

The Logic of Contextual Allomorphy

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Abstract: In this paper, I explore ways of analyzing contextual allomorphy that eschew reference to competition and blocking. Instead, I propose the independence assumption on suffixes. I illustrate the framework with case studies from English morphology, including irregular plurals and irregular past tense verb forms. Lastly, I show how the phenomenon of doublets provides strong support for the independence assumption.

Keywords: contextual allomorphy, plural, past tense, blocking

1. A Proposal

In contextual allomorphy, two affixes -S1 and -S2 make the same semantic/grammatical contribution, but appear with different lexical items. For example, if X and Y are two lexical items, the following would be a case of contextual allomorphy:

- (1) a. X-S1, *X-S2
- b. *Y-S1, Y-S2

This notation means that -S1 is a possible suffix on X, but -S2 is not. And that -S2 is a possible suffix on Y, but -S1 is not. To analyze this pattern of data, four questions need to be answered:

- (2) a. Why is -S1 possible with X?
- b. Why is -S1 not possible with Y?
- c. Why is -S2 not possible with X?
- d. Why is -S2 possible with Y?

In this paper, I argue for the following general approach to answering these questions:

- (3) a. Morpheme Assumption:
 -S1 and -S2 are distinct (but related) morphemes.
- b. Independence Assumption:
 Whether or not -S1 is possible as a suffix on a particular lexical item L is independent of whether or not -S2 is possible as a suffix on L.

Concerning (3a), -S1 and -S2 are distinct morphemes, which may however share certain phonological, syntactic and semantic properties. In fact, in the usual case -S1 and -S2 are identical semantically (which is how they can be identified as contextual allomorphs).

Another way to state (3a) is as follows: Evaluating whether the combination [L-S1] is well-formed depends only on the properties of L and -S1, not on the properties of any other suffix. Assumption (3a) is most similar to the “subcategorization model” described by Paster 2017. However, Paster does not adopt assumption (3b), since she invokes the elsewhere condition (pg. 100).

The logic of (3b) is like the logic of the standard Binding Theory. There are reflexives like *himself* and non-reflexive pronouns like *him*. Each of these is associated with its own syntactic conditions: reflexives are governed by Condition A and non-reflexive pronouns are governed by Condition B. Crucially, each pronoun is subject to independent conditions. See Collins 2014 for an analysis of pronominal allomorphy in Nluu consistent with the independence assumption.

A popular alternative to (3) is that there is some kind of competition (resulting in blocking) between -S1 and -S2. Many people have proposed this kind of competition in different frameworks (see Paster 2017, Halle and Marantz 1993, see Embick and Marantz 2008 for a general discussion of blocking, see Yang 2016 on an acquisition related perspective). On a competition based approach, the constraints determining the distribution of -S1 are not independent from the constraints determining the distribution of -S2. If -S1 blocks -S2 in English, then in a counter-factual English' if -S1 did not exist, -S2 would not be blocked.

In the following sections, I will consider several case studies to show how the ideas in section 2 work. I will consider two cases from English: plural morphology (section 3) and past tense morphology (section 4).

2. Patterns of Allomorphy

Consider (1) again. There are sixteen possible ways to constrain X, Y and -S1 and -S2 (2x2x2x2):

- (4) a. X (+/- S1), X (+/- S2)
 b. Y (+/- S1), Y (+/- S2)

Some of these patterns are irrelevant (neither X nor Y takes -S1 or -S2). And some of the possibilities are symmetric with respect to X and Y. Sorting through all the possibilities, we are left with three significant patterns. The first is in (1) above. The other two are given below:

- (5) a. X-S1, X-S2
 b. Y-S1, Y-S2
- (6) a. X-S1, X-S2
 b. Y-S2, *Y-S2

Cases of (5) are rare cross-linguistically (see Bonet and Harbour 2012: 310). Such a case would be described as two suffixes having the same distribution (appearing on the same lexical items) and making the same semantic contribution. But there are some cases of (6) within the morphology of English. Such cases fall under the label *doublets*. I return to several examples in sections 3 and 4 below.

