DI.8

(27)  Die Blumen gediehen dem Gärtner.
       the.NOM flowers blossomed the.DAT gardener
       ‘The flowers blossomed on the gardener’s watch.’

       (= Rosengren 1975:219 ex. 29; my translation)

Sentence (27) can be understood as the flowers blooming while the gardener was in charge of them.9 The gardener did not act to prevent the blooming. However, the salient reading is much stronger, namely not only did the gardener not prevent the blooming but (s)he acted so the flowers would bloom. In this, *gedeihen* differs from the other verbs that license DIs (discussed above): They do not have this strong reading that the referent of the DI may have acted to bring the event about. My analysis cannot cover this salient, strong reading of the sentence but only includes the weak reading that the gardener did not prevent the blooming.

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8 As Rosengren points out *gelingen* ‘succeed’ might also fall into this category; the judgments I elicited regarding this verb are inconclusive at this point.

9 The sentence is ambiguous with an affected experiencer interpretation.
Solveig Bosse

The second remaining issue is that my analysis cannot easily be adapted to other languages. As Schäfer (2008) discusses in detail, the German DI is unusually restricted in its occurrence when compared to other languages. In many languages, among them Spanish, Bulgarian and Greek, the unintentional causer/DI can occur with marked anticausative verbs. These are verbs which are morphologically marked as being anticausative, unlike the unmarked anticausative verbs discussed above. One strategy to morphologically mark anticausative verbs is by using reflexive pronouns. An example of a marked Spanish anticausative with a DI is given below.

(28) A Juan se le rompieron las gafas.
to Juan.DAT REFLE. he.DAT broke.3.PL the glasses
‘John unintentionally broke the glasses.’
(= Schäfer 2008:69, ex. 67a)

The corresponding German structure (marked anticausative with a DI) is ungrammatical.10

(29) * Der Maria öffnete sich die Tür.
the.DAT Mary opened REFLE. the door
‘Mary unintentionally caused the door to open.’
(= Schäfer 2008:45, ex. 13a)

Due to the fixed position of the Resp head in my analysis (between Voice and VP), my analysis does not make a position for the reflexive pronoun available; only two nominal positions occur in the structure, namely the theme DP (complement to V) and the DI (specifier of Resp). Thus, my analysis cannot be extended easily to languages that allow DIs with marked anticausatives.

6. Conclusion

In this paper, I have argued that the German Dative of Inaction (DI) does not involve a causative event despite paraphrases and translations that seem to indicate an indirect causer as the referent of the DI. The DI does not behave like clearly causative constructions, such as the Japanese adversity causative. I have provided an event-semantic analysis that classifies the DI as one of Pykkänen’s (2002) high applicative arguments. The meaning of the DI is due to a phonologically null head Resp(onsible) which introduces the role of a responsible individual and associates the referent of the DI with this role. The occurrence of the DI is then limited by a selectional requirement that allows only non-agentive Voice to select RespP. Predictions made by my analysis concerning the meaning and again-modification support the proposed structure and denotation. Future research will show if/how my analysis can be applied cross-linguistically.

10 The sentence is acceptable as a benefactive or affected experiencer construction.
References

Underspecification and the Distribution of Gottschee German Laterals

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Abstract: The underlying lateral in Gottschee German has both front [l] and back [ɫ] allophones. I argue that the distribution of these lateral allophones is predictable if one adopts a model of coronal underspecification put forth by Rice (1994). I also posit a non-structure preserving dissimilation. This provides an argument against the assertion that dissimilations must be structure preserving (Ohala 1993; Kiparsky 1985; Hall 2008, 2009).

0. Introduction
In a dialect of German spoken in Gottschee (described in detail by Tschinkel 1908), a language island previously located in southern Slovenia, there are alternations between [l] and [ɫ]. I analyze the alternating data using a model of feature geometry. According to my analysis, underspecified /L/ surfaces as [l] or [ɫ] depending on the backness of the preceding vowel. In addition, an Obligatory Contour Principle (OCP) constraint militating against adjacent [PERIPHERAL] segments motivates a dissimilation, which causes /L/ to surface as [l] in a certain environment. This analysis bears on a number of theoretical issues. I argue for a model of coronal underspecification similar to the one proposed by numerous phonologists (Avery & Rice 1989; Rice & Avery 1991; Rice 1994, 1996). My analysis also provides evidence that dissimilations are not necessarily structure preserving – the output can be an allophone rather than a phoneme of the language, contrary to what is claimed by other linguists such as Ohala (1993:255–256), Kiparsky (1985:658), and Hall (2008, 2009).

The paper is structured as follows. In section 1 I present a description of the Gottschee language island. Section 2 contains background information about Gottschee German phonology that will be important for the remainder of the paper. I present my analysis of Gottschee German laterals in section 3. The theoretical issues are discussed in section 4 and the paper concludes in section 5.

1. Background on Gottschee German
Gottschee was an extremely isolated language island located in southern Slovenia. The precise origin of the Gottschee settlers is unknown, but based on family names and dialect features a good number were likely from Bavaria, Tirol, and Carinthia (Hauffen 1895:11, 14). The data for this paper were collected from Tschinkel’s (1908) dissertation Grammatik der Gottscheer Mundart, a very detailed descriptive grammar. In 1908, when Tschinkel wrote his dissertation, there were approximately 20,000 speakers living in the 15 square mile duchy (Tschinkel 1908:1). At that time, Gottschee consisted of six districts: Suchen, Hinterland, Oberland, Unterland, Walden, Untere Seite, and Moschnitze (Tschinkel 1908:4). Although Gottschee is relatively small, the
different districts show linguistic variation, sometimes significant (Tschinkel 1908:5). The majority of Tschinkel’s examples are from the dialect variety spoken in Lichtenbach, his hometown (Tschinkel 1908:vii, 9). Due to the district-to-district linguistic variation that Tschinkel observes, I use only his examples from Lichtenbach.

2. Gottschee German Phonology

This section provides background information on the relevant aspects of Gottschee German phonology. I first introduce the model of coronal underspecification adopted in this paper. I subsequently discuss the Gottschee German consonantal and vowel phonemes, as well as the place features for those phonemes.

2.1. Coronal Underspecification

I adopt a model of coronal underspecification similar to the one proposed by Avery & Rice (1989), (Rice & Avery 1993), and Rice (1994, 1996). Autosegmental representations for coronals, labials and dorsals are illustrated in (1).

(1) Model of coronal underspecification

A. Underlying ant. coronal

\[
\begin{array}{c}
\text{PLACE} \\
\text{PERIPHERAL} \\
\end{array}
\]

B. Underlying labial

\[
\begin{array}{c}
\text{PLACE} \\
\text{PERIPHERAL} \\
\end{array}
\]

C. Underlying dorsal

\[
\begin{array}{c}
\text{PLACE} \\
\text{PERIPHERAL} \\
\text{DORSAL} \\
\end{array}
\]

The representation in (1a) shows that coronals bear no specification for [PLACE] or its daughter features (Davis 1991; Hall 1995 and the references therein). Non-anterior coronals are specified as [CORONAL, –anterior] and are thus underlingly distinct from their anterior counterparts. Labials are represented as in (1b), where [PERIPHERAL] is a daughter of [PLACE]. Underlying labials are not specified for features such as [LABIAL] or [ROUND]. The final autosegmental representation in (1c) shows an underlying [DORSAL], which is also specified for [PERIPHERAL]. The important prediction is that dorsal segments will pattern with labial segments, to the exclusion of coronals, as the natural class of [PERIPHERAL] sounds.

Underspecification as presented in (1) only holds at the lexical level for underlying representations. On the surface, place features must be fully specified, either by application of a rule (Clements 2001:77) or via default rules (Hall 2001:18).
2.2. Gottschee German Consonantal Phonemes

The important distinctive features for Gottschee German (henceforth GG) consonants are presented in (2).

(2) GG distinctive consonantal features

<table>
<thead>
<tr>
<th></th>
<th>p</th>
<th>t</th>
<th>k</th>
<th>kʰ</th>
<th>f</th>
<th>s</th>
<th>f</th>
<th>x</th>
<th>h</th>
</tr>
</thead>
<tbody>
<tr>
<td>+voice</td>
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<td>√</td>
<td>√</td>
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<td>√</td>
<td>√</td>
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<td>high</td>
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<td>+</td>
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</tr>
<tr>
<td>CORONAL</td>
<td>√</td>
<td>√</td>
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<td>√</td>
<td>√</td>
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<tr>
<td>PERIPHERAL</td>
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<td>√</td>
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</tr>
<tr>
<td>LABIAL</td>
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<td>√</td>
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<tr>
<td>DORSAL</td>
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</tbody>
</table>

A few comments are in order regarding the place features in (2). Tschinkel (1908:28, 154, 158) describes a true contrast between unaspirated /k/, aspirated /kʰ/, and /ɡ/. This fact is interesting theoretically (see Iverson & Salmons 1995; Jessen & Ringen 2002), but is tangential to the current analysis. Regarding the sound /h/, I follow Hall (1992:17, and the references therein), who argues that /h/ lacks place features. Turning now to liquids, I consider there to be one underlying lateral, an underspecified archiphoneme /L/, which is [−continuant]. The rhotic /r/ is underlingly specified as [DORSAL] and [+continuant]. See Hall (2009) for discussion about the phonological place features of /r/ in some German dialects being different from the phonetic realization.

The reader will note that only the anterior coronals /t d n/ are underspecified for [PLACE], whereas [s z] have both [PLACE] and [CORONAL] features. GG non-anterior coronals are [DORSAL]. In (3) I list the evidence for these features along with citations where the data can be found.

(3) Evidence for Gottschee German Underspecification

a. /t n/ assimilate place (Tschinkel 1908:37–40)
b. /s/ does not assimilate place for many speakers (Tschinkel 1908:39)
c. /t/ is epenthetic – takes PoA from an adjacent nasal (Tschinkel 1908:36–37; 136)
d. /n/ assimilates [PERIPHERAL] from /ʒ r/ (Tschinkel 1908:42)

Any anterior coronals that do not receive specification of place features from the processes in (3a–d) become [CORONAL] via the default rule in (4).

(4) Coronal Default

[0PLACE] → [CORONAL]

According to Coronal Default, any segment with unspecified place features receives a [CORONAL] specification.
2.3. **Gottschee German Vowel Phonemes**

I review the relevant aspects of the GG vowel system below. The table in (5) provides a summary.

(5) GG vowel phonemes and distinctive features

<table>
<thead>
<tr>
<th>PLACE</th>
<th>i</th>
<th>e</th>
<th>a</th>
<th>o</th>
<th>u</th>
<th>y</th>
<th>ø</th>
<th>ə</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
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<td>low</td>
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<td>+</td>
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<td>-</td>
</tr>
<tr>
<td>CORONAL</td>
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<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>PERIPHERAL</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>DORSAL</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>1</td>
<td>√</td>
<td>√</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

As discussed in section 2.1., GG rounded vowels lack [LABIAL] and are instead specified as [PERIPHERAL]. The distinction between front vowels and back vowels is captured with the features [CORONAL] and [DORSAL], respectively (Rice 1994:205–206; Clements & Hume 1995). This contrasts with Rice (1996), who argues that [CORONAL] is only active in the vowel inventory when a language has a front vowel and central vowel of the same height since GG has the central vowel [ə] and [CORONAL] is a trigger for GG phonological processes, Rice’s proposal holds in GG. I also assume that schwa is a [DORSAL] sound in GG. For additional vowel place features such as [high] and [round] in German, I refer the reader to Hall (1992:9), and Wiese (1996:32). These features are peripheral to the current analysis and will not be addressed.

3. **The Allophones of Gottschee /L/**

Tschinkel (1908:23–24) and Schröer (1869:26, 29) describe /L/ as having two allophones, each with multiple phonetic realizations. According to Tschinkel (1908:23) the first lateral [l] has an articulation whereby the front part of the tongue is raised and tensed and the tongue blade lies against the alveolar ridge. For the second lateral [l], the tongue tip is pressed against the upper incisors and the underside of the tongue lightly touches the lower incisors. The tongue body remains laxed and in as low a position as possible. The resonance chamber is much larger than that of [l] (Tschinkel 1908:23; Schöer 1869:24, 29). The examples in (6) provide evidence that there are synchronic alternations between [l] ~ [l] in GG.

---

1 Tschinkel (1908:24) makes reference to a palatal lateral, which he also transcribes as [l]. This sound occurs only after /k g/. I consider this to be a low-level phonetic variant of the GG alveolar [l] because both the alveolar and palatal laterals seem to pattern identically in the GG phonology. In fact, in the section on GG /L/, Tschinkel (1908:138–147) collapses these data while keeping [l] separate.
Gottschee German Laterals

(6) Alternations between [l] ~ [ɫ] (Tschinkel 1908:139)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[s brɛt ɡɒzɡal]</td>
<td>‘It will swell’</td>
<td>[s ɡɒzɡɪl̩l̩t]</td>
<td>‘It swells’</td>
<td></td>
</tr>
<tr>
<td>[s ɪʃt ɡɒzɡb øl]</td>
<td>‘It is swollen’</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>[ɫaːbʃty aː nɔχ]</td>
<td>‘Are you also still alive?’</td>
<td>[i laːb nɔχ a peːze]</td>
<td>‘I am still alive’</td>
</tr>
<tr>
<td>c.</td>
<td>[liəbəi main ammo]</td>
<td>‘My dear mother’</td>
<td>[main dai liəbə]</td>
<td>‘My beloved’</td>
</tr>
</tbody>
</table>


Given the existence of the alternations in (6), I argue that there is an active phonological process governing the distribution of the two allophones of /L/. In the remainder of this section, I propose an analysis to capture the distribution of GG [l] and [ɫ] by taking a closer look at the contexts for those two sounds.

3.1. The Distribution of [l]

This section examines the contexts for GG [l], the so-called ‘dark’ lateral. The data in (7) show that this sound occurs after back vowels. The underlying representations will be justified below.

(7) [l] occurs after a back vowel (Tschinkel 1908:141–142)

<table>
<thead>
<tr>
<th>UR</th>
<th>PR</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/taːLar/</td>
<td>[taːlar]</td>
<td>‘plate’</td>
</tr>
<tr>
<td>/boLT/</td>
<td>[boLT]</td>
<td>‘forest’</td>
</tr>
<tr>
<td>/muːLar/</td>
<td>[muːlar]</td>
<td>‘painter’</td>
</tr>
<tr>
<td>/ɡəLikkbə/</td>
<td>[ɡəlikkbə]</td>
<td>‘luck’</td>
</tr>
</tbody>
</table>

b. Word internally after back vowels (Tschinkel 1908:143)

| /roffL/ | [roffl] | ‘to make a noise’ |
| /lampLe/ | [lample] | ‘little lamp’ |
| /groppL/ | [groppl] | ‘to grope around’ |
| /raːbLe/ | [raːble] | ‘small vine’ |

c. [l] after a back vowel and a coronal [t d n] consonant (Tschinkel 1908:143–144)

| /pattLar/ | [pattlар] | ‘beggar’ |
| /vaːnLe/ | [vaːnle] | ‘flag’ |
| /ʃtuɔdL/ | [ʃtuɔdl] | ‘barn’ |

In the examples in (7a), a back vowel is adjacent to /L/, which conditions [l]. These data are interesting with respect to the (7b–c) examples, which illustrate that consonants can intervene between the vowel and /L/. In (7b) those consonants are labials, or sounds with a [PERIPHERAL]
node, but no [DORSAL] feature. The words in (7c) illustrate that anterior coronal (underspecified) consonants can intervene between the back vowel and lateral. I propose an assimilation of [DORSAL] to account for the surface forms of /L/ in (7). Consider the rule in (8).

(8) Dorsal Vowel Assimilation

\[
\begin{array}{c}
\text{[–consonantal]} \\
\text{[DORSAL]} \\
\text{[+sonorant]}
\end{array}
\]

Dorsal Vowel Assimilation (DVA) spreads [DORSAL] from a vowel to non-nasal, sonorant consonant, or /L/. The result of the assimilation is [ɫ]. Importantly, the target of this rule is underspecified for [DORSAL]. The reader may wonder why DVA spreads [DORSAL] rather than [PLACE] or [PERIPHERAL]. The representations in (9) are instructive.

(9) Adjacent GG sounds

\[
\begin{array}{c}
\text{[–consonantal]} \\
\text{[PLACE]} \\
\text{[PERIPHERAL]} \\
\text{[DORSAL]} \\
\text{[+consonantal]} \\
\text{[PLACE]} \\
\text{[PERIPHERAL]}
\end{array}
\]

The representations in (9) show a back vowel followed by a labial consonant, as in (7b). Observe that each sound has a place node and a peripheral feature. Thus, if [PERIPHERAL] were to spread from the vowel in (9), it would be blocked by the adjacent labial consonant because the features are on the same autosegmental tier. It might be tempting to suggest that the labial consonant spreads [PERIPHERAL] to the lateral, but in the following section I provide evidence that such an assimilation is impossible.

GG [ɫ] also surfaces in word initial position, as in (10).
The examples in (10a–d) show that [l] occurs word initially when a vowel follows. This vowel does not determine the quality of the lateral, however, because the vowel can be either front or back.

The data in (10) illustrate that the occurrence of word initial [l] cannot be predicted on the basis of the following vowel. I thus propose the default rule in (11).

(11) Lateral Default

\[
\begin{array}{c}
+\text{sonorant} \\
-\text{nasal}
\end{array} \rightarrow \text{[DORSAL]}
\]

Lateral Default states that a non-nasal sonorant becomes [DORSAL]. For word initial /L/, the output of the rule is [l]. Lateral Default applies vacuously to those examples of [l] derived by DVA, as well as /ɾ/ and back vowels.

I turn now to a set of examples that look perplexing at first blush. Tschinkel (1908:142) notes that the GG lateral surfaces as [l] after the set of consonants [s z]. The examples in (12) are representative of this environment.

(12) Peculiar environments for [l] (Tschinkel 1908:142)

<table>
<thead>
<tr>
<th>UR</th>
<th>PR</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ʃteasL/</td>
<td>[ʃteas]</td>
<td>‘pestle’</td>
</tr>
<tr>
<td>/ɡərɔzL/</td>
<td>[ɡərɔzl]</td>
<td>‘gnaw’</td>
</tr>
<tr>
<td>/kʰrɔpplə/</td>
<td>[kʰrɔpplə]</td>
<td>‘small crab’</td>
</tr>
<tr>
<td>/bastL/</td>
<td>[bastl]</td>
<td>‘Sebastian’</td>
</tr>
<tr>
<td>/pisLo/</td>
<td>[pislo]</td>
<td>‘a little piece’</td>
</tr>
</tbody>
</table>

I argue that the vocalic environment determines the quality of the lateral in (12). Consider that the coronal fricatives are underlyingly [CORONAL] (rather than underspecified; recall the features in table 2), a feature which is on a different autosegmental tier from [DORSAL]. Accordingly, [DORSAL] can spread from the back vowel to /L/ via DVA in (12a–d). In the final example (12e), [DORSAL] does not spread because the vowel is a front vowel. Thus, the lateral is assigned a [DORSAL] feature via Lateral Default.

3.2. The Distribution of [l]

In the preceding section I argued that the GG dorsal lateral [l] predictably occurs after back vowels in word internal position. The data in (13) show that the coronal lateral [l] surfaces in the complementary context, after front vowels.
Justin Glover

(13) [l] occurs after a front vowel (Tschinkel 1908:141–142)

<table>
<thead>
<tr>
<th>UR</th>
<th>PR</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>/myLtsn/</td>
<td>[myltsn] ‘a child’s game with little stones’</td>
</tr>
<tr>
<td>b.</td>
<td>/ʃpiːL/</td>
<td>[ʃpiːl] ‘game’</td>
</tr>
<tr>
<td>c.</td>
<td>/tseːLən/</td>
<td>[tseːlən] ‘to count’</td>
</tr>
<tr>
<td>d.</td>
<td>/høːL/</td>
<td>[høːl] ‘hollow’</td>
</tr>
</tbody>
</table>

Each of the surface forms in (13a–d) has a front vowel followed by [l]. It is also possible for a coronal consonant to be situated between the front vowel and underlying lateral. Consider the data in (14).

(14) [l] after a front vowel and a coronal [t d n] consonant (Tschinkel 1908:143–144)

<table>
<thead>
<tr>
<th>UR</th>
<th>PR</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>/kʰittL/</td>
<td>[kʰittl] ‘tunic’</td>
</tr>
<tr>
<td>b.</td>
<td>/ʃiːnLe/</td>
<td>[ʃiːnle] ‘small splint’</td>
</tr>
<tr>
<td>c.</td>
<td>/ʃtoaindle/</td>
<td>[ʃtoaindle] ‘small rock’</td>
</tr>
</tbody>
</table>

The examples in (14a–c) show an underlying sequence /...V_frontCL.../ where the consonant is one of [t d n]. In this environment, the underlying lateral /L/ surfaces as [l]. I account for the words in (13–14) with the assimilation in (15).

(15) Coronal Place Assimilation

Coronal Place Assimilation (CPA) spreads [PLACE] from a vowel to a following lateral resulting in [l]. Recall that the anterior coronals [t d n] have no underlying place features; therefore, these consonants are transparent to CPA. Later in the derivation [t d n] receive place features via Coronal Default (4); however, due to the No Crossing Constraint (Goldsmith 1979; Archangeli & Pulleyblank 1994), Coronal Default cannot apply when underspecified sounds are situated in the context /...V_frontCL.../, as in (14, 15). In such cases, the lines of association for the new place features would cross the line of association for the shared [PLACE] feature. Hence, these ‘stranded,’ placeless segments undergo the linking rule in (16).
Coronal Linking associates an underspecified segment with a shared place node that has a [CORONAL] daughter feature. Observe that the resulting structure does not violate the No Crossing Constraint.

I return now to the distribution of [l]. The coronal lateral can also occur after certain consonants, as illustrated by the examples in (17a–c).

