OPTIONALITY IN OPTIMALITY-THEORETIC SYNTAX

by Gereon Müller

1. Introduction

Pre-theoretically, we can conceive of syntactic optionality as a name for a situation in which different ways of saying what seems to be the same thing co-exist in a clear correspondence in form. Such a situation may or may not be problematic for a given syntactic theory. Classic transformational grammar of the sixties acknowledges syntactic optionality by introducing a distinction between obligatory and optional transformations. Instances of syntactic optionality can be traced back to transformations that apply optionally. Some typical instances of syntactic optionality are given in (1)–(6), together with an account in terms of classic transformational grammar. First, English complementizer drop is optional in declarative object clauses (embedded by bridge verbs):

(1) a. I think that John is a fool.
   b. I think — John is a fool.

Second, English dative shift is optional:

(2) a. John gave [NP1 a book] [NP2 to Mary].
   b. John gave [NP2 a book] [NP1 to Mary].

Third, German ach-scope marker insertion is optional; i.e., in long-distance ach-dependencies, successive ach-scope movement co-exists with partial movement of the wh-phrase to an embedded SpecCP position, accompanied by ach-scope marker insertion was targeted in the target SpecCP position:

(3) a. Wen1 haslubau dt2 man1 einladen sollte?
   b. Wen1 haslubau dt2 man1 einladen sollte?

Fourth, French ach-movement of argument XPs is optional in root clauses:

(4) a. Qui a-tu vu [CP wen1 (daß) man1 unladen sollte]?
   b. Tu as vu qui?

Fifth, PP extraposition from NP is optional in English:

(5) a. [NP A review] came out yesterday [PP of this article].
   b. [NP A review] came out yesterday [PP of this article].

And finally, scrambling is optional in free word order languages like German:

(6) a. daß [NP kein] [NP dem Fritz] gesehen hat that no-one-DEM ART-NOM Fritz seen has
   b. daß [NP dem] [NP dem keiner] gesehen hat that ART-NOM ART-NOM kein seen has norte: that no one saw Fritz.

In standard GB theory (Chomsky 1981, Lasnik & Saito 1992), there is but one transformation left. This transformation, Affect a, applies optionally throughout, subject to the requirement that the resulting syntactic object does not violate any constraints of grammar, creating the effect of obligatory rule application. Still, in this system, syntactic optionality is not problematic; it simply arises whenever the constraints of grammar can all be fulfilled both by applying Affect a to a given item a, and by leaving a unaffected. The Minimalist Program (Chomsky 1995) takes the opposite direction: All syntactic operations are obligatory. The operation Move in particular applies if and only if it is triggered by features with certain properties. Hence, syntactic optionality at first sight poses a problem. One obvious and simple way out is to reanalyze optional movement transformations as obligatory in structures of Movement and obligatory features. Concerning, for instance, French root ach-movement in (4), we can say that the feature that triggers ach-movement is optional in root contexts. Thus, it looks as though syntactic optionality is unproblematic under minimalist assumptions. However, closer inspection reveals that this conclusion is in need of a qualification.

There are versions of the Minimalist Program that employ transderivational economy constraints like Chomsky’s (1991) Fewest Steps; cf., e.g., Epstein (1992), Kitahara (1993, 1997), Collins (1994), Chomsky (1995), Fox (1995) and Nakamura (1998). (Transderivational economy is a recurrent theme in all chapters of Chomsky 1995; even though it becomes clear towards the end of the book that Chomsky would ideally want to dispense with this notion in favour of “local economy”, on which see also Collins 1997). In a minimalist syntax that incorporates Fewest Steps, a derivation is well formed only if it violates none of the standard (local) constraints of grammar, and, in addition, involves the fewest instances of syntactic operations in the candidate set. Depending on how candidate sets are defined, syntactic optionality may now become problematic again. Clearly, (4a) involves more applications of Move than (4b), and the situation is similar in at least some of the other examples given above.