3. English Irregular Plurals

English has several plural suffixes, including *-s*, *-en* and zero. I put aside the issue of the phonological alternatives of the regular plural (*-s*, *-z*, *-ez*). Consider the *-s* vs. *-en* distinction. There are only a very few words in English that take the *-(r)en* plural:

- (7) oxen, children, brethren

In each case, the plural *-s* cannot be added on top of the *-en* suffix:

- (8) *oxens, *childrens, *brethrens

Furthermore, *-en* cannot always be replaced by *-s*:

- (9) oxes, *child(r)s, brothers/*breths

While *oxes* is sometimes considered to be ill-formed (see McGinnis 2017: 395, Bonet and Harbour 2012: 196), for me it is well formed and contrasts clearly with *childs*. In fact, in an informal Facebook survey, I found that even for people who find *oxes* unacceptable, there is a clear contrast for them between *two oxes* and *two childs*, with the latter being more unacceptable. In the following I will focus on *ox/oxen* and *child/children*. I will also assume that the *-ren* suffix in *children* is the same as the *-en* suffix in *oxen*, although nothing rides on this assumption. Lastly, I put aside the laxing of the vowel in *children* (but see the discussion of suppletive plurals and the past tense for an analysis of such vowel changes).

All three examples in (7) are clearly syntactically and semantically plural as shown by verb agreement and association with a floated quantifier:

- (10) a. The oxen were all present.
b. The children were all present.
c. The brethren were all present.

I will go through two different kinds of analyses, characterized as non-stacking versus stacking (for reasons that will become apparent). I will ultimately reject the non-stacking analysis in favor of the stacking analysis. However, I systematically present various ways to implement the stacking analysis in order to discuss the issues that arise when working in the framework defined by (3).

I first present the non-stacking analysis.

3.1 Non-Stacking

Consider the following assumptions: (a) both *-s* and *-en* are plural morphemes of the category PL. (b) *-en* has a c-selectional constraint that it appear with only a small number of nouns (e.g., *ox*). (c) *-s* has a c-selectional constraint that it appear with nouns. These assumptions can be represented below (the square brackets are used to show c-selectional frames):

- (11) -PL[en]: [X__] X = ox, child, ...
-PL[s]: [N__]

Consider all the cases, starting with the regular plural *dogs*:

- (12) a. dog-s (allowed by c-selectional feature of *-s*)
b. *dog-en (ruled out by c-selectional feature of *-en*)
- (13) a. ox-es (allowed by c-selectional feature of *-s*)

- b. ox-en (allowed by c-selectional feature of *-en*)

So the simple assumptions about c-selection capture the data. Furthermore, this analysis shows that doublets are actually quite easy to account for under the independence assumption in (3b). See section 4.4 below for a discussion of doublets in relation to competition based theories.

But now consider what must be said on this account about *child*. The main difference is that *child* does not take a regular plural:

- (14) *I saw childs
“I saw children.”

I will go through several possible analyses of **child-s* and discuss various theoretical problems that they give rise to.

Consider first the proposal that the impossibility of (14) is encoded as part of the lexical entry for the regular plural suffix:

- (15) -PL[s]: c-selects *[child__]

This notation means that the plural suffix is stipulated to not combine with the word *child*, so that the combination *child-s* is ungrammatical. This analysis is completely consistent with the independence assumption in (3b). The decision about whether *child-s* is possible does not depend on what happens with any other suffix or stem. The acceptability or unacceptability of *child-s* can be evaluated in purely local terms, making reference only to the noun *child* and the suffix -PL[s].

A potential concern with this kind of approach is that it complicates the regular plural suffix, which seems counter-intuitive. I propose the following universal constraint that would rule out (15):

- (16) A regular affix has no lexical exceptions.

There are a series of analyses of (14) that do not rely on making the regular plural suffix more complicated, but instead attribute constraints to the stem *child*. Consider first the proposal that *child* is specified as follows:

- (17) child: *[__PL[s]]

This constraint means that *child* cannot take the regular plural suffix (although it allows the irregular plural). That is, as part of the lexical information associated with *child*, there is a negative constraint that it cannot appear with the regular plural morpheme.

An objection to (17) is that in syntax, c-selectional constraints are not stated negatively. For example, a determiner c-selects a NP, which can be written as follows: [__NP]. But it is never the case that a syntactic c-selectional frame specifies what a head cannot appear with. Therefore, there is a significant difference between the kind of morphological c-selection constraints that I am entertaining and syntactic c-selectional constraints.

A more severe issue that arises with negative constraints is learnability. Consider (17). How does the learner know that the word *child* is *[__PL[s]]? Maybe they have just never heard

the right combination, but in fact that combination is allowed and used by the speakers of the language. I propose that constraints such as (17) can be learned in the following way. If a learner hears *child-ren*, and has never heard *child-s*, then they presume *child-ren* is the only form. Concretely, in this situation, the learner attributes the c-selectional constraint in (17) to the word *child*. This kind of algorithm seems to avoid issues of indirect negative evidence discussed in Yang 2015.

This account of learning involves a limited form of competition between *-en* and *-s*, but only at the level of acquisition (not at the level of generating and interpreting structures). A stronger set of assumptions than the ones in (3) would preclude all forms of competition, even during language acquisition. So it is worthwhile thinking about whether analyses involving negative c-selectional constraints can be recast as involving only positive c-selectional constraints.