(17) [l] occurs after dorsal or labial obstruents

a. Word initially (Tschinkel 1908:140–141)

<table>
<thead>
<tr>
<th>UR</th>
<th>PR</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/pLɪəʊn/</td>
<td>[plɪəʊn]</td>
<td>‘to bleed’</td>
</tr>
<tr>
<td>/vLɪəsk/</td>
<td>[vleask]</td>
<td>‘a soft blow’</td>
</tr>
<tr>
<td>/ʒLiəsə/</td>
<td>[ʒliəsə]</td>
<td>‘clasp’</td>
</tr>
<tr>
<td>/kLɪətɪm/</td>
<td>[klaytɪm]</td>
<td>‘to gather’</td>
</tr>
<tr>
<td>/ɡLɪtstn/</td>
<td>[ɡlitstn]</td>
<td>‘to sparkle’</td>
</tr>
<tr>
<td>/kʰLɪŋ̥ələ/</td>
<td>[kʰlɪŋ̥ələ]</td>
<td>‘ball (of yarn)’</td>
</tr>
</tbody>
</table>

b. Word internally after labial consonants (Tschinkel 1908:143–144)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/iːbL/</td>
<td>[iːbl]</td>
<td>‘evil’</td>
</tr>
<tr>
<td>/ʒɪffL/</td>
<td>[ʒɪffl]</td>
<td>‘to scoot’</td>
</tr>
<tr>
<td>/mymmL/</td>
<td>[mymml]</td>
<td>‘to mutter’</td>
</tr>
</tbody>
</table>

c. Word internally after [ʃ ʒ k ɡ r] (Tschinkel 1908:142–143)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>/tæʃLe/</td>
<td>[tæʃle]</td>
<td>‘small pocket’</td>
</tr>
<tr>
<td>/tɪː3L/</td>
<td>[tɪː3l]</td>
<td>‘to hit’</td>
</tr>
<tr>
<td>/pykL/</td>
<td>[pykl]</td>
<td>‘hunch’</td>
</tr>
<tr>
<td>/heːɡL/</td>
<td>[heːɡl]</td>
<td>‘neck’</td>
</tr>
<tr>
<td>/baːrLt/</td>
<td>[baːrlt]</td>
<td>‘world’</td>
</tr>
<tr>
<td>/pæːrLe/</td>
<td>[pæːrle]</td>
<td>‘small berry’</td>
</tr>
<tr>
<td>/haː3L/</td>
<td>[haː3l]</td>
<td>‘to glide’</td>
</tr>
<tr>
<td>/hyː3L/</td>
<td>[hyː3l]</td>
<td>‘Chur’ city in Switzerland</td>
</tr>
</tbody>
</table>

The words in (17a) show /L/ as the second member of a word initial consonant cluster. Observe that the quality of the following vowel is irrelevant; however, the initial consonant must be a labial or dorsal. In (17b), /L/ occurs word internally after a labial consonant, and in (17c), the lateral follows a dorsal consonant. In each of the data sets (17a–c), the lateral surfaces as [l]. Nei-
ther of the assimilations (CPA or DVA) can apply to the examples in (17), thus Lateral Default (11) assigns [DORSAL] to /L/. At this intermediate stage in the derivation, [l] is adjacent to another [PERIPHERAL] consonant, which violates the OCP constraint in (18).

(18) \[ \text{OCP-}[\text{PERIPHERAL}] \]

\[
\begin{array}{c|c|c|c|c|c|c}
\text{[+consonantal]} & \text{[+consonantal]} & \text{[PLACE]} & \text{[PLACE]} & \text{[PERIPHERAL]} & \text{[PERIPHERAL]} \\
\end{array}
\]

OCP-\[\text{PERIPHERAL}\] states that two adjacent [PERIPHERAL] consonants constitute an ungrammatical sequence. In order to repair the illicit structure, a dissimilation takes place, as in (19).

(19) \[ \text{Peripheral Dissimilation} \]

\[
\begin{array}{c|c|c|c|c|c|c}
\text{[+consonantal]} & \text{[+consonantal]} & \text{[PLACE]} & \text{[PLACE]} & \text{[PERIPHERAL]} & \text{[PERIPHERAL]} \\
\end{array}
\]

Peripheral Dissimilation delinks the [PERIPHERAL] feature from the right-most of two consonants when both sounds bear [PERIPHERAL]. After the application of Peripheral Dissimilation, Coronal Default applies and the lateral surfaces as [l].

I summarize the rules presented in this section with the derivation in (20). The segments affected by a rule in a given stage of the derivation are enclosed in brackets ‘[ ].’

(20) \[ \text{Gottschee German Derivation} \]

\[
\begin{array}{l|l|l|l|l|l|l}
\text{UR} & /ta:lar/ & /Lu:goLo/ & /pisLo/ & /kry:Lo/ & /i:bLo/ \\
\text{D V Assim} & \text{[l]ar} & \text{---} & \text{---} & \text{---} & \text{---} \\
\text{C V Assim} & \text{---} & \text{Lu:go:[l]}, & \text{---} & \text{kry:[l]} & \text{---} \\
\text{Dor Def} & \text{---} & \text{[l]u:go:[l]} & \text{pis[1]Lo} & \text{---} & \text{i:b[1]} \\
\text{P Dissim} & \text{---} & \text{---} & \text{---} & \text{---} & \text{i:b[1]} \\
\text{PR} & \text{[ta:lar]} & \text{[lu:goLo]} & \text{[pisLo]} & \text{[kry:1]} & \text{[i:b1]} \\
\end{array}
\]

The derivation in (20) covers the various contexts for GG laterals. The first column shows word medial /L/ after a back vowel. Dorsal Vowel Assimilation applies resulting in [l]. The second column shows that Coronal Vowel Assimilation applies when /L/ is situated after a front vowel. The initial lateral later undergoes Dorsal Default, which derives a surface [l]. The third example shows a sequence /pisLo/. Coronal Vowel Assimilation is blocked by the intervening coronal fricative. Dorsal Default therefore derives [l]. In the fourth column, underlying /L/ becomes specified as [CORONAL] because the sound is adjacent to a front vowel. Coronal Vowel Assimilation cannot apply to /i:bLo/ in the fifth column because the preceding /b/ blocks the spreading of
Thus, Dorsal Default applies, but the resulting sequence /...bl/ violates OCP-[PERIPHERAL], triggering Peripheral Dissimilation. The lateral thus surfaces as [l]. With regard to rule ordering, Dorsal Vowel Assimilation applies before Coronal Vowel Assimilation. The former is more specific (reference more structure) and must therefore be ordered first according to the Elsewhere Condition (Kiparsky 1973). Likewise, the Elsewhere Condition stipulates that Lateral Default apply after the assimilations. Peripheral Dissimilation necessarily occurs at the end of the derivation because it repairs any illicit sequences created by Lateral Default.

4. Theoretical Considerations

4.1. Dissimilations as Structure Preserving

In the present analysis I posit a dissimilation that turns [l] into [l]. It is noteworthy that GG does not have a phoneme /l/, and the dissimilation is therefore not structure preserving. According to Kiparsky (1985), a rule is structure preserving if the output is a phoneme of the language. If the output is not phonemic, then the rule is not structure preserving. This concept is important with respect to dissimilations because phoneticians such as Ohala (1993:255–256) and many phonologists (Kiparsky 1985:658; Hall 2008, 2009, among others) have argued that the output of a dissimilation must be structure preserving. These linguists might propose that the GG phoneme is /l/ and the dissimilation results in [l]. The first problem with this analysis is that it is also non-structure preserving. Additionally, it is unclear how the hypothetical analysis can predict the distribution of [l]. Specifically, how can one account for the fact that [l] occurs word initially regardless of the following vowel? This seems like an impossible fact to derive from an underlying /l/. On the other hand, I have shown the distribution of [l] to be completely predictable.

Some questions about the structure preserving status of dissimilations remain open: What are the constraints on dissimilations? Can a sound dissimilate to any other sound? For example, in a hypothetical language with the coronal stops /t ŋ d ʒ/, assume there is an OCP constraint against adjacent [+anterior] segments. Sequences of anterior stops such as /...td.../ should be expected to undergo a dissimilation given the analysis presented in this paper. If dissimilations are structure preserving, then the aforementioned sequence of anterior stops might be expected to surface as [...] or [...] since both combinations include phonemes of the language. On the other hand, if dissimilations are not structure preserving, it is unclear what the phonetic representation of /...td.../ might look like. Could /t/ be realized as a palatalized allophone [tʰ] or the palatal stop [c]? Is the dissimilation in any way predictable? Clearly this issue deserves attention, but it is beyond the scope of the present paper and a topic for future research.

4.2. Underspecification and [PERIPHERAL]

My analysis also presents an argument in favor of approaches to features that make use of the underspecification model advocated by Rice (1994). Consider first that some phonologists (McCarthy 1988; Sagey 1986; Steriade 1987) argue for autosegmental representations without a natural class [PERIPHERAL]. According to this view, there are natural classes of coronals, labials, and dorsals, but labials and dorsals cannot pattern together. It is unclear how an analysis without [PERIPHERAL] would be able to account for the dissimilation data. Why should both word initial labial and dorsal obstruents cause [l] to surface when one would otherwise predict [l]? It would be possible to write two separate rules – one that de-links [DORSAL] after labials and another that de-links [DORSAL] after dorsals. Although theoretically possible, such an ad-hoc analysis misses
the generalization that word initial labial and dorsal obstruents have the same effect on a following /l/. These obstruents behave as a natural class and this generalization is captured if both are specified as [PERIPHERAL].

5. Conclusion
In this paper I have presented an account of GG /L/. I argued that the underlying segment is an underspecified archiphoneme /L/. On the surface there are two allophones [l] and [ɫ], the former of which is [CORONAL] and the latter [DORSAL]. According to my analysis, the distribution of laterals is predictable after vowels. When the lateral follows a front vowel, [l] surfaces, whereas [ɫ] is derived after back vowels. Strangely, [l] also occurs in word initial consonant clusters when the consonant is a [PERIPHERAL], an environment in which one would expect [ɫ]. To account for these data I posited an OCP constraint militating against adjacent peripheral segments. This constraint triggers a dissimilation, resulting in the coronal lateral. My analysis crucially relies on coronal underspecification (Rice 1994, 1996) to account for the transparency of coronal and labial consonants with regard to the assimilation of vowel place features. Finally, my analysis provides evidence that dissimilations can be non-structure preserving.

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Gottschee German Laterals

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Control, Binding, and the Statue vs. Identity Interpretation*

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Abstract: English obligatory control constructions, as well as ECM structures with locally bound reflexives, only allow de se construal. Hornstein and Pietroski (2010) attribute this fact to movement. They hold that PRO and reflexives in these structures are non-distinct copies of their antecedents, and as such they function as vehicles for de se interpretation. This argument for non-distinctness as a result of movement is challenged by the fact that, given enough context (e.g. the so-called “Madame Tussaud context”), PRO and the reflexive may receive a statue interpretation that is distinguishable from the identity interpretation of their antecedents. I present the relevant statue data and show that they do not pose a challenge for the movement approach to control and binding. I suggest that the statue interpretation is the result of property shift – rather than reference shift – brought about by overt or covert free as-adjuncts that function as stage-level predicates.

1. De Se Interpretation in Control and Binding
Hornstein and Pietroski (2010), building on Hornstein’s (2001) project of reducing control and binding construal to movement, present semantic evidence to show that locally bound reflexives (LBR) and obligatory control PRO (OC PRO) are the outcome of copying rather than co-indexing. The focus is on the two verbs, expect and believe, used in sentences like (1a–b) and (2a–b) in reference to an amnesiac war hero who accidently came across information about his brave and heroic feats. The authors observe that, unlike (2a–b), (1a–b) may not be used in reference to the amnesiac war hero, even if they were uttered after the war hero had recovered from his amnesia.

(1) a. The unfortunate expected to get a medal.
    b. The unfortunate believed himself to be brave.

(2) a. The unfortunate expected that he would get a medal.
    b. The unfortunate believed that he was brave.

This observation was first made in reference to control structures in Morgan (1970). Similarly, Chierchia (1989) holds that control structures like (1a) entail that the matrix subject has access to himself/herself in two ways, both (i) as the unfortunate and (ii) as a war hero. While the same access is also available in (2a), (1a) contains an extra feature that is only optionally available in

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(2a), which can be described as “self-ascriptivity” or an awareness of self-identity on the part of the matrix subject.

Chierchia adds that “self-ascriptivity is simply the semantic aspect of what linguists call control” (1989:18). Building on Fodor (1975) and Williams (1977), he argues that control structures only allow a de se reading because they contain subordinate clauses that are unsaturated structures. That is, they are properties rather than propositions, and PRO is only a form of ‘self,’ associated with an abstractor or operator that binds it. See also Anand (2007), who considers obligatory de se interpretation as the outcome of operator binding.

Chierchia mentions ECM constructions with reflexive pronouns like (1b). However, he considers the enforced/strongly preferred de se interpretation in such structures as unexpected and refrains from offering an explanation.

Hornstein and Pietroski (hereafter H&P) provide a unified analysis of both control structures and ECM structures with LBR. They hold that sentences (1a–b) are strictly de se reports that are appropriate only if the unfortunate war hero knows that “he is the object of his own thoughts,” which he does not (p. 69). Sentences (2a–b), however, are appropriate in this context. Although they allow a de se interpretation, they may also be used to “ascribe thoughts that are not self-directed” (p. 69). That is, although the matrix and subordinate subjects refer to the same entity, the unfortunate, the sentences allow a reading whereby the unfortunate is/was not aware that he is the war hero he just learnt about.

Like Chierchia and Anand, H&P argue that the reason behind the aforementioned semantic distinction is syntactic. Unlike Chierchia and Anand, however, H&P maintain that sentences (1a–b) involve copying rather than binding. That is, both OC PRO and the LBR are construed as the unfortunate as a result of movement, whereby OC PRO/LBR and the unfortunate are non-distinct copies of the same element in the numeration. The pronouns in (2a–b), on the other hand, are related to the matrix subjects through co-indexing/antecedence rather than movement. That is, the unfortunate and he in (2) are copies of distinct elements in the numeration, and they happened to coincide.  

H&P’s analysis accounts for the relation between syntax and semantics. To them, movement results in semantic identicalness in a way that co-indexing/antecedence cannot. However,

1 See, however, Anand (2006:14–15) for ECM structures similar to (1b) with non-de se interpretation. For the purpose of this paper, however, I will consider (1b) as strictly de se, especially since verbs like believe and think strongly lean towards such interpretation, as Kier Moulton (p.c. in Anand 2006:15, fn. 5) observes.

2 Note incidentally that H&P’s analysis of the sentences in (2) as the outcome of coindexing rather than movement goes against Kayne’s (2002) account. According to Kayne, sentence (2a) may have the derivation in (i). The matrix subject, the unfortunate, undergoes first merge with the embedded subject, he. This merge accounts for their coreferentiality. Later in the derivation, the unfortunate moves to the matrix clause while he is stranded. H&P seem to dismiss this option.

(i) The unfortunate expected that [de the unfortunate [i, he]] would get a medal

Alternatively, Kayne’s and H&P’s accounts may be combined, allowing for the four-way distinction in (ii). (iia) and (iib) are the outcome of movement, which explains the availability of the de se reading. (iic), on the other hand, is the result of co-indexing, or what Morgan (1970:385) calls “accidental identity,” which is why the same sentence allows the free variable interpretation in (iid).

(ii) a. John expected John to win. \rightarrow movement: de se reading

b. John expected that [John-he] would win. \rightarrow movement: de se reading

c. John, expected that he, would win. \rightarrow coindexing: de re reading

d. John, expected that he, would win. \rightarrow free variable
the argument that OC PRO and LBR are semantically identical is challenged by the availability of the so-called statue interpretation in structures like (1a–b).

In this article, I would like to show that the availability of the statue interpretation in the structures under examination does not compromise the movement analysis of control and binding. Section 2 spells out the details and presents the relevant data. In section 3, I tentatively suggest that these data do not pose a problem for the movement approach. Section 4 is a conclusion.

2. Statue vs. Identity Interpretation in Control and Binding

H&P’s analysis gives rise to an important question. As observed by Reuland (2001) and Lidz (2001) for Dutch and Kannada respectively, a complex self anaphor, unlike its simplex se counterpart, may be distinguishable from its antecedent. Reuland (2001) offers example (3), in which Marie walks into Madame Tussaud and looks in a mirror. In this context, the expression Marie saw herself, with the complex anaphor, may have two interpretations: Marie saw her own reflection or Marie saw (the reflection of) her statue.

(3) Dutch “Madame Tussaud” context:
Marie is beroemd en liep bij Madame Tussaud’s binnen.
‘Marie is famous and walked at Madame Tussaud’s inside
Ze keek in een spiegel en ...
she looks in a mirror and
‘she looked in a mirror and ...

a. ze zag zich in een griezelige hoek staan.
she saw herself in a creepy corner stand
‘she saw herself standing in a creepy corner.’
Favored interpretation: Marie saw herself.

b. ze zag zichzelf in een griezelige hoek staan.
she saw herself in a creepy corner stand
‘she saw herself standing in a creepy corner.’
Favored interpretation: Marie saw her statue.

(= Reuland 2001:483, ex. 89)

This observation is probably less problematic under a binding approach because the LBR and its antecedent are assumed to be coreferential through co-indexing rather than copying, which arguably may accommodate a less than complete identity interpretation between the two coreferential elements. Under the movement approach, however, the two copies are coreferential because they are non-distinct copies of the same token in the numeration. According to H&P, LBR is “semantically identical” to its antecedent “in a way that no bound variable can be” (2010:77, fn. 7). Therefore, a complete identity is expected in conjunction with the de se interpretation.

Another question is whether the statue interpretation is available in control structures as well. If the answer to this question is no, then the assumption that binding and control are both derived in a similar fashion – that is, by movement – becomes questionable. If it is yes, then again an explanation is needed as to how two non-distinct copies may enforce a de se interpretation.
tion, yet receive distinct interpretations. Otherwise, identicalness as used by H&P becomes limited to self-ascriptivity rather than to coreference.

In an attempt to test whether the statue reading is available in structures with OC PRO and LBR, I presented thirteen native speakers of American English with the following situation and with sentences (4a–f).

- Context:
  You walk into a museum where there is a statue of yourself standing in a dark spot. There is a contest tomorrow for selecting the prettiest statue. You and the curator are standing in front of your statue.

- Question:
  Given the above context, would the following sentences be something you would say in reference to the statue – or expect someone in the same situation to say? Politeness or the lack of it is not an issue!

(4)  
a. I don’t like myself in this dark spot.  
b. I don’t like seeing myself standing in this dark spot.  
c. I prefer to be in the spotlight.  
d. I would like to be placed in the spotlight.  
e. I expect to be clean and ready for tomorrow’s contest.  
f. I expect to impress all the museum visitors tomorrow.

Eleven native speakers reported that sentences (4a–f) are sentences they would personally say and/or they would expect someone else to say in the given context. Out of the remaining two native speakers, one reported that he would use the sentences if he were ‘joking around’ with the curator, while one found them completely bizarre.

In order to control for a potential difference between 1st and 3rd person pronouns (see, for example, Bhat 2004), I also presented seven of the eleven native speakers who found (4a–f) appropriate with the following context and sentences (5a–f). All seven speakers found the sentences appropriate.

- Context:
  Let’s say your name is Sue. Later in the day, the curator you talked to stands in front of your statue with a co-worker and reports the following sentences to him.

- Question:
  Would these be good sentences in this context?

(5)  
a. Sue doesn’t like herself in this dark spot.  
b. She doesn’t like seeing herself standing in this dark spot.  
c. She prefers to be in the spotlight.  
d. She would like to be placed in the spotlight.  
e. She expects to be clean and ready for tomorrow’s contest.  
f. She expects to impress all the museum visitors tomorrow.
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The sentences in (4) and (5) are problematic to the movement approach to control and binding because they involve instances of OC PRO and LBR that are referentially distinct from their antecedent. The antecedent refers to the speaker/Sue while OC PRO and LBR refer to a statue of the speaker/Sue, as (6a–b) illustrate.

(6) a. $^{\text{speaker/Sue}}$ don’t like myself $^{\text{statue}}$ in this dark spot.
    b. $^{\text{speaker/Sue}}$ expect PRO$^{\text{statue}}$ to impress all the museum visitors tomorrow.

3. The Syntax of Structures with the Statue Interpretation

The semantic analysis of the de se reading in (1a–b) put forth by H&P includes the beginning of a solution to the problem highlighted in the previous section. I quote:

Let’s start by introducing a singular concept, $C_j$, of a certain John […] Only our John falls under $C_j$ […] But of course, John may fall under many singular concepts, each of which is such that only he falls under it. And if John falls under both $C_j$ and the logically independent singular concept $C_p$, there is no guarantee that a rational thinker who judges that John falls under $C_j$ will also judge that John falls under $C_p$. Indeed, even John might make a mistake about himself, especially if John is unfortunate. He might judge that John falls under $C_j$ without judging that John falls under $C_p$.

(H&P 2010:77)

This quote suggests that the speaker/Sue in (4) and (5) falls under two independent singular concepts: $C_{\text{person}}$ and $C_{\text{statue}}$. The question is how this information is encoded syntactically. In section 3.1, I will suggest that the statue interpretation is the result of a property shift brought about by overt or covert free as-adjuncts that function as stage level predicates. Section 3.2 presents the derivation of these adjuncts.

3.1. Property vs. Reference in the Statue Interpretation

The above quote by H&P implies that sentences (4a–f) may be understood as (7a–f).

(7) a. I don’t like myself, as a statue, in this dark spot.
    b. I don’t like seeing myself, as a statue, standing in this dark spot.
    c. I prefer, as a statue, to be in the spotlight.
    d. I would like, as a statue, to be placed in the spotlight.
    e. I expect, as a statue, to be clean and ready for tomorrow’s contest.
    f. I expect, as a statue, to impress all the museum visitors tomorrow.