To maintain transderivational economy in view of this situation, it seems that we have to ensure that two derivations generating sentences that exhibit syntactic optionality are not in the same candidate set. This means that sufficiently many conditions must be imposed on the definition of candidate set, so that candidate sets get smaller, and syntactic optionality turns out to be only apparent — each “optimal” derivation is the most economical candidate in its candidate set. Thus, instead of defining candidate sets in terms of identity of meaning (or LF; see e.g., Fox 1995 and Reinhart 1998), we can define them in terms of identity of lexical material (or numeration, cf. Chomsky 1995). This would suffice to ensure that both sentences can survive in (1)–(3); and assuming that different feature specifications on lexical items must result in non-identity of lexical material, (4)–(6) could be accounted for in the same way: Derivations that differ only with respect to some optional feature triggering movement are not part of the same candidate set. However, as noted in Sternefeld (1997), such a step straightforwardly leads to a dilemma: A significant reduction of competition in candidate sets may indeed reconcile optionality with transderivational economy; but as an unwanted side effect, it also threatens to undermine the notion of transderivational economy itself, because many ill-formed derivations that could be shown to be blocked via, e.g., Fewest Steps, will now survive because the more economical derivation is a candidate set anymore. Finding a suitable definition of candidate set that is weak enough to permit optionality and strong enough to actually do some work may not be an impossible task, but the attempts that I am aware of suggest that it is a fairly difficult one (cf. Müller & Sternefeld 1996).

Below I turn to Optimality theory, which recognizes the notion of competition in candidate sets as the fundamental concept of grammar. It is therefore not surprising that optionality is inherently difficult to account for in optimality-theoretic syntax.

One issue that is important in the context of optimality, and that I have not mentioned yet is the fact that optionality is often limited in the sense that in some contexts it breaks down (“syntactic alternation”); I discuss this in section 3.

2. Optimality-theoretic syntax

The structure of an optimality-theoretic syntax looks as follows (cf. Prince & Smolensky 1993). Based on a given input, a first part of the grammar that contains only inviolable and unranked constraints (Gen) is applied. Grammatical derivations are then subjected to a competition in terms of harmony evaluation in a second part of the grammar that employs viable and ranked constraints (H-EVAL). Harmony evaluation selects the optimal (or grammatical) candidate(s) in a candidate set. Optimality can be defined as follows, (7) is a modification of the definition in Grimshaw 1997, which closer scrutiny reveals to be incompatible with the existence of more than one optimal candidate in a candidate set; see Heck 1998 and Müller 1999):

(7) Optimality
A candidate Ci is optimal with respect to a constraint ranking <Cons1 > … Consn> iff there is no candidate Cj in the same candidate set such that:
   a. There is a constraint Consi such that Ci satisfies better than Cj and Cj differs;
   b. There is no constraint Consi outranking Consj on which Ci and Cj differ.

The notions of input, candidates, and candidate set remain to be clarified. For the time being, it will suffice to adopt some simplified definitions (based on Grimshaw 1997). Suppose that inputs are predicate/argument structures with tense and aspect specifications, that candidates are S-structure representations (although assuming candidates are full derivations as suggested in Heck 1997 and envisaged in Legende, Smolensky & Wilson 1998), and that candidate sets are defined as in (8):

(8) Candidate set
Two candidates Ci, Cj belong to the same candidate set if:
   a. Ci, Cj are realizations of identical predicate/argument structures.
   b. Ci, Cj have identical LFs.

Now we are in a position to formulate the problem that optionality as in (1)–(6) raises for optimality-theoretic syntax: Two (or more) candidates are optional even though they seem to belong to the same candidate set. In view of this state of affairs, several proposals have been made, all of which belong to one of the four following types:

I. Pseudo-Optionality: Ci, Cj belong to different candidate sets and do not interact.

II. True Optionality: Ci, Cj have an identical constraint profile.

III. Ties: Ci, Cj differ only on two (or more) constraints that are tied. Ties can be interpreted in various ways: globally or locally; ordered, conjunctive, or disjunctive.

IV. Neutralization: Ci, Cj belong to different candidate sets, but interact nevertheless.

In what follows, I will address these proposals in turn.

3. Pseudo-optionality

Pseudo-optionality has been pursued by Grimshaw & Samek-Lodovici (1995), Choi (1996), Samek-Lodovici (1996), Büring (1998), Choi (1998), Legendre (1998), and Heck (1999), among others. The basic strategy is similar to the one that is standardly pursued in minimalist systems with transderivational economy constraints. The observation is made that pairs like those in (1)–(6) is only apparent; the sentences belong to different candidate sets after all, and they are the sole optimal candidates in their respective candidate sets. Of course, a pre-condition for such an analysis is that candidate sets are sufficiently small. Under the notion of candidate set in (8), we would expect the candidates in each of the above examples to belong to
the same candidate set and, hence, to compete for optimality. How, then, can candidate sets be re- 
duced appropriately to avoid competition in optimi-
tality contexts? When we, at first sight, might replace the notion of “identical predicate/argument structures” in (9a) with the stricter notion of “identical numeration”, just as assumed above for transferability minim-
alism. This would create two candidate sets in the example pairs (1) (presence vs. absence of the 
complementizer that), (2) (presence vs. absence of the Case-marking preposition to), and (3) (pres-
ence vs. absence of the wh-scope marker was). 