A possible way of avoiding negative constraints is to suppose that English has a null singular suffix *-SG* (similar to the singular noun class prefixes in Kiswahili). If it did, then *child* could be specified as taking a *-SG* suffix or the *-en* plural suffix. Call this kind of constraint a disjunctive constraint. These constraints are listed below:

(18) *child*: [__PL[en]] or [__SG]

However, it seems strange to say that a lexical item needs to c-select the regular *-SG* suffix, since the combination of the lexical item with the regular suffix should otherwise be possible, even if no c-selectional constraint is specified. I propose the following principle of UG that is parallel to the one given in (16):

(19) A lexical item does not c-select a regular affix.

In addition, it is generally taken to be true (by syntacticians) that disjunctions are not an insightful way of capturing generalizations in syntax. For these reasons, I suggest that disjunctive c-selectional approaches are not a viable way to look at constraints in morphology.

Consider another approach based on c-selectional properties of *child*. Suppose *child* c-selects the *-PL[en]* suffix. Clearly this would block *child-s*, which does not have the plural *-en* suffix. But then the problem is how one could ever use *child* in the singular, without any plural suffix (since it requires *-en* in all uses). I return to a modification of this approach in (25) and (26) below.

One last approach in terms of c-selection is that if *child* takes a suffix specified as *PL*, then that suffix must be *-en*. This approach depends on a conditional interpretation of c-selection in the case of morphology. The c-selectional constraint [__PL[en]] does not say that *child* needs to take an *-en* suffix, but rather that if it takes a plural suffix, that suffix needs to be *-en*. I call such an approach conditional c-selection. *child-s* is unacceptable because *child* takes a plural suffix, but it is not *-en*.

Conditional c-selection is edging back toward the competition model. It looks to see if there is a *PL* suffix, allowing for the possibility that there may be many different *PL* suffixes. If there is one, then it says that only a particular *PL* suffix is acceptable. Since it involves two steps, it is also more complex than the other possibilities.

In the above paragraphs I have presented a number of different approaches to the unacceptability of *child-s*, all consistent with the independence assumption. All of approaches

except (20d) have various theoretical problems. And (20d) did not seem capable of explaining the data.

- (20) a. negative c-selection by affix
- b. negative c-selection by stem
- c. disjunctive c-selection by stem
- d. unconditional c-selection by stem
- e. conditional c-selection by stem

Given the problems with the approaches in (20), it is worth exploring a different kind of analysis.

3.2 Stacking

In all the above approaches, I assumed that *-en* is a plural morpheme. In the following, I take a somewhat more radical approach. I propose that *-en* is not a plural morpheme at all, but rather the head of some other projection call it F (for a preliminary version of this analysis, see Collins 2017: 62).

Consider first the regular plural *dogs*. Since only PL is a plural morpheme, and F is not, one needs to consider the following four structures:

- (21) a. [[dog F] PL]
- b. [[dog PL] F]
- c. [dog F]
- d. [dog PL]

I will assume that (21a,b,c) are all ruled out because F c-selects one of a small number of lexical items (e.g., *ox*). The only possibility left over is (21d), which is *dog-s*.

Now consider the plural forms of *ox*:

- (22) a. [[ox F] PL]
- b. [[ox PL] F]
- c. [ox F]
- d. [ox PL]

The question is which of the structures in (22) is possible. I assume that (22d) is possible, on the basis of forms like *ox-es*, a form which is acceptable for some speakers of English (including the author).

How then is *ox-en* to be analyzed? Since F is not a plural morpheme, but *ox-en* in other respects behaves like plural (e.g., with respect to subject-verb agreement), I assume that (22c) is not a possible representation for *ox-en* (it would not be interpreted as a plural).

Why can the representation in (22c) not be understood as singular? In other words, if *-en* is not a plural morpheme, what prevents *ox-en* from being understood as singular? Suppose that even though *-en* is not a plural morpheme (it does not have the semantics of a plural morpheme) it is marked [+PL] as a formal feature. In minimalism, [+PL] would count as uninterpretable at the LF interface. Then (22c) would not converge at the LF interface. The only way to repair

(22c) is to add a PL morpheme which [+PL] could agree with. I assume that once [+PL] agrees with PL, it no longer poses a problem at either interface.

To distinguish between (22a) and (22b), consider the following contrast (pointed out to me by Richard Kayne):

- (23) a. ??ox-en-s (ox-F-PL)
 b. **ox-es-en (ox-PL-F)

There is a clear difference between (23a,b) which suggests that the order of morphemes is (22a) and not (22b). Why is the order (22a)? And why is it the case that PL is not pronounced in (22a)?