What is special about the as a statue phrase in (7a–f)? Stump (1985:87–88), as well as Fernald (2000) and Jäger (2003), analyzes as X phrases of this type as free adjuncts that categorically function as stage level predicates. As Landman (1989:729, see also Carlson 1977) observes, “people have rich characters with many aspects; restricted individuals enter the stage.” Free as-adjuncts make this possible. They allow us to say sentences like (8a–b). In both sentences, Sue and Tom are aware that the boss and the father in question have the same referent, Tom.

(8) a. Sue has known Tom as a boss and as a father.
    b. Tom likes himself as a boss, but he is not so proud of himself as a father.
According to Jäger (2003:559–560), there are three readings available in a free as-adjunct, namely a “costume reading,” a “picture reading,” and “an ordinary spatio-temporal part of the world reading.” For example, sentence (9) may have any of the three readings (9a–c), depending on the situation.

(9) Sue saw Tom as a pilot for the first time last week
   a. Costume reading:
      Tom is an actor in a movie in which he plays the role of a pilot, and Sue watched the movie for the first time last week.
   b. Picture reading:
      Tom has a picture in his house in which he is dressed as a pilot (probably just for fun), and Sue saw the picture for the first time last week.
   c. Real-world spatio-temporal reading:
      Tom is a pilot, but Sue had never seen him as one until she ran into him wearing his uniform in the airport last week.

The statue examples in (4) and (5) above fall under the picture reading. At the same time, OC PRO and LBR may be used in a stage reading or a real-world spatio-temporal reading. For example, Tom may have the following attitudes towards himself as a pilot under all three readings:

(10) a. I like myself as a pilot.
    b. I always expect to impress my viewers/visitors/passengers as a pilot.

According to Jäger (2003:559–561), free as-adjuncts make it possible “to ascribe conflicting properties to one and the same individual if the predication is appropriately qualified.” For example, while sentence (11a) is pragmatically awkward and unexpected, sentence (11b) with the free as-adjuncts is perfectly acceptable.

(11) a. Tom looks attractive and unattractive.
    b. [Context: Tom is an actor who played these roles in two movies.]
      Tom looks attractive as a pilot but unattractive as a bank manager.

This idea was probably first introduced by Landman (1989) who observed that in a situation where John is both a judge and a hangman, if the judges but not the hangmen are on strike, then John is and is not on strike at the same time: He is on strike as a judge but not on strike as a hangman.

Landman (1989) puts forth eight conditions – or what Jäger (2003) calls “axioms” – regarding the interpretation of free as-adjuncts. The most relevant condition for our purposes is Condition 1, which Landman illustrates with the following example:
John as a judge still is John. 
Landman (1989:732, ex. 32)

This condition indicates that the speaker/Sue as a statue in (4) and (5) is still the speaker/Sue, and thus the speaker/Sue and OC PRO/LBR may still be considered coreferential. The distinctness is at the level of properties depicted by the stage level predicates as a statue vs as a person.

Before placing free as-adjuncts within the derivational history of structures that contain OC PRO and LBR, it is important to note that there are cases in which Landman’s axiom as stated in (12) may not apply. The reason is not the nature of the free as-adjunct as a stage level predicate but rather the nature of the subject that saturates it. Namely, if the subject is a 1st or 2nd person pronoun, a shift in reference alongside the shift in property is possible, in which case a free pronoun may be licensed where normally a (OC PRO or LBR) copy is.

To elaborate, Bhat (2004) observes that 1st and 2nd person pronouns I/me and you – or what he calls personal pronouns – are different from 3rd person pronouns in that they are dissociated from their referent and are only sensitive to speech roles. In other words, I/me will always refer to the person speaking regardless of her/his identity. Similarly, you will always refer to the hearer regardless of her/his identity. This is why languages tend to use appositives for identifying the referents of I/me and you; for example, I, Jean Do, ... (Bhat 2004:10, 38–40).

Given this volatile nature of 1st and 2nd person pronouns, when a personal pronoun – in the sense of Bhat (2004) – saturates a free as-adjunct, it should be possible for it, not only to take on a situational stage-level property, but also to take on a new reference. (13) through (15) show that this is indeed possible. As the information in the square brackets indicates, me and you are used where myself and yourself are expected.

(13) a. If I were you I would fall for me [instead of myself] 
Keep every promise, answer my calls. (from If I Were You lyrics – Jason Castro) 
  b. 1st you would fall for me as me.

(14) a. Context: My mother is lying in the hospital after a serious surgery. My brother is constantly urging me to visit her, but I am too swamped with work. Finally, in exasperation, he starts lecturing me.
My brother: Say that you were mom and you won’t visit you [instead of yourself]! 
How do you think that would make you feel after all those years of sacrifice? 
(adopted from Anand 2007:1, fn. 1)
  b. You as daughter won’t visit you as mom.

(15) a. If I were you I would want for me [instead of myself] to succeed.
  b. 1st you would want for me as me to succeed.

The (a) sentences in (13) through (15) are not possible with 3rd person pronouns, as Webelhuth and Dannenber (2006) observe. The reason is that 3rd pronouns are inherently demonstrative with fixed reference. They may readily experience a shift in property, but they may not as readily experience a shift in reference.

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3.2. The Derivation of Free as-Adjuncts
According to Jäger (2003:571), free as-adjuncts may be considered as adnominal as-PPs à la Landman (1989), cf. (16a), or as adverbial constructions à la Fox (1993), cf. (16b). The two are synonymous.

(16) a. John as a judge is corrupt.
    b. As a judge, John is corrupt.
       (= Jäger 2003:571, ex. 39a–b).

Derivationally, given the premises of the movement approach, it can be assumed that the subjects in (16a–b) start out in the free as-adjunct before they move – or sideward move (Nunes 2004) – to the matrix clause. After movement and other structure-building business take place, two options are available: (i) As a judge adjoins to the subject DP John (16a), or (ii) as a judge adjoins to the matrix predicate (16b).

Back to the control and binding structures under examination. For the purpose of these structures, I assume that free as-adjuncts are adverbial constructions, although they can very well be adnominal PPs. This means that sentence (17) has the following derivation: The adjunct and subordinate vP form independently (17a), and Sue copies out of the adjunct and merges in Spec,vP. The two phrasal structures undergo merge (17b). In (17c), the whole structure projects, with a copy of Sue merging in the matrix clause. (17d) is the PF representation in which all but the highest copy of Sue are deleted.

(17) Sue expects to impress the museum visitors, as a statue.

a. [adjunct Sue as a statue] [vP Sue impress the museum visitors]
    b. [vP [vP Sue impress the museum visitors] [adjunct Sue as a statue]]
    c. [CP [IP Sue expects [IP Sue to [vP [vP Sue impress the museum visitors]
       [adjunct Sue as a statue]]]]]
    d. PF:
       [CP [IP Sue expects [IP Sue to [vP [vP Sue
       [adjunct Sue as a statue]]]]]

Sentence (18) has a similar derivation: The adjunct and matrix VP form independently (18a), and Sue undergoes sideward movement, copying out of the adjunct and merging in the object position in matrix VP. The adjunct and VP undergo merge (18b), after which matrix vP projects, and Sue moves to Spec,vP, then to Spec,IP (18c). After all business is done in narrow syntax, the structure converges at PF as (18d). In this case, two copies of Sue are pronounced, one as Sue and one as a reflexive pronoun, herself. ³

(18) Sue likes herself as a statue.

a. [adjunct Sue as a statue] [vP likes Sue]

³ For movement accounts – with different flavors – as to why Sue in the object position is pronounced as a reflexive pronoun, see Hornstein (2001), Kayne (2002), Grohmann (2003), and Haddad (2011b).
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b. \([\text{VP} \ [\text{VP} \text{likes Sue}] \ [\text{adjunct Sue as a statue}]]\)
c. \([\text{CP} \ [\text{IP} \ [\text{VP} \text{Sue} \ [\text{VP} \ [\text{VP} \text{likes Sue}] \ [\text{adjunct Sue as a statue}] boy]]]]\)
d. PF:
\([\text{CP} \ [\text{IP} \ [\text{Sue} \ [\text{VP} \ [\text{VP} \text{likes herself}] \ [\text{adjunct Sue as a statue}]]]]]]\)

A question that follows is: Why don’t free as-adjuncts show up all the time? In other words, why is the statue reading in (4) and (5) available despite the absence of the adjunct as a statue? I suggest that this is the case because free as-adjuncts are presuppositional topical adverbials, as Jäger (2003) describes them, sharing the same situation with the main predicate (matrix or embedded). Therefore, they are usually implied, and pronouncing them or not may be considered a matter of economy. In this respect, they are similar to if-adjuncts in structures like (19). Such structures are pragmatically used as advice, and the if-adjunct is usually implied.

(19) I would talk to the manager (if I were you).

4. Conclusion
The reduction of construal to movement as proposed in Hornstein (2001) has received considerable attention over the last decade. In the realm of control, it has helped account for cases that other non-movement approaches have not been able to accommodate yet, namely, backward and copy control. See, for example, Polinsky and Potsdam (2002), Potsdam (2009), Haddad (2009), (2011a).

H&P set out to provide further support for the movement approach to control and binding. According to the authors, the movement approach captures the semantic identicalness between OC PRO/LBR and the antecedent in a way that coindexing cannot. However, the availability of the statue interpretation in structures with OC PRO and LBR presents a challenge to the claim of semantic identicalness as a result of copying. In this paper, I suggest that the availability of the statue reading is not problematic to the movement approach and does not compromise H&P’s analysis. The reason is that the statue interpretation is brought about by a stage level predicate, an overt or covert free as-adjunct, that highlights a stage, picture, or real-world spatio-temporal property of OC PRO/LBR without altering its reference.

References
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**Ni: Dative Case Marker or Postposition?**

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**Abstract:** This paper proposes a consistent analysis of the suffix/particle *ni* in Japanese as a dative Case marker, contrary to previous analyses which suggest that *ni* is ambiguous between a dative Case marker and a postposition (cf. Sadakane and Koizumi 1995). Examining the behavior of *ni* in nominalized clauses, I provide a new analysis for *ni*-marked DPs, which may lead to new perspectives for the discussion of the Japanese Case marking system. I also suggest some new ideas for the derivation of nominalization structures.

0. **Introduction**  
In this paper, I provide a set of data which indicates that the suffix/particle *ni* in Japanese is not ambiguous between a dative Case marker and a postposition, as opposed to previous analyses; I propose that *ni* always is a dative Case marker. I also discuss the implications of the results obtained in the investigation for the theory of grammar.

*Ni* has many usages. It can be associated with various theta roles and appear in numerous syntactic constructions. This is unusual, not only for Japanese, but also for other languages. Therefore, the exploration of *ni* has consequences for the study of many other construction types and lead to many interesting perspectives, although more work needs to be done. Dative particles in Romance languages are said to pose similar problems (cf. Kayne 1975).

The paper is organized in the following way: In section 1, I discuss the proposal by Sadakane & Koizumi (1995; henceforth: S&K), which represents the standard analysis of *ni*; subsequent studies seem to accept this account. S&K claim that *ni* is ambiguous between a Case marker and a postposition, basing their assumption on three tests. In section 2, I will show some problematic data for S&K’s approach, and in section 3, I will propose an alternative analysis for *ni*. Section 4 discusses the Japanese Case marking system, both with regard to clauses and nominalizations. Section 5 provides a tentative new analysis of nominalizations. Section 6 concludes the paper.

1. **S&K’s Analysis of *ni***  
S&K discuss the behavior of *ni* and argue that there are two homophonous particles *ni* in Japanese, i.e. a dative Case marker and a postposition. They divide the usage of this particle into 31 categories (e.g. indirect object, causee, etc.) and examine the syntactic behavior of *ni* by testing it in the following three syntactic environments: (i) the floating numeral quantifier (FNQ) construction, (ii) the cleft construction with a particle, and (iii) the cleft construction without a particle. Based on the results of these tests, *ni* is described as a Case marker or a postposition.

According to the first test, only DPs can associate with a FNQ, while PPs cannot (cf. Miyagawa 1989). Consider the following examples:
(1) a. OK [DP Gakusee-ga] 3-nin piza-o tabeta.
   student-NOM 3-CL pizza-ACC ate
   ‘Three students ate pizza.’

   student from 3-CL presents-ACC received
   ‘John received presents from three students.’
   (S&K: 8)

Ga in (1a) is a nominative Case marker, as can be seen from the DP gakusee-ga ‘student-NOM,’ which relates to the FNQ 3-nin. In contrast, kara ‘from’ in (1b) is a postposition, as becomes evident from gakusee-kara ‘student-from,’ a (postpositional) PP. This PP cannot co-occur with a FNQ. Based on this observation, S&K conclude that ni is a dative Case marker when a ni-marked DP can be associated with a FNQ. The relevant example is shown in (2a). On the other hand, when a ni-marked DP cannot be associated with a FNQ, ni has to be a postposition, according to S&K. The example is given in (2b).

(2) a. OK Kanta-wa yuuenti-de uma-ni 3-too notta.
   Kanta-Top amusement park-at horse-NI 3-CL rode
   ‘Kanta rode three horses at the amusement park.’

b. * Mika-wa sensee-ni 3-nin inu-o home-rare-ta.
   Mika-Top prof.-NI 3-CL dog-ACC praise-Passive-Past
   ‘Mika was affected by three teachers’ complimenting her dog.’
   (S&K: 12-13)

The second test involves a cleft construction with a particle. It is known that only PPs can appear in the cleft focus position, whereas DPs with Case markers such as ga (NOM) or o (ACC) cannot be clefted in this manner. Some examples are given below.

(3) a. OK John-ga tegami-o moratta no-wa [PP Mary-kara] da
   John-NOM letter-ACC received NL-Top Mary-from Cop
   ‘It’s from Mary that John received a letter.’

b. * Kinoo piza-o tabeta no-wa [DP Mary-ga] da
   yesterday pizza-ACC ate NL-Top Mary-NOM Cop
   ‘It’s Mary who ate pizza yesterday.’

c. ?? Kinoo Mary-ga tabeta no-wa [DP pizza-o] da
   yesterday Mary-NOM ate NL-Top pizza-ACC Cop
   ‘It’s pizza that Mary ate yesterday.’
   (S&K: 9)

In (3a), the PP Mary-kara can occupy the focus position. In contrast, Mary-ga in (3b) and piza-o in (3c) are Case-marked DPs, and thus are unable to move into this position. S&K use this be-

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1 The abbreviations used throughout this paper are ACC (accusative), CL (classifier), Cop (Copula), DAT (dative), GEN (genitive), NL (nominalizer), NOM (nominative), and Top (topic).
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behavior to determinate the status of \( ni \): If a \( ni \)-marked item can be clefted, it must be a PP and \( ni \) a postposition. The relevant example is given in (4b). On the other hand, if such an element cannot occur in the cleft focus position, it has to be a DP and \( ni \) a Case marker as shown in (4a).

(4) a. ?? Kanta-ga yuuenti-de notta no-wa uma-ni da.
    Kanta-NOM amusement park-at rode NL-Top horse-NI Cop
    ‘It’s a horse that Kanta rode at the amusement park.’

b. OK Mika-ga inu-o home-rare-ta no-wa Tanaka sensee-ni da.
    Mika-NOM dog-ACC praise-Passive-Past NL-Top Tanaka prof.-NI Cop
    ‘It’s by Prof. Tanaka that that Mika was affected by his complimenting her dog.’
    (S&K: 12-14)

The third test – clefting without a particle – shows that Case markers must be omitted in clefts, whereas the option of dropping a postposition in clefts depends on the context, according to S&K.

(5) a. OK Kinoo pizza-o tabeta no-wa Mary da.
    yesterday pizza-ACC ate NL-Top Mary Cop
    ‘It’s Mary that ate pizza yesterday.’

b. OK Kinoo Mary-ga tabeta no-wa pizza da.
    yesterday Mary-NOM ate NL-Top pizza Cop
    ‘It’s pizza that Mary ate yesterday.’

c. #?? John-ga tegami-o moratta no-wa Mary da.
    John-NOM letter-ACC received NL-Top Mary Cop
    ‘It’s (from) Mary that John received a letter.

(6) a. OK Mary-ga kinoo pizza-o tabeta. (the unclefted version of (5a-b))
    Mary-NOM yesterday pizza-ACC ate
    ‘Mary ate pizza yesterday.’

b. OK John-ga Mary-kara tegami-o moratta. (the unclefted version of (5c))
    John-NOM Mary-from letter-ACC received
    ‘John received a letter from Mary.

c. OK John-ga kono naifu-de keeki-o kita. (the unclefted version of (5d))
    John-NOM this knife-with cake-ACC cut
    ‘John cut the cake with this knife.’
    (S&K: 10)

In the unclefted version of (5a) and (5b), that is, in (6a), Mary and pizza would be assigned some form of Case marker. As can be seen, these Case markers must be omitted in clefting sentences. In the unclefted version of (5c), that is, in (6b), Mary would be associated with a postposition, and this postposition may not be omitted in a cleft construction. In (5d), however, the post posi-
tion in the unclefted version (6c) may be dropped. In other words: PPs can or cannot be omitted, depending on the contexts. S&K adopt the argument that the focus constituent in this type of cleft construction is not syntactically related to any particular position in the cleft clause (cf. Hoji 1987) and claim that these tendencies in (5) depend on the accessibility of the focused constituent (cf. Hoji 1987). When the accessibility ranks high, the element will be dropped. S&K adopt the accessibility hierarchy in Inoue (1976), which is shown in (7).

(7) Subject[nominative] ≥ direct object[accusative] ≥ indirect object[dative] ≥ locative ≥ goal ≥ instrumental ≥ standard ≥ ablative ≥ genitive ≥ source ≥ comitative ≥ reason ≥ comparative
(S&K: 10)

Nominative and accusative DPs in (6a) rank high and thus they are dropped in the cleft construction. On the other hand, the postposition in (6b) shows ablative, which ranks low in (7), and thus it is difficult to drop this postposition. The postposition in (6c) expresses instrumental and it ranks higher than ablative. As a result, (5d) is much easier to accept. S&K conclude that if ni can be omitted in the cleft construction, it is a Case marker or a postposition; if such element can’t be omitted, it must be a postposition. (8b) is unacceptable and then this ni is a postposition; (8a) is acceptable and thus such element is a Case marker or a postposition.

(8) a. OK Kanta-ga yuuenti-de notta no-wa uma da.
   Kanta-NOM amusement park-at rode NL-Top horse Cop
   ‘It’s a horse that Kanta rode at the amusement park.’

   Mika-NOM dog-ACC praise-Passive-Past NL-Top Tanaka prof. Cop
   ‘It’s Prof. Tanaka that Mika was affected by his complimenting her dog.’
(S&K: 12–14)

In sum, these three tests discriminate between a Case marker and a postposition as stated in (9).

(9) |   | FNQs | Clefting with a particle | Clefting without a particle |
---|-----|------------------------|--------------------------|
| Case-marked | OK | */?? | OK |
| With Postposition | * | OK | */??/OK |
(S&K: 11, with a slight modification)

2. Discussion of S&K’s Account
Applying the above tests, S&K arrive at the conclusion that ni has dual status (Case marker vs. postposition). As we will see, this conclusion is problematic, since the tests do not necessarily deliver the correct results.

As for the FNQ test, the acceptability of such sentences varies from person to person. Therefore, this test seems inadequate for a characterization of ni. Consider the examples in (10). The test sentence with a FNQ, (10b), is not given in S&K. I assume (10b), which is based on the
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original sentence in S&K. Judgment is their own.

(10) a. Emi-wa tomodati-ni 3-nin bara-no hanataba-o ageta.
Emi-Top friend-NI 3-CL rose-GEN bouquet-ACC gave
‘Emi gave a bouquet of roses to three of her friends.’
(S&K: 13)
Judgments: S&K: OK
My own (AI): OK

b. Emi-wa kodomo-ni 3-nin omotya-o katta.
Emi-Top children-NI 3-CL toy-ACC bought
‘Emi bought toys to three of her children.’
Judgments: S&K: *
My own (AI): OK

S&K observe that only the FNQ construction in (10a), but not the one in (10b) is acceptable. Therefore they conclude that ni must be a dative Case marker in (10a) and a postposition in (10b). However, in my and other native speakers’ judgment, both (10a) and (10b) are fine. The conclusion must be that such native speakers are able to consistently use ni as a dative marker, which is different from S&K’s judgments. Thus, due to the individually varying acceptability, this test cannot produce a straightforward result.

Let us move to the second test, involving clefting with a particle. It appears that S&K’s assumption with regard to the impossibility of clefting Case-marked DPs has numerous counter-examples. One such example is given in (11).

(11) OK Taro-ga tabeta no-wa[DP kono ringo-o ] da.
Taro-NOM ate NL-TOP this apple-ACC Cop
‘It’s this apple that Taro ate.’
(Hiraiwa and Ishihara 2002: 36)

In (11), the suffix -o in *kono ringo-o* is a clear Case marker, and since this DP can occupy the focus position, one must conclude that this test, too, is problematic and should not be used to determine the status of ni.

The third test – clefting without a particle – questionable as to its applicability: Since it seems that PPs can more or less be used in cleft constructions, this tests must be rejected as well.

In sum, S&K’s findings cannot unequivocally show that ni possesses the purported dual morphosyntactic status. Therefore a new analysis is warranted.²

3. Ni: A Dative Case marker

In this section, I propose an alternative analysis of ni, which is based on new morphosyntactic evidence. To do so, the behavior of nominalized phrases will be demonstrated first. I argue that

² Some of the data above may be due to idiolectal variations, but I will put this issue aside here.
ni-marked DPs behave in a uniform manner when nominalized, which will explain the status of ni straightforwardly.

In the literature, a distinction between two types of nominalizations is maintained, i.e. a syntactic nominalization (such as English gerunds) and a lexical nominalization. For our purposes, the process of the syntactic nominalization is most relevant. In Japanese, this may result in a shift from a “sentential” to a nominalized clause. As is well-known, Japanese nominalized clauses are derived by adding the suffix such as kata ‘way,’ yoo ‘manner,’ puri ‘manner’ and so on, to the verb. In syntactic terms, a vP is assumed to merge with the nominalizer kata. This derivation is shown in (12) (cf., e.g., Kishimoto 2006, Sugioka 1992).