Still, this does not yet account for (4)–(6), where the lexically items are identical. Proponents of 
pseudo-optionality approaches have often tried to 
argue for subtle differences in meaning in cases like 
these, which create two candidate sets for each 
example pair via (8b).

These subtle differences in meaning are often not 
relevant for truth conditions; they typically relate to 
pragmatic or functional notions like topic, focus, 
and the like. Something along these lines has 
indeed been independently proposed for NP scram-
bling vs. NP in situ in German and other free 
word order languages (cf. (6)). In addition, it has 
been suggested that extraction from NP in English 
(cf. (5)) is in many respects. Similarly (and, 
gives differences in numeration, redundantly), it has often been claimed that 
dative shift can somehow create “affectiveness” of 
the indirect object (see Speas 1980 and literature 
cited therein). In the case of optional root u-mo-
vement in French (cf. (4)), the identification of a 
difference related to (8b) is much harder. Any 

attempt at attributing a standard question inter-
pretation to (4a), and an echo question interpreta-
tion to (4b), is dissatisfactory (i.e., co-occurrence of 
optionality and its breakdown) as syntactic alterna-
tion. Thus, for most speakers of English, the 
complementizer becomes obligatory with embed-
ded topicalization (cf. Rochenen 1989, Grimshaw 
1997), and in subject clauses (cf. Stowell 1981):

(9)

a. I think that [what to John] she gave a book t
b. *I think – [to John] she gave a book t

c. It surprised me [that the earth is round ]
d. *It surprised me [— that the earth is round ]

Similarly, dative shift (cf. (2)) can be obligatory in 
certain contexts, and blocked in others (cf. Baker 
1988, Larson 1988, and references cited there):

(10)

a. The orange socks cost $20; [two dollars to her Linda]
b. The orange socks cost $10 Linda [two dollars ]
c. I donated [money to charity ]
d. I donated [money to charity ]

Moreover, partial u-movement in German (cf. 
(3)) is blocked in certain contexts, like negative 
islands (cf. Hohe 1990, Rizzi 1992) and subject 
islands (cf. McDaniel 1989):

(11)

a. WO? gabcott du nicht [t] [dai mana i einladon solit] whom whom you not that one who invite should	b. *WO? gabcott du nicht [t] [dai mana i einladon [w]think you not whom (that) one invite solita] should

c. ?[Mit wem] was i es esscach [t] dai asi; gesprochen with whom is it a pity that she talked?
d. *[Mit wem] was i es esscach [t] mit wem issu; gesprochen [w]think whom is it a pity whom she talked?

Optionality of u-movement in French (cf. (4)) 
holds only in root contexts, and only for u-mo-
-

Argu-
-
ments. As soon as a u-ch-adjunct or an embed-
ded context is involved, u-movement becomes obli-
gatory, as in English:

(12)

a. Pourquoi es-tu venu t? why who you come
b. Tu es venu pourquoi? you have come why
c. Je me demande [quoi] tu as vu t1 I ask myself you have seen t1

d. *Je me demande [— (que) tu as vu qui] I ask myself (that) you have seen who

Analogous instances of alternations can be ob-
erved with extraposition in English (cf. (5)) and 
scrambling in German (cf. (6)).

Syntactic alternation can be captured in 

optimality-theoretic syntax in a straightforward 
way, by assuming a competition from which only 
one of the candidates emerges as optimal in cer-
tain contexts. But this presupposes that the two 
candidates in the example pairs in (9)–(12) do 

in fact compete, and thus belong to one and the same 
candidate set, an assumption that must be aban-
doned in a pseudo-optionality approach. Thus, we 

end up with the dilemma that it is not at all clear 
what candidate can block an ungrammatical 
sentence like (9d) if (9c) is not part of the 
same candidate set. Such a situation is handled in 


Consider first Grimshaw’s (1997) analysis of 
English complementizer drop. The viable con-
straint that are relevant are given in (13), 
together with their ranking. (Top-SCOPE is not 
actually proposed by Grimshaw, but tacitly assumed; 
this constraint could actually be formulated in a 
simpler, but arguably less transparent way.)