The question of why the correct structure is (22a) and not (22b) is a common kind of question from cartography literature. What accounts for the ordering of functional heads? In many cases it is not clear, and awaits a better understanding of the syntax and semantics of the functional heads and of the possible cross-linguistic variation in the order of the heads. In the case of *ox-en*, I have said that *-en* is not a plural head, but I have not given any kind of semantic analysis of it. Suppose that one property of *-en* is that it c-selects *ox*. Then it would be impossible to form (22b) since in that case the complement of *-en* would be NumP (number phrase). That is enough to rule out (22b), whatever the semantic properties of *-en* happen to be.

I propose that there is a null PL morpheme in *ox-en*, and that this morpheme is deleted phonologically (but not syntactically or semantically). So the derivation runs like this:

- (24) a. ox-en-es →
 b. ox-en-∅

Recall I have analyzed *-en* as F[+PL]. Therefore, the deletion of (24) can be captured with the following condition, which is reminiscent of pro-drop (rich agreement allows the pronoun to be null):

- (25) [+PL] deletes PL

Even when F[+PL] deletes PL, PL is still present for the purpose of subject-verb agreement and semantic interpretation, just like *pro* in pro-drop languages is visible for syntactic conditions (such as the Binding Theory). Deletion here should be understood to be similar to the deletion found in VP deletion and sluicing. The constituent is not spelled-out, but is present syntactically and semantically. See the appendix for a discussion of morpheme deletion in the syntax (see Collins 2007 for relevant discussion of deletion rules).

The above account once again leaves open the unacceptability of the regular plural with *child*. Recall that in the framework in (3), there is no notion of competition or blocking, and no notion of an Elsewhere Condition (where the productive rule only applies if there are no irregular rules).

- (26) *I saw the childs
 “I saw the children.”

As opposed to *oxes/oxen* (in my dialect), there is no doublet with *childs/children*. Of course, just like in the non-stacking approaches, it is possible that *child* has a negative c-selectional constraint *[_PL[s]]. But stacking brings up another possibility for analyzing (26) that does not make reference to negative c-selectional constraints.

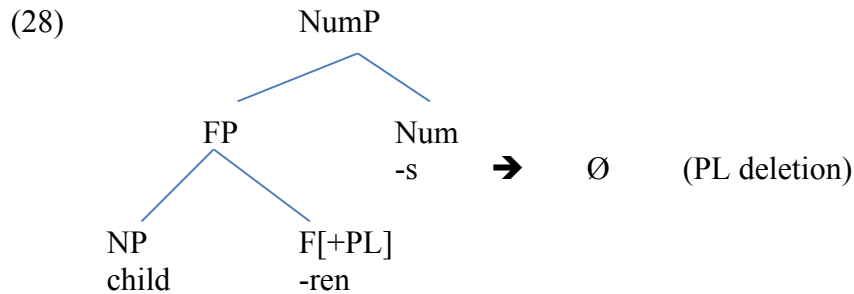
Suppose that *child* unconditionally c-selects for an F morpheme: [_F]. Furthermore, there are two such morphemes: F[+SG] (zero phonological form) and F[+PL] which has *-ren* as its phonological form. The word *child* can appear with either F[+SG] or F[+PL], but must appear with one or the other.

The analysis of *child-ren* is given below:

- (27) a. child-F[+PL]-PL → PL deletion by (25)
 b. child-F[+PL]-∅ → phonological form of F[+PL] = ren
 c. child-ren-∅

As a clarification of (27), there are no vocabulary insertion rules. Rather, the morpheme F[+PL] just has the form *-ren*. It is not that this phonological form is somehow inserted into abstract terminals.

A tree diagram showing the structure of (27) is given below:



I have been assuming that the regular plural c-selects for a noun (see (11)). But the sister of the regular plural in (28) is not a noun, but rather an FP. I assume that the c-selectional feature for the regular plural can be generalized to any extended projection of the noun. Such a generalization raises various issues of overgeneration, which I will not pursue here.

The singular case is given below:

- (29) a. child-F[+SG]-SG → phonological form of F[+SG] = ∅, SG = ∅
 b. child-∅-∅

Now consider the possible structures of the unacceptable *child-s*:

- (30) a. *child-F[+SG]-PL (feature mismatch)
 b. *child-PL (violates c-selectional constraint of *child*)

Both of these structures are unacceptable. (30a) involves a null morpheme F[+SG] that is not licensed, since [+SG] does not match with PL. (30b) is crucially missing some required structure: *child* c-selects F, but F does not appear in (30b). In neither case is there an invocation

of competition or blocking or the Elsewhere Condition. Nor is it required to invoke negative c-selectional constraints.

