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HOW AMHARIC DEALS WITH MULTIPLE EXPONENCE

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- **Goal:** Based on data from Amharic, claim that the resolution of the tension created by multiple exponence has more than one possible outcome, and that the underlying structure plays a crucial role in determining which outcome will be observed in a given case.

- **Outline:**
  - Background: Multiple exponence
  - The data: Amharic compound tenses
    - Compound gerund
    - Compound imperfect
  - Analysis: Why do the two tenses exhibit distinct patterns of morpheme deletion?
  - Conclusions and remaining issues

1. Background: Multiple exponence

- **Multiple or extended exponence**: multiple realizations of a set of morphosyntactic or semantic features in a word.

- Analyses of multiple exponence:
  1. "One morpheme, one meaning": There exists a universal constraint against multiple exponence. Supposed counterexamples do not involve multiple exponence per se (Noyer 1992, 1997, a.o.).
  2. "One morpheme, one meaning" is an ideal, not reality: Since multiple exponence is widespread, theories should explain its occurrence (e.g., as the result of various historical processes) rather than treat it as exceptional (Harris 2008, 2009).
  3. There is a constraint banning multiple exponence, but it can be overridden by higher ranked constraints within an OT model. This correctly predicts the occurrence of languages both with and without multiple exponence (Xu 2007, Xu & Aronoff 2009).

- Issues:
  - Is there any diachronic evidence for the status of multiple exponence?
  - Does the status of multiple exponence depend on properties of the exponents? Properties of the structure?
  - What happens when multiple exponence is not tolerated?
  - Can repair strategies be explained by reference to phonological identity alone?

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2. The data: Amharic compound tenses

- Amharic possesses two compound verbal forms, composed of a main verb and the auxiliary *allä* 'there is', which have undergone diachronic fusion.
- **Fusion:** A state in which what was treated as two M-words (potentially complex head not dominated by a further head) by a generation of speakers P is not treated this way by generation P+1.
- The patterns under discussion:

(1) Compound gerund: gerund-AgrS-*all*
(2) Compound imperfect: AgrS-imperfect-(AgrS)-*all*-AgrS

2.1 The compound gerund

- The compound gerund (CG) consists of the gerund (=converb) and the auxiliary *allä*. It indicates an action that started in the past but whose outcome continues into the present, i.e., akin to the English present perfect.
- In present-day Amharic, as shown in (3), only the gerund is conjugated throughout the paradigm (for gender, number, and person); the auxiliary surfaces as uninflected *all* in all forms but the 1SG and 3FSG[1,2].

(3)

	Singular		Plural	
	Simple	*Compound*	*Simple*	*Compound*
1	-e[3]	-e^{y}**-all-ähu**[4,5]	-än	-än**-all**
2M	-äh	-äh**-all**	-ačč̆əhu[6]	-ačč̆əh^{w}**-all**
2F	-äš	-äš**-all**		
3M	-o	-^{w}**-all**[7]	-äw	-ä^{w}**-all**
3F	-a	-a**-all-äčč̆**		

(4) yəh bäk'lo əgr-u tä-säbr-^{w}-all.
this mule leg-POSS.3SG PASS-break.GER-3MSG-AUX
'The leg of this mule is broken.' (Leslau 1995:389)

– The function of the CG can be derived from the compositional semantics: the non-past *allä* provides the present component, and the prior-action sense of the gerund contributes the perfectivity.

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[1] The Amharic transcription is as follows: *č'*, *k'*, *p'*, *s'* and *t'* are ejective stops; *ň* is the palatal nasal; *j* is the voiced palato-alveolar affricate; superscribed *w* represents labial secondary articulation; *ə* is a high central vowel and *ä* is a mid-central vowel.
[2] Abbreviations: ACC = accusative, AUX = auxiliary, DEF = definite, F = feminine, FOC = focus, GER = gerund, IMP = imperfect, JUS = jussive, M = masculine, NEG = negation, subscribed O = object, PASS = passive, PL = plural, POSS = possessive, REL = relative marker, SG = singular, TOP = topic.
[3] The first singular gerund uses a different template from the rest of the paradigm, e.g., *säbərr* vs. *säbr*. This is retained in the compound gerund.
[4] The sequence -*e^{y}*- may be elided.
[5] Pronounced -*all-ä^{w}h* or -*all-äh^{w}* (Leslau 1995:387,528).
[6] Pronounced -*ačč̆uh*, -*ačč̆ə^{w}h* or -*ačč̆əh^{w}* (Leslau 1995:388).
[7] Surface form; the underlying form is /-*o-all*/.

- The historical origins of the current form are transparent:
  - The individual morphemes are still clearly distinguishable.
  - Old Amharic forms with a fully conjugated auxiliary are attested.

(5) bəl-**äw**-all-**u**
say.GER-**3PL**-AUX-**3PL**
'They have said.' (Goldenberg 1977:495)

  - Related languages exhibit parallel paradigms in which no fusion has applied and thus both verbs are fully conjugated.

(6) mäs'i-**a** ʔall-**a** (Tigrinya)
come.GER-**3FS** AUX-**3FS**
'She has come.'

- The deletion process is schematized in (7):

(7)

säbbärä 'break'	Singular	Plural
1	säbərr-**e**^{y}-all-**äh**^{w}	säbr-**än**-all-~~**än**~~
2M	säbr-**äh**-all-~~**äh**~~	säbr-**aččəh**^{w}-all-~~**aččəh**~~^{w}
2F	säbr-**äš**-all-~~**äš**~~	
3M	säbr-^{w}-all-~~**ä**~~	säbr-**äu**-all-~~**u**~~ (>säbräwall)
3F	säbr-**a**-all-**äčč** (>säbralläčč)	

- Three byproducts of fusion:
  1. Inflection on the auxiliary is retained: 1SG/3FSG.
  2. Inflection on the auxiliary, phonologically identical with the gerundive inflection, is deleted: 2MSG/2FSG/1PL/2PL/3PL.
  3. Inflection on the auxiliary is deleted without phonological identity: 3MSG.

- Observations:
  - Multiple exponence is rarely retained.
  - Multiple exponence is tolerated when the exponents are not homophonous.
  - One might assume that the internal inflection indicates that fusion is incomplete; however, we will provide evidence later that this is not the case.
  - Deletion in the 3MSG is not related to the existence of multiple exponents. As expected, it is also found when *allä* is used as a main verb (8), with other auxiliaries (preterite *näbbärä* > *näbbär*, inceptive *jämmärä* > *jämmär*), and in the compound imperfect, where deletion does not apply otherwise to the auxiliary.

(8) yät all-ä? > yät all?
where be.IMP-3MSG
'Where is he?' (Leslau 1995:527)

- **Hypothesis:** Speakers analyze "redundant" exponents as bearing distinct features insofar as they are not phonologically identical and there are enough features to be allocated in this manner. In the 1SG and 3FSG, each of the two affixes could bear a different feature.
  - This pattern is rooted in a general cognitive bias, also reflected in Clark's (1987)

Principle of Contrast ("Every two forms contrast in meaning"), extended by Carstairs-McCarthy (1994) to the morphological domain.

- When exponents are phonologically identical, speakers do not allocate different features among them: this would create accidental homophony, which language learners avoid (Embick 2003). Instead, speakers treat the exponents as the same.
- When feature allocation does not occur, one possible repair strategy is deletion applying to the second exponent (i.e., the inflection on the auxiliary).
- However, the deletion process itself is not phonetic (cf. Walter 2007):
  1. It only applied after fusion had occurred.
  2. It does not occur under strict adjacency, which we take as a necessary condition for purely phonetic deletion. Contra theories which treat linear adjacency as a gradient notion in determining deletion (Yip 1998 et seq.), all cited cases of non-adjacent deletion require morphological information (e.g., English double *-ing* and Hindi *-ko*), while all cases where this information isn't relevant require adjacency (e.g., Mandarin *-le*).
  3. Phonological identity is at the morphemic level, not syllabic: in (9), the deleted morpheme is the rhyme; the internal morpheme spans a rhyme and onset.

(9) *säb.rä.šal.~~läš~~ (2FSG)
säbr-äš-all-~~äš~~

  4. If the deletion involved were purely phonetic, we would not expect it to select its target inconsistently (cf. the compound imperfect below).

- Deletion reflects a **Morphological Anti-redundancy Condition (MARC)**: Speakers will delete a morpheme when they assume that its feature content is identical to that of another morpheme within the same M-word[8].

2.2 The compound imperfect

- The compound imperfect (CI) is composed of the imperfect and auxiliary *allä*. It expresses the present or future tense in the main affirmative clause, while the simple imperfect is used in main negative clauses, and all subordinate clauses.
- In present-day Amharic (10), both the main verb and auxiliary exhibit full inflection for gender, number, and person except in three forms: 3MSG, 2PL, and 3PL.

(10)

	Singular		Plural	
	Simple	*Compound*	*Simple*	*Compound*
1	ə-STEM	ə-STEM-**all-ähu**[9]	ənnə- / ən-STEM	ənnə / ən-STEM-**all-än**
2M	tə-STEM	tə-STEM-**all-äh**	tə-STEM-u	tə-STEM-**all-aččəhu**[10]
2F	tə-STEM-i	tə-STEM-iy-**all-äš**[11]		
3M	yə-STEM	yə-STEM-**all**	yə-STEM-u	yə-STEM-**all-u**
3F	tə-STEM	tə-STEM-**all-äčč**		

[8] We assume, following Carstairs (1987) and Embick (2009), that piece-based morphemes and stem adjustments do not interact with each other.
[9] Pronounced *-all-ä^{w}h* or *-all-äh^{w}* (Leslau 1995:342).
[10] Pronounced *-all-aččuh*, *-all-aččə^{w}h* or *-all-aččəh^{w}* (Leslau 1995:342).
[11] Also *tə-STEM-əy-all-äš*.

(11) gänzäb ənnə-fälləg-all-än.
money 1PL-want.IMP-AUX-1PL
'We want money.' (Main affirmative; Leslau 2000:74)

(12) kässittawa ləj bəzu-mm at-tə-bäla.
skinny child much-FOC NEG-3F-eat.IMP
'The skinny girl doesn't eat much.' (Main negative; Leslau 1995:304)

(13) təmhərt-u-n əskə-**tə-č'ärrəs** ə-t'äbk'-all-ähu.
lesson-DEF-ACC until-3FSG/2MSG-finish.IMP 1SG-wait.IMP-AUX-1SG
'I will wait until she/you finish/finishes the lesson.' (Subordinate; Leslau 2000:64)

(14) bä-fätäna yämmi-**ø-wädk'-u-t** tämari-wočč kəfəl yə-dägm-all-u.
in-test REL-3PL-fail.IMP-3PL-DEF student-PL class 3PL-repeat.IMP-AUX-3PL
'The students who fail the test will repeat the class.' (Relative; Leslau 2000:68)

- As in the CG, the historical sources are easily traceable. In addition to evidence from Old Amharic and related languages (e.g., Tigrinya in (15)), the CI exhibits dialectal / idiolectal variants of 2PL and 3PL with full inflection of the main verb (16).

(15) yə-s's'awät-**u** ʔall-**äwu**.[12]
3PL-play.IMP -**3PL** AUX-**3PL**
'They (m.) are playing.'

(16) ənnantä-ss mən t-as(s)b-**u** all-**aččəhu**?
2PL-TOP what 2PL-think.IMP-**2PL** AUX-**2PL**
'And you, what do you think?' (Goldenberg 1977:494)

- The deletion process is schematized in (17).

(17)

säbbärä 'break' *mälläsä* 'return'	Singular	Plural
1	**ə**-säbr-all-**äh**^{w}	**ənnə**-säbr-all-**än**
2M	**tə**-säbr-all-**äh**	**tə**-säbr-~~**u**~~-all-**aččəh**^{w}
2F	**tə**-säbr-**i**-^{y}-all-**äš** (***tə**-säbr-all-**äš**) ✓**tə**-mälləš-~~**i**~~-^{y}-all-**äš**	
3M	**yə**-säbr-all-~~**ä**~~	**yə**-säbr-~~**u**~~-all-**u**
3F	**tə**-säbr-all-**äčč** / **tə**-säbr-all-**äšš** **tə**-mälləs-all-**äčč** / **tə**-mälləs-all-**äšš**	

- Three byproducts of fusion:
  1. Inflection on the main verb is retained: 1SG/2MSG/2FSG/3MSG/3FSG/1PL.
  2. Main verb suffix is deleted, while the prefix remains: 2PL/3PL[13].
  3. Inflection on the auxiliary is deleted: 3MSG.

- Observations:
  – In most of the forms, the phonological shapes of the main verb and auxiliary inflection are different, allowing speakers to distribute features accordingly. The

[12] The CI in Tigrinya marks an aspectual distinction, rather than a morphosyntactic one as in Amharic.
[13] But see below for complications.

allocation of features may be facilitated by the fact that the simple imperfect requires such an allocation independently (cf. Noyer 1992, 1997).

- In most forms, inflection on the main verb is prefixal, while the auxiliary takes suffixes. Three exceptional forms also have suffixes in the simple imperfect: 2FSG, 2PL, and 3PL.
- In the 2FSG, deletion of main verb -*i* is a phonological process, subsequent to palatalization in the relevant forms[14]. -*i* contributes essential feature information to distinguish the 2FSG from the 3FSG: owing to deaffrication[15], they are homophonous[16]. If given a 2FSG form ineligible for palatalization in which deletion has applied, native-speaker informants interpret it as a 3FSG.
- Unlike in the CG, the 2PL/3PL main verb (internal) suffixes are deleted rather than the auxiliary (external) suffixes.
- As in the CG, deletion in the 3MSG is part of a general truncation pattern and not driven by an aversion to multiple exponence.

3. Analysis: Why do the two tenses exhibit distinct patterns of morpheme deletion?

- **Proposal:** The two compound tenses have different structural properties, owing to their respective degrees of fusion. The inconsistency in the locus of deletion reflects these underlying structural differences.

- To review:

(18) Compound gerund: gerund-AgrS-*all*
(19) Compound imperfect: AgrS-imperfect-(AgrS)-*all*-AgrS

- The extended projection of the Amharic verb:

(20) [C [Asp_2 [Neg [T [(Asp_1) [*v*]]]]]]

↑
AgrS

- Deletion in the **compound gerund:**
  - In Amharic, *v* is obligatorily associated with an (inner) Asp_1 projection; AgrS is attached to this projection, and also contingent in form and location on it. Since gerunds have no aspect, the form of the AgrS is the default.
  - The auxiliary clearly contributes a temporal component to the semantics, and is therefore in T. Auxiliaries typically do not have their own AgrS.
  - Synchronically, the main verb and auxiliary are fused. When fusion occurred, speakers deleted one of the inflectional exponents in accordance with the MARC. The MARC does not apply in the 1SG and 3FSG as per above.

[14] A final dental, sibilant, *l*, or *n* in the root will be palatalized.
[15] To the best of our knowledge, we are the first to report this deaffrication process in Amharic; it may be recent and/or dialectal.
[16] After deaffrication, the two forms differ only in that the 3FSG is geminate. We assume that final gemination is not sufficient to differentiate the forms; as Leslau (1995:12) notes, it is barely audible except when followed by a vowel (an uncommon occurrence for a verb in a verb-final language).

– The *second* exponent was targeted for deletion because the structural requirement that AgrS be on Asp_1 could not be overridden, and the first AgrS therefore could not be deleted. Consequently, AgrS now surfaces internal to the verbal complex.
– This outcome runs counter to the universal preference for external inflectional morphology posited by Harris and Faarlund (2006) in (21). In fact, they do not admit the Amharic pattern as a possibility. The pattern *is* in line with Givón (1971), whereby the order of morphemes reflects the order of grammaticalization.

(21)

	VERB	-SUBJ	AUX	-SUBJ
			↓	
Expected	VERB		-AUX	-SUBJ
Actual	VERB	-SUBJ	-AUX	

– The Amharic pattern is also at odds with Greenberg's (1963) universal preference for morpheme order, which places agreement on the periphery.
– Lastly, the Amharic pattern is exceptional within the language itself: other verb forms exhibit peripheral agreement. Thus, **structural requirements take priority over potential analogical pressures**.

- Deletion in the **compound imperfect:**
  – The CI is historically and synchronically different from the CG:
    1. The auxiliary in the CI fulfills a morphosyntactic rather than semantic function, which was calqued from neighboring Cushitic languages (Hetzron 1972), and is not a feature of the North Ethiopic languages (cf. Tigrinya in (15)).
    2. The CI shows a lesser degree of fusion than the CG:
       a. The CI (22), but not the CG (23), allows interposition of certain particles.

(22) a. yə-nägr-all-u-mm
3PL-speak.IMP-AUX-3PL-FOC
'They will also speak.'

b. yə-nägr-u-mm-all
3PL-speak.IMP-3PL-FOC-AUX

(23) a. sak'-äw-all-əmm
laugh.GER-3PL-AUX-FOC
'They have also laughed.'

b. *sak'-äw-əmm-all
laugh.GER-3PL-FOC-AUX

b. Only the last in a sequence of coordinated imperfect verbs is compound[17].

(24) gəmmaš k'än y-ars-ənna y-arf-all.
half day 3MSG-plough.IMP-and 3MSG-rest.IMP-AUX
'He ploughs half a day and then rests.' (Leslau 1995:315)

c. The CI (25), but not the CG (26), allows multiple exponents to surface.

(25) yə-sak'-u-all-u
3PL-laugh.IMP-3PL-AUX-3PL
'They will laugh.'

(26) *sak'-äw-all-u
laugh.GER-3PL-AUX-3PL

[17] For independent reasons, it is difficult to test the compound gerund with respect to this property.

- We claim that the CI and CG are also structurally different: the auxiliary *allä* is in C in the former case, as opposed to T in the latter. The positioning of *allä* in C is due to its origins as a matrix verb. This provides an explanation for:
  1. The lesser degree of fusion in the CI.
  2. The presence of two AgrS morphemes (cf. Fuss 2008).
  3. Where CI verbs appear. They are incompatible with subordinate clauses because C is occupied, and with negative clauses because Amharic has Neg-to-C raising in matrix clauses (cf. Duffield 1995 for a comparable phenomenon in Irish), as suggested by independent evidence from the behavior of negation in subordinate clauses.
- As in the CG, deletion in the CI is motivated by the MARC. However, it targets the *first* exponent, rather than the second, due to the structural difference between the tenses. Since C requires an AgrS of its own, and since incomplete fusion entails that only the second exponent is identifiable with C, it cannot be deleted.

- There is evidence from the CG for the relation between positioning in C, lack of fusion, and no deletion of agreement morphemes: in a relative clause, the CG is separated into a gerund and auxiliary, both of which surface with subject agreement (27)[18].

(27) səra-w-ən č'ärrəs-äw y-all-u-t məsa y-əbl-u.
work-DEF-ACC finish.GER-3PL REL-AUX-3PL-DEF lunch 3PL-eat.JUS-3PL
'Let those who have finished the work eat lunch.' (Leslau 1995:390)

- The CI provides another example of language-specific properties determining the target of deletion. If material is placed between the main verb and auxiliary, such as certain particles (22b) and object suffixes (28), the *second* exponent is deleted.

(28) yə-säbr-u-t-all
3PL-break.IMP-3PL-3MSG$_O$-AUX
'They will break it.'

- We hypothesize that this pattern of deletion is driven by phonotactic considerations: deletion of the first exponent would often result in an illicit triconsonantal cluster (cf. Harris & Faarlund 2006 for a similar phenomenon in Slavonic). Although Amharic can resolve this type of phonotactic violation via epenthesis, it is unlikely that speakers would create such forms to begin with.

- Differences in the existence vs. absence of deletion and in its target derive from properties of the MARC. As a general condition on acquisition, the MARC has access to the structure posited by the learner, as well as the linear string and vocabulary items. It is thus sensitive to morphophonological properties of the verb form and to its underlying structure.
  - Together with Avoid Accidental Homophony (AAH; Embick 2003), the MARC is involved in regulating how dissociated morphemes are assigned in an M-word.

[18] The gerund is incompatible with relativization and negation due to its nominal origins.

- Summarizing the observed patterns of deletion in the Amharic compound tenses:

(29)

Property / Form	Structure	Degree of Fusion	MARC applies: Yes / No	Affected exponent
CG	*allä* in T / main verb low	Higher	Yes	2nd
CI	*allä* in C / main verb high	Lower	Yes	1st
CG in rel. clauses	*allä* in C / main verb low	None	No	NA
CI with interposed material	*allä* in C / main verb high	Lower	Yes	2nd

4. Conclusions and remaining issues

- The compound verb forms of Amharic allow us to observe how speakers deal with multiple exponence in diachronic and synchronic terms, and to explore what factors influence their behavior.

- Although speakers appear to disfavor multiple exponence in Amharic, it would be undesirable to subsume this effect under a single anti-repetition constraint.
  - Accounts which make use of such a constraint, following Yip (1998), do not predict differences in whether or not deletion applies and where, since these are not exclusively determined by the linear distance or intervening material.
  - These accounts seem overly unconstrained, predicting unattested patterns of deletion of homophonous morphemes. Languages often build agreement systems around full or partial phonological identity (Carstairs-McCarthy 1994).
  - In any case, such an account misses the point: deletion of exponents is rooted in the redundancy of their morphosyntactic features, which learners can only read off of the phonological form. This type of identity avoidance *is not* fundamentally phonological in nature.

- It also seems unhelpful to appeal to a universal preference for externalizing "trapped" morphology (Harris & Faarlund 2006).
  - Not only does the CG involve preservation of trapped inflection, but this unexpected tendency also turns up in the CI with interposed morphemes.
  - The generalization Harris and Faarlund describe can be reduced to structural considerations. This explains why there can be exceptions to it, as in Amharic.

- Much work remains to be done on the Amharic case study. In future research we hope to explore *inter alia* the precise synchronic status of deletion in the CI, and to expand our investigation to other Ethiosemitic languages which exhibit similar patterns of multiple exponent deletion.

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