(12) \[ \text{DP[vP John [vP hon yomu]] kata} \]
John book read way
‘the way in which John reads a book’

Particles such as Case markers or postpositions can be added to nominalized clauses. However, they must change their form, as captured in the widely accepted generalization (13) (see, e.g., Kishimoto 2008, Tsujioka 2011):

(13) No ‘GEN’ substitutes Case particles such as ga ‘NOM’ and o ‘ACC’ and attaches postpositions such as de ‘by/at’ and kara ‘from.’ (Tsujioka 2011: 125)

The effects of (13) are illustrated in (14b) and (15b), which are the nominalized counterparts of clauses (14a) and (15a).

(14) a. OK John-ga heya-de hon-o yonda.
John-NOM room-in book-ACC read
‘John read a book in the room.’
b. OK John-no heya-de-no hon-no yomi-kata
John-GEN room-in-GEN book-GEN read-way
‘the way in which John reads a book in the room’

(15) a. OK John-ga ginko-kara okane-o kari.
John-NOM bank-from money-ACC borrowed
‘John borrowed money from a bank.’
b. OK John-no ginko-kara-no okane-no kari-kata.
John-GEN bank-from-GEN money-GEN borrow-way
‘the way in which John borrows money from a bank’

Now, consider the behavior of ni: There seems to be a ban on the co-occurrence of ni and no, as stated in (16) (cf. Kishimoto 2008 and Tsujioka 2011).

(16) For some reason, ni-no ‘NI-GEN’ is excluded and e-no ‘to-GEN’ is used instead.
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This generalization stems from the observation of sentences such as the following ones, where not ni-no but e-no is allowed in the b-examples.

(17) a. **OK** John-ga booru-o douro-ni nageta.
    John-NOM ball-ACC street-NI threw
    "John threw a ball to a street."

    b. John-no booru-no douro-{e-no/*ni-no} nage-kata.
    John-GEN ball-GEN street-{to GEN/NI-GEN} throw-way
    "the way in which John throws a ball to a street"

(18) a. **OK** John-ga Mary-ni mondai-o toka-seta.
    John-NOM Mary-NI test question-ACC solve-cause
    "John had Mary solve test questions."

    b. John-no Mary-{e-no/*ni-no} mondai-no toka-se-kata.
    John-GEN Mary-{to GEN/NI-GEN} test question-GEN solve-cause-way
    "the way in which John had Mary solve test questions"

However, I would like to claim that it is not ni that has been changed in these cases, but rather that a postposition e has been changed to e-no. Note that ni can alternate with e in the clausal varieties, as shown in (19–20).

(19) John-ga booru-o douro-{e/OKni} nageta.
    John-NOM ball-ACC street-{to/ho} threw
    "John threw a ball onto a street."

(20) John-ga Mary-{e/OKni} mondai-o toka-seta.
    John-NOM Mary-{toho} test question-ACC solve-cause
    "John had Mary solve test questions."

It seems then that the generalization in (16) – “As to ni, in nominalized clauses, ni-no is excluded in favor of e-no” – must be rejected. However, the important point in this formulation is the first part, i.e. the fact that ni-no is excluded. Ni can receive various theta roles (e.g. GOAL, SOURCE, and others). Whatever theta roles ni receives, ni-no is excluded, i.e. ni-no cannot be used in nominalizations at all. Based on the generalization in (13), I argue that ni cannot be a postposition, because the sequence [postposition + no] is not allowed. The prediction, then, is that if ni can be changed into no, it is a Case marker. This predication is borne out, as shown in (21–23). In other words: The use of no instead of ni in the nominalized b-versions is perfectly fine.

(21) a. **OK** John-ga booru-o douro-ni nageta.
    John-NOM ball-ACC street-NI threw
    "John threw a ball to a street."

    b. John-no booru-no douro-{ni-no/OKno} nage-kata.
    John-GEN ball-GEN street-{NI-GEN/ GEN} throw-way
    "the way in which John throws a ball to a street"
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(22) a. **OK** John-ga Mary-ni mondai-o toka-seta.
    John-NOM Mary-NI test question-ACC solve-cause
    ‘John had Mary solve test questions.’

b. John-no Mary-*ni-no/OK no* mondai-no toka-se-kata.
    John-GEN Mary-[NI-GEN/GEN] test question-GEN solve-cause-way
    ‘the way in which John had Mary solve test questions’

(23) a. **OK** John-ga kouen-de uma-ni notta.
    John-NOM park-at horse- NI rode
    ‘John rode a horse at the park.’

b. John-no kouen-de-no uma-*ni-no/OK no* nori-kata.
    John-NOM park-at-GEN horse-[NI-GEN/GEN] rode-way
    ‘the way in which John rode a horse at the park’

Before hasting to a conclusion, we have to consider one other possibility: If *ni* could have been changed into another case marker, e.g. *ga* or *o*, in the sentential versions, the form *no* in the nominalized examples would stem from the transformation of these items, and not from *ni* directly. But *ni* is unable to alternate with these Case markers in (24). This means that it is *ni* that has changed into *no*, and nothing else.

    John-NOM ball-ACC street-[NI/NOM/ACC] threw
    ‘John threw a ball onto a street.’

b. John-ga Mary-*ni/*ga/*o* mondai-o toka-seta.
    John-NOM Mary-[NI/NOM/ACC] test question-ACC solve-cause
    ‘John had Mary solve test questions.’

c. John-ga kouen-de uma-*ni/*ga/*o* notta.
    John-NOM park-at horse-[NI/NOM/ACC] rode
    ‘John rode a horse at the park.’

Summing up, I have proposed an alternative analysis for *ni*-marked DPs in this section. This analysis demonstrates the parallel behavior of *ni*-DPs with other case-marked DPs in nominalized clauses and underpins the assumption that *ni* is always a dative Case marker.

4. Case Marking in Nominalized Clauses
It appears that the hypothesis stated above runs into a problem: *No*-marked DPs may lead to a degraded status in some cases, cf. the examples in (25–26), where the b-versions represent the nominalized counterparts of the a-clauses.

(25) a. **OK** John-ga Mary-ni hon-o ageta.
    John-NOM Mary-DAT hon-ACC gave
    ‘John gave a book to Mary.’
Ni: Dative Case Marker or Postposition?

b. ?? John-no Mary-no hon-no age-kata.
   John-GEN Mary-GEN book-GEN give-way
   ‘the way in which John gives a book to Mary’

(26) a. OK John-ga Mary-ni nagu-rare-ta.
   John-NOM Mary-DAT hit-Passive-Past
   ‘John was hit by Mary.’

b. ?? John-no Mary-no nagu-rare-kata.
   John-GEN Mary-GEN hit-Passive-way
   ‘the way in which John is hit by Mary’

(25) contains a double object construction and (26) a direct passive construction. According to S&K, Mary-ni in (25) has a GOAL theta role, while Mary-ni in (26) has an underlying AGENT role. Both b-sentences are more or less ungrammatical, which might be construed as an argument against ni as a Case marker. However, I would like to suggest that this is due to a constraint which prevents a nominal phrase from having some DPs being marked with no. I will call this constraint a ‘some no constraint,’ although the details of this constraint need to be worked out in future investigations. I suggest that this constraint is of the same sort as the well-known ‘double o constraint,’ which prevents a clause from having two DPs marked with the accusative marker o. Note, though, that there appear to be two different types of this constraint, as shown in (27).³

(27) a. * Taro-wa Ziroo-o sakana-o tabe-saset
   Taro-TOP Ziroo-ACC fish-ACC eat-cause
   ‘Taro had Ziro eat a fish.’
   (Harada 1973: 201)

b. ?? Taro-wa Hanako-o hamabe-o aruka-seta
   Taro-TOP Hanako-ACC beach-ACC walk-cause
   ‘Taro had Mary walk on the beach.’
   (Hiraiwa 2006: 283)

(27a) contains a causative construction involving a transitive verb; however, the two accusative DPs in this sentence render ungrammaticality. (27b) shows a causative construction involving an intransitive verb with the adjunct hamabe-o; also this sentence has two accusative DPs, but it is slightly better than (27a). I would like to claim that the suggested ‘some no constraint’ is related to the type of constraint that applies to examples like (27b).

To show this, a more exact definition of such a constraint is required, because it is unclear how many and what type of no-marked phrases are prohibited. Consider the following examples:

³ The explanation of the ‘double o constraint’ is still an object of debate since it is unclear what exactly is included under this constraint (cf., e.g., Harada 1973, Kuroda 1978, Hiraiwa 2002, 2006, 2010). I will not pursue this matter any further here.
The b-examples in (28–29), the nominalized counterparts of a-examples, equally contain double object constructions, the difference between them being that a pro replaces the GOAL object in (28), whereas a pro replaces the THEME object in (29). Japanese, a pro-drop language, allows sentential examples such as (28a) and (29a). However, when nominalized, only GOAL object, but not THEME object seemed to be licensed. What are the constraints that govern these configurations? This question requires further research. I would like to suggest, though, that the ‘some no constraint’ is a PF-constraint, based on the assumption that Japanese Case marking takes place at PF component (see, e.g., Fukui and Sakai 2003), and thus it has no influence on a narrow syntax.4

In section 3, I proposed that ga, o and ni behave in a uniform manner in nominalized clauses. I suggest that these three markers behave similarly in regular clauses as well. Although further research is needed with regard to Case marking in Japanese, the new account opens an important perspective to the Japanese Case marking system.

5. Reanalyzing Nominalizations
Nominalizations are interesting operations in that both verbal and nominal characteristics are present. A relevant example is given in (30).

(30) John’s singing the aria
     (Baker 1985: 1)

In (30), John’s displays genitive case, which is a nominal feature. On the other hand, the aria is marked for accusative, which is a verbal feature. Japanese syntactic nominalizations with kata ‘way’ are said to turn a verbal constituent into a nominal one. However, I would like to propose that Japanese nominalized clauses are derived differently than the illustration in (12) above indicates, cf. (31).

---

4 Note, also, that the previous generalization does not explain why ga-no and o-no are not allowed. Such an explanation could then be applied to the ban on ni-no, too.
(31) \[[\text{DP} \text{John} \ [\text{DP} \text{hon} \ [\text{DP} \text{yomu-kata}]]]\]

John book read-way

‘the way in which John reads a book’

In this derivation *yomu* ‘read’ first merges with *kata* ‘way,’ and a complex predicate *yomu-kata* ‘read-way’ is formed. *Yomu-kata* is then changed into *yomi-kata* ‘read-way’ for morphological or phonological reasons. In the next step, *hon* ‘book’ merges with the complex predicate, and finally *John* merges with *hon yomu-kata*. The first Merge of *yomu* and *kata* is a syntactic operation.

The reason why I propose this derivation is that Japanese nominalizations do not appear to have the same derivation as their English equivalents due to the agglutinative character of Japanese. Furthermore, Japanese Case markings in nominalizations are different from those in English in that all DPs are assigned genitive Case, clearly a nominal quality. Hence, it is plausible to assume that Japanese nominalizations do not involve vPs. This novel train of thought may be extended to compounds as well, which are derived both syntactically and lexically. In other words, all compounds may be derived by Merge in a narrow syntax. Various effects need to be considered.

6. Conclusion
To sum up: In this paper, I have rejected the idea that the particle *ni* is not ambiguous between a dative Case marker and a postposition, and argued that it is a consistent dative marker. I provided a new analysis for *ni*-marked DPs, based on the behavior of *ni* in nominalized clauses. This analysis not only sheds light on the characteristics of *ni*-marked DPs but also may open up a new perspective for future investigations of the Japanese Case marking system. Finally, I have provided an outline for a new way of treating nominalizations in Japanese.

References


Ako Imaoka


Modeling Acceptability of Variation in Modern Hebrew

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Abstract: Modern Hebrew spirantization (MHS) is a variable process with many exceptions. This paper reports on an experiment testing the acceptability of variation in alternating and exceptional segments in MHS. The results show that variation is acceptable in both alternating and exceptional segments, but is significantly more acceptable in alternating segments than exceptional ones. This suggests that, despite the ubiquity of variation, speakers still distinguish between alternating and exceptional segments categorically. Consequently, an Optimality Theoretic (OT) analysis, combining stochastic constraint ranking (Hayes & MacEachern 1998, Boersma 1998, Zuraw 2000, Boersma & Hayes 2001) and set-based indexation (Pater 2000), is used to model the results. The combined model presented here accounts for the experimental data, allowing for both variation and exceptionality within a single phenomenon across all participants. Preliminary analysis of within-speaker variation demonstrates that the combined model can also account for individuals’ grammars across word position and segment type.

0. Introduction
This paper presents an Optimality Theoretic (OT) model of the acquisition of Modern Hebrew Spirantization, a variable phenomenon. The stop/fricative pairs participating in the alternation are the labials [p]~[f] and [b]~[v], as well as the voiceless dorsals [k]~[χ]. Due to historical sound mergers, there are many lexical exceptions to spirantization in Modern Hebrew (words containing non-alternating instances of the sounds listed above). In addition to these exceptions, there is a high level of variation in segments that do alternate. The analysis presented in this paper is based on the results of an experimental rating task showing that variation is acceptable, in both alternating and exceptional segments. I argue that to model this gradience in the two types of segments, it is necessary to combine two mechanisms: stochastic constraint ranking (Boersma 1998, Hayes & MacEachern 1998, Zuraw 2000, Boersma & Hayes 2001) and set-based indexation (Pater 2000).

1. Modern Hebrew Spirantization
In Modern Hebrew, the stops [p], [b], and [k] alternate with their fricative counterparts [f], [v], and [χ], respectively. The stops occur in word-initial and post-consonantal position, while the fricatives occur post-vocally. This is illustrated in the verbal paradigms in Table 1.
Table 1: Spirantization distribution in Modern Hebrew

<table>
<thead>
<tr>
<th>Root</th>
<th>Infinitive</th>
<th>Uninflected</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/ ~ [f]</td>
<td>/pgʃ/</td>
<td>[lifgoʃ]</td>
<td>[pagaʃ]</td>
</tr>
<tr>
<td>/b/ ~ [v]</td>
<td>/bgd/</td>
<td>[livgod]</td>
<td>[bagad]</td>
</tr>
<tr>
<td>/k/ ~ [χ]</td>
<td>/kʃb/</td>
<td>[liʁtoʊv]</td>
<td>[katav]</td>
</tr>
</tbody>
</table>

Exceptions to spirantization are cases of non-alternation of the sounds [p], [f], [b], [v], [k] and [χ], such that they surface in unexpected environments. Such non-alternating segments are seen in the verbal paradigms in Table 2, where stops may surface post-vocically and fricatives may surface in word-initial position.

Table 2: Exceptions to spirantization in Modern Hebrew (in underlined words)

<table>
<thead>
<tr>
<th>Root</th>
<th>Uninflected</th>
<th>Infinitive</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/k/</td>
<td>/krʔ/</td>
<td>[kara]</td>
<td>[liʁko]</td>
</tr>
<tr>
<td>/v/</td>
<td>/vtr/</td>
<td>[vited]</td>
<td>[levater]</td>
</tr>
</tbody>
</table>

In addition to these exceptions, high levels of variation have been reported in the alternating segments (Adam 2002, Temkin Martínez 2010). This variation includes the surfacing of stops and fricatives in contexts not predicted by the spirantization distribution by segments that normally do conform to it. This is illustrated in Table 3.

Table 3: Variation in Modern Hebrew spirantization

<table>
<thead>
<tr>
<th>Root</th>
<th>Expected</th>
<th>Acceptable Variant</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/ ~ [f]</td>
<td>/pgʃ/</td>
<td>[pagaʃ]</td>
<td>[fagaʃ]</td>
</tr>
<tr>
<td>/b/ ~ [v]</td>
<td>/kjbr/</td>
<td>[jikbor]</td>
<td>[jikvor]</td>
</tr>
<tr>
<td>/k/ ~ [χ]</td>
<td>/kjʃ/</td>
<td>[jeʃkase]</td>
<td>[jeʃkase]</td>
</tr>
</tbody>
</table>

2. Experimental Rating Task

2.1. Methods

The analysis presented in this paper is based on the results of an experiment conducted to quantify the acceptability of variation in Modern Hebrew spirantization. Seventy-four native speakers of Hebrew between the ages of 19 and 40 participated in the study. A total of 42 roots were used to form the experimental stimuli. Twenty-four roots contained an alternating segment, twelve contained an exceptional segment, and six contained two target segments. Each of the roots was presented in two forms: the uninflected form and the infinitive. To determine the acceptability of variation, each of the target words was presented in its expected and variant form for a total of 204 target words. Examples of target words from the experiment are given in Table 4.
Modeling Acceptability of Variation in Modern Hebrew

Table 4: Expected and variant forms in the spirantization distribution

<table>
<thead>
<tr>
<th>Pair</th>
<th>Root</th>
<th>Uninflected</th>
<th>Infinitive</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Expected word-initial stop</td>
<td>Variant word-initial fricative</td>
<td>Expected post-vocalic fricative</td>
</tr>
<tr>
<td>/p/-[f]</td>
<td>/prs/</td>
<td>[paras]</td>
<td>[faras]</td>
<td>[li[f]ros]</td>
</tr>
<tr>
<td>/b/-[v]</td>
<td>/bna/</td>
<td>[bana]</td>
<td>[vana]</td>
<td>[li[v]not]</td>
</tr>
<tr>
<td>/k/-[χ]</td>
<td>/katb/</td>
<td>[katav]</td>
<td>[χatav]</td>
<td>[li[χ]tov]</td>
</tr>
</tbody>
</table>

Each of the 204 target verbs was inserted into carrier sentences containing the verb in phrase-medial position. All sentences were identical in syllable count, and each ended with a noun which complemented the target verb semantically. A sample sentence is given in (1).

(1) [amru li jedaniel (target word) le/be/me/et ________ ]
told to-me that-Daniel to/in/from/the
‘I’ve been told that Daniel (target word) to/in/from/the …’
(e.g. ‘I’ve been told that Daniel built the hut.’)

The sentences were recorded by a native speaker at a natural speaking rate, and placed in an online experiment using a .php script. Participants were presented with each sentence auditorily and instructed to pay special attention to the target verb, rating the naturalness of its pronunciation on a 4-point scale.

2.2. Results

Participant responses were converted to numerical values with the highest value (4) corresponding to ‘very natural’ and the lowest value (1) corresponding to ‘very unnatural.’ Although an ANOVA showed that variation was acceptable overall, there was a significant preference for the expected form across conditions, with a main effect of allophone, or whether the segment was the expected or variant form \( F(1, 73) = 886.521, p < .001 \). This is seen in Figure 1.

Figure 1: Ratings of expected and variant forms
While variation was also acceptable in alternating segments, it was deemed significantly less natural than in exceptional segments, with a main effect of type \( F(1, 73) = 80.073, p < .001 \), and an interaction between type and allophone \( F(1, 73) = 18.707, p < .001 \). This is seen in Figure 2.

**Figure 2: Ratings of exceptional and alternating segments**

For the analysis, results for each variant were entered as input frequencies. To calculate the input frequency for each variant of a given verb, all ‘natural’ ratings (a selection of ‘3’ or ‘4’ on the 4-point scale) were counted for all variants of the word, and each variant’s rating was calculated as a percentage of the ‘natural’ ratings for the word. This is seen in Table 5 for /bike/ ‘he asked for.’

<table>
<thead>
<tr>
<th>Token</th>
<th>Number of ‘natural’ ratings</th>
<th>Input frequency (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>bikeʃ</td>
<td>37</td>
<td>67%</td>
</tr>
<tr>
<td>bijeʃ</td>
<td>3</td>
<td>5%</td>
</tr>
<tr>
<td>vikeʃ</td>
<td>13</td>
<td>24%</td>
</tr>
<tr>
<td>vizeʃ</td>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>55</td>
<td>100%</td>
</tr>
</tbody>
</table>

Since each target word had a different number of ‘natural’ ratings, and each variant could have a different input frequency, the model used in the OT analysis must be able to handle gradience in its analysis of variation.

3. **OT Analysis**

3.1. **Alternating Segments**

In order to account for the complementary distribution found in alternating segments participating in spirantization (prior to considering variation), I propose using a contextual markedness constraint banning post-vocalic stops, the context-free markedness constraints banning fricatives and stops, and a faithfulness constraint for [continuant], the feature distinguishing stops and fricatives. The ranking is such that the constraint banning post-vocalic stops dominates the faithful-
ness constraint, resulting in the alternation between stops and fricatives. Ranking the faithfulness constraint below markedness ensures that non-alternation only occurs in positions other than post-vocalic. The constraints, their definitions, and the proposed ranking for alternating segments are given in (2).

(2) Constraints for the analysis of alternation

* V-STOP Post-vocalic stops are prohibited.
* [+cont, -sib] Non-sibilant fricatives are prohibited.
* STOP Stops are prohibited.

IDENT-IO[cont] Input-output correspondents are identical in [±cont].

Constraint ranking: *V-STOP » *[+cont, -sib] » IDENT-IO[cont], *STOP

Applying the constraints above to a root containing alternating segments, we are able to account for post-vocalic fricatives as well as word-initial and post-vocalic stops. In the tableau in (3), we see this in the root /bkh/ ‘to cry,’ in which both /b/ and /k/ are alternating segments. In the infinitive, the /b/ occurs post-vocally, resulting in a [v], and the /k/ in post-consonantal position, surfacing as a [k]. In the uninflected form, the /b/ occurs word-initially, surfacing as a [b], while the /k/ occurs post-vocally, resulting in a [χ].