In fact, the explanation I have given for the unacceptability of (26) has the feel of a classical syntactic explanation. What syntactic principles account for the unacceptability of (26)? In (30a), an empty category appears that is not licensed. In (30b), some crucial syntactic structure is missing.

The stacking approach to the *-en* plural bears a family resemblance to Kramer 2016's analysis of Amharic plurals. Kramer claimed that plurality can be spelled out on both an *n* and a NUM head. Crucially, there is a difference between the two plural features (pg. 543): "Since plural NUM and plural *n* can occur together without any change in meaning, the plural feature on *n* must be uninterpretable." On important difference between English and Amharic, is that the deletion rule in (25) seems to be optional in Amharic. That is one has forms like N-PL-(PL), where in the presence of the irregular plural, the regular plural is optional. I leave it to further work to investigate the reason for this difference.

3.3 Suppletive Plurals

English has a series of irregular plurals that are illustrated below:

- (31) man/men, woman/women, tooth/teeth, goose/geese, mouse/mice

In every case, the regular plural ending cannot be added to the irregular plural forms:

- (32) *men-s, *women-s, *teeth-s, *geese-s, *mice-s

Furthermore, the regular plural is not possible:

- (33) *man-s, *woman-s, *tooth-s, *goose-s, *mouse-s

There are clear differences between these forms which I ignore. To me, *gooses* is much better than *mans*. Or to put it another way, *gooses/geese* is a doublet. Ultimately, our theory should account for this difference.

Assume that *man* and *men* are two independent words (neither derived from the other), and consider the following assumptions: *men* is lexically specified as [+PL], and *man* c-selects *[_PL[s]]. Now consider the unacceptability of *men-s*:

- (34) a. men[+PL]-PL → deletion of PL by (25)
b. men[+PL]-Ø

If *men* takes the plural morpheme PL[s], the plural morpheme is deleted since by assumption *men* is lexically specified as [+PL].

A more interesting approach to this data that avoids reference to negative c-selectional constraints would be to assume that *men* is derived from *man* by an irregular phonological rule. What triggers the irregular phonological rule? I assume that the regular plural morpheme PL[s] does not trigger the stem vowel changes, since that would involve the complication of the regular morpheme (see (16)). Rather, I propose that *man* c-selects a morpheme F, which is either F[+PL] (triggering vowel changes) or F[+SG]. The word *man* can appear with either F[+SG] or F[+PL],

but must appear with one or the other. Furthermore, F has no other phonological matrix. These assumptions are illustrated in the plural case as follows:

- (35) a. man-F[+P]-PL → deletion of PA
 b. man-F[+PL]-Ø → F triggers stem vowel changes
 c. men-F[+PL]-Ø → phonological form of F[+PL] = Ø
 d. men-Ø-Ø

Since *man* c-selects F (unconditionally), the singular case is analyzed as follows (parallel to (28)):

- (36) a. man-F[+SG]-SG → phonological form of F[+SG] = Ø, SG = Ø
 b. man-Ø-Ø

There is no way to generate the form *man-s*. Consider the following three possibilities: (a) man-F[+PL]-PL, (b) man-F[+SG]-PL and (c) man-PL. The representation in (a) triggers stem vowel changes, (b) would result in a feature clash and (c) violates the c-selectional constraint on *man* (it c-selects F). So there is no way to generate *man-s*. And this account does not involve competition, blocking or the Elsewhere Condition.

4. English Past Tense

4.1 Past Tense and Past Participle

It is standardly assumed that *-ed* is a past tense morpheme in sentence like (37):

- (37) I baked a casserole.

However, such an assumption runs into problems with the fact that for all regular verbs *-ed* is used with both past participles and passive participles in addition to past tense examples like (37). I assume following Collins 2005 that the regular past participle and the passive participle morphemes are identical (syntactically, semantically and phonologically):

- (38) a. I had baked a casserole.
 b. The casserole was baked by me.
 c. The casserole will be baked by me.

The *-ed* participle morpheme in (38b) has nothing to do with the past tense. For example, one can also put the passive into the future as shown in (38c). If *-ed* is analyzed as a past tense morpheme in (37), then its identity with the past and passive participle morphemes in (38) is completely missed.

Putting aside the passive *-ed*, I propose the following (see Tortora 2014 for related discussion of dialects of English):

- (39) The *-ed* found in the past tense is identical to the *-ed* found with participles.

I will label *-ed* PA (for past/particle/passive).