(13)

PSEU-EP (‘Purity of Extended Projection’)

There is no adjunction to the highest XP of an extended projection or its head.

TOP-SCOPE (‘Topic-Scope’) Topics are adjunctioned to IP

O-HD (‘Obligatory Head’) A projection has a head.

SDR (‘Derivational Economy’) Trace is not solely

It is assumed that a finite IP can be the sister of V, 
(1a) and (1b) can now have an identical constraint profile (in fact, neither of the candidates violates 
any of the constraints in (13)); cf. tableau T1. 

However, recall that the optimality of comple-
mentizer drop breaks down in certain contexts; cf. 
(9). And indeed, Grimshaw (1997) notes that 
that becomes obligatory in embedded topicalization 
contexts because the complementizer drop con-
struction will have to fatally violate either O- 
structure it requires, must be completely costless. 
As a second example, consider Vikner’s (1999) 
extension of this proposal that captures an inter-
esting cross-linguistic correlation: It seems that 
only languages with complementizer drop 
allow overt V-to-I raising (French, Icelandic; 
following the work of Emonds, Pollock and others, 
the evidence for V-to-I raising at S-structure can be 
gained from the relative order of VP adverbials 
and finite V). The obligatoriness of complementizer-
in the latter class of languages is exemplified bu 
the French data in (14):

(14)

a. Je crois que l’acteur vous a fait lire le film
b. *Je crois — l’acteur vous a fait lire le film

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the French data in (14):
5. Ties
The basic idea behind ties is that two (or more) constraints are equally important, i.e., "tied." If two candidates differ only with respect to a tie of constraints, they can both be optimal, even if their constraint profile is not completely identical. As with true optionality, alternation phenomenon can be traced back to the impact of another constraint that may differentiate between candidates. So the abstract difference only on ties. In what follows, I will note a tie of A and B as \( A \equiv B \) (in tableau, ties will be represented by vertical dotted lines). Various concepts of tie have been proposed, which differ both conceptually, and empirically. However, this abstract difference only on ties. In what follows, I will note a tie of A and B as \( A \equiv B \) (in tableau, ties will be represented by vertical dotted lines).

A basic distinction can be made between what I will call global and local ties. Global ties can be viewed as abbreviations for multiple constraint rankings co-existing in a single language; local ties can be viewed as special constraint types.

5.1. Ordered global ties
Ordered global ties have been adopted by Sells, Rickford & Wasow (1996), Ackema & Neeleman (1998), Schmid (1999) and others. They correspond to a notion of tie that is suggested in Pirrello & Smolensky (1995). The basic idea is that a constraint that ranks a tie of two constraints \( C_1 \equiv C_2 \) is underspecified; it is an abbreviation that encodes the simultaneous presence of two hierarchies that exhibit the rankings \( C_1 >> C_2 \) and \( C_2 >> C_1 \). On this view, a candidate is grammatical if it is optimal under one of the possible resolutions of a tie; a different behaviour on lower-ranked constraints is irrelevant.

For example, we can assume that the notion of ranking in the definition of optimality in (7) presupposes a total order of constraints. We can then understand ordered global ties as underspecified representations with partial orders:

\[
\text{(15) Ordered global tie. Suppose that } C_1 \equiv \ldots \equiv C_m, \ldots \equiv C_n \text{ is a partial constraint order in language } L, \text{ and } C_1, \ldots, C_n \text{ is a tie. Then, for every suborder } O \text{ of the constraints in } C_1, \ldots, C_n, \text{ \( O \equiv C_1 \equiv \ldots \equiv C_n \). On this view, a candidate is grammatical in a language } L \text{ if it is optimal under at least one total order that is generated by resolving all ties that exist in the language. A diagram that illustrates how ordered global ties work is given in (16):}
\]

\[
\text{(16) Diagram of an ordered global tie } B = C
\]

As an example, let us consider the analysis of optional wh-movement in French root clauses (cf. (4)) that is developed (but ultimately rejected) by Ackema & Neeleman (1998). The relevant constraint is given in (17). (SPC) is called S'var by Ackema & Neeleman. Since this constraint is understood in a rather different way from the constraint Svar in Grimshaw (1997), I have chosen a different viewpoint corresponding to the proposition.