(3) Alternation in the root /bkh/ (both segments alternate)

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>V-STOP</th>
<th>[+cont, -sib]</th>
<th>IDENT-IO[cont]</th>
<th>STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>/bkh/ + (inf.) ‘to cry’</td>
<td>a. livkot</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>b. libkot</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. livχot</td>
<td>**</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. libχot</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>/bkh/ + (3p.sg.m.past) ‘he cried’</td>
<td>a. baya</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. baka</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. vaya</td>
<td>**</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. vaka</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

3.2 Exceptional Segments

Since exceptional segments (those in Table 2) are phonetically indistinguishable from those that normally alternate according to the spirantization distribution, it is crucial to distinguish the two in the analysis. An OT analysis that allows for this distinction is set-indexation (Pater 2000). Using set-indexation, exceptional segments are indexed to a special set for which additional constraints are designated (in addition to those already being used), with the indexed constraints applying only to segments indexed to the same set. The additional constraint in this case is a clone
of the faithfulness constraint IDENT-IO[cont]. Once cloned and indexed to the exceptional set (Set 1), it is ranked above the markedness constraints relevant to spirantization in the constraint hierarchy. This ranking makes the segments in Set 1 essentially immune to the alternation driven by the markedness constraints, since any alternation would violate this highly ranked faithfulness constraint. This is illustrated in Figure 3.

Figure 3: Schema for exceptionality and alternation using a set-based approach

\[
\text{IDENT-IO[cont]}_1 \rightarrow \text{Markedness constraints} \rightarrow \text{IDENT-IO[cont]}
\]

\[
\begin{align*}
&\text{Prohibits alternation in exceptional segments} \\
&\text{Determines the distribution of stops and fricatives in alternating segments}
\end{align*}
\]

By indexing exceptional segments to IDENT-IO[cont]_1, words containing non-alternating segments can be accounted for successfully. In (4), the root /bχᵣ/ contains both an alternating segment (/b/) and an exceptional segment (/χ/). Indexing the /χ/ to Set 1 accounts for the lack of alternation in this segment and its surfacing as a fricative [χ] in post-consonantal position. The alternating /b/, not indexed to Set 1, is free to alternate between [b] in word-initial position and [v] post-vocically.

(4) Words containing an exceptional segment (indexed to Set 1)

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
<th>IDENT-IO[cont]_1</th>
<th>V-STOP</th>
<th>[+cont, -sib]</th>
<th>IDENT-IO[cont]</th>
<th>*STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>/bχᵣr/ + (inf.) ‘to choose’</td>
<td>a. livχ₁or</td>
<td>**</td>
<td>*</td>
<td>**</td>
<td>**</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>b. libχᵣor</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>c. livk₁or</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>d. libk₁or</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>*</td>
</tr>
<tr>
<td>/bχᵣr/ + (3p.sg.m.past) ‘he chose’</td>
<td>a. bax₁ar</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>b. bak₁ar</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>c. vac₁ar</td>
<td>**!</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>d. vak₁ar</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>**</td>
<td>*</td>
</tr>
</tbody>
</table>

3.3 Variation

With the results of the experiment described in Section 2 showing gradience, the analysis for variation must reflect the lack of free variation. Gradience in variation is accounted for by implementing Stochastic OT (Boersma 1998; Boersma & Hayes 2001; Hayes & Londe 2006; Hayes & MacEachern 1998; Zuraw 2000). Utilizing Stochastic OT, the input for each token is the percentage of times the token was rated as ‘natural’ by the participants. Once frequencies are en-
tered into the algorithm, it cycles through the grammar (input/output pairs, candidate frequencies, constraint violations) and assigns constraints values, determining their ranking. The stochastic grammar then attempts to match the candidate frequencies (acceptability ratings from the experiment) by determining the probability of different constraint rankings and assigning ranking values to each constraint, given all inputs. These ranking values affect the frequency with which each constraint in the hierarchy outranks other constraints.

In the tableaux in (5), we see the two rankings that allow for the variants of the form /bitel/ ‘he cancelled.’ In the experiment, the expected form [bitel] was rated as ‘natural’ 77.1% of the time, while the variant [vitel] was rated as ‘natural’ 22.9% of the time. The ranking of *[+cont, -sib] and *STOP is the determining factor in selecting between these variants. In Stochastic OT, then, the algorithm must allow for the rankings of these two constraints to alternate in order for each variant to surface. In fact, given the input frequencies entered for all tokens used in the experiment, the algorithm allows for the expected form to surface 74.7% of the time, and the variant form 25.3% in final grammar.

\[(5)\] Rankings for [bitel] (expected, 77.1%) ~ [vitel] (variant, 22.9%):

\[
\begin{array}{c|c|c|c}
\text{[bitel]} & *(+cont, -sib) & *STOP & (occurs 74.7\% in grammar) \\
\hline
\text{/btl/ + 3p.sg.m.past} & \text{\textit{he cancelled}} & \text{*V-STOP} & \text{*[+cont, -sib]} & \text{IDENT-IO[cont]} & \text{*STOP} \\
\hline
\text{a. bitel} & & & & * & \\
\text{b. vitel} & & & & * & *
\end{array}
\]

\[
\begin{array}{c|c|c|c}
\text{[vitel]} & *STOP & *(+cont, -sib) & (occurs 25.3\% in grammar) \\
\hline
\text{/btl/ + 3p.sg.m.past} & \text{\textit{he cancelled}} & \text{*V-STOP} & \text{*STOP} & \text{*[+cont, -sib]} & \text{IDENT-IO[cont]} \\
\hline
\text{a. bitel} & & & * & & *
\text{b. vitel} & & & & * & *
\end{array}
\]

Similarly, the tableaux in (6) show that in order for both variants of /mevatel/ ‘cancels’ to surface, the ranking between *V-STOP and *+[cont, -sib] must allow each to outrank the other some of the time. In the experiment, the expected form [mevatel] was rated as ‘natural’ 72% of the time, while the variant [mebatel] was 28% of the time. In this case, the ranking of *+[cont, -sib] and *V-STOP is the determining factor in selecting between these variants.
Michal Temkin Martínez

(6) Ranking for [mevatel] (expected, 72%) ~ [mebatel] (variant, 28%) ‘cancels:’

[mevatel] = *V-STOP » *[+cont, -sib] (occurs 74.7% in grammar)

<table>
<thead>
<tr>
<th>/btl/ + sg.m.pres. ‘cancels’</th>
<th>V-STOP</th>
<th>*[+cont, -sib]</th>
<th>IDENT-IO[cont]</th>
<th>*STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. mevatel</td>
<td>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. mebatel</td>
<td></td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

[mebatel] = *[+cont, -sib] » *V-STOP (occurs 25.3% in grammar)

<table>
<thead>
<tr>
<th>/btl/ + sg.m.pres. ‘cancels’</th>
<th>*[+cont, -sib]</th>
<th>V-STOP</th>
<th>IDENT-IO[cont]</th>
<th>*STOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. mevatel</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. mebatel</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note that, as was the case with the variants in (5), the expected form in (6) surfaces 74.7% of the time (though the input frequency was 72%), and the variant form 25.3% in final grammar (though the input frequency was 28%). This, again, is a function of the algorithm and its consideration for the frequencies of all tokens included in the experiment.

3.4 The Combined Model

A need for a combined model arises when we examine ‘hybrid’ words, which contain both an alternating and an exceptional segment. When taking into consideration the frequency of variation deemed acceptable by participants in hybrid words, we see that neither set-indexation nor stochastic constraint ranking can account for both variation and exceptionality on their own.

Using only set-indexation, we are able to account for the alternation of only one segment in a word, but variation can only be accounted for through unranked constraints, resulting in free variation. Since, in most variant pairs, there was a significant preference for one variant over the other, using only set-indexation results in disproportionate frequencies of variation. An example of this is in (7) where the candidates a. and b. for /kafa/ ‘he froze’ can be accounted for through the unranking of *V-Stop and *[+cont, -sib], resulting in the selection of either. However, this fails to account for participants’ preferring candidate (7a) 90% of the time.
Modeling Acceptability of Variation in Modern Hebrew

(7) [kafa] (expected, 90%) ~ [kapa] (variant, 10%) ‘he froze’

Similarly, using only stochastic constraint ranking, we are unable to account for the distinction between alternating and exceptional segments. Rather than considering alternating and exceptional segments as different types of segments, both are treated as alternating segments. Recall that, in the experiment, participants found variation in exceptional segments significantly less acceptable that variation in alternating segments. Using stochastic OT without set-indexation, the algorithm averages the rate of acceptability across all segments, increasing the discrepancy between input and generated frequencies. This is seen in Table 5, where the algorithm allows for [meχajem], a variant that participants never rated as natural, to be generated 59% of the time, as well as blocking [mevaker], a variant of a hybrid root rated natural 72% of the time, from ever being generated, the latter being blocked because of the presence of both a stop and a fricative in the same position.

Table 5: Mismatched input and generated frequencies with absence of sets

<table>
<thead>
<tr>
<th>Target</th>
<th>Input Frequency</th>
<th>Generated Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternating</td>
<td>[baka] ‘he cried’</td>
<td>0.07</td>
</tr>
<tr>
<td>Exceptional</td>
<td>[meχajem] ‘fulfills’</td>
<td>0.00</td>
</tr>
<tr>
<td>Hybrid</td>
<td>[mevaker] ‘visits’</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Additionally, in the absence of sets, hybrid roots and roots containing two alternating segments are treated as equals. This is seen in Table 6, where variants of the hybrid root /kfʔ/ ‘to freeze’ and the root /kfh/ ‘to force,’ containing two alternating segments, generate the same frequencies despite significantly different input frequencies. This discrepancy is caused by the status of /k/ in each of the roots: in the hybrid root /kfʔ/ the /k/ is exceptional, whereas it is alternating in /kph/. This means that the variants containing [χ] are rated as natural less frequently in the hybrid root. However, since set-indexation does not distinguish the two instances of /k/, the two variants with the lowest input frequencies for the hybrid are generated 25% and 40% of the time according to the algorithm.
Table 6: /kfʔ/ ‘to freeze’ and /kfh/ ‘to force’ -- same generated frequencies for hybrids and for roots containing two alternating segments

<table>
<thead>
<tr>
<th>Target (hybrid root)</th>
<th>Input Frequency</th>
<th>Target (2 alternating)</th>
<th>Input Frequency</th>
<th>Generated Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>[likfo]</td>
<td>0.452</td>
<td>[likfot]</td>
<td>0.194</td>
<td>0.000</td>
</tr>
<tr>
<td>[likpo]</td>
<td>0.435</td>
<td>[likpot]</td>
<td>0.104</td>
<td>0.339</td>
</tr>
<tr>
<td>[liχfo]</td>
<td>0.048</td>
<td>[liχfot]</td>
<td>0.194</td>
<td>0.257</td>
</tr>
<tr>
<td>[liχpo]</td>
<td>0.065</td>
<td>[liχpot]</td>
<td>0.507</td>
<td>0.404</td>
</tr>
</tbody>
</table>

By combining set-indexation and stochastic constraint rankings, we are better able to account for the gradience in variation identified in the rating task. With the addition of Set 1 and the set-indexed constraint $\text{IDENT.IO}[\text{cont}]$, the ranking value of the non-indexed $\text{IDENT.IO}[\text{cont}]$ drops, placing it below the relevant markedness constraints and generating a distinction between alternating and exceptional segments. This re-ranking improves matches for the problematic cases in Table 5, as seen in Table 7.

Table 7: Improvement for problematic forms for different root types with sets

<table>
<thead>
<tr>
<th></th>
<th>Target</th>
<th>Input Frequency</th>
<th>Generated Frequency (no sets)</th>
<th>Generated Frequency (with sets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternating</td>
<td>[baka] ‘he cried’</td>
<td>0.07</td>
<td>0.40</td>
<td>0.34</td>
</tr>
<tr>
<td>Exceptional</td>
<td>[meχajem] ‘fulfills’</td>
<td>0.00</td>
<td>0.59</td>
<td>0.24</td>
</tr>
<tr>
<td>2 segments</td>
<td>[mevaker] ‘visits’</td>
<td>0.72</td>
<td>0.00</td>
<td>0.42</td>
</tr>
</tbody>
</table>

In addition to this improvement, the combined model has a higher rate of matching input and generated frequencies for hybrid words, which were completely blocked without set-indexation. This is seen in (8).
Modeling Acceptability of Variation in Modern Hebrew

Hybrid root /bkʃ/ ‘to ask’ using the combined model

<table>
<thead>
<tr>
<th>/bkʃ/ + sg.m.pres</th>
<th>IDENT-IO[cont]</th>
<th>*V-STOP</th>
<th>*[+cont, -sib]</th>
<th>STOP</th>
<th>IDENT-IO[cont]</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘asks for’</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. mevakʃ1eʃ</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Input (57.4%)</td>
<td>Generated (42.3%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. mebakʃ1eʃ</td>
<td>**!</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input (39.3%)</td>
<td>Generated (33.8%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. mevayʃ1eʃ</td>
<td>*!</td>
<td>**</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input (0%)</td>
<td>Generated (23.9%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. mebayʃ1eʃ</td>
<td>*!</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Input (3.3%)</td>
<td>Generated (0%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Though the frequency matches are still not exact, the difference between the generated frequencies with or without the sets for exceptional segments is the closer match for input and generated frequencies of the highest rated variants [mevakʃ] and [mebakeʃ], which the algorithm was unable to generate without sets.

4. Conclusion

Looking at Modern Hebrew spirantization, the presence of variation and exceptionality in the same phenomenon requires a combination of two mechanisms within the OT analysis. While the combination of stochastic constraint ranking and set-indexation helps bridge the gap between input and generated frequencies and account for the surfacing of hybrid words, more work is necessary to improve the frequency matches across all tokens.

References


Naze in ‘That’-Clauses

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Abstract: There has been a general consensus in the study of Japanese linguistics that naze ‘why’ displays island effects, contrary to argument WH-phrases. In this paper, I deal with nominal island effects with naze and show that the island effects disappear when the adjunct is further embedded in a complement clause headed by to ‘that’ or toyu ‘that.’ I argue that the lack of the island effect in this sort of environment comes from ‘that’-clauses containing naze ‘why’ functioning as argument WH-phrases. Support for this can be found in the behavior of nanto, a WH-expression which I show to be a version of to ‘that’ involving the WH-feature.

0. Introduction
One of the major issues in the generative approach to human language is how to assure the scopal properties of WH-phrases that are not raised to a scope position but remain in-situ. Huang (1982) proposed that all WH-phrases are found in their scope position at LF, suggesting that those that stay in-situ in overt syntax undergo covert movement to a scope position. Thus, (1a), which is a WH-question in Japanese, is assumed to have the LF structure in (1b).

(1) a. Kimi-wanani-o katta no?
you-TOP what-ACC boughtQ
‘What did you buy?’

b. [CP nani [IF kimi-wa t-okatta] no]

In (1a), the WH-phrase nani ‘what’ stays in the object position in overt syntax, but in (1b), it is raised in covert syntax to [Spec, CP], where it takes scope. This approach is theoretically desirable, since the behavior of WH-phrases in WH-movement language and WH-in-situ languages can be treated in the same manner at LF. What happens at LF is inaudible and therefore unlearnable; hence LF properties are not expected to be subject to parametrization and should not vary from language to language.

Not only is this approach theoretically appealing, but it is empirically justifiable as well. It gains support from the behavior of the Japanese reason adjunct naze ‘why,’ which has been observed by many linguistics to pattern like the English why with respect to island effects. To be exact, when naze is placed in a syntactic island, out of which overt movement leads to deviance,
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the result obtained has been observed to be quite degraded, even though the adjunct stays inside
the island. This effect can be treated on a par with island effects with the English why if it is as-
sumed that like why, naze also undergoes movement to a scope position, but only covertly.

This paper offers an alternative approach to scope taking of naze, according to which
naze does not take scope on its own but it does so by being inside a complement clause headed
by to ‘that’ or toyuu ‘that,’ which undergoes covert movement to a scope position, carrying along
naze.

The organization of this paper is as follows: Section 1 touches upon the so-called nominal
island effects with naze and its absence with argument WH-phrases in Japanese. Section 2 shows
what has been regarded as nominal island effects with naze can be accounted for in a way
that has nothing to do with covert movement or islands. Section 3 presents cases where naze is
allowed in nominal islands and provides the generalization that naze contained in a nominal is-
land needs to be embedded inside a nonfactive complement clause headed by to ‘that,’ selected
by a verb, or one headed by toyuu, ‘that,’ selected by a noun. In section 4, I attempt to derive this
generalization by assuming that these ‘that’-clauses can function as clausal WH-phrases when
containing naze in the C-domain. I also present some empirical support to this assumption, which
involves the WH-expression nanto, which is comprised of the WH-part nan and the complmen-
tizer part. Section 5 concludes the paper.

1. The Argument/Adjunct Asymmetry in Japanese

The covert WH-movement hypothesis was put forth by Huang (1982) and further developed in
Lasnik and Saito (1992) and numerous others. This hypothesis, according to which WH-phrases
in WH-in-situ languages such as Japanese take scope by undergoing covert movement to a scope
position, is empirically motivated by the so-called island effects.

It has been well known since Ross (1967) that there are constituents, which he termed i-
slands, such that movement out of them yields degraded results. Huang (1982) and many others
show that some islands marginally accept extraction of WH-arguments but not WH-adjuncts. For
instance, the questions in (2) have WH-islands.

(2) a. ?? What do you wonder [CP whether John bought t]?
   b. * Why do you wonder [CP whether John left t]?

The examples in (2) involve extraction of WH-phrases out of indirect questions, WH-islands,
and they are degraded. They differ, however, on the acceptability. (2a), where the argument what
is extracted, is only mildly deviant and marginally acceptable. (2b) involves extraction of the ad-
junct why and it is severely degraded and it is almost impossible to get the intended interpretation
where the adjunct modifies the embedded clause.

This asymmetry with respect to grammaticality was captured in the framework of Gov-
ernment and Binding. Huang (1982) and Lasnik and Saito (1992), among others, assumed that
there are two kinds of constraints on A-bar relations: one on movement and one on represen-
tation. The first one concerns various kinds of islands including WH-islands and nominal islands,
only deals with overt movement, and is relatively weak. The second one regulates the distribu-
tion of traces created by movement, overt or covert. This is widely referred to as the Empty Cat-
egory Principle (ECP).
Naze in 'That'-Clauses

(3) The Empty Category Principle
Nonpronominal empty categories must be properly governed.

(4) \( \alpha \) properly governs \( \beta \) iff
a. \( \alpha \) lexically governs \( \beta \), or
b. \( \alpha \) antecedent-governs \( \beta \).

(5) \( \alpha \) lexically governs \( \beta \), if
a. \( \alpha \) c-commands \( \beta \), and
b. \( \alpha \) assigns Case or a \( \theta \)-role to \( \beta \).

(6) \( \alpha \) antecedent-governs \( \beta \) if
a. \( \alpha \) binds \( \beta \), and
b. there is no \( \gamma \) (\( \gamma \) an NP or CP) such that \( \alpha \) c-commands \( \gamma \) and \( \gamma \) dominates \( \beta \), unless \( \beta \) is the head of \( \gamma \).

Let us see how the facts in (2) can be covered with the two conditions. In (2a), the WH-phrase undergoes overt movement to a scope position, crossing the island, leading to the mild deviance. The condition on representation, the ECP, is satisfied, since the original trace in the object position is lexically governed by the verb. Intermediate traces, which are assumed to be in the VP-adjoined position in both the matrix and the embedded clauses, are absent at covert syntax, due to the lack of semantic significance. The ECP is irrelevant to those deleted intermediate traces. In (2b), the condition on movement is not respected, and in addition to it, the condition on representation, the ECP is violated. The relation between the trace of why in the matrix VP-adjoined position and the trace in the embedded clause is not local enough, severed by the WH-island, leading to the extremely degraded status of the example.

With this in mind, let us turn to Japanese. Here I employ cases involving a nominal island, since they show the island effects rather clearly.

(7) a. \( \text{Kimi-wa [NP [} e_1 \text{ nani-o katta] hito}_1\text{-o sagasite iru no?] } \)
you-TOP what-ACC bought person-ACC looking-for be Q

‘What is the thing \( x \) such that you are looking for [the person [who bought \( x \)]]? ’

b. * \( \text{Kimi-wa [NP [} e_1 \text{ naze sono hon-o katta] hito}_1\text{-o] sagasite iru no?] } \)
you-TOP why that book-ACC bought person-ACC looking-for be Q

‘What is the reason \( x \) such that you are looking for [the person [who bought the book for \( x \)]]? ’

(Lasnik and Saito 1992:36)
The nominal islands in (7) contain relative clauses. As the contrast shows, the argument WH-phrase nani-o ‘what’ is allowed in the island, as in (7a), but, as shown in (7b), the adjunct naze is not, even though it is clear that it is supposed to modify the clause in which it is found. The examples in (8) depict the contrast of examples with noun complement clauses selected by the noun koto ‘fact.’ Just as in (7), the argument WH-phrase nani-o stays in the object position in the complement clause and it successfully takes matrix scope, but the presence of naze inside the complement clause leads to strong deviance.

Let us first consider the cases with argument WH-phrases in (7a) and (8a). In these cases, the WH-phrases undergo covert movement to the matrix, crossing an island, but their movement does not violate the condition on movement, which regulates only overt movement. It does not violate the condition on representation, either, because the original trace is in the lexically governed position. (7a) and (8a) are therefore perfect.

(7b) and (8b) are quite different from these cases. In (7b) and (8b), the local relation between the intermediate trace of naze in the matrix clause and the trace in the embedded clause is disrupted by the intervening NP, violating the condition on representation, yielding severe deviance.

In the minimalist approach to the generative grammar, too, attempts have been made to capture the relevant effects, for instance, by Takahashi (1994), Chomsky (1995), Saito and Fukui (1998), Rizzi (2006), Nakao and Yoshida (2006), among others. It is not our purpose here to review those accounts or to come up with an alternative proposal. The important thing here is the following set of generalizations that these authors have tried to derive.

(9) a. Covert movement of argument WH-phrases is allowed from an island.
   b. Covert and overt movement of adjunct WH-phrases is disallowed from an island.

This summarizes the argument versus adjunct (especially, naze) asymmetry. In the next section, we see that (7b) and (8b) can be excluded independently of covert movement of naze.
2. Scrutinizing the Behavior of Naze in Nominal Islands

Here I reexamine the nominal island effects with naze and show that deviance can be captured in a way that makes no reference to island effects.