Since *-ed* is not a past tense morpheme, the interpretation of a sentence such as (37) as past tense must be due to a null auxiliary which I will call PAST (see also Sola 1994, and Tortora 2014):

(40) I PAST bak-ed a casserole

The relationship between PAST and *-ed* cannot be affix hopping, because *-ed* is not a past tense suffix. Furthermore, as argued below *-ed* is bimorphemic, making an affix hopping approach problematic (both morphemes would have to undergo affix hopping). Rather, there must be some other kind of syntactic relation (perhaps agreement or c-selection) between PAST and *-ed*. I do not address this issue here.

4.2 Theme Vowels

Following Kayne 2016, I assume that *-ed* can be decomposed into two components *-e-d*. Kayne motivates this analysis on the basis of Italian data (see Calabrese 2015):

- (41) a. telefon-a-re (telephone-TH-INF)
 b. cred-e-re (believe-TH-INF)
 c. part-i-re (leave-TH-INF)

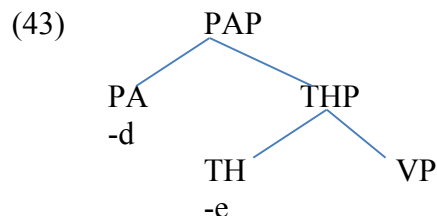
In these forms, *-re* is the infinitive ending. The theme vowel is the vowel that immediately precedes the infinitive ending, i.e. *-a*, *-e*, or *-i*. Italian has three different theme vowels, of which *-a* is the productive one.

Parallel to the Italian data in (41), a form like *requested* is to be analyzed as in (42), where *-e* is the theme vowel (glossed TH) and *-d* is the past tense/participle/passive morpheme (glossed PA for past/participle/passive):

- (42) request-e -d
 V -TH -PA

The theme vowel *-e* is sensitive to purely phonological conditions, and is often not pronounced. For example, in *repaired* or *touched* I assume there is a theme vowel, but it is not pronounced for phonological reasons (see Kayne 2016 for much careful discussion of this point).

So a verb in the past tense *-e-d* will involve two different projections, and have the following structure:



This structure raises questions that I will be unable to answer in this paper. For example, is TH a kind of light verb (such as Appl or little *v*)? Second, what forces the presence of TH? Third, what is the semantic contribution of PA? Fourth, what is the semantic contribution of TH.

(48) is of course false. There are verbs with a stem vowel change that do not delete PA (e.g., *catch/caught*, *think/thought*). (48) strongly suggests that stem vowel changes are more syntactic than has been previously been entertained. Otherwise, how could they license deletion of PA?

A traditional approach to stem vowel changes in generative grammar (see Halle and Mohanan 1985) is that *tell* and *told* are related by irregular phonological rules. An irregular phonological rule would change the [e] sound in *tell* to the [o] sound in *told* when the PA morpheme *-t/-d* is added (see Pinker 1999 for critical discussion). However, this traditional approach would not be sufficient to explain how PA is deleted in (47). Why would the mere presence of a phonological change allow PA to be deleted?

As noted above in (46), I propose that all past tense verbs (including irregular ones) have a theme suffix, consistent with the following two c-selectional frames:

- (49) PA: [TH__]
 TH: [V__]

But for irregular verbs, there are various kinds of irregular theme suffixes. These suffixes vary in two ways: (a) What phonological effect do they have on the preceding stem? (b) Do they delete the PA suffix.

First consider the class of irregular verbs that undergo vowel changes but do not delete PA:

- (50) creep/crept, keep/kept, sleep/slept, sweep/swept, weep/wept

In this case, the theme suffix can be specified as follows:

- (51) TH_{irr}: [V__], V = creep, keep, sleep, sweep, weep
 phonological matrix = Ø
 phonological change: [i] → [ɛ]

Consider now the examples in (47). In all these cases, PA has been deleted. Therefore, I propose that the TH suffix is specified as [+PA]. For verbs like *sing/sang/sung*, the theme suffix would be specified as follows:

- (52) TH_{irr}[+PL] [V__], V = drink, ring, shrink, sing, sink, stink,
 phonological matrix = Ø
 phonological change: [ɪ] → [e]

Parallel to (25) for irregular plurals, the following constraint holds:

- (53) [+PA] deletes PA

An example showing how these assumptions work:

- (54) a. sing-TH[+PA]-PA → [+PA] deletes PA
 b. sing-TH[+PA]-Ø → TH triggers vowel changes
 c. sang-TH[+PA]-Ø → phonological form of TH[+PA] = Ø

d. sang-Ø-Ø

(54a) is the word *sing* with both a TH and PA suffixes. In (54b), [+PL] deletes PL, by the regular deletion rule. In (54c), TH triggers the irregular vowel change.