\[
\text{(17) a. SPC (Shortest Paths Condition)}
\]

Minimize movement paths: Every node crossed by movement creates a "

b. Q-Marking

In a question, assign a [Q] feature to the constituent corresponding to the proposition.

c. Q-Phrase

(4a) \[ [+Q] \]

\[
\text{candidates must c-command the constituent corresponding to the proposition.}
\]

Akkema & Neeleman then suggest the following constraint ranking for French: SPC = Q-Marking > Q-Phrase. Since this ranking involves an ordered global tie, and hence, a partial order of constraints, the analysis can be checked — first, total orders must be created. In the case when SPC outranks Q-Marking, the candidate (4b) that dispenses with wh-movement (and thereby minimizes SPC violations) is optimal; if, however, SPC is outranked, the candidate (4a) that respects Q-Marking by moving the wh-phrase emerges as the winner. This is shown in tableau T4 which should be viewed as an underspecified representation that simultaneously encodes two hierarchies. In such a case, two candidates can both be optimal, even "tied." If two candidates differ only with respect to more) constraints are equally important, i.e., the resolution of the tie SPC >> Q-Marking involves an or-

5.2. Ordered local ties
Pesetsky (1997; 1998) and Broihier (1999) propose a local order of constraints that avoids the problem of grammar proliferation. As before, a tie A-B is resolved into its subrankings A >> B, B >> A. However, this time the tie is not an abbre-

"meta-constraint", in the terminology of Broihier (1999). Pesetsky’s (1998) suggestion reads as follows: “The output of a set of tied constraints is the union of the outputs of every possible ranking of those constraints.” As a first approximation, we can postulate the following definition of ordered local ties, still presupposing the notion of optimality in (7):

(18) Ordered local tie. Suppose that \( C_1 \equiv \ldots \equiv C_n \text{ is a total constraint order in language } L \text{, and } C_1 \equiv \ldots \equiv C_n \text{ is a tie. Then, Coni } C_1 \text{ is violated by a candidate } C \text{ iff there is no suborder } O \text{ such that } C_1 \text{ is optimal with respect to } O.

Thus, a tie is treated as a constraint that can be violated or satisfied by a candidate (unlike “ordinary” constraints, it cannot be violated multiply, though). Optionality can arise because there is more than one possibility to satisfy the tie, depending on the ranking into which the tie is resolved. Schematically, ordered local ties look as in (19):

\[
\text{(19) Diagram of an ordered local tie } B = C
\]

As an example, consider again English complementizer drop. The following constraints are proposed in Pesetsky (1998):

1. Rec (Recoverability)
A syntactic unit with semantic content must be pronounced unless it has a sufficiently local antecedent.
2. LECP (Left Edge CP)
The first pronounced word in CP is the complementizer that heads it.
3. TEL (Telegraph)
Do not pronounce function words.
4. DCP (Deletion in CP)
The head or specifier of a CP may be deleted only if that CP is a complement.
5. Silent "Silent Trace"
Minimize pronunciation of traces.

In English, the ranking of the first four constraints is held to be Rec >> LECP >> TEL >> DCP. Since DCP is ranked in declarative object clauses (that is semantically empty, and the CP is a complement), optionality in (1) follows from the tie of LECP and TEL: (1a) \( (C_1 \equiv C_2 \text{ in T5) satisfies LECP and violates TEL} \text{, therefore, it satisfies the tie under the resolution LECP >> TEL.} \text{On the other hand, (1b) \( (C_2 \equiv C_3 \text{ in T5) satisfies TEL and violates LECP; hence, it does not violate the tie under the resolution TEL >> LECP).} \text{The breakdown of optionality in subc categories follows from the constraint that discrimi-

\[
\text{states between subject and object CPs, viz., DCP. Like LECP, DCP prohibits complementizer deletion, but it is more specific since it does so only in a complement. That DCP does not make it irrelevant here; since an ordered local tie (almost) functions just like any other constraint in the hierarchy (it can be satisfied or violated), the behaviour of two otherwise optimal candidates that both satisfy the tie on a lower-ranked constraint does make a difference; see T6.}
\]
Closely scrutinizing reveals that (18) is not yet fully adequate to capture Pesetsky's intentions. This can only be seen by looking at the deletion in Polish, as analysed in Brohier (1995) and Pesetsky (1998). If the relative pronoun is oblique, relativization can either proceed by pronouncing the relative pronoun and deleting both the complementizer and the relativization trace, or by deleting the relative pronoun and pronouncing both the complementizer and the trace (the latter as a resumptive pronoun, so as to minimize SILENT-violations cf. (21a–b). All these strategies, some of which are given in (21c–f), are ungrammatical.