2.1. Naze in a Relative Clause

In this subsection I would like to consider whether the deviance in (7b) is really a nominal island effect resulting from covert movement of naze. Note that (7b) involves a relative clause. Saito (1985) observes that Japanese relative clauses generally lack a complementizer, as in (10).

(10) \[ [NP [John-ga \ e_1 \ katta \ (\# to/\#toyuu)] \ hon_1] \]
John-NOM bought C book

‘a book that John bought’

Thus, following Saito (1985), I assume that relative clauses in Japanese lack the C projection and they are IPs. I also assume with Saito that the empty element in the relative clause is an empty pronoun that is coindexed with the noun hon ‘book,’ but not a trace of a relative operator. The reason for this is that due to the lack of the C projection there is no relative operator in Japanese, to which relative operators are generally assumed to move. Support for this comes from the following example.

(11) \[ [NP [IP [NP \ e_1 \ e_2 \ kawaigatte-ita \ inu_2]-ga \ sinde \ simatta] \ kodomo_1] \]
was-fond-of dog-NOM dying ended-up-with child

‘the child_1 such that the dog_2 which he_1 was fond of t_2 died’
(Kuno 1973:239)

In the example in (11), the head noun, kodomo ‘child’ is associated with the gap e_2, which is found inside the subject in the relative clause, which is clearly an island. This example is perfect, indicating that there is no movement taking place from the relative clause contained inside the subject to the so-called operator position. The gap should be regarded as a null pronoun, whose value is guaranteed by being bound by the head noun, without recourse to movement. The lack of the island supports the view that Japanese relative clauses lack the C projection.

It is independently suggested in Ko (2005), in line with Lin (1992) and Rizzi (1999), that the Japanese reason adverb naze, as well as its Chinese and Korean counterparts, is base generated in the CP domain due to their status as a sentential modifier. Let us assume so.

These two assumptions are given in (12).

(12) a. Japanese relative clauses are IPs, lacking the C projection.
    b. Naze is base-generated in the C projection.

If we assume this set of assumptions, the degraded status of (7b) is straightforward. Since the relative clause does not involve the C projection, naze has no place to be, which leads to deviance. (7b) can be rejected independently of nominal island effects.
Let us turn to (8b), where *naze* is contained in a noun complement clause. Fukui (1988) suggests that the noun *koto* takes a CP as its complement clause, since the clause can be headed by the complementizer *toyuu*, as in (13a).

(13) a. \[ \text{NP} \ [\text{CP} [\text{IP} \text{Taroo-ga} \text{ sore-o te-ni-ireta}] \text{toyuu}] \text{ koto} \]

\[ \text{Taroo-NOM} \text{ it-ACC} \text{ obtained} \text{ C’ fact} \]

\[ \text{‘the fact that Taroo obtained it’} \]

b. \[ \text{NP} \ [\text{Taroo-ga} \text{ sore-o te-ni-ireta}] \text{ koto} \]

\[ \text{Taroo-NOM} \text{ it-ACC} \text{ obtained fact} \]

\[ \text{‘the fact that Taroo obtained it’} \]

As in (13a), the noun *koto* ‘fact’ may take a clause headed by the complementizer *toyuu*. (13b) indicates that this complementizer is optional. A question arises as to the categorial status of the clause without the complementizer. There is reason to believe that clauses selected by *koto* are invariably CPs, being headed by *toyuu* ‘that’ or its null counterpart when it is absent.\(^1\)

It is well known that the English complementizer *that* can be omitted when the clause which it heads is in the complement position, while it must be present when the clause is not there.

(14) a. Bill knew \[\text{[CP e [IP the teacher was lying]]} \]

b. * \[\text{[CP e [IP the teacher was lying]]} \] was hardly obvious.

c. \[\text{[CP That [IP the teacher was lying]]} \] was hardly obvious.

(Stowell 1981:396)

As the above paradigm shows, *that* must be phonetically present when the clause that it heads is not in the complement position. This suggests that the subject clause in (14b) is not an IP, but a CP headed by a null complementizer.

The same pattern obtains with noun complement clauses in Japanese as well. Each of the examples in (15) contains a relative clause (IP) and a complement clause.

(15) a. \[ \text{[IP minna-ga sitteiru] [CP[IP John-ga kitaku-sita] e] koto} \]

\[ \text{everyone-NOM} \text{ know} \text{ John-NOM} \text{ go-home-did C fact} \]

\[ \text{lit. ‘the fact [e John went home] [which everyone knows]’} \]

b. * \[ \text{[CP [IP John-ga kitaku-sita] e] [IP minna-ga sitteiru] t\_1} koto} \]

\[ \text{John-NOM} \text{ go-hom-did everyone-NOM know fact} \]

\[ \text{lit. ‘the fact t\_1 [which everyone knows] [e John went home]’} \]

c. \[ \text{[CP [IP John-ga kitaku-sita] toyuu] [IP minna-ga sitteiru] t\_1} koto} \]

\[ \text{John-NOM} \text{ go-hom-did C everyone-NOM know fact} \]

\[ \text{lit. ‘the fact t\_1 [which everyone knows] [that John went home]’} \]

\(^1\) Saito (1985) claims that clauses associated with nouns are invariably IPs, whether they are relative clauses or complement clauses. This is incorrect, as (15) indicates. Fukui (1988), on the other hand, assumes that relative clauses are CPs as well as complement clauses. I depart from Fukui and assume that relative clauses are IPs and complement clauses are CPs.
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In (15a), the noun *koto* can take a clause without the complementizer *toyuu* ‘that.’ The contrast between (15b) and (15c) indicates that the complement clause must be headed by *toyuu* when it is fronted, patterning in exactly the same way as the *that*-clause in (14). Given the paradigm in (15), it is reasonable to state the following.

(16) Noun complement clauses in Japanese are invariably of the category CP.

Now that the categorical status of Japanese noun complement clauses is clear, we can see how *naze* behaves in this environment. The clause selected by the noun is a CP, so the adjunct *naze* has a place to be originated. Its covert movement to a matrix scope position in (8b) crosses an island, hence the deviance. There appears to be nothing more to be added to this idea.

There is another way to exclude (8b), however. Note that the complement clause is factive. There is a condition on taking scope out of a factive clause. Szabolcsi and Zwarts (1993) and Oshima (2007) suggest the following sort of non-syntactic condition on extraction of a WH-phrase from a factive island.

(17) If a factive clause involves a ‘one-time only’ predicate, WH-movement of a part of that predicate is not allowed out of that factive clause.

In other words, scope taking of WH-elements whose answers are necessarily unique is disallowed out of a factive clause. Consider the following questions.

(18) a. From whom do you regret having gotten a letter?
    b. * From whom do you regret having gotten this letter?
       (Szabolcsi and Zwarts 1993:271)

“Having gotten this letter from someone” in (18b) is a ‘one time only’ predicate, since the event described is unique and cannot be repeated. In other words, there is only one individual such that the addressee regrets having gotten the letter from. Therefore asking the identity of that individual in the factive clause is disallowed in this case.

A similar contrast is provided in Comorovski (1996).

(19) a. Who does John most regret having as a first cousin?
    b. * Who does Edmund regret having as a natural father?
       (Comorovski 1996:175)

In this set, too, the matrix verb is *regret*, a typical factive verb, so in asking something in the complement, the situation described in the complement must not be unique. (19a) must presuppose that John has more than one cousin, and it is a fine question. In (19b), however, the presupposition must be that Edmund has more than one natural father, leading to anomaly. Given (18) and (19), let us assume this presuppositional condition on scope taking from a factive clause.

This condition is motivated in Japanese as well. Consider (20).
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(20)  * Mary-wa [NP [CP dare-ga John-no umi-no haha dearu] koto]-o
       Mary-TOP who-NOM John-GEN natural mother be fact-ACC
       sitteimasu ka?
know Q

'Who is the person x such that Mary knows the fact that x is John’s natural mother?’

This question sounds anomalous exactly like (18b) and (19b) in that it presupposes that there is more than one biological mother for John. This shows that the condition works in Japanese as well. Note that the WH-phrase in (20) is an argument, which suggests that the deviance in (8b) has nothing to do with island effects of any kind.

With this in mind, let us return to (8b). In order to keep to the condition on taking scope out of a factive clause, the event in the factive clause must not be unique, so John’s stealing ‘it’ for some reason must not be a ‘one time only’ predicate. This would mean that John stole ‘it’ for one reason on one occasion and on some other occasion he stole ‘it’ again for some other reason. It would be rather hard to imagine such a situation, which would force it to be a ‘one time only’ predicate. Thus the oddity found with (8b) can be regarded as violating the condition on taking scope out of a factive clause, which has nothing to do with nominal island effects.

3. Naze in Nonfactive Noun Complement Clauses

We have seen in the preceding section that nominal island effects might be irrelevant to Lasnik and Saito’s deviant examples involving naze. In order to check the island effects, we need to look into cases where naze is in a nonfactive noun complement CP. First consider (21).

(21) Nihon-no keeki1-wa Ken-no iken niyoruto
Japan-GEN business-TOP Ken-GEN opinion according to
       [NP [CP e_1 naze waruku natta (toyuu)] kanoosee]-ga
why bad became C possibility-NOM
       itiban takai desu ka?
first high be Q

'As for the business in Japan, according to Ken’s opinion, what is the reason x such that [the possibility [that it became dull for x]] is the strongest?'

This example contains an occurrence of naze in a clause selected by a nonfactive noun. It is complicated and hard to process at first, but it sounds better than (7b) and (8b). Let us consider what happens if the adjunct is embedded in an argument CP inside a relative clause.

(22) [NP [IP [CP Sono syusyoo-ga naze sikyo-si-ta to]
       the prime minister-NOM why pass away-do-PAST C
       omotteiru] isi]-ga itiban ooi desu ka?
think doctor-NOM most many be Q

'What is the reason x such that [doctors [who think [that the prime minister passed away for x]]] are the largest in number?’

This example is fine, where naze is contained in a nonfactive CP inside a relative clause.
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The fine status of (21) and (22) tells us that the adjunct can satisfy its scopal property without causing the expected nominal island effect. More importantly, it suggests that the scope assignment of naze is possible only when the smallest clause containing it has the C projection.

The idea that the C projection headed by ‘that’ plays a role in saving naze is further strengthened by the following paradigm. There are cases where complement clauses which are selected by kanoosee ‘possibility’ cannot have the complementizer toyuu ‘that.’ In such cases, naze is disallowed. Consider the following.

(23) a. John-ga yuuhuku-dearu (toyuu) kanoosee
    John-NOM rich-END C possibility
    ‘the possibility that John is rich’

   b. John-ga yuuhuku-na (*toyuu) kanoosee
    John-NOM rich-ADN C possibility
    ‘the possibility that John is rich’

In (23a), the predicate in the complement clause ends with the ending form, in which case the complementizer is allowed. In (23b), on the other hand, the predicate ends with the adnominal form, which does not go with the complementizer. As shown in (24), naze is only allowed when the clause where it resides allows the presence of a complementizer, that is to say, when the relevant clause involves the C projection headed by ‘that.’ Given this whole pattern, we may state the following generalization.

(24) a. [NP [CP John-ga naze yuuhuku-dearu (toyuu)] kanoosee]-ga
    John-NOM why rich-END C possibility-NOM
    itiban takai desu ka?
    first high be Q
    ‘What is the reason x such that [the possibility [that John is rich for x]] is the strongest?’

    John-NOM why rich-ADN possibility-NOM
    itiban takai desu ka?
    first high be Q
    ‘What is the reason x such that [the possibility [that John is rich for x]] is the strongest?’

In the next section I consider how to derive this generalization.

(25) The C projection headed by to ‘that’ or toyuu ‘that’ saves naze.

In the next section I consider how to derive this generalization.

4. ‘That’-Clauses as WH-Phrases
Here I would like to consider why the generalization in (25) can be derived. It is important to note that, in the fine examples in (21) and (22), the clauses containing naze are arguments. In (21) the clause is headed by toyuu ‘that’ and selected by a noun. In (22) the adjunct is contained in the clause which is headed by to ‘that’ and selected by a verb. Given the generalizations in (9), the answer is straightforward, as in (26).
(26) ‘That’-clauses containing naze undergo covert movement to a scope position.

By assuming (26), a rough LF structure of the examples in (21) and (22) would look like (27).

(27) \[ \text{CP} \ [\text{CP} \ldots \text{naze} \ldots \text{‘that’}]_1 \ [\text{IP} \ [\text{VP} \ [\text{nominal island} \ t_1 \ N] \ V] \ I] \ C] \]

In (27), the ‘that’-clause containing the adjunct undergoes covert movement from the argument position to a matrix scope position. Since the movement crosses the nominal island covertly, it does not violate the condition on movement, which only concerns overt movement. It also respects the condition on representation, since the trace in the island is in the complement position.

One question to be raised here has to do with the structure and interpretation of the ‘that’-clause. It acts as a WH-phrase because it undergoes covert WH-movement to a scope position, but it would be wrong to regard it as a [+WH]-clause because it is not an interrogative clause. The WH-adjunct stays in the C projection of a [-WH]-clause. This complex situation can be resolved by assuming an articulated CP structure of the kind suggested in Rizzi (1999), as in (28).

(28) Force … Top … Int … Fin …

In (28), the C projection is divided into several functional categories. The uppermost one is Force, which is responsible for the clause typing such as declarative, interrogative, imperative, etc. Then comes Top, which involves a topicalized element, and then comes the projection termed Int, which concerns clausal operators. The lowest one specifies finiteness. Drawing on this approach, I propose that the ‘that’-clause containing naze has the structure like (29).

(29) \[ \text{[Force(declarative)]} \ [\text{Top} \ [\text{Int} \ \text{naze} \ [\text{Fin} \ IP \ Fin]]] \ to/toyuu] \]

In (29) the complementizer to/toyuu ‘that’ is in the Force head, specifying the clause as declarative, and the WH-adjunct sits in the Spec of Int. The presence of Int is what makes this [-WH]-clause a WH-phrase. With this structure, the ‘that’-clause containing naze is correctly captured as being a noninterrogative clausal WH-expression.

The idea that ‘that’-clauses can function as WH-phrases is independently motivated, which has to do with the following interesting example.

(30) John-wa Mary-ni \[\text{CP} \text{n}an \ \text{to}] \ itta \ no?  
John-TOP Mary-DAT what \ C said \ Q  
‘What did John tell Mary?’  
(Kishimoto 2005:25)

Kishimoto takes (30) to indicate that the clause selected by the complementizer to can be WH-questioned, nan probably being a WH-version of IP, followed by to.

While I agree with Kishimoto that nanto is composed of two elements, I suggest that it does not involve two words. It is well known that the WH-item nani ‘what’ is sometimes pronounced as nan in certain environments such as the following.

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(31) a. John-wa nani-to tatakatteiru no?
   John-TOP what-with fighting-is Q
   ‘What is John fighting against?’

   b. John-wa nan-to tatakatteiru no?
   John-TOP what-with fighting-is Q

In (31b) the WH-item is realized as nan, which is followed by the postposition to ‘with,’ which is a homophone of the complementizer to ‘that.’ The fact that (31b) has the exact same meaning as (31a) shows that nan in (31b) is merely a phonological variation of nani. It seems most natural then to assume that nanto involves a phonological variation of nani ‘what’ and the complementizer to. This view is, however, incorrect. Note that unlike the pair in (31), however, replacing nanto with nani to in (30) yields deviance, as in (32).

(32) ?? John-wa Mary-ni nani to itta no?
   John-TOP Mary-DAT what C said Q
   ‘What did John tell Mary?’

In addition to it, nani can be uttered in a one-word question, but not nan.

(33) a. Eh, nani?
   PRT what
   ‘Oh, what?’

   b. * Eh, nan?
   PRT what
   ‘Oh, what?’

Unlike nani, nan cannot stand alone. The contrast tells us that nanto is not a separable entity. Given this, I suggest that nanto has the following structure.

(34) [CP [C’ [C nan [c to]]]]

Here nanto is analyzed as a CP, projected from the head composed of two parts, one being the WH-part, adjoining to the other, which is the declarative complementizer.

Assuming that declarative CPs can be clausal WH-phrases, let us consider how they behave with respect to island effects. As in (21) and (22), the nominal island effect with naze is absent when it is contained in an argument CP. The lack of the island effect is captured by assuming that CPs can undergo covert WH-movement, since argument WH-phrases can covertly move out of an island without causing the island effect. The expectation here is that nanto is allowed in nominal islands, which is confirmed in the following.
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(35) a. \[\text{NP} \{\text{CP John-ga Mary-ni nanto itta (toyyu)}\} \text{kanoosee]-ga} \]
    \[\text{John-NOM Mary-DAT nanto told C possibility-NOM itiban takai desu ka?} \]
    ‘What is [the possibility [that John told Mary t]] is the strongest?’

b. \[\text{Sono byooki nituite-wa} \restrict\{\text{NP} \{\text{IP e1 nanto syutyoo sita} \text{isi1}\}-ga} \]
    that disease about-TOP nanto claim did doctor-NOM itiban ooi desu ka?
    ‘As for the disease, what are [the doctors [who claimed t]] the largest in number?’

In each of the examples in (35), \textit{nanto} is an argument. It is placed in a noun complement clause in (35a) and in a relative clause in (35b). Both of them are fine, which lends support to the suggested analysis of \textit{naze}.

5. Conclusion

In this study, I dealt with the distribution of the Japanese reason adjunct \textit{naze} and showed that, despite the widely held observation, it is allowed in a nominal island if it is embedded in a non-factive argument clause headed by ‘that.’ I argued that this unexpected behavior of the adjunct can receive a natural account if it is assumed that ‘that’-clauses can function as WH-phrases when containing \textit{naze},

References

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The Fine Structure of the Neg-Domain: Evidence from Cairene Egyptian Arabic Sentential Negation*

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Abstract: The goal of this paper is to revisit sentential negation patterns in Cairene Egyptian Arabic at the syntax-morphology interface and to propose a novel analysis for the structure of bipartite negation in this Arabic dialect. In particular, it is argued that the distribution of negation patterns is morphologically, rather than syntactically, conditioned; that the head hosting negation is higher than T on the clausal hierarchy; and that the Neg-domain in this dialect is split into two separate heads, one encoding semantic negation, and the other being marked for formal negativity only. Evidence that the proposed analysis is on the right track is discussed with reference to morphosyntactic effects of the interaction between negation and Negative Polarity Items, as argued in Soltan (2012).

0. Introduction: Patterns of Sentential Negation in Cairene Egyptian Arabic

Cairene Egyptian Arabic (CEA, henceforward) utilizes two patterns for sentential negation: (i) the discontinuous maa...š-pattern, which is used, among other contexts, with perfective verb forms, where the predicate appears sandwiched between two negative elements, forming one morphological unit, as illustrated in (1a); and (ii) the independent miš-pattern, which is used, among other contexts, in verbless copular structures, where the predicate follows the negation marker miš, without them forming a unit, as in (1b).1

(1) a. maa-ruh-t-i-š
   NEG-go.PERC-1SG-EV-NEG
   ‘I did not go.’

   b. ?anaa miš taʕbaan
      I NEG tired
   ‘I am not tired.’

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1 The following abbreviations are used in the glosses of data: 1, 2, 3 for first, second, and third person, respectively; SG = singular; PL = plural; M = masculine; F = feminine; NEG = negation; FUT = future; ASP = aspect; PERF = perfective; IPFV = imperfective; PTCP = participial; Q = question-particle; EV = epenthetic vowel.
One can identify the following three main questions in the discussion of sentential negation in Arabic dialects in the generative literature (cf. Eid 1993, Shlonsky 1997, Benmamoun 2000, Ouhalla 2002, among others):

(i) What conditions regulate the distribution of the two negation patterns?
(ii) Where is Neg in clause structure; i.e., is it higher or lower than T?
(iii) What is the grammatical status of the -š segment of the negation morpheme?

In this paper, I revisit previous analyses of Arabic sentential negation, pointing out some empirical and conceptual problems with them. I then provide an analysis of the distribution of the two negation patterns in CEA, whereby the negative domain is split into two heads, both of which are placed higher than T in the clausal hierarchy, and where the distribution of the two negation patterns follows from head movement (or lack thereof) in the mapping from the syntax to the morphology. The proposed analysis is then argued to explain away a morphosyntactic puzzle in CEA that has often been noted, though never received a principled explanation.

The paper is organized as follows: In Section 1, I discuss the issue of the distribution of the two negation patterns in CEA, showing that an analysis in terms of morphological head movement is preferred over one where such movement is assumed to take place in the syntax. Section 2 discusses two possible structures for the position of Neg on the clausal hierarchy: the low-Neg analysis, where Neg is projected lower than T, and the high-Neg analysis, where Neg is located above T. Based on empirical evidence from dialectal variation and child language, I conclude that the high-Neg analysis is more adequate. In Section 3, two previous analyses of the grammatical status of the -š segment of the negation morpheme are discussed, showing that they both fail to capture certain empirical facts from Negative Polarity Item (NPI) contexts in CEA. Section 4 presents an analysis of sentential negation in CEA where the Neg-domain is argued to be split between two heads, both of which occupy a position higher than T. The distribution of the two negation patterns is then argued to follow from a morphological algorithm of head movement applying in the mapping from the syntax to the morphology. In Section 5, I revisit the NPI facts that have been argued in Section 3 to be problematic under previous analyses, showing that they can receive a principled account under the Split-Neg analysis proposed here. Section 6 sums up the conclusions of the paper.

1. Distribution of Negation Patterns in Arabic Dialects: Syntactic or Morphological?
The general consensus in the literature cited above regarding the distribution of sentential negation patterns in Arabic dialects is that it follows from the application of head movement or lack thereof. For instance, Benmamoun (2000) and Aoun et al. (2010) argue for a skeletal structure of a negative sentence in Arabic dialects along the lines of (2), ignoring irrelevant details.
To account for the contrast between (1a) and (1b), such an analysis argues that the discontinuous negation pattern emerges in past tense contexts since the verb has to raise to T, picking up Neg on the way, as per the Head Movement Constraint (HMC) (Travis 1984). By contrast, when T expresses present tense, as in the copular structure in (1b), there is no verb, hence no verb movement, and Neg is spelled out as the independent form miš. Surface negation patterns thus reflect operations of head movement (or lack thereof) taking place in the syntax.

