4 LOCALITY CONDITIONS ON SUPPLETIVE VERBS IN HIAKI

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4.1 Introduction

In the theoretical framework of Distributed Morphology (DM; Halle & Marantz 1993, Harley & Noyer 1999, among many), suppletion is understood as a particular form of contextual allomorphy. It occurs when multiple phonologically unrelated Vocabulary Items correspond to a particular Root node with a single mapping to the LF (logical form) component, and the choice of one or the other of these Vocabulary Items entirely depends on their context of insertion. For example, the [past] feature on T° in English is subject to contextual allomorphy because it may be realized as -Ø as well as as *-ed*, *-d*, and *-t*. As a result, the past form of an English verb such as*hit* is not **hitted* but rather *hit* (i.e., *hit*-Ø). That is, in the context of the Root √HIT, the Vocabulary Item corresponding to the [past] feature in the syntactic node T° is realized as /Ø/, as in (1).[1]

(1) Suppletion in the English past tense (Embick 2010:47[34])
  a. T[past] ⟷ -Ø / ____/{√HIT, √SING, . . . }
  b. T[past] ⟷ *-t* / ____/{√LEAVE, √BEND, . . . }
  c. T[past] ⟷ *-d* / (Elsewhere)

Several hypotheses and arguments (Embick 2010, Bobaljik 2012, Bobaljik & Harley 2012) have recently appeared that suggest that

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1. For ease of exposition, we use Embick's fully specified Roots to illustrate the triggers for the insertion of the suppletive past suffixes. However, see Harley (2011) for arguments against the presence of fully referential Root nodes and in favor of a system in which Root nodes are occupied by indices in the syntactic stage of the derivation.

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suppletion obeys a strong locality constraint: namely, that suppletion triggers and targets must and do occur in a local environment, although the specific conditions on what that local environment might be differ across accounts.

Embick (2010) proposes that suppletion triggers must be local to their target within a phase (a cycle): modulo "pruning" operations that can adjust the morphological representations prior to Vocabulary Insertion and result in locality across phase boundaries. These cycles are defined by Embick as category-defining functional heads (e.g. n, a, v) because, under his theory, they "define the *phases* that trigger Spell-Out" (2010:51[38]). The complement to any cyclic head is local to it because they are both within the same phasal domain. According to Embick, suppletion may be triggered in such a context. In the case of triggers that do not appear to be strictly local to their targets, such as the English past tense, Embick explains locality in terms of pruning (Embick 2003), which makes nodes with null (zero) realization transparent for linear concatenation purposes. In the case of the English past tense, the "pruned" head would be the phonologically null categorizing head *v*, as in (2).[2]

(2) Pruning and the locality of suppletion (Embick 2010:59[55])
a. $\sqrt{\text{root}}\frown v$, $v\frown$T[past]
b. $\sqrt{\text{root}}\frown$T[past]

Bobaljik (2012), although agreeing that target and trigger must be in a local relation to license suppletion, proposes a somewhat different locality constraint on suppletion, namely, that it cannot be triggered across a phrasal (XP) boundary, as in (3).

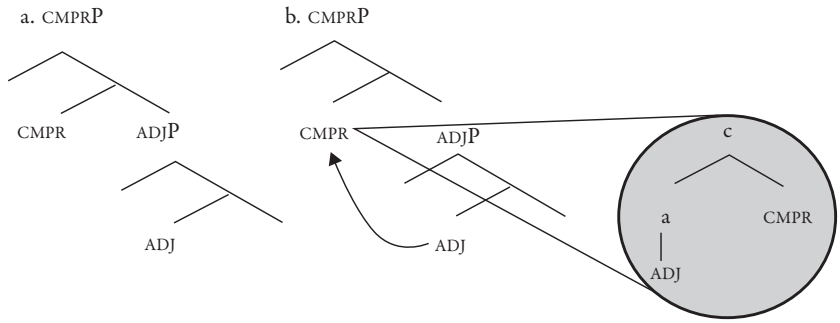
(3) Bobaljik's Notion of Locality (2012: 68[90])
β may condition α in (a), not (b):
a. $\alpha\ldots]\text{x}^0\ldots\beta$
b. $^*\alpha\ldots]\text{XP}\ldots\beta$

This constraint predicts, for example, that whenever a feature is expressed both analytically and synthetically, as in English comparative constructions, suppletion is only possible when the construction is synthetic (e.g. affixal). Only in the case of synthetic comparatives do the trigger and the target of suppletion occur within the same X^0, following combination of ° and Cmpr° terminal nodes, as shown in (4). If they did

2. Although see Merchant (2014) and Haugen & Siddiqi (2013a) for some cases in which non-immediately adjacent material may trigger contextually conditioned allomorphy as long as it occurs as part of a continuous sequence of heads within an extended projection (i.e. *spans*, in the sense of Svenonius 2012) and the features of the heads in-between the target and the trigger are involved in the process. See also Deal & Wolf (this volume) for further discussion on the directionality of the conditioning, whether inward- or outward-sensitive.

not so combine, the maximal projection of the target adjective would be separated from the conditioning comparative trigger by a maximal projection, namely, AdjP (4).

(4) The English comparative as in Bobaljik (2012: 16[13])



The derivation of the comparative is then stated as in (5).

(5) a. X ~Y-er good ~bett-er
b. *X ~more Y *good ~more bett

(Bobaljik & Harley 2012: 3[3])

Bobaljik & Harley (2012) show further support for the existence of Bobaljik's locality constraint with evidence from the *go-went* alternation in English because, they observe, the verb *go* is suppletive for the past tense (*went*) only if it is expressed as a verbal affix. In constructions in which the past tense is expressed analytically (involving *did*), the suppletive form is not possible (6).

(6) a. Leo **wen**-t swimming on Sundays.
b. *Did Leo **wen**(t) swimming on Sundays?