(21)

a. On spotka studenta [CP –1co on dał t1 piać] he met student whom-tamt who gave good mark
d. * On spotka studenta [CP –1co on dał t1 piać] he met student whom-tamt who gave good mark
f. * On spotka [CP –1co on dał t1 piać] he met student whom-tamt who gave good mark

A high-ranked REC strictly prohibits simultaneous deletion of the oblique relative pronoun and its trace (as in C4), while a low-ranked DCP irrelevantly prohibits deletion in the domain of the non-complementizer and the relativization trace, or by deleting the relative pronoun and pronouncing both the complementizer and the trace (as in C3, C5, and C6). If the tie is resolved into a higher-ranked REC strictly prohibits simultaneous deletion in the domain of the non-complementizer and the relativization trace, or by deleting the relative pronoun and pronouncing both the complementizer and the trace (the latter as a resumptive pronoun, so as to minimize SILENT-violations cf. (21a–b). All these strategies, some of which are given in (21c–f), are ungrammatical.

The relevant example in Müller (1997) is the treatment of the alternation of wh-scope marking and long-distance uh-movement in German (cf. (3)), and its breakdown in weak island contexts (cf. (11)). The constraints are given in (25).

(25)

a. Wi-Ref (‘What-Criterion’), holds at S-structure
b. Bar-Con (‘Barriers Condition’) Chain formation must not cross a barrier.
c. Der-Econ (‘Derivational Economy’): a version of STAY

The constraint ranking postulated for Standard German is Wi-Ref >> Bar-Con >> Der-Econ >> Full-Int. Assuming that the uh-scope marker was (‘what’) is an expletive, each instance of was insertion incurs an invocation of Full-Int. On the other hand, each instance of overt uh-movement incurs a violation of Der-Econ. Given that these two constraints are tied, optionality arises: Successive- cyclic uh-movement as in (3a) violates Der-Econ twice, partial uh-movement accompanied by was insertion as in (3b) violates both Der-Econ and Full-Int once, and since this adds up to two violations of the tie in each case, the two candidates can both be optimal. They do indeed turn out to be optimal because all competing candidates that try to improve their behaviour on the tie violate the higher-ranked Wi-Ref fatally; see T8.

The optionality disappears in languages that exhibit wh-scope marking in English. Whether uh-scope marking will always be blocked by long-distance uh-movement in English under a ranking Full-Int >> Der-Econ; and uh-scope marking is correctly predicted to block long-distance uh-movement in Northern German varieties under a ranking Der-Econ >> Full-Int. More importantly in the present context, optionality is also predicted to break down in Standard German as soon as another constraint becomes active that differs between the alternating candidates. As argued in Müller (1997), this is the case in weak islands contexts. Given that subject clauses are barriers due to the lack of L-marking (cf. Chomsky, 1986), and given that a scope marker forms an S-structure chain with its associate, both long-distance uh-movement as in (11c) and uh-scope marking as in (11d) will invariably violate Bar-Con at S-structure. However, if wh-in situ can undergo LF-raising to its scope position (11d) incurs an additional, fatal Bar-Con violation at LF that (11c) doesn’t incur. This is shown in tableau T9. The argument is identical in the case of the negative island asymmetry in (11a–b).

The basic idea is that ties are treated as ordinary constraints, but there is no resolution of the tie into suborders. Rather, the two constraints are merged into a single constraint that is interpreted via logical conjunction: A candidate violates a tie if it violates a constraint that is part of this tie, and multiple violations add up.

(23) Conjunctive local tie

Suppose that \( C^* \) is the optimal one among \( C \) or SpecCP. Then, Con, is violated by a candidate C if there is no suborder \( O \), such that \( C \) is optimal according to \( C^* \Rightarrow \ldots \Rightarrow C_0 \Rightarrow O \).

A diagram illustrating conjunctive local ties is given in (24):

(24) Diagram of a conjunctive local tie B → C

Thus far, the uh-scope marking alternation in German may exist only be licensed with ordered (global or local) ties. Things begin to differ in the case of longer uh-dependencies that cross two CPs; here, only conjunctive local ties make correct predictions.

(26)

a. Wann, meint das1 t1, daß sie gesagt hat, daß sie t1, daß sie t1
b. Wann, meint das1 t1, daß sie gesagt hat, daß sie t1, daß sie t1

Candidates (26a)–(26c) employ either wh-movement, or cws insertion, or both. All lead to three violations of the tie, and hence they can all be optimal given (23), see T10:

**T10. Optimality of wide-scope marking in longer dependencies in German**

![Diagram](image)

This result cannot be obtained with ordered global ties (C1) would be optimal under the order FULL-INT >> DEP-ECON, C2 would be optimal under the order DEP-ECON >> FULL-INT, but C3 would not be optimal under any order. Neither of the approaches is that a candidate can be optimal within the tie (there is no suborder of the tie under which C2 could be optimal within the tie). However, just like ordered local ties, conjunctive local ties make wrong predictions for the competition in T4 (optional wh-movement in French root clauses) that motivated an ordered global tie: however, this time it is not C3 that would reach. Therefore, I take it that there is no constraint Conij that is satisfied by C.

5.4. Disjunctive ties

The three concepts of tie discussed so far arguably predominate within optimality-theoretic syntax. Still, there are other concepts of tie that are logically possible and linguistically plausible. As a final example, I briefly introduce disjunctive ties, which are discussed in Broihier (1995) (in a hypothesis version) and Müller (1998) (in a global version, for scrambling in German). The gist of both approaches is that a candidate can be optimal on a tie of constraints if it satisfies at least one of the constraints. Disjunctive local ties can be defined as in (27) (cf. the definition of conjunctive local tie in (23)), and can be illustrated by the diagram in (28).

**T11. Tone with [±Sub]**

![Diagram](image)

Thus far, the approach is similar to standard pseudo-optionality approaches. As soon as Pure-EP becomes relevant, a different emergences: In the case of disjunctive tie, the optimal candidate will violate Faiti[S(Sn)] and ignore the [±Sub] specification of the input in order to satisfy the higher-ranked Pure-EP. This way, the difference in [±Sub] specification in the input is neutralized in topicalization contexts, and CP embedding becomes optimal in both candidate sets (cf. (9a) vs. (9b)).

5.5. Conclusion

All the concepts of tie discussed in this section seem to work fairly well for the subcases of optionality that are designed for; yet at the same time, there is no concept of disjunctive ties that make wrong predictions for the case of global ties, and related to a possible unwanted interference from lower-ranked constraints in the case of local ties. Furthermore, it has turned out that the different concepts of tie make empirical predictions that are often strikingly different and incompatible. However, a unified concept of tie emerges out of all this: there is every reason to continue looking for another radical rethinking of the pseudo-optionality approach.

6. Neutralization

Recall that the main problem with the pseudo-optionality approach is that it does not cover alternation: To account for alternation, optimal candidates must belong to different candidate sets; but to account for the breakdown in optimality in certain contexts, it seems that they must belong to the same candidate set. This dilemma makes it unsolvable at first sight, but such a conclusion turns out to be premature, provided that we alter some basic assumptions. The basic idea is that a difference in the input that normally creates optionality via two distinct candidate sets may under certain circumstances be "neutralized" in the output, thereby creating a breakdown in optionality. Neutralization approaches of various types have been proposed by Bakovic (1997), Keer & Bakovic (1997), Bakovic & Keer (1999), Legendre, Smolensky & Wilson (1998) and Schmid (1998). I will briefly introduce the neutralization approach to English free drop alternation: that is given in the system of Bakovic and Keer (see especially Bakovic 1997). In addition to Grimshaw’s (1997) Pure-EP (cf. (13a)), this approach relies on a faithfulness constraint Faiti[S(Sn)] that is lower-ranked in complexity (global version).

The feature [±Sub] specifies the subordination requirement of a predicate that embeds a clause. By assumption, [±Sub] requires embedding of CP (which, due to a high-ranked O-OE, forces the presence of a complementiser, exactly as in Grimshaw’s 1997 approach); and [±Sub] requires embedding of IP. Given that bridge verbs like think can be equipped with a [±Sub] or [±Sub] feature, and that this difference creates two candidate sets, both candidates are optimal, each in a separate candidate set with different [±Sub] specification on think. This is shown in T11 and T12.
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