The main challenge to a syntactic account of negation along the above lines has always been whether it is able to capture the wide range of variation attested at both the intra- and cross-dialectal levels in Arabic dialects. Intra-dialectally, the proposed analysis predicts complementary distribution between both negation patterns, which is actually not the case, since the two patterns overlap in several grammatical contexts. For example, in CEA, while discontinuous negation occurs with perfective verb forms, as in (1a), it can also be hosted by the present tense aspectual imperfective (3a), pronouns (3b), the existential expletive fii(h) (3c), and PPs whose complement is a pronoun (3d).

(3)

a. maa-ba-saafir-š katiir
   NEG-ASP-IPFV.travel.1SG-NEG much
   ‘I don’t travel much.’

b. maa-huu-š / maa-huwwa-a-š taʃbaan
   NEG-3SG-NEG NEG-3SG-EV-NEG tired
   ‘He is not tired.’

c. maa-fiι-š had hinaa
   NEG-in.it-NEG someone here
   ‘There is nobody here.’

d. maa-ʕand-uu-š ʕarabiyyah
   NEG-at-him-NEG car
   ‘He doesn’t have a car.’

Similarly, in addition to copular structures like (1b), the independent negation marker miš may occur optionally with the present tense aspectual imperfective (4a), obligatorily with future verb forms (4b), and less preferably with copular structures with predicate PPs (4c).
(4) a. miš bi-yi-ruuh ?il-gam’ā
   NEG ASP-IPFV-go.3SGM the-university
   ‘He doesn’t go to the university.’

   b. miš ha-saafir
   NEG FUT-IPFV.travel.1SG
   ‘I will not travel.’

   c. miš ḥand-uh ḥarabiyyah
   NEG at-him car
   ‘He doesn’t have a car.’

On the other hand, cross-dialectal variation shows that certain categories can serve to host negation in some dialects, but not in others. For example, nouns and adjectives in CEA cannot host negation, but they can do so in Moroccan Arabic (MA) (Benmamoun 2000) and Southern Egyptian Arabic (Khalafallah 1969). Compare the ungrammatical negation patterns from CEA in (5) to the grammatical negation patterns from MA in (6).

(5) a. * Ahmad maa-doktoor-š
    Ahmad NEG-doctor-NEG

   b. * Ahmad maa-ta’baan-š
    Ahmad NEG-tired-NEG

(6) a. huwa maa-fǝllaḥ-š
    he NEG-farmer-NEG
    ‘He is not a farmer.’

   b. huwa maa-Twil-š
    he NEG-tall-NEG
    ‘He is not tall.’

Given the lack of complementary distribution between the two negation patterns as well as the variation with regard to which categories may host negation across Arabic dialects, it is reasonable to assume that the distribution of the two negation patterns is morphologically, rather than syntactically, conditioned. Under this assumption, the negation morpheme is an affix in need of a host, which, in turn, needs to be adjacent to the affix. Certain categories can serve as hosts for the negation affix, whereas others cannot. A morphological analysis of sentential negation in Arabic dialects thus saves us the trouble of having to invoke ad hoc features to justify the movements involved. Instead, such head movements can take place in the mapping from the syntax to the morphology driven by the affixal properties of the negation heads involved. Relegating the distribution of negation patterns to the morphological component is also compatible with a theory that takes head movement to be an operation of the morphological component, as has been suggested in Chomsky (2001) and Boeckx and Stjepanović (2001). Such an approach has the advantage of getting rid of the theoretical problems that have been typically raised with regard to head movement (e.g., the difficulty to motivate it in terms of feature checking, as well as its failure to satisfy the extension condition, among other issues).  

2 For a more recent discussion of the status of head movement in minimalist syntax, see Roberts (2010).
I conclude then that an analysis of negation in CEA (and perhaps in all other Arabic dialects as well) in terms of morphological head movement is to be empirically and theoretically preferred over one that forces us to invoke a set of ad hoc features in the syntax to generate the attested patterns, and filter out the unacceptable ones. In Section 4 of this paper, I provide an implementation of such a morphological analysis. Before we do that, we need to discuss two further issues in the morphosyntax of negation in CEA.

2. The Clausal Hierarchy of Negative Sentences in Arabic Dialects
There have been two main approaches to the issue of the position of Neg in clausal structure. The first approach, adopted in Benmamoun (2000), Ouhalla (2002), and Aoun et al. (2010), assumes a clausal hierarchy where Neg is lower than T in Arabic dialects. I will refer to that as the low-Neg analysis. A second approach, assumed in Diesing and Jelinek (1995) and Soltan (2007), argues for a clausal structure where Neg is located higher than T. I will refer to this as the high-Neg analysis. Both analyses are represented in (7a,b) below, respectively.

(7) a. Low-Neg analysis
   TP
     Spec T'
       T NegP
         Neg VP

b. High-Neg analysis
   NegP
     Neg TP
        Spec T'
          T VP

While a good range of empirical facts can be accounted for under either analysis, there are two main empirical facts from attested negation patterns in Egyptian Arabic that pose a problem to the low-Neg analysis. I discuss these in turn.

The first empirical argument against the low-Neg analysis is that it fails to account for dialects where the independent negation marker is actually used with perfective verb forms, a pattern that is predicted to be unattested under a low-Neg analysis, due to the HMC. One such dialect is spoken in some areas of the Sharqiyyah province in northern Egypt, where sentences like (8) readily occur (Soltan 2007).

(8) ?anaa miš liyib-t
    I NEG play.PERF.1SG

‘I did not play.’

If Neg were lower than T, then there is no way to derive the sentence in (8) without V skipping over Neg on its way to T, followed by Neg moving over the T complex, to generate the right word order. Both movements violate the HMC. In addition, it is not clear how to motivate Neg-movement in that context. In brief, negation in such dialects is simply undervivable under standard assumptions, if Neg were indeed below T. By contrast, under the high-Neg analysis, this ne-
The second empirical argument in favor of the high-Neg analysis and against the low-Neg analysis comes from Egyptian children’s speech, showing that the type of negation in (8) is rather common among children early on in their acquisition of negation in Egyptian Arabic (cf. Omar 1967). This means that there is a stage in negation acquisition where children overgeneralize the use of the miš-pattern to all verb forms. If Neg were lower than T by default, as it is assumed under the low-Neg analysis, these utterances by children would be very hard to explain, given the standard assumption that the HMC is a universal principle of grammar. Under the high-Neg analysis, a possible explanation is available, if children first assume that T, no matter what its tense specification is, does not need to raise to Neg, hence the use of the independent negation marker in such early utterances. Later on, based on positive evidence in the primary linguistic data, they realize that Neg has to conflate with past tense T (among other heads), and the discontinuous negation pattern will replace these early non-adult-like miš-pattern utterances.

To sum up the discussion in this section, there is strong empirical evidence from negation patterns in Sharqiyyah Egyptian Arabic as well as negative utterances produced by Egyptian children in the early stages of language acquisition that Neg has to be higher than T in CEA clause structure, and presumably in all other Arabic dialects.\footnote{An implicit assumption here, familiar from work by Zanuttini (1997), is that the position of Neg in clause structure is parametric: Some languages place Neg higher than T (Arabic); others project T lower than Neg (Germanic).}

3. The Grammatical Status of the -š Segment of the Negation Morpheme in CEA

A final issue in the discussion of the syntax of negation in Arabic dialects has to do with the grammatical status of the -š segment of the negation morpheme, which appears in both patterns (as a suffix in the discontinuous negation marker, and as a subpart of the independent negation marker). One potential analysis is to treat -š as a Spec of the Neg head maa, similar to what has been suggested for bipartite negation in languages like French (cf. Pollock 1989, Ouhalla 1990, and Moritz and Valois 1994). An alternative analysis, argued for in Benmamoun (2000) and Aoun et al. (2010), treats the negation morpheme as a discontinuous Neg head, under which the two negative segments are generated. The two analyses are represented diagrammatically in (9a,b), respectively.

\[(9)\]

\[
a. \quad \text{NegP} \quad \text{Spec} \quad \text{Neg'} \quad \text{Neg}_\text{maa} \quad \ldots \quad \text{Spec} \quad \text{Neg'} \quad \text{Neg}_\text{maa…š} \quad \ldots
\]

Aoun et al. argue that the discontinuous head analysis allows us to account for the variation attested in negation patterns in Arabic dialects (e.g., the fact that some dialects mark negation with maa only, while others use -š only). It is possible, however, for the analysis in (9a) to do the same. For example, dialects that mark negation with maa only can be argued to not project an\footnote{For most Egyptians, however, (8) is not a grammatical sentence, since Neg is always required to merge with an adjacent T that is specified for past tense.}
inherent SpecNegP, while those that mark negation with -š only can be argued to have lost maa as a negative head and have instead come to treat -š as head of NegP. On the other hand, there is one grammatical context that seems to favor treating -š as SpecNegP rather than as part of a composite Neg head, namely, structures with NPIs. More specifically, it has been frequently noted that in some Arabic dialects the -š segment is in complementary distribution with NPIs (Benmamoun 1997, 2006; Bahloul 1996). Consider, for example, these MA examples from Benmamoun (2006).

(10) a. ma-qrit(*-š) hatta kitab
   NEG-came.3SGM even book
   ‘I didn’t read any book.’
   b. ma-ža(*-š) hatta waḥød
   NEG-came.3SGM even one
   ‘No one came.’
   c. ḥatta waḥød ma-ža(*-š)
      even one NEG-came.3SGM
      ‘No one came.’
   d. Nadya ʕəmmər-ha ma-žat(*-š)
      Nadya ever-her NEG-came.3SGF
      ‘Nadya never came.’
   e. Omar baqi ma-ža(*-š)
      Omar yet NEG-came.3SGM
      ‘Omar hasn’t come yet.’

This fact can be accounted for under the Spec-analysis of -š, if we assume that both the NPI and -š compete for SpecNegP. The discontinuous Neg analysis, however, does not have a natural way of explaining this fact. Rather, it has to assume a rule at the sub-morphemic level, and stipulate that such a rule can only target the -š segment but not the maa part of the composite head.

Even though NPI facts seem to suggest that treating -š as Spec of NegP has direct empirical consequences for MA, the same NPI facts in CEA suggest that this analysis cannot be maintained, since NPI licensing in CEA is not always in complementary distribution with -š. Rather, the only NPI that induces -š deletion is ʕumr ‘ever,’ and it does so only when it occurs in pre-negative (but not when in post-negative) position, as shown in (11). The occurrence of other NPIs does not induce any such effect, and the surfacing of -š is obligatory in such contexts, as the data in (12–13) show.

(11) a. ʕumr-ii maa-saafir-t(*-š) Masr
       ever-my NEG-travel.PERF-1SG-(*NEG) Egypt
       ‘I have never travelled to Egypt.’
   b. maa-saafir-t*(-š) Masr ʕumr-ii
      NEG-travel.PERF-1SG-*NEG Egypt ever-my
      ‘I have never travelled to Egypt.’
(12) a. Mona lissah maa-saafir-it-*(š)
Mona yet NEG-travel.PERF-3SGF-*(NEG)
‘Mona has not travelled yet.’
b. Mona maa-saafir-it-*(š) lissah
Mona NEG-travel.PERF-3SGF-*(NEG) yet
‘Mona has not travelled yet.’

(13) a. ?anaa maa-šuf-t-i-*(š) ?ayy haagah
I NEG-see.PERF-1SG-EV-NEG any thing
‘I didn’t see anything.’
b. ?anaa maa-šuf-t-i-*(š) haagah xaaliS
I NEG-see.PERF-1SG-EV-NEG thing at all
‘I didn’t see anything at all.’

In Soltan (2012), I take the asymmetry in behavior between the two NPIs ʕumr and lissah as evidence against the SpecNegP analysis of the -š segment. Another argument, though a theory-internal one, has to do with whether or not multiple specifiers of a single head are allowed. In a framework that allows multiple specifiers (e.g., Chomsky 1995), the complementary distribution between two elements in terms of their ‘competing’ for a single Spec position is not readily accounted for.

I conclude then that neither the Spec-head analysis nor the discontinuous head analysis of negation is empirically adequate to account for the CEA facts, hence the need for an alternative analysis. I propose this next.

4. The Fine Structure of the Neg-Domain in CEA
To account for the NPI facts as well as the morphosyntax of negation in CEA, I propose in Soltan (2012) a Split-Neg analysis, along the lines of what has been suggested by Zeijlstra (2008) in his work on negative concord. Under such an analysis, I propose that both maa and -š are separate heads (called Pol and Neg, respectively), located higher than T, but that only maa is specified for semantic negation, while -š is merely formally negative (a property it probably acquired diachronically; cf. Lucas 2010). The presence of a formally negative head does not induce a double negation reading in the same way that the presence of a negative concord item does not lead to a double negation interpretation, either (as in the single negation reading of I didn’t see nobody, in some substandard dialects of English, for example). An abstract structural representation of a negative sentence in CEA is given below, ignoring irrelevant details up and down the tree.
Given the structure in (14), we are now in a position to formulate a morphological algorithm to derive the distribution of negation patterns in CEA, one along the lines of (15) below, where ‘hosting head’ is the key notion for dialectal variation.

(15)  

a. In contexts where Neg is adjacent to a hosting head \( H \), \( H \) moves to Neg and then to Pol, and the discontinuous \( \text{maa-}H-\acute{s} \) pattern arises.

b. Otherwise, Neg incorporates into Pol, giving rise to the \( \text{mi\'\-} \)pattern.

To illustrate from the contrast between perfective verb forms and prospective imperfective forms (cf. the examples in 1a and 4b, respectively), the two negation patterns are derived as in (16a,b), irrelevant details aside.

(16)  

a. \( [\text{PolP Pol} [\text{NegP Neg} [\text{TP} T_{[+PAST]} [\text{vP v [VP V ...]]]}]] \rightarrow [\text{maa-saafirit-i\'-\ acute{s}}] \)

b. \( [\text{PolP Pol} [\text{NegP Neg} [\text{TP} T_{[+PAST]} [\text{AspP Asp} [\text{vP v [VP V ...]]]]] \rightarrow [\text{mi\' ha-saafir}] \)

Similar derivations can be given for each structure associated with one of the two negation patterns, where the presence of a hosting head gives rise to discontinuous negation (cf. the examples in 3), otherwise, the independent pattern surfaces (cf. the data in 4). Dialectal variation with regard to which syntactic categories may host negation is a purely morphological fact about each dialect, under this analysis. For example, at Spell-out, nouns and adjectives behave under step (15a) in MA, but under step (15b) in CEA. By the same token, the proposed analysis allows us to account for the range of dialectal variation noted earlier with regard to the occurrence of discontinuous negation with perfective verb forms, as in Sharqiyyah Egyptian Arabic and child language (cf. 8). Under this analysis, \( V \), in such dialects, raises all the way to \( T_{[+PAST]} \), but no further, forcing step (15b) to apply.

Finally, one main empirical advantage of the proposed Split-Neg structure is that it allows us to formulate a rule to target \(-\acute{s}\) for deletion in NPI contexts, an option that is not readily
available under previous analyses, as discussed earlier in Section 3. In Soltan (2012), I provide an account for the behavior of -š in NPI contexts in CEA. In the next section, I give a brief summary of this account, showing how a Split-Neg analysis can help us account for empirical facts outside the core facts of negation.

5. Revisiting the Behavior of the -š Segment in NPI Contexts in CEA

In Section 3, I pointed out the morphosyntactic discrepancy in the behavior of different NPIs in CEA with regard to their interaction with the -š segment. When the NPI ʕumr ‘ever’ occurs in pre-negative position, the -š is obligatorily deleted from the verbal complex. In the context of the NPI lissah ‘yet,’ however, no such deletion occurs, and the -š has to obligatorily surface on the verb. One advantage of the Split-Neg analysis proposed in the previous section is that it allows us to provide a principled account for this morphosyntactic fact, as I argue in detail in Soltan (2012). In this section, I present a brief version of that proposal as an example of the kind of empirical consequences that the analysis presented here can have, referring the reader to the details of the analysis in Soltan (2012).

As it turns out, the key to the solution of the puzzle of -š disappearance in CEA has to do with the ‘formal negativity’ (or lack thereof) associated with different NPIs. In particular, I argue, based on diagnostic tests, that some NPIs are formally marked as negative, while others are not so marked, and that the overt realization of -š is only compatible with NPIs that have such formal negativity. Formal negativity can be determined by an item’s synchronic behavior in the language (and possibly by considering its diachrony as well, but I will not discuss this here). Below, I discuss this with regard to the two NPIs ʕumr and lissah, as well as the -š segment of the negation morpheme.

One test to determine the formal negativity of a lexical item is to see whether or not it is compatible with nonnegative environments such as interrogatives or the protasis of a conditional. As it turns out, the NPI ʕumr may indeed occur in such contexts, as (17) shows, which suggests that it is nonnegative. By contrast, the NPI lissah cannot appear in questions, except in the presence of the overt negative morpheme walla (18a), nor in conditionals (18b), which suggests that it is lexically negative.

(17) a. ʔinta ʕumr-ak saafir-t Masr?
   you ever-you travel.PERF.2SGM Egypt
   ‘Have you ever traveled to Egypt?’

b. law ʕumr-ak saafir-t Masr laazim tɔ-zuur ʔaswaan
   if ever-you travel.PERF.2SGM Egypt must.PTCP IPFV.visit.2SGM Aswan
   ‘If you ever travel to Egypt, you must visit Aswan.’

Such a rule can be formulated such that it is either sensitive to the NPI involved (CEA) or nonsensitive at all (MA), thereby accounting for the contrast between the two dialects referred to in Section 3. I refer the reader to Soltan (2012) for a suggestion for why such a variation in behavior between the two dialects exists.

6 The proposal is familiar from work on negative concord items, which have been argued to be ‘negative,’ as opposed to NPIs of the any-type, which are typically assumed to be nonnegative.
Sentential Negation in Cairene Egyptian Arabic

(18) a. Ahmad gih *(wallaa) lissah?
   Ahmad come.PERF.3SGM or.not yet
   ‘Has Ahmad come or not yet?’
b. * law Ahmad gih lissah …
   if Ahmad come.PERF.3SGM yet
   ‘*If Ahmad arrived yet, …’

A second diagnostic for the formal negativity of an NPI is whether it may occur as a fragment answer. As it turns out, while ūmr does not occur in that function (19b), lissah does (20b).

(19) a. ?inta saafir-t Masr ?abl kidah?
   you travel.PERF-1SGM Egypt before this
   ‘Have you traveled to Egypt before?’
b. * ūmr-iī
ever-my
   ‘Never.’

(20) a. huwwa Monawasal-it?
   Q Mona arrive.PERF.3SGF
   ‘Has Mona arrived?’
b. lissah
   yet
   ‘Not yet.’

Now, consider the -š segment. Like lissah, but unlike ūmr, the -š segment is ungrammatical in questions and conditionals, as the ungrammaticality of the examples in (21) shows, thereby suggesting that it is also an element marked for formal negativity.7

(21) a. * šuft-i-š Ahmad ṭil-nahaar-dah?
   see.PERF.2SGM-EV-NEG Ahmad the-day-this
   Intended reading: ‘Did you see Ahmad today?’
b. * law šuft-i-š Ahmad ṭil-nahaar-dah …
   if see.PERF.2SGM-EV-NEG Ahmad the-day-this
   Intended reading: ‘If you saw Ahmad today, …’

There is, thus, empirical evidence showing that while the NPI ūmr is nonnegative, the NPI lissah and the -š segment of the negation morpheme both appear to be formally negative. Given this, we can now restate the empirical fact regarding the deletion of -š (or lack thereof) in CEA NPI contexts, as follows: The -š segment, a formally negative element, disappears in the presence of a nonnegative NPI such as ūmr, but is retained in the presence of a negative NPI such as lissah. The phenomenon, however, is sensitive to locality: -š only disappears when ūmr is ‘close by’ (i.e., in pre-negative position) but not when it is relatively distant (i.e., in postverbal posi-

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7 As we should expect, the fragment answer diagnostic cannot be applied to the -š segment given its affixality.
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(11) as shown earlier by the contrast between (11a) and (11b). We may thus restate this morphosyntactic fact in the form of the following descriptive generalization.

\[(22) \quad \text{Within a local domain, } -\text{s is not spelled out in the presence of an NPI that is formally nonnegative; otherwise it is phonologically realized.}^8\]

Whatever principle (22) can be reduced to, it is clear that only by splitting the Neg-domain into two heads, we are able to formulate such a principle to target -s for deletion.\(^9\) Such a possibility is lacking under non-Split-Neg analyses of CEA negation.

6. Conclusions

In this paper, I have argued that the distribution of negation patterns in CEA is better accounted for in the mapping from the syntax to the morphology, where the relevant notions are affixality, hosting heads, and adjacency. I have also provided empirical evidence showing that placing Neg above T in the clausal hierarchy allows us to account for attested patterns of negation that are problematic under a low-Neg analysis. Finally, by splitting the negative domain into Pol and Neg, we are able not only to derive the distribution of negation patterns and the dialectal variation associated with it, but also to formulate a (potentially general) principle to target -s for deletion in certain NPI contexts, but not in others, hence allowing us to explain away a morphosyntactic puzzle from CEA, thereby showing that the proposed analysis is on the right track in the investigation of negation patterns in CEA and perhaps other Arabic dialects as well, a topic whose ramifications will hopefully continue to be explored in future work.

References


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8 In Soltan (2012), I propose to define ‘local domain’ in terms of a ‘phase,’ in the sense of Chomsky (2001).
9 (22) is a descriptive generalization. In Soltan (2012), I propose to derive it from an interface condition regulating Spell-out of formal features in multiple licensing configurations. I refer the reader to this article for the details.
Sentential Negation in Cairene Egyptian Arabic

An Event-Based Account of the Unique Path Constraint Effect*

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Abstract: It has often been argued that a change of state expression and a change of location expression cannot co-occur in a single clause. Goldberg (1991) calls this co-occurrence restriction the Unique Path Constraint. This constraint prohibits multiple expressions referring to distinct changes from co-occurring, when these changes occur at the same time. In this paper, I present some empirical problems with Goldberg’s account, and propose as an alternative the Single Change per Event Constraint, which prohibits multiple expressions denoting distinct changes from referring to the same event. This constraint comes from the interplay of event structure and the Further Specification Constraint (Tortora 1998), which confirms the validity of the event-based account of human language.