The generalization in (48) says that only those TH suffixes that trigger vowel changes encode the [+PL] feature. So triggering a stem vowel change is a necessary, but not sufficient condition, for TH to have the [+PL] feature.

Consider now an unacceptable use of *sing* in the regular past (with the regular theme vowel and regular PA suffix):

(55) *sing-e-d
sing-TH-PA

One possibility is that this representation is ruled out by a negative c-selectional constraint:

(56) sing: *[_TH[e]]

But once again, the question arises of whether it is possible to analyze (55) without appeal to negative c-selectional constraints (as in the analysis of the unacceptability of *child-s* in (26-30). The characterization in (46) is sufficient. All the irregular verbs select an irregular theme suffix, and that blocks (55).

Such an account raises the issue of what happens in the present tense. Is there a theme vowel in the present tense (as Kayne 2016) assumes? And what is the analysis of irregular present tense verbs (*is, does, says, has*, on which see Kayne 2016). I leave these issues for further work.

4.4 Doublets

In the case of the English past tense, there are many doublets of the following kind. The following is a standard list:

(57) dreamed/dreamt, dived/dove, sneaked/snuck,

These are commonly recognized doublets. My feeling as a native speaker of English is that people often show variation on the past tense of words. For example, I could easily imagine a native speaker with the following doublets: *lended/lent, grinded/ground, weared/wore, fled/fled, sweeped/swept, petted/pet, weaved/wove, leaped/leapt, spilled/spilt, spelled/spelt, kneeled/knelt*. If my intuition is right (as could only be confirmed with corpus studies of speech and writing by native speakers), then there are many more doublets than just the standard list in (51).

These examples are easily analyzed in the framework of (3) by saying that for these verbs there are no stem based c-selectional constraints. In other words, for these verbs either the irregular theme suffix or the regular theme suffix is possible. In fact, it is a general property of my system that doublets are allowed.

Now compare my account of irregular verbs with the DM account presented in Embick and Marantz (2008: 7): “Vocabulary items like those in (4) [cc. the past tense vocabulary items] are thus competing with one another, and when one wins this competition it prevents others from

doing so. For example, when *-t* appears as T[past] in the context of the Root $\sqrt{\text{BEND}}$, it is at the expense of the default case, which has the exponent *-ed*.”

It is clear from this account that none of the doublets in (57) should exist. The fact that my theory allows them, but the competition theory rules them out, counts as evidence against the competition theory.

A possible way of analyzing (57) in the competition model is in terms of two grammars (see Embick 2008: 66 for a discussion of “competing grammars”). For example, suppose that one group of people has a grammar G1 that produces only *dreamed* (so *dream* is regular), and another group of people has a grammar G2 that produces only *dreamt*. Then one could account for (57) as a kind of code switching between two grammars. When I say *dreamed*, I am using G1. When I say *dreamt*, I am using G2.

However, without independent evidence, such an analysis is circular. What would independent evidence look like? For example, if it could be shown that the use of one of the forms *dreamed/dreamt* correlated with other morphosyntactic features, that would support the postulation of two different grammars.

Alternatively, it could be suggested that register might be involved. For example, consider the hypothetical proposal that *dreamt* is a higher register than *dreamed*. First, without independent evidence, the proposal is circular. If there is a register difference, then use of *dreamt* should correlate with other higher register features. Second, even if there were a register difference, it is unclear how this would be incorporated into a theory of grammar. Why would speaking in a lower register allow *dreamed* to be generated unblocked? Are the two registers governed by different grammars?

5. Conclusion

Various morphological frameworks formulate the idea that one morpheme can block another because the two morphemes compete with one another.

For example, Paster (2014: 227) outlines an approach to allomorphy where “...suppletive allomorphy results when two or more different affixes with the same meaning have different subcategorization requirements, which are selectional requirements imposed by affixes on stems. ...The grammar attempts to use the most specific affix available to express a given set of morphosyntactic/semantic features, so the most restricted allomorph of a morpheme will be tried first. If its subcategorization requirements are not met, a less restricted allomorph (typically the ‘elsewhere’ form) of the morpheme is used.”

Paster’s theory does not require late insertion, which is consistent with our general view of morphology in (3a). However, she does assume that morphemes are in competition with one another, in violation of the independence assumption in (3b). The most specific is tried first, and in that way it is given precedence over other affixes.

And of course, DM has principles governing the competition between morphemes. For example, Halle and Marantz (1993: 123): “Two types of competition can be distinguished in Vocabulary insertion: context-free and context-dependent (or conditioned allomorphy).” Similarly, in nano-syntax, there is a principle of competition (Caha 2016): “Where several items meet the conditions for insertion, the item containing fewer features unspecified in the node must be chosen.”