(Bobaljik & Harley 2012:3[5b,6b])

In this chapter, we present further evidence from the Uto-Aztecan language Hiaki that although it may appear at first to be a counterexample to the very notion of locality of suppletion, it actually conforms to the hypothesis that suppletion is locally triggered, as suggested by both Embick (2010) and Bobaljik (2012). We show that number suppletion in Hiaki is consistently local because it invariably occurs within the same (Root) phase that contains both the suppletion target (the verbal Root) and the trigger (its complement). The configuration between trigger and target of suppletion that we argue for demonstrates that locality is relevant to the Hiaki case, although it does not distinguish between the formulations of the specific locality constraint of Embick and Bobaljik. In our discussion that follows, we show that both formulations

are compatible with the structural analysis of the Hiaki intransitive suppletive verbs we propose.[3]

Our argument is robustly supported by the syntactic incompatibility between intransitive suppletive verbs and high applicatives found in Hiaki, a Uto-Aztecan language of northern Mexico and southern Arizona. This phenomenon, consistent with Pylkkänen (2002, 2008) and first discussed in Harley, Tubino Blanco & Haugen (2009), is highly relevant to our argument inasmuch as it suggests that intransitive suppletive verbs must be unaccusative. Structurally speaking, this entails that the suppletive verb and its argument (the suppletion trigger) are sisters, thus occurring within the same phase (relevant for Embick's notion of locality) and, indeed within the same XP (relevant for Bobaljik's notion of locality).[4] Further evidence that the incompatibility is syntactic rather than pragmatic in nature is the fact that the restriction applies only in the applicative construction, not with the generally functionally equivalent postpositional benefactive adjuncts, because postpositional benefactees are in fact perfectly possible in identical applicative-less constructions involving intransitive suppletive verbs.

At the same time, the Hiaki suppletion facts discussed in this chapter provide further evidence concerning the ongoing debate regarding the nature of Roots. On one hand, it calls into question the contention supported in Embick's work (Embick & Halle 2005 and elsewhere) that Root nodes are not subject to competition for insertion in the same way that featurally defined f-nodes are. Given that there is no evidence that suppletive verbs in Hiaki are light verbs, but they rather appear to exhibit full semantic content typical of Roots (Harley 2011, to appear; Haugen & Siddiqi 2013), this chapter provides further evidence that Vocabulary Items in fact compete for insertion in any type of node, not just in functional nodes.[5] On the other hand, the structural architecture proposed in this chapter challenges the claim (Borer 2003, De Belder 2011) that Roots are extremely underspecified syntactic objects that do not take complements. Particularly under Bobaljik's formulation of the relevant locality condition, no XP can intervene between the trigger (the internal-argument DP) and its target (the $\sqrt{}$ node). This entails that the $\sqrt{}$ and the trigger must be contained within

3. Certain modifications to our proposal could affect its compatibility with one or the other proposal, however, and we note these possibilities as we discuss the various implications.

4. Given that these Hiaki Roots are sensitive to VP-internal material happening within the same cycle, we could say that the kind of contextually conditioned allomorphy discussed here shows inward sensitivity in the sense of Deal & Wolf (this volume).

5. If Roots are competing for insertion like other Vocabulary Items, this result constitutes an argument against the notion in some DM work (Embick 2000, Embick & Halle 2005, Embick & Noyer 2007) that Roots are inserted in the derivation "early," in contrast to functional Vocabulary Items. See Harley (2011, to appear) and Haugen & Siddiqi (2013) for further discussion of this point. Much of the argument in favor of early Root insertion hinges on the proposition that Roots cannot participate in suppletion (see, e.g. Embick & Halle 2005 on the *go/went* alternation). We discuss counterarguments to this position in section 4.4 later in this chapter.

the same maximal projection, the √P; the internal argument cannot be introduced in a higher XP projection because a maximal projection would then intervene between the target of suppletion and its trigger.

This chapter is structured as follows. In the next section, we discuss the incompatibility of high applicatives with intransitive suppletive verbs in Hiaki. In section 4.3, we show that number suppletion must be locally triggered. In section 4.4, we discuss the implications of our analysis regarding the nature of Roots. Section 4.5 is the conclusion.

4.2 A syntactic incompatibility in Hiaki

In Hiaki, a restriction involving intransitive suppletive verbs and the high applicative *–ria* has been identified elsewhere (Harley, Tubino Blanco & Haugen 2009) as strong evidence that number suppletion on Hiaki verbs is only triggered by internal arguments, regardless of the verb's transitivity. Later in this chapter, we argue that this is further evidence in favor of Embick's (2010) and Bobaljik's (2012) argument that suppletion is a strictly local phenomenon, as it involves material within the same phase or XP only.

4.2.1 Suppletive verbs and number agreement in Hiaki

Hiaki, like many Uto-Aztecan languages (see, e.g. Haugen & Everdell 2013), has a class of highly frequent verbs that are suppletive for the number of their arguments. With intransitive verbs, such as *weye/kate* "go by walking," verb-stem suppletion is conditioned by the number of the subject (7).[6]

(7) a. Aapo **weye**
3SG walk:SG
"He/she/it is walking."

b. Vempo **kate**
3PL walk:PL
"They are walking."

Suppletive transitive verbs such as *mea/sua* "kill" are conditioned by the number of the object, whereas the number of the subject makes no difference (8).

(8) a. Aapo/Vempo uka koowi-ta **me'a**-k
3SG/3PL the:SG pig-ACC kill:SG-PRF
"He/They killed the pig."

b. Aapo/Vempo ume koowi-m **sua**-k
3SG/3PL the:PL pig-PL kill:PL-PRF
"He/They killed the pigs."

6. Gloss key: ACC: accusative; ACT: active; APPL: applicative; CL: clitic; DAT: dative; INTR: intransitive; NOM: nominative; OBJ: object; PASS: passive; PL: plural; PRF: perfective; REFL: reflexive; SG: singular; SUBJ: subject; TR: transitive.

A list of suppletive verbs in Arizona Hiaki is provided in (9). They are typically verbs of motion, position, or appearance, according to the classification in Levin & Rappaport Hovav (1995) for English verbs.

(9) a. Intransitive suppletive verbs in Hiaki

Sg. Subj	Pl. Subj.	Meaning
weye	kaate	"go, walk"
vuite	tenne	"run"
weama	rehte	"walk around, wander"
siime	saka	"go, leave"
kivake	kiimu	"enter"
yepsa	yaha	"arrive"
weche	watte	"fall down"
kikte	hapte	"stand up"
yeesa	hooye	"sit down"
vo'ote	to'ote	"be lying down"
yehte	hoote	"get up"
muuke	koko	"die"

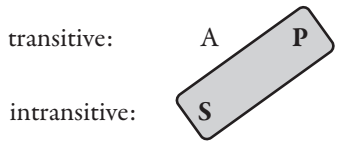
b. Transitive suppletive verbs in Hiaki

Sg. obj.	Pl. obj.	Meaning
kivacha	kiima	"bring in"
me'a	sua	"kill"
kecha	ha'abwa	"stand (something) up"
yecha	hoa	"put down, place"

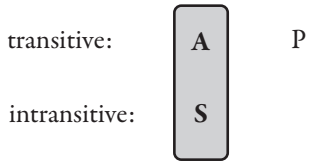
The agreement pattern shown in the preceding indicates that Hiaki verbs supplete based on the number of intransitive subjects and transitive objects. This agreement pattern is cross-linguistically common, not only in Uto-Aztecan (Langacker 1977, Haugen & Everdell 2013), but also in the native languages of North America in general (Booker 1982) and globally (Veselinova 2006).[7] Such a pattern is seemingly that of an ergative-absolutive language because intransitive subjects pattern with transitive objects regarding verbal agreement. In nominative-accusative languages, intransitive subjects typically pattern with transitive subjects. We illustrate the contrast in the two systems in (10) following Dixon's (1979) terminology, where S = intransitive subject, A = transitive subject, P = transitive object.

7. One possible exception that we are aware of is Seri (a language isolate of northwestern Mexico), which according to Marlett (2011) has suppletive subject agreement for transitives as well as intransitives.

(10) a. Ergative-absolutive pattern



b. Nominative-Accusative pattern



Despite appearances, assuming that the pattern exhibited by Hiaki suppletive verbs exhibits verbal agreement in an ergative-absolutive system is inconsistent with an otherwise typologically robust universal, as discussed in Harley (2011). Bobaljik's (2008) generalization states that if a verb agrees with just one argument in the clause, then this argument must bear unmarked case, as discussed in Harley (2011). The inconsistency comes from the fact that Hiaki invariably exhibits a nominative-accusative case-marking system both morphologically and structurally. Morphologically, Hiaki's unmarked case is nominative (that of the subject), and its dependent case is accusative (that of the object), couching the description in terms of Marantz's (1991) theory of Dependent Case. Syntactically, Hiaki also behaves like a nominative-accusative language, as clearly shown in Harley (2011) and elsewhere, because accusative objects of transitives become nominative under passivization (11).

(11) a. Transitive active sentence exhibiting a NOM-ACC pattern (Harley 2011: 26[29])

Hoan	Maria-ta	vicha-k
Juan:NOM	Maria-ACC	see-PRF

"Juan saw Maria."

b. Passivized sentence: ACC object→NOM subject

Maria	aman	vicha-wa-k
Maria	there	see-PASS-PRF

"Maria was seen there."

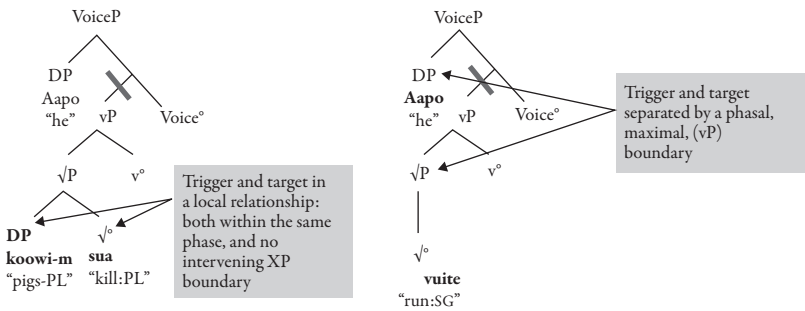
To satisfy Bobaljik's generalization then, Hiaki accusative objects should not trigger verbal agreement in transitive structures because they bear a marked case. Instead, nominative subjects should do so, regardless of the verb's transitivity, because they bear the unmarked case. This is, of course, contrary to fact. Because Hiaki suppletive verbs do not conform to the generalization discussed by Bobaljik (2008), but rather conform to an otherwise undocumented pattern for a nominative-accusative language-type, Harley (2011, to appear) concludes that the suppletion exhibited by Hiaki verbs is not actually typical subject-verb agreement, involving an AgrP node or similar. Rather, they should

be considered a case of contextual allomorphy dependent on argument number that affects Root nodes rather than functional morphemes. In support of this conclusion, Harley (2011, to appear) notes that Hiaki does not exhibit any other type of agreement whatsoever, so there is no independent evidence for verb agreement in the language. In Uto-Aztecan languages that exhibit true agreement morphology, such as Huichol and Hopi, the Root suppletion pattern, with its ergative alignment conditioned by objects and intransitive subjects, stands in stark contrast to the agreement morphology pattern, which shows the expected nominative-accusative alignment. See Bobaljik & Harley (to appear) for further discussion of these cases.

4.2.2 Contextual allomorphy and locality in Hiaki suppletive verbs

The conclusion that Hiaki verb suppletion is a form of contextual allomorphy is a hypothetical problem for the locality restrictions on morphological phenomena proposed by Embick (2010) and Bobaljik (2012).[8] Bobaljik & Harley (2012) point out that whereas contextual allomorphy will count as locally triggered in the case of Hiaki transitive suppletive verbs in either Embick's or Bobaljik's formulations, intransitive verbs are an apparent counterexample to Embick's and Bobaljik's analyses. We next show that if the subjects of such verbs are agentive, and if agentive subjects are base generated in the specifier of a vP-external functional projection (e.g. VoiceP), then the suppletion trigger and target won't be in a local relationship on either Embick's or Bobaljik's proposal. The contrasted structures for transitive suppletive verbs and intransitive suppletive verbs on the assumption that the latter are agentive/unergative are shown in (12).

(12) a. transitive suppletive verbs, e.g., (8a) b. intransitive suppletive verbs



8. See Haugen (2011) for discussion of another potential counterexample to Embick's version of the locality condition from Hiaki involving reduplicative allomorphy. See also Bobaljik (2000), Radkevitch (2010), and Merchant (2014) for further related arguments.

Embick (2010) argues that categorial nodes (e.g. v°) constitute phasal boundaries; hence a suppletion trigger in a VoiceP outside vP would constitute suppletive conditioning across a phase head, against Embick's locality condition. As noted previously, Embick does propose that when an intervening phase head is null, it can be "pruned" at the level of morphological structure. When a phase head is pruned, Embick permits suppletion to be triggered across it. However, there are two arguments against applying the "pruning" escape clause to the Hiaki case. First, it is clear that both VoiceP and vP are required in the analysis of the Hiaki verb phrase, as noted in the following in connection with example (15); Embick assumes that categorizing heads are phases, and the default assumption is that VoiceP also is a phase; so there would be not one, but two phase heads intervening between external-argument position in spec-VoiceP and the Root position in (12b). Second, it appears that in at least some cases in the Hiaki suppletive verbs, the v° head is *not* null, and hence in Embick's analysis could not undergo pruning in any case. Consider, for example, the pair *vo'ote~to'ote*, "lie.sg~lie.pl." The alternation is confined to the Root material *vo'o~to'o*, and the *-te* string likely is the overt verbalizer *-te* seen in many other Hiaki verbs (*chep-te*, "jump.intr," *ham-te*, "break.intr," etc.; see discussion in Jelinek 1997). We conclude that an agentive analysis of the intransitive suppletive verbs of Hiaki like that in (12b) would run afoul of Embick's locality condition.

Similarly, Bobaljik's condition requires that suppletion not be triggered across an XP boundary, and a suppletion trigger in spec-VoiceP affecting a Root inside vP would involve suppletion being triggered across at least one, and possibly two, XP-level projections, as shown in (12b).

In the next section, we present evidence originally discussed in Harley, Tubino-Blanco & Haugen (2009) involving the interaction between Hiaki suppletive verbs and the high applicative *-ria*. We argue that this evidence suggests that intransitive suppletive verbs in Hiaki are actually unaccusative. This is consistent with Guerrero's (2004) observation that these verbs are generally non-agentive.[9] From these facts will follow that the problem regarding the subject suppletion-triggering argument is only apparent, as it is in fact always an underlying object, base-generated in the local domain of the target (i.e. within $\sqrt{P}$). Thus, it corresponds to the notion

9. Verbs of this lexical semantic class, involving motion and stance, often exhibit unaccusative behavior cross-linguistically. For example, in French and Italian, the verb that translates as "go" takes the BE auxiliary, rather than the HAVE auxiliary. It is thus not surprising, then, that verbs of this lexical class should exhibit unaccusative properties, grammar-internally. In that regard, it may be worth considering whether the four verbs in Totonac de Filomena Mata discussed by Inkelas (this volume), which exhibit subject-conditioned Root allomorphy, are unaccusative as well; this would make a locality-based approach to those facts more plausible.

that suppletion should be locally conditioned, as predicted by Embick (2010) and Bobaljik (2012).

4.2.3 The Hiaki high applicative head -ria

The argument that Hiaki number suppletion is triggered by underlying objects rests on the interaction of the suppletive verbs with the high applicative suffix *-ria*. Hiaki *-ria* is a very productive applicative construction, which usually has a benefactive reading.[10] It corresponds to a "high" applicative in the terminology of Pylkkänen (2002, 2008) because it can apply to intransitive unergative verbs as well as to transitive verbs. It is formed by suffixing *-ria* to the verb, and it introduces an internal argument, the benefactee, which has several important properties: it must be animate; it is marked with accusative case; it c-commands any other internal arguments; and it becomes a subject under passivization, as shown in (13c) (Rude 1996).

(13) a. U'u maaso **uusi-m** yi'i-**ria**-k
the deer.dancer children-PL[11] dance-APPL-PRF
"The deer dancer danced for the children."

b. Inepo **Hose-ta** pueta-ta eta-**ria**-k
1SG Jose-ACC door-ACC close-APPL-PRF
"I closed the door for Jose."

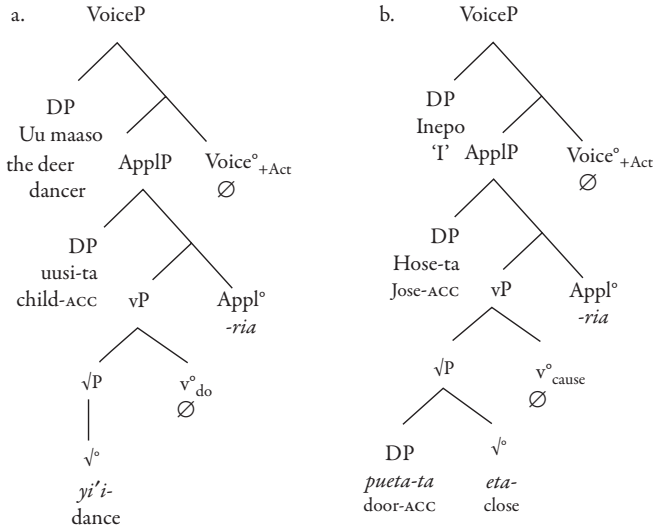
c. **Hose** pueta-ta eta-**ria**-wa-k
Jose door-ACC close-APPL-PASS-PRF
"Someone shut the door for Jose." (lit. "Jose was closed-the-door-for.")

We assume, with McGinnis (1998) and Pylkkänen (2002), that the Applicative head is inserted between the Voice head, which introduces the external argument, and the vP head, which includes the verb Root and any internal argument. We show the structures of (13a, b) in (14a, b).

10. Depending on the context, it may also receive a malefactive reading.

11. The Hiaki accusative marker *-ta* only surfaces in the case of singular objects. Plural marking, however, is incompatible with accusative marking. Consequently, plural subjects and objects are not overtly case-marked in Hiaki.

(14)

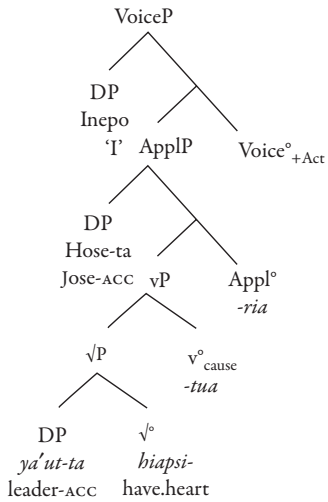


The applicative *-ria* may interact with other argument-introducing suffixes, such as causative *-tua*, as in (15).

(15) Inepo **Hose-ta** ya'ut-ta hiapsi-tua-**ria**-k
1SG Jose-ACC leader-ACC heart-CAUSE-APPL-PRF
"I fed the leader for Jose." (lit. "I caused the leader to have (a) heart.")

Harley (2005, 2013) argues that because an applicative can follow a causative morpheme in Hiaki, as in (15), the complement of the applicative is a vP (headed by the causative) rather than a VP or √P (*contra* Harley, Tubino Blanco & Haugen 2009). We show the structure in (16).

(16) VoiceP



Next we show that the applicative *-ria* is an effective test for unaccusativity in Hiaki.

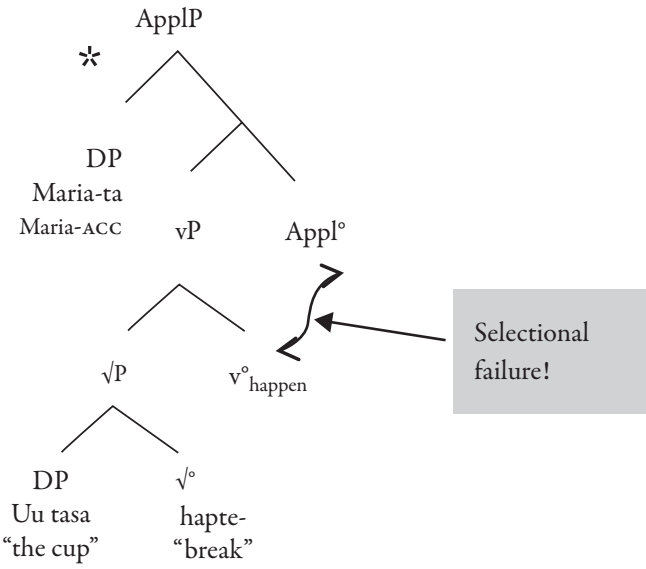
4.2.4 Applicative -ria: *A test for unaccusativity in Hiaki*

The applicative *-ria* effectively tests for unaccusativity in Hiaki because it may only combine with agentive verbs, resisting unaccusatives (17).

(17) *Uu tasa Maria-ta hamti-ria-k
the cup Maria-ACC break:INTR-APPL-PRF
"The cup broke for/on Maria."

The failure of applicatives to co-occur with unaccusatives can be modeled via selectional constraints. We assume the applicative is specified to select vPs headed by v heads with agentive semantics. This means that it can only select agentive/causative v° heads such as $v°_{cause}$ or $v°_{do}$(see Folli & Harley 2004, among others, regarding the notion of "flavors" of v°). In unaccusative verbs, on the other hand, the v° head does not introduce an external argument because there is no agent. This v° head contributes a meaning to the structure that could be understood as "become" or "happen." Because the applicative selects for agentive v°, the impossibility of sentences like (17) follows from a selectional failure (18), making the applicative a sensitive test for unaccusativity.

(18)

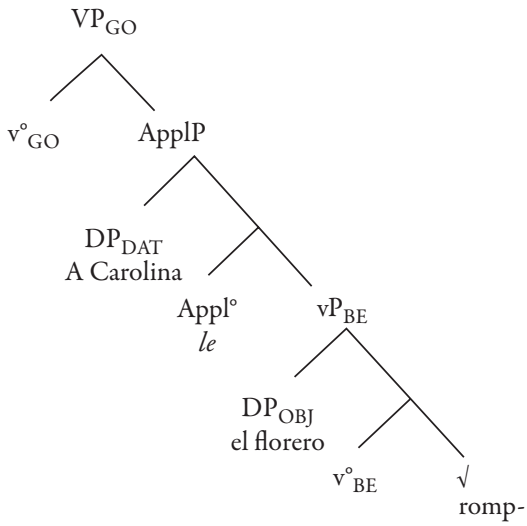


Notice that this may not be a general property of all applicatives. Cuervo (2003), for example, argues that the Spanish applicative is compatible with such unaccusative v° heads. This applicative is then structurally different than the one that concerns us here (19b).

(19) Spanish affected applicatives of inchoative verbs (Cuervo 2003)

a. A Carolina se le rompió el florero
to Carolina CL.REFL CL.DAT broke the vase
"The vase broke on Carolina."

b.



Next we show that the high applicative construction is incompatible with intransitive suppletive verbs, thus strongly suggesting unaccusative status for such verbs.

4.2.5 The applicative and intransitive suppletive verbs

It is significant that the applicative cannot combine with any of the suppletive intransitive verbs regardless of how agentive or volitional their meaning may appear to the English-accustomed ear (e.g. *vuite~tenne* "run"; *weye~kate* "walk"). The incompatibility between the applicative and intransitive suppletive verbs is clear in (19). The restriction is, in fact, purely syntactic and has no pragmatic basis. This is illustrated by the contrast in the sentences in (19), whereby the activity described by *weye* "walk" is perfectly possible in a benefactive interpretation as long as this is not expressed *via* the high applicative. To express this benefactive meaning with one of the intransitive suppletive verbs, a periphrastic postpositional phrase introduces the benefactee in (19b).[12]

12. Guerrero (2007) argues that her consultants do allow constructions involving *-ria* and unaccusative suppletive verbs such as *siime* "go(SG.SUBJ)" and *muuke* "die(SG.SUBJ)." Interestingly, unlike the cases discussed in this chapter, the interpretation of these unaccusatives when combined with *-ria*

(19) a. *Santos Maria-ta San Xavierle-u weye-ria
Santos Maria-ACC San Xavier-to go-APPL
"Santos is going/walking to San Xavier for Maria."

b. Santos Maria-ta vetchi'ivo San Xavierle-u weye
Santos Maria-ACC for San Xavier-to go
"Santos is going/walking to San Xavier for Maria."
(e.g. Santos is carrying out a vow Maria had made for a pilgrimage.)

In (20), the intransitive suppletive verbs are shown that we have confirmed with our consultants are incompatible with *-ria* affixation.

(20) a. vuite~tenne "run.SG~run.PL"
b. siime~saaka "go.SG~go.PL"
c. weama~rehte "wander.SG~wander.PL"
d. kivake~kiime "enter.SG~enter.PL"
e. vo'e~to'e "lie.SG~lie.PL"

Note that sentences involving applicative *-ria* and suppletive verbs are well formed as long as the suppletive verb is transitive (e.g. *mea~sua* "kill"), so it is not a general fact that applicatives are always non-compatible with suppletion in Hiaki.

(21) Santos Hose-ta koowi-{ta/-m} {mea/sua}-ria-k
Santos Jose-ACC pig-{ACC/PL} {kill:SG/kill:PL}-APPL-PRF
"Santos killed a pig/pigs for Jose."

(an adversative reading in the sense of the Japanese adversative causative described in Pylkkänen 2002, or the Spanish affected applicative in Cuervo 2003) is different than the reading they receive when combined with the periphrastic benefactive construction with the postpositional element *-vetchi'ivo* "for." This suggests that we might be talking about a different kind of construction here rather than the high applicative that is relevant in this chapter. This construction might be only available in the Sonoran Hiaki dialect studied by Guerrero. Our consultants explicitly reject *–ria* in combination with *siime-*, so it is not available in the dialect we are concerned with here. The construction involving the verb *muuke* "die" is particularly revealing regarding the contrast, especially if compared with its counterpart with *-vetchi'ivo*. See, for example, Tubino Blanco (2011) for an analysis of adversative causatives with an interpretation analogous to the structure in (i) involving the transitive Root *muucha* "die(TR)."

(i) Jesús-Ø yoemmia-ta muuk-ria-k.
Jesus-NOM people-ACC die(SG.SUBJ)-APPL-PRF
"People died on Jesus." (perhaps "Jesus had the people die on him"?)

(ii) Jesús-Ø muuku-k yoemmia-ta-vetchi'ivo.
Jesus-NOM die(SG.SUBJ)-PRF people-ACC-for
"Jesus died for the people."

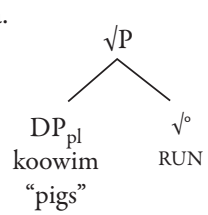
The fact that the applicative is perfectly possible with transitive suppletive verbs as shown in (21) is further evidence that the restriction associated with their intransitive counterpart has to do with their unaccusativity rather than with their suppletive nature: transitive suppletive verbs are perfectly compatible with *-ria* precisely because they have an external argument-selecting v head that licenses the high applicative head.

Next we argue that the fact that suppletion in Hiaki is solely triggered by underlying objects provides further support to Embick's (2010) and Bobaljik's (2012) claim that contextual allomorphy must be locally triggered.

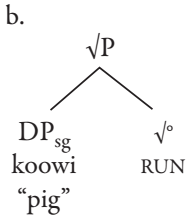
4.3 The strict locality of suppletion

If the preceding discussion is on the right track, then we can make a generalization: regardless of their transitivity, the surface form that suppletive verbs take in Hiaki is contextually conditioned by the number of the elements generated as their complement deep objects, regardless of the surface position of these underlying objects. This is consistent with the notion that conditioning factors affecting the spell-out of Root nodes must be local to the Root (Bobaljik 2000, Arad 2003), that is, in a sisterhood relationship with the Root. We then would see vocabulary insertion take place as in (22).

(22) a.



b.



c. Contexts of insertion

RUN $\longleftrightarrow$ *tenne* /[DP+pl] ____]$_{\sqrt{P}}$

RUN $\longleftrightarrow$ *vuite*

The contexts of insertion for the Vocabulary Items corresponding to RUN in Hiaki are specified in (22c). This contextual information states that the Vocabulary Item *tenne* corresponds to syntactic nodes whose complement DP is plural. The structure in (22a) specifies that the complement of the Root √run contains the plural DP *koowim* "pigs." Consequently, *tenne* becomes the best realization of the node √run, and *vuite* is blocked by the Elsewhere principle, which states that more highly specified Vocabulary Items have preference for insertion in a syntactic node over underspecified Vocabulary Items. Things are different in (22b). The contrast is directly derived from the context

specification in (22c), which entails that whenever the complement of the Root is not a plural DP, the only Vocabulary Item available for insertion is *vuite*. With a syntactic configuration such as the one in (22b), then, *tenne* is no longer competing for insertion in the Root node √ RUN, as its conditions are not met: the context of insertion in (22b) specifies [+sg], but this feature conflicts with the contextual features specified for *tenne*. Accordingly, the default (elsewhere) Vocabulary Item *vuite* is inserted in the node √RUN, as its best realization.

The locality exhibited between Hiaki suppletive verbs and the elements conditioning their allomorphy is clear from the examples in (22): it happens in a strictly local environment, namely, within the √P headed by √ RUN.

Our analysis has several implications regarding locality rules. First, it is consistent with the notion that Vocabulary Insertion rules are constrained to refer only to material in the immediate cycle (or to traces/unpronounced copies of that material; by hypothesis, we assume a copy theory of trace, Chomsky 1995, according to which the element remaining in situ constitutes a structurally identical but unpronounced copy of the moved element. Because it is the number features of the argument that trigger suppletion, the relevant environment is present both before and after copy/remerge of the triggering argument). That is, the locality of suppletion further suggests a broader locality of vocabulary insertion, which would involve extending the hypothesis to all vocabulary insertion conditioning, whether suppletive in character or not. The idea would be that vocabulary item conditioning can only depend on elements that are cyclically local to the inserted item, full stop.[13]

Second, it confirms Chomsky's (1995) original supposition that material in the phase edge does not count as being "in" the phase for locality-dependent processes. Otherwise we would potentially expect to see external-argument conditioned suppletion, which is not attested. There is a further implication that we discuss in the next section.

13. Further work would be needed to determine if the relevant notion of locality is Embick's (phase-internal only) or Bobaljik's (not across an XP). As noted previously, the fact that in our proposal the triggering DP is a sister to the suppletive √° element means that either structural characterization of locality could capture the Hiaki case. See Harley and Bobaljik (to appear) for further discussion of the Hiaki case in specific relation to Bobaljik's locality condition. Also as noted previously, however, the two views of the relevant locality relationship have different relationships with the proposal of Borer (2003, 2015) and De Belder (2012), according to which internal arguments are not direct sisters to the Root node but are instead introduced in a higher functional projection. Such proposals are compatible with the suppletion facts only under Embick's phase-internal notion of locality (as long as the object-introducing functional head is not itself a phase) but not under Bobaljik's "no intervening XP" locality condition. Insofar as Borer (2003, 2015) and De Belder (2012) are correct in asserting that Roots cannot take complements, therefore, they support an Embick-style view of the relevant locality condition. However, see Harley (2011, to appear) for additional argumentation in favor of the view that Roots do take complements.

4.4 The locality of suppletion and the nature of Roots

The analysis just provided entails that suppletive verbs occur in the most embedded position in the extended verbal projection, that is, in the Root position—they are not "light" verbs. Embick & Halle (2005) maintain that apparent cases of Root suppletion, which would entail that Root Vocabulary items must compete for insertion, can in many cases be explained away by an analysis wherein such alternations really involve "light verbs" as functional Vocabulary items (or *f*-morphemes in the terminology of Harley & Noyer 1999) rather than true Roots (or *l*-morphemes in the terminology of Harley & Noyer 1999); they point to the English *go/went* alternation as a case in point.

However, as far as we know, no theory-neutral criteria exist that would categorically classify morphemes as one type over the other. Indeed, the term "light verb" has traditionally been used heuristically to describe verbs with broad semantic meanings, which in DM typically involves existence in a functional head (e.g. the different "flavors" of v). The encyclopedic meanings attached to the suppletive Hiaki verbs discussed previously seem to go well beyond the verbal categories traditionally labeled as "light verbs." Indeed, Root suppletion seems to be ubiquitous to the Uto-Aztecan family, including Hopi nominal suppletion for number, which is not obviously amenable to a "light noun" analysis. See Harley (2011) and Haugen & Siddiqi (2013b) for further theoretical discussion; see Haugen & Everdell (2013) for more cases of clearly lexical Root suppletion across the Uto-Aztecan family, Bobaljik (2012) for cases of adjectival Root suppletion, and Veselinova (2006) for verb Root suppletion cross-linguistically. We think that the empirical evidence for real "lexical" Root suppletion is overwhelming and that a ban on such for theory-internal reasons cannot be maintained. (See also Aronoff 2012 for a critical view of this aspect of recent DM theorizing).

The behavior of suppletive verbs in this language, occurring in Root position and with meanings that are emphatically not functional or "light" in character, argues against the position that Root elements do not undergo competition at Vocabulary Insertion. The suppletion facts from Hiaki and other languages show that Roots can indeed compete, which entails that Roots are distinguished in the syntax, and hence, presumably, in the Numeration.

4.5 Conclusions

The central empirical result of this chapter is to demonstrate that suppletive Roots in Hiaki are conditioned by the number of their internal argument, regardless of whether that argument ends up as a surface subject or object. This result shows that despite appearances, number suppletion in Hiaki intransitive verbs does *not* contradict the hypotheses of Embick (2010) or of Bobaljik (2012), according to which a suppletive

form and its trigger are subject to a strict locality condition, both needing to be phase-internal in the case of Embick's approach or without an intervening XP boundary in the case of Bobaljik's.

It is perhaps worth noting that the conclusion that suppletion is locally conditioned represents a kind of inverse of an old DM claim about the locality of idiomatic interpretations. Harley (2011) and Marantz (2013) argue that idiomatic interpretations are equivalent to "semantic suppletion," i.e. distinct interpretations for a single terminal node that are conditioned by the syntactic environment. Idiomatic interpretations are well-known to be subject to strong locality conditions determined by the cycle (Marantz 1984, 1997; Kratzer 1996). (Indeed, Marantz 2013 suggests that locality restrictions on such interpretations can even be extended via an Embick-style "pruning" operation on the LF side.) If idiomatic interpretations are indeed "semantic suppletion" in this sense, and if such interpretive rules are restricted to conditioning within the cycle in this way, then it is reasonable to consider whether *actual* suppletion, i.e. conditioned vocabulary insertion, is similarly restricted to the cycle in the possible size of its conditioning context. The investigations of Embick (2010), and Bobaljik (2012), as well as of this chapter, suggest that it is. An interesting question for future work, then, is whether the semantic cycle and the phonological cycle are identical structural units or if they differ in any way.

References

Arad, Maya. 2003. Locality constraints on the interpretation of roots: The case of Hebrew denominal verbs. *Natural Language and Linguistic Theory* 21. 737–778.

Aronoff, Mark. 2012. Morphological stems: What William of Ockham really said. *Word Structure* 5(1). 28–51.

Bobaljik, Jonathan. 2000. The ins and outs of contextual allomorphy. *University of Maryland Working Papers in Linguistics* 10. 35–71.

Bobaljik, Jonathan. 2008. Where's phi? Agreement as a post-syntactic operation. In Daniel Harbour, David Adger & Susana Béjar (eds.), *Phi-Theory: Phi features across interfaces and modules*, 295–328. Oxford: Oxford University Press.

Bobaljik, Jonathan. 2012. *Universals in comparative morphology: Suppletion, superlatives, and the structure of words*. Cambridge, MA: MIT Press.

Bobaljik, Jonathan & Heidi Harley. To appear. Suppletion is local: Evidence from Hiaki. In Heather Newell, Maíre Noonan, Glynne Piggot & Lisa Travis (eds.) *Word structure at the interfaces.* Oxford: Oxford University Press.

Booker, Karen M. 1982. Number suppletion in North American Indian languages. *Kansas Working Papers in Linguistics* 7. 15–29.

Borer, Hagit. 2003. Exo-skeletal vs. endo-skeletal explanations: Syntactic projections and the lexicon. In John Moore & Maria Polinsky (eds.), *The nature of explanation in linguistic theory*, 31–37. Chicago: CSLI and University of Chicago Press.

Borer, Hagit. 2015. The category of roots. In Artemis Alexiadou, Hagit Borer & Florian Schäfer. *The roots of syntax, the syntax of roots* (eds.), 112–148. Oxford: Oxford University Press.

Chomsky, Noam. 1995. *The minimalist program*. Cambridge, MA: MIT Press.

Cuervo, María Cristina. 2003. *Datives at large.* Cambridge, MA: MIT dissertation.

De Belder, Marijke. 2011. *Roots and affixes: Eliminating local categories from syntax*. Utrecht: LOT.

Deal, Amy Rose & Matthew Wolf. This volume. Outward-sensitive phonologically conditioned allomorphy in Nez Perce. In Vera Gribanova & Stephanie S. Shih (eds.), *The morphosyntax-phonology connection: Locality and directionality at the interface*. New York: Oxford University Press.

Dixon, Robert M. W. 1979. Ergativity. *Language* 55. 59–138.

Embick, David. 2000. Features, syntax, and categories in the Latin perfect. *Linguistic Inquiry* 31(2). 185–230.

Embick, David. 2010. *Localism versus globalism in morphology and phonology*. Cambridge, MA: MIT Press.

Embick, David & Morris Halle. 2005. On the status of *stems* in morphological theory. In Twan Geerts & Heike Jacobs (eds.), *Proceedings of going romance 2003*, 59–88. Amsterdam: John Benjamins.

Embick, David & Rolf Noyer. 2007. Distributed Morphology and the syntax/morphology interface. In Gillian Ramchand & Charles Reiss (eds.), *The Oxford handbook of linguistic interfaces*, 289–324. Oxford: Oxford University Press.

Folli, Raffaella & Heidi Harley. 2004. Flavors of v: Consuming results in Italian and English. In Roumyana Slabakova & Paula Kempchinsky (eds.), *Aspectual inquiries*, 95–120. Dordrecht: Kluwer.

Guerrero, Lilián. 2004. *The syntax-semantic interface in Yaqui complex sentences: A role and reference grammar analysis*. Buffalo: State University of New York at Buffalo dissertation.

Guerrero, Lilián. 2007. Estructuras argumentales alternativas: Las cláusulas aplicativas en yaqui. In Albert Álvarez & Zarina Estrada Fernández (eds.), *Mecanismos de voz y formación de palabra*, 177–204. México, D.F.: Plaza y Valdés.

Halle, Morris & Alec Marantz. 1993. Distributed Morphology and the pieces of inflection. In Kenneth Hale & Samuel Jay Keyser (eds.), *The view from building 20: Essays on linguistics in honor of Sylvain Bromberger*, 111–176. Cambridge, MA: MIT Press.

Harley, Heidi. 2005. One-replacement, unaccusativity, acategorial roots and bare phrase structure. In Slava Gorbachov & Andrew Nevins (eds.), *Harvard Working Papers in Linguistics* 11, 59–78. Cambridge, MA: Harvard University.

Harley, Heidi. 2011. *On the identity of roots*. Ms. University of Arizona. http://ling.auf.net/lingbuzz/001527. (August 12, 2015.)

Harley, Heidi. 2013. External arguments and the Mirror Principle: On the distinctness of voice and v. *Lingua* 125. 34–57.

Harley, Heidi. 2014. On the identity of roots. *Theoretical Linguistics* 40(3/4). 225–276.

Harley, Heidi & Rolf Noyer. 1999. Distributed Morphology: State-of-the-article. *Glot International* 4. 3–9.

Harley, Heidi, Mercedes Tubino Blanco & Jason Haugen. 2009. Applicative constructions and suppletive verbs in Hiaki. *Rice Working Papers in Linguistics* 1. 42–51.

Haugen, Jason D. 2011. *Reduplication in distributed morphology*. Ms. Oberlin College. http://ling.auf.net/lingbuzz/001363. (August 15, 2015.)

Haugen, Jason D. & Michael Everdell. 2013. "To kill" and "to die" (and other suppletive verbs) in Uto-Aztecan. Paper presented at the SSILA Annual Meeting, Boston, MA. January 4, 2013.

Haugen, Jason D. & Daniel Siddiqi. 2013a. *On double marking and containment in realization theory*. Ms. Oberlin College and Carleton University.

Haugen, Jason D. & Daniel Siddiqi. 2013b. Roots and the derivation. *Linguistic Inquiry* 44(3). 493–517.

Inkelas, Sharon. This volume. The directionality and locality of allomorphic conditioning in Optimal Construction Morphology. In Vera Gribanova & Stephanie S. Shih (eds.), *The morphosyntax-phonology connection: Locality and directionality at the interface*. New York: Oxford University Press.

Jelinek, Eloise. 1997. Voice and transitivity as functional projections in Yaqui. In Miriam Butt & Wilhelm Geuder (eds.), *The Projection of arguments: Lexical and compositional factors*, 177–206. Stanford, CA: CSLI.

Kratzer, Angelika. 1996. Severing the external argument from its verb. In Johan Rooryck and Laurie Zaring (eds.), *Phrase structure and the lexicon*, 109–137. Dordrecht: Kluwer.

Langacker, Ronald W. 1977. *Studies in Uto-Aztecan grammar I: An overview of Uto-Aztecan grammar*. Dallas, TX: Summer Institute of Linguistics. Levin, Beth & Malka Rappaport Hovav. 1995. *Unaccusativity*. Cambridge, MA: MIT Press.

Marantz, Alec. 1984. *On the nature of grammatical relations*. Cambridge, MA: MIT Press.

Marantz, Alec. 1991. Case and licensing. In Germán F. Westphal, Benjamin Ao & Hee-Rahk Chae (eds.), *Proceedings of ESCOL '91. Eastern States Conference on Linguistics*, 234–253. Ithaca, NY: Cornell University.

Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In Alexis Dimitriadis, Laura Siegel, Clarissa Surek-Clark & Alexander Williams (eds.), *Proceedings of the 21st annual Penn Linguistics Colloquium* [PCL], 201–225. Philadelphia: University of Pennsylvania.

Marantz, Alec. 2013. Locality domains for contextual allomorphy across the interfaces. In Ora Matushansky & Alec Marantz (eds.), *Distributed Morphology today: Morphemes for Morris Halle*. Cambridge, MA: MIT Press.

Marlett, Steven. 2011. *A grammar of Seri*. Book manuscript (draft). http://www.und.nodak.edu/instruct/smarlett/Stephen_Marlett/GrammarDraft.html. (August 15, 2015.)

McGinnis, Martha. 1998. *Locality in A-movement*. Cambridge, MA: MIT dissertation.

Merchant, Jason. 2014. *How much context is enough? Two cases of span–conditioned stem allomorphy*. Ms. University of Chicago.

Pylkkänen, Liina. 2002. *Introducing arguments*. Cambridge, MA: MIT dissertation.

Pylkkänen, Liina. 2008. *Introducing arguments*. Cambridge, MA: MIT Press.

Radkevitch, Nina. 2010. Overlapping portmanteaus: Why they do not exist. *North East Linguistic Society (NELS)* 41. 109–122.

Rude, Noel. 1996. Objetos dobles y relaciones gramaticales: El caso del yaqui. In Zarina Estrada-Fernández, Max Figueroa Esteva & Gerardo López Cruz (eds.), *Memorias del III encuentro de Lingüística en el Noroeste*, 491–522. Hermosillo: Universidad de Sonora Publicaciones.

Svenonius, Peter. 2012. *Spanning*. Ms. CASTL/University of Tromsø. http://ling.auf.net/lingbuzz/001501. (August 15, 2015.)

Tubino Blanco, Mercedes. 2011. *Causatives in minimalism*. Amsterdam: John Benjamins.

Veselinova, Ljuba N. 2006. *Suppletion in verb paradigms: Bits and pieces of the puzzle*. Amsterdam: John Benjamins.