0. Introduction
It has often been noted that a single clause may not include a change of state expression and a change of location expression (cf. Goldberg 1991, 1995, Levin and Rappaport 1995, Tortora 1998, Iwata 2006 among others). For example, observe the following:

(1)  
   a. Sam kicked Bill black and blue.  
   b. Sam kicked Bill out of the room.

(2)  
   a. * Sam kicked Bill black and blue out of the room.  
   b. * Sam kicked Bill out of the room black and blue.  
      (Goldberg 1991:368)

The result phrase black and blue in sentence (1a) expresses a resultant state of the referent denoted by the object NP Bill. Similarly, the directional phrase out of the room in sentence (1b) expresses a resultant location of Bill. Interestingly enough, when both the result phrase and the directional phrase co-occur in a single clause, as in (2), the sentence becomes unaccept-able.

Based on this observation, Goldberg (1991) proposes the Unique Path Constraint (henceforth, the UPC):

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(3) **The Unique Path Constraint (UPC):**

If an argument X refers to a physical object, then more than one distinct path cannot be predicated of X within a single clause. The notion of a single path entails two things:

1) X cannot be predicated to move to two distinct locations at any given time $t$.
2) The motion must trace a path within a single landscape. (Goldberg 1991:368)

The UPC prohibits the co-occurrence of a change-of-state expression and a change of location expression in a single clause when the change-of-state event and the change of location event occur simultaneously. Crucially, the UPC rules out the sentences in (2) in terms of the time relation as to whether the distinct two events occur at the same time. Goldberg (1991) argues that the examples in (2) are unacceptable because the result phrase and directional phrase co-occur in a single clause, and the events denoted by them occur at the same time.

In this paper, I argue that Goldberg’s (1991) account faces several empirical problems and that the UPC does not provide an adequate explanation for the co-occurrence restriction on change-of-state expressions and change of location expressions. As an alternative to the UPC, I propose that it is the event relation (whether one event causes the other) not the time relation that is crucially relevant to the co-occurrence restriction. That is, the co-occurrence restriction can be accounted for in terms of event structure. The causal relationship between the event of change-of-state and that of change of location is crucial to their ability to co-occur in a single clause.

I will assume here the notion of event structure proposed by Levin and Rappaport (1995), where a complex event structure is composed of a causing event and a result event. The two events are related to each other in terms of a causal relation. Based on the event relation between a causing event and a result event, I propose the following event structural constraint:

(4) **The Single Change per Event Constraint (SCEC):**

No more than one distinct cause or result can be involved in the same event.

The Single Change per Event Constraint (hereafter referred to as the SCEC) prohibits the co-occurrence of change of state expressions and change of location expressions when they refer to changes involved in the same event. What crucially differentiates the SCEC from the UPC is that, whereas the latter is based on the time relation (i.e., whether an event of change of location and one of change of state occur simultaneously), the former is relevant to the event relation (i.e., whether there is a causal relation between an event of change of location and one of change of state).

In my account, the sentences in (2) can be ruled out because the result phrase and the directional phrase refer to distinct changes, and both of them are included in the same result event, which violates the SCEC. Thus, this paper validates the event structural account of the co-occurrence restriction on a change of state expression and a change of location expression.

The organization of this paper is as follows. In section 1, I survey the main tenet of the UPC and note several empirical problems. Specifically, I observe that a certain type of direc-
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tional phrases may co-occur with result phrases in a single clause even if both of them denote
distinct changes that occur simultaneously. Section 2 claims that the directional phrases and
result phrases may co-occur in a single clause when they refer to distinct events: a causing
event and a result event. Based on this event-based analysis, section 3 gives a theoretical ac-
count of the co-occurrence restriction on the change of state expressions and change of loca-
tion expressions using the decompositional predicate representations proposed by Levin and

1. Counterarguments to the UPC Account

The UPC account proposed by Goldberg (1991) aims to explain the co-occurrence restriction
on change of state expressions and change of location expressions. However, the UPC ac-
count, as indicated in the previous section, immediately faces two serious empirical problems,
both of which arise because the UPC is formulated on the basis of the time relation as to
whether the two distinct events occur at the same time.

First, the examples in (2) are not acceptable even if Bill’s becoming black and blue
and his leaving the room do not occur at the same time, as shown in (5):

(5) (In the situation where the event of Bill’s becoming black and blue
    and that of his leaving the room do not occur simultaneously.)
    a. * Sam kicked Bill black and blue out of the room.
    b. * Sam kicked Bill out of the room black and blue.

These sentences show that the co-occurrence of the result phrase and the directional phrase
makes (5) unacceptable, regardless of whether the two events occurred simultaneously.

Second, the following examples are acceptable under the interpretation where the oc-
currences of a change of state event and a change of location event are simultaneous:

(6) a. John squeezed the rubber ball out of shape into the jar.
    b. John squashed the rubber ball out of shape into the jar.

These sentences describe both the motion of the rubber ball, which is denoted by into the jar,
and its change of state, which is expressed by out of shape. The change of state of the rubber
ball occurs by its moving into the jar, so the change of state event and the change of location
event occur at the same time in these sentences. The UPC would incorrectly predict that these
sentences are unacceptable.

To summarize, we have observed two pieces of evidence against the UPC account; the
sentences in (2) are not acceptable even if Bill’s change of state denoted by the result phrase
and his leaving the room expressed by the directional phrase do not co-occur simultaneously,
as in (5); and the co-occurrence of the result phrase and the directional phrase is not always
impossible even if they occur at the same time, as shown in (6). These two facts strongly
suggest that the UPC, which is based on the time relation, is not adequate. We need an alter-
native account that can adequately explain these facts as well as examples that have been ac-
counted for by the UPC.

In the next section, we observe that a certain type of path phrases may co-occur with
result phrases in a single clause. This type of directional phrase can be considered as a type of instrumental phrase, and therefore, they refer to causes or means.

2. **Causal Relations**

2.1. **Two Types of Directional Phrases**

In the literature on the lexical semantics of directional phrases, it is widely observed that directional phrases denote result locations (i.e., result events) (cf. Goldberg 1991, 1995, Levin and Rappaport 1995, 1999, Goldberg and Jackendoff 2004, among others.). For example, Levin and Rappaport (1999:207) state that the directional phrase *out of the room* in (7a) refers to a result location of the participant denoted by the subject NP *Casey*:

(7) a. Casey waltzed out of the room.
   b. Casey went out of the room by waltzing.

Sentence (7a) involves a causal relation between the events denoted by the verb *waltz* and the directional phrase *out of the room*: Waltzing enables (causes) *Casey* to go out of the room. This causal relation can be exemplified by the paraphrase in (7b) including a subordinate clause introduced by the preposition *by*, which explicitly shows that the verb *waltz* included in the subordinate clause refers to a cause that leads to the change of location of *Casey*. The directional phrase *out of the room*, in contrast, refers to a result location of *Casey*.

Several researchers, however, note that directional phrases can also function as a type of instrumental phrases (cf. Nilsen 1973, Fillmore 1977, Gawron 1986, Kim 1998, Dixon 2005). Nilsen (1973:84) states that the PPs *onto the floor* and *against the wall* function as instrumental phrases in the following sentences:

(8) a. Hortense smashed the lamp onto the floor.
   b. Karl splintered the china against the wall.

These sentences include change of state events denoted by the verbs *smash* and *splinter* and change of location events denoted by the directional phrases. Note that the change of location events in these sentences can be considered to cause the change of state events denoted by the verbs. For example, dropping *the lamp onto the floor* in (8a) and hitting *the china against the wall* in (8b) can be considered to denote the causes of change of state of these objects. Thus, these directional phrases can be considered to be a type of instrumental phrase. That is, these directional phrases may refer to a cause that leads to the change of state of an object.

This observation can be supported by a paraphrase test using a subordinate clause introduced by the preposition *by*:

(9) a. Hortense smashed the lamp by dropping it onto the floor.
   b. Karl splintered the china by hitting it against the wall.

Sentences (9a) and (9b) are paraphrases of sentences (8a) and (8b), respectively. The directional phrases in (9) are included in the subordinate clauses introduced by the preposition *by*, which explicitly suggests that *onto the floor* and *against the wall* refer to the causes of the
changes of state of the objects *the lamp* and *the china*, whereas the verbs *smash* and *splinter* are involved in the main clauses. This arrangement suggests that the change of state of these objects is caused by their change of location.

Given these observations, it follows that there are two types of directional phrases: those that refer to result locations, as in (7), and those that denote causes, as in (8). Thus, the distinction between these two types of directional phrases can be reinterpreted in terms of a causal relation. In the next subsection, based on this dichotomy between the two types of directional phrases, I will argue that the directional phrases in the sentences in (6), which cannot be accounted for by the UPC, refer to the causes of the change of state.

### 2.2. Causal Relations

At first glance, the sentences in (6) appear to be similar to those in (2), repeated here as (10) and (11), respectively, in that both of them include a result phrase and a directional phrase within a single clause:

(10)  
- a. *John squeezed the rubber ball out of shape into the jar.*
- b. *John squashed the rubber ball out of shape into the jar.*

(11)  
- a. *Sam kicked Bill black and blue out of the room.*
- b. *Sam kicked Bill out of the room black and blue.*

However, there is a significant difference between the sentences in (10) and (11) in terms of a causal relation between result phrases and directional phrases: The directional phrase in (10) refers to a causing event, whereas that in (11) refers to a result event.

This observation can be confirmed by a paraphrase test using the preposition *by*:

(12)  
*John caused the rubber ball to become out of shape by pushing it into the jar.*

The sentences in (10) can be paraphrased into sentence (12). In (12), the main clause *John caused the rubber ball to become out of shape* refers to a result event, whereas the subordinate clause *by pushing it into the jar* denotes a causing event. Here, too, the directional phrase *into the jar* is involved in the subordinate clause denoting the causing event, and the result phrase *out of shape* is included in the main clause, which refers to the result event.

The directional phrase in (11), in contrast, denotes a result event, which is illustrated by the following:

(13)  
- a. *Sam kicked Bill out of the room.*
- b. *Sam caused Bill to go out of the room by kicking him.*

Sentence (13b) is a paraphrase of sentence (13a). This paraphrase shows that the action of kicking is the cause of *Bill’s* change of location. That is, the path phrase *out of the room* in (11) refers to a result event, not a causing event.

In this way, we have observed that the path phrase *into the jar* in (10) refers to a causing event, whereas *out of the room* in (11) denotes a result event. In the next section, us-
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ing this event-based distinction between these two types of directional phrases, I will provide a theoretical account of the co-occurrence restriction on change of state expressions and change of location expressions.

3. An Event-Based Account
In the previous sections, we have observed that there are two types of directional phrases: the phrases that are included in a causing event and those that are involved in a result event. This dichotomy between the causing event and the result event can be captured by the decompositional predicate representations assumed by many researchers; I adopt those proposed by Levin and Rappaport (Levin and Rappaport 1995, Rappaport and Levin 1998, 2001, among others). In this section, I provide an account of the co-occurrence restriction on a change of state expression and a change of location expression using the decompositional predicate representations.

3.1. Basic Components of Event Structure
In this subsection, I introduce some basic components of the theoretical framework assumed by Levin and Rappaport (1995) and Rappaport and Levin (1998, 2001). Furthermore, I develop this theoretical framework by incorporating the Further Specification Constraint (Tortora 1998), as discussed below.

Based on the aspectual distinctions proposed by Vendler (1957), Levin and Rappaport develop several event decompositional predicate representations. Events with accomplishment aspect can be considered to be composed of two events. For example, observe the following (Levin and Rappaport 1995:74):

(14) Pam pounded the metal flat.

This sentence describes an event where the metal became flat as a result of Pam’s pounding it. Pam’s pounding the metal, on the one hand, expresses a causing event of change of state undergone by the metal. The metal’s becoming flat, on the other hand, can be regarded as a result event caused by the causing event. This causal relation can be captured by the following decompositional predicate representation:

(15) [Pam CAUSE [the metal BECOME flat] BY [Pam POUND the metal]]
(Levin and Rappaport 1995:74, with slight modifications)

In this representation, the result event is designated by [the metal BECOME flat], and the causing event is expressed by [Pam POUND the metal], which is introduced by the function BY.

In this paper, I will express the causal relation between a causing event and a result event in the following simpler way for convenience:

(16) [[CAUSE] CAUSE [RESULT]]
(17) [[CAUSE Pam pounded the metal] CAUSE [RESULT the metal became flat]]
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The template in (16) is the basic representation of a causal relation between a causing event and a result event: [CAUSE] denotes the causing event, and [RESULT] denotes the result event. In the representation, we can assign the decompositional predicate representation in (17), rather than that in (15), to the sentence in (14).

As a constraint on the maximum complexity of an event structure, Rappaport and Levin (2001:791) assume that a single clause can include two events at most, where the two events are dependent on one another in a causal relation. Thus, the template in (16) can be regarded as the most complex structure, and any complex event structure has to be composed of a causing event and a result event. However, the structure can contain neither two result events nor two causing events.

For this reason, when multiple expressions denoting a result state co-occur in a single clause, they must refer to a single result state, but not distinct result states: this restriction is called the Further Specification Constraint (henceforth, the FSC) (Tortora 1998), as exemplified by the following sentence (Levin and Rappaport 1995:59):

(18) The bottle broke open.

This sentence involves the change of state verb break and the result phrase open. At first glance, this sentence appears to include two result events. A close scrutiny of this sentence, however, reveals that the result phrase open further specifies the meaning of the verb break. Thus, this sentence can be considered to include a single unified result state and therefore does not involve two distinct result events. We can assign this sentence the following decompositional predicate representation:

(19) [[CAUSE] CAUSE [RESULT the bottle became broken open]]

In this representation, the changes of state denoted by the verb break and the result phrase open are both involved in the same result event, and thus, they refer to a single unified result state.

In this way, the FSC can be adequately incorporated into the event structural account.

3.2. The Single Change per Event Constraint

As an immediate consequence of incorporating the FSC into the decompositional predicate representations, we can postulate that more than one distinct change of state or change of location cannot co-occur in the same causing event or result event. Thus, the constraint in (4), repeated here as (20), naturally follows from the interplay between the nature of the event structure and the FSC:

(20) The Single Change per Event Constraint (SCEC):
No more than one distinct cause or result can be involved in the same event.

What crucially differentiates this constraint from the UPC is that, whereas the UPC is concerned with the time relation (i.e., whether two distinct events occur at the same time), the SCEC is based on the event relation (i.e., whether two distinct events are involved in the
In the account suggested here, the unacceptability of the sentences in (11), repeated here as (21), can be explained by saying that both of the two distinct events denoted by the result phrase black and blue and the directional phrase out of the room are involved in the same result event.

(21)  
   a. * Sam kicked Bill black and blue out of the room.  
   b. * Sam kicked Bill out of the room black and blue.

In section 2.2, we observed that the directional phrase in (21) refers to a result location of Bill, and this relationship can be confirmed by the paraphrase in (13), repeated here as (22):

(22)  
   a. Sam kicked Bill out of the room.  
   b. Sam caused Bill to go out of the room by kicking him.

Sentence (22b), which is a paraphrase of (22a), involves the directional phrase out of the room in the main clause, and this arrangement suggests that the directional phrase refers to a result event. The result phrase black and blue in (21) can similarly be considered to be involved in a result event, and the following paraphrase illustrates this interpretation:

(23)  
   a. Sam kicked Bill black and blue.  
   b. Sam made Bill black and blue by kicking him.

Sentence (23a) can be paraphrased with sentence (23b), which includes the result phrase black and blue in the main clause, and thus, the result phrase denotes a result state of Bill. Note that neither the result phrase nor the directional phrase further specifies the meaning of the other. For this reason, both the directional phrase and the result phrase in (21), which refer to distinct result states, cannot be involved in the same result event.

   Note that these sentences are unacceptable even if the change of state and the change of location of Bill do not occur at the same time, as we have observed in (5), repeated here as (24):

(24)  
   (In the situation where the event of Bill becoming black and blue and that of his leaving the room occur simultaneously.)  
   a. * Sam kicked Bill black and blue out of the room.  
   b. * Sam kicked Bill out of the room black and blue.

When the two distinct events (Bill’s becoming black and blue and leaving the room) do not occur simultaneously, the UPC cannot apply to the sentences in (24) because the UPC prohibits only the simultaneous co-occurrence of multiple distinct changes. That is, the UPC cannot rule out the sentences in (24), whereas the SCEC can. Thus, the unacceptability of the sentences in (21) and (24) can be attributed to the co-occurrence of two distinct results in the same result event. This co-occurrence is exemplified by the following decompositional predicate representation:
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(25) $\left\{ \begin{array}{c}
\text{CAUSE Sam kicked Bill} \\
\text{RESULT Bill became black and blue} \\
\text{RESULT Bill went out of the room}
\end{array} \right\}$

This representation shows that distinct result events (i.e., the event of Bill becoming black and blue and that of Bill leaving the room) co-occur in the same complex event structure. These two result events are independent of one another, and therefore, they cannot be included in the same result event. Thus, the structure in (25) violates the constraint on the maximum complexity of an event structure.

In this subsection, we have observed how the FSC can be incorporated into the event structural account. In the next subsection, based on this theoretical framework, I provide a unified account of the sentences in (10), which licitly include a result phrase and a path phrase in a single clause.

3.3. An Event-Based Account

In section 1.2, we have observed that the UPC is empirically inadequate for explaining the co-occurrence restriction on the change of state expressions and change of location expressions. As an alternative to this constraint, I have proposed the SCEC in section 3.2. In this subsection, I argue that the SCEC can adequately explain the acceptability of the sentences in (10), repeated here as (26), while the UPC cannot satisfactorily do so:

(26) a. John squeezed the rubber ball out of shape into the jar.
b. John squashed the rubber ball out of shape into the jar.

The acceptability of the sentences in (26) can be explained by arguing that the directional phrase into the jar refers to a causing event, and the result phrase out of shape is involved in a result event; the two distinct changes are not involved in the same event. Thus, these sentences can be represented as follows:

(27) a. $\left\{ \begin{array}{c}
\text{CAUSE John squeezed the rubber ball into the jar} \\
\text{RESULT the rubber ball became out of shape}
\end{array} \right\}$
b. $\left\{ \begin{array}{c}
\text{CAUSE John squashed the rubber ball into the jar} \\
\text{RESULT the rubber ball became out of shape}
\end{array} \right\}$

As shown by these representations, the two distinct changes (a change of location and a change of state of the rubber ball) are properly assigned to distinct events, and thus, these sentences satisfy the SCEC.

In this subsection, I have accounted for the co-occurrence restriction on change of state expressions and change of location expressions based on the event structure. In combination with the FSC, the event structure approach can appropriately rule out the sentences in (21) and (24). The acceptability of the sentences in (26), which are problematic for the UPC, can also be explained by distinguishing two types of directional phrases in terms of their event structural properties.
3.4. Further Considerations
As we have observed thus far, the SCEC is relevant to the event-based relationship between two distinct changes, whereas the UPC is formulated based on the simultaneity of distinct changes. The UPC prohibits the co-occurrence of multiple expressions denoting distinct changes in a single clause, only when these changes occur at the same time. Therefore, the UPC cannot make any reference to cases where there is a time lag between the occurrences of distinct changes. However the SCEC can predict that a change of state expression and a change of location expression may co-occur in a single clause when one change causes the other, even if there is a time lag between the occurrences of these two changes. In this subsection, I show that this prediction is correct and strongly supports the validity of the SCEC.

The following sentences include a result phrase and a directional phrase in a single clause:

(28) a. John broke the vase into pieces against the wall.
   b. John broke the vase into pieces onto the floor.

The directional phrases against the wall and onto the floor in these sentences refer to causes of change of state expressed by the result phrase into pieces. In fact, sentences (28a) and (28b) can be paraphrased into sentences (29a) and (29b), respectively:

(29) a. John broke the vase into pieces by hitting it against the wall.
   b. John broke the vase into pieces by dropping it onto the floor.

These paraphrases, which include a subordinate clause introduced by the preposition by, explicitly show that the result phrase denotes a result event, whereas the directional phrases refer to causing events.

Note that the change of state and the change of location do not co-occur at the same time in the sentences in (28); the change of location of the vase is followed by its change of state in these sentences. The UPC cannot make any prediction about the acceptability of these sentences, but the SCEC can. In this way, the sentences in (28) confirm the validity of the SCEC account.

4. Conclusion
In this paper, we have observed that there exists a certain restriction on the co-occurrence of change of state expressions and change of location expressions. The UPC proposed by Goldberg (1991) at first appears to explain this restriction. Goldberg claims that the co-occurrence of these two types of expressions is prohibited when the change of state and the change of location denoted by these expressions occur at the same time. This elaboration implies that the UPC is based on the time relation, i.e., whether the distinct changes occur at the same time. However, we have also observed that, even if directional phrases co-occur with result phrases in a single clause, sentences involving them do not become unacceptable when the directional phrases refer to causes of changes of state denoted by the result phrases. This causal relation is crucially relevant to the co-occurrence restrictions. In this way, I have proposed the SCEC based on the event relation, i.e., whether one event causes the other. This
constraint comes from the interaction between the nature of event structure and the FSC.

What is implicit in this explanation is that the co-occurrence restriction on change of state expressions and change of location expressions must be considered based on a distinction between two types of directional phrases: those that refer to causing events and those that are involved in result events. This categorization means that the event-based distinction between the two types of directional phrases is grammatically relevant. This study is theoretically significant in that I have explicitly shown that the event-based analyses can successfully account for the co-occurrence restriction on the change of state expressions and the change of location expressions.

References