In fact, it seems that there is widespread agreement amongst morphologists on the existence of competition where one morpheme blocks the others because it outranks them along some dimension. In the current account of English irregular plurals and irregular past tense

verbal inflection, I invoked no such principles. There is no competition at all between *-t* and *-ed*. In our account, it is never the case that one morpheme blocks the other. And in fact, the pervasive existence of doublets (e.g., *dreamed* vs. *dreamt*) makes it highly unlikely that any such blocking principle exists.

I have introduced a new way to look at contextual allomorphy based on the independence assumption in (3b) without invoking the powerful notions of competition/blocking. And I have applied the principles to several case studies, outlining some of the tools that might be of use in doing morphological analysis in such a framework. See Kayne 2016, 2018 for several analyses of morphological phenomena in the same spirit.

The main tools that I have used are the following:

- (58)
- a. c-selectional constraints
 - b. ordering of functional heads
 - c. deletion of morphemes

I have argued for the importance of stem based c-selectional constraints. The use of such requirements allows one to capture blocking effects without appealing to competition. If the only constraints at play were affix based c-selectional constraints, then a notion of competition would be needed to block certain combinations.

With respect to (58b), I have made use of stacking in the analyses of this paper. The basic strategy is to postulate that two suffixes do not even have the same syntactic category, but rather are stacked up. Then one of the stacked morphemes deletes, giving rise to the appearance of allomorphy between suffixes.

In the course of the analyses of the English irregular plural morphology and English past tense morphology I invoked the following principle:

- (59) [+X] deletes X

In this rule, [+X] is an uninterpretable formal feature. In the appendix I show that a similar principle governs the deletion of prepositions in English, and so is not specific to morphology.

The examples analyzed in this paper concerned irregular morphology in English, and the contextual allomorphy was determined in each case by a small set of lexical items. It remains to see whether analyses based on the independence assumption (and the kind of tools I have developed in this paper) could be applied to more complex cases of contextual allomorphy.

Appendix: Lexical Deletion

In the paper, I made use of morpheme deletion at various points. Here, I review some basic facts about preposition deletion in English. The intent of this section is to show that assuming morphological deletion in my analyses of irregular morphology in English is not stipulative, since similar deletion processes exist independently in the syntax of English.

Consider first the case of directional prepositions (see Collins 2007 for much more detailed discussion and references):

- (60)
- a. He went to his home.
 - b. *He went his home.

- c. He went home.
- d. *He went to home.

Crucially, even though (60c) seems to involve a directional component ((60a) and (60c) seem synonymous), there is no overt locative preposition in (60c). A plausible analysis is that there is a null preposition *to* in (60c), which can be represented as follows:

(61) He went TO home.

The fact that the preposition can be deleted with *home* is part of a larger pattern of preposition deletion in English illustrated below:

- (62) a. We went (*to) there
- b. They went (*to) someplace.

For a small number of light locative nouns, including *home*, *there*, *here*, *where*, *place*, the locative and directional prepositions introducing them are deleted. Without giving a full analysis of these facts (see Collins 2007), I propose the following principle:

- (63) a. to/at N[+LOC] → (preposition deletion)
- b. Ø N[+LOC]

This rule says that the locative prepositions *to/at* are deleted in the context of a locative light noun. I assume that the preposition is phonologically deleted, but is still present as far as the LF interface goes. I will call cases like these agreement based deletions.

There is another kind of preposition deletion illustrated in the following examples:

- (64) a. I insisted that John be on time.
- b. *I insisted on that John be on time.
- c. What I insisted *(on) is that John be in time.
- (65) a. I marveled that the plane flew at all.
- b. *I marveled at that the plane flew at all.
- c. What I marveled *(at) was that the plane flew at all.

As argued for in Rosenbaum (1967: 81), a preposition deletion analysis allows one to avoid postulating two different subcategorization frames for a verb. In other words, the representation of (64a) is:

(66) I insisted ON that John be on time.

The preposition deletion in (66) does not seem to be governed by the rule in (63). For example, *that*-clauses do not have locative features. Rather, the preposition deletion in (66) is motivated by the fact that prepositions do not take *that*-clause complements in English. In Principles and Parameters literature, this fact could be accounted for in terms of Case Theory. Since preposition assigns Case, but *that*-clauses do not bear Case, there is an unassigned Case

feature. If the preposition is deleted, the unassigned Case feature somehow goes away. I will call these cases repair based deletion.

There is lots more to say about both of these kinds of preposition deletion (and there are other cases of preposition deletion as well). But it is sufficient for the present article to note that there are conditions under which single morphemes are deleted phonologically (as argued in other many other domains in recent work by Richard Kayne, see for example the papers in Kayne 2005).

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