

PHONETICALLY REALIZED TRACES
IN AMERICAN SIGN LANGUAGE AND BRAZILIAN SIGN LANGUAGE

Jairo Nunes (Universidade de São Paulo)

Ronice Müller de Quadros (Universidade Federal de Santa Catarina)

Abstract

This paper discusses constructions in American Sign Language (ASL) and Brazilian Sign Language (LSB) in which a focalized element appears duplicated at the right edge of the sentence (Petronio 1993, Quadros 1999). Assuming the copy theory of movement (Chomsky 1995) and Nunes's (1999, 2004) account of phonetic realization of multiple copies in terms of linearization, we argue that in these constructions, a focalized element adjoins to E-Foc, a head with emphatic focus (Lillo-Martin and Quadros 2004), followed by remnant movement of the whole TP to [Spec, TopP]. The moved head and E-Foc then undergo fusion in the morphological component, which prevents the adjoined copy from being deleted and yields a chain with two links phonetic realized. To the extent that phonetic realization of multiple copies in ASL and LSB is shown to be regulated by the same kinds of morphological restrictions found in analogous constructions in spoken languages, we conclude that phonetic realization of chains is insensitive to differences of modality.

Key-words: *copy theory of movement, phonetic realization of chains, linearization of chains, American Sign Language (ASL), Brazilian Sign Language (LSB)*

1. Introduction*

American Sign Language Language (ASL) and Brazilian Sign Language (LSB) allow constructions with a focalized element at the right edge of the sentence which may optionally be doubled by a copy in its usual unmarked position, as respectively

* Preliminary versions of this paper were presented at the XIX Encontro da Associação Nacional de Pós-Graduação e Pesquisa em Letras e Linguística (XIX ENANPOLL) and at the Theoretical Issues in Sign Language Research 8 (TISLR 8). We are very thankful to both audiences and two anonymous reviewers for helpful comments and suggestions. We would also like to acknowledge the support we have received from CNPq (grants 300897/96-0 – first author – and 350025/2003-7 – second author).

illustrated in (1) and (2) (see Petronio 1993 and Petronio and Lillo-Martin 1997, among others, for ASL and Quadros 1999 for LSB).¹

(1) *ASL* (from Petronio 1993)

a. [ANN (LIKE) ICE-CREAM LIKE]_{hn}

‘Ann LIKES ice-cream.’

b. [ANN (CAN’T) READ CAN’T]_{neg}

‘Ann CAN’T read.’

c. [ANN (WILL) LEAVE WILL]_q

‘Will Ann go?’

(2) *LSB* (from Quadros 1999)

a. I (CAN) GO PARTY [CAN]_{hn}

‘I CAN go to the party.’

b. I HAVE (TWO) CAR [TWO]_{hn}

‘I have TWO cars.’

c. [I (NO) WILL BUY CAR]_{neg} [NO]_{neg}

‘I will NOT buy car.’

Examining several types of focus constructions in ASL and LSB, Lillo-Martin and Quadros (2004) show that constructions such as the ones in (1) and (2) are employed to confirm or disconfirm what has been assumed in the discourse situation and refer to this type of focus *as emphatic focus (E-focus)*. In this paper, we will assume Lillo-Martin and Quadros’s general description of E-focus constructions in these two

¹ The right subscripted brackets in the representations below mark the scope of the following non-

languages and propose an analysis for the derivation of E-focus duplication based on the copy theory of movement. More specifically, we will argue that Nunes's (1999, 2004) proposal that (lack of) deletion of copies is triggered by linearization considerations can account for the morphological restrictions displayed by E-focus duplication constructions in ASL and LSB.²

The paper is organized as follows. In section 2, we discuss some of the restrictions that E-focus duplication constructions display and point out some problems for Petronio's (1993) proposal to account for them. In section 3, we briefly present Nunes's (1999, 2004) version of the copy theory of movement, according to which phonetic realization of copies is indirectly determined by linearization requirements of the phonological component. Applying Nunes's (1999, 2004) approach to constructions such as (1) and (2), we show in section 4 that in E-Focus duplication constructions, the trace of the moved focused element is phonetically realized in addition to the head of the chain. Finally, some concluding remarks are presented in section 5.

2. Petronio's (1993) analysis

Petronio (1993) shows that E-focus duplication in ASL may involve different kinds of heads (modals, main verbs, negation, quantifiers, nouns, *wh*-words, etc.), but

manual markings: *hn*: headnod; *neg*: negation; *q*: yes-no question; *wh*: *wh*-questions; *r*: relative clause.

² E-focus duplication constructions can also involve *wh*-elements in both ASL and LSB, as illustrated in (i) below. Although our analysis also carries over to constructions like the ones in (i), *wh*-movement introduces complications that are orthogonal to our current concerns. Thus, we will restrict the discussion here to E-focus duplication targeting non-*wh*-elements. For a detailed analysis of E-focus duplication of *wh*-elements in LSB, see Nunes and Quadros 2005.

- (i) a. ASL (from Petronio 1993)
[(WHO) BUY CAR WHO]wh
'WHO bought the car?'
- b. LSB (from Quadros 1999)
[(WHO) LIKE BANANA]wh [WHO]wh
'WHO likes bananas?'

cannot involve phrases, as shown in (3) below. This restriction is also documented by Quadros (1999) for LSB, as shown in (4).³

(3) *ASL* (from Petronio 1993)

a. *[IX LIKE ICE-CREAM LIKE ICE-CREAM]_{hn}

‘I LIKE ICE-CREAM.’

b. *[ANN WANT LEAVE WANT LEAVE]_{hn}

‘Ann WANTS TO LEAVE.’

(4) *LSB*

a. *NEXT MONTH I WILL-GO ESTRELA NEXT MONTH

‘I will go to Estrela NEXT MONTH.’

b. *JOHN BUY CAR YESTERDAY BUY CAR

‘Yesterday, John BOUGHT A CAR.’

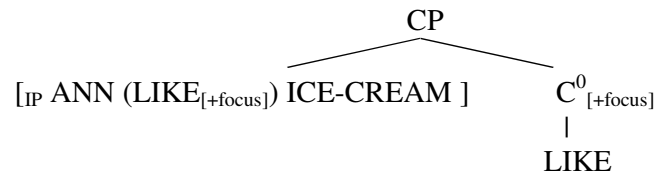
Petronio (1993) accounts for this restriction by proposing that CP is head final in ASL and that the duplicated element in constructions such as (1) is base-generated in the head of a [+focus] CP. According to this analysis, the structure underlying the sentence in (1a), for instance, repeated below in (5a), is along the lines of (5b).

³ It is important to point out that all the judgments on E-Focus duplication reported here refer to sentences that do *not* have a significant pause preceding the duplicated element in the final position. When there is a pause in this position, it is very likely that completely different constructions are involved (see Petronio and Lillo-Martin 1997 for relevant discussion). In this regard, it is worth mentioning that the brackets around the final NO in (2c) and the final WHO in (ib) in fn. 2 are *not* indicating pauses, but rather the existing coalescence in LSB between the non-manual markings associated with *wh*- and negative words and the headnod associated with the right peripheral E-Focus position.

(5) a. [ANN (LIKE) ICE-CREAM LIKE]_{hn}

‘Ann LIKES ice-cream.’

b.



By base-generating the focused element in the head of CP, Petronio accounts for the fact that E-focus duplication cannot involve phrases, as seen in (3), since phrases cannot be generated in a head position. This analysis also accounts for the fact that duplication is optional, that is, the doublet inside IP may or may not be phonetically realized. Under reasonable assumptions regarding recoverability of deletion, the deleted material in the non-duplicated versions of (1), for instance, is recoverable from the head of CP. Finally, by assuming that the focused element inside IP must move at LF to enter into a Spec-head relation with the head of CP, Petronio also accounts for the island effects that these constructions exhibit, as illustrated in (6b) with ASL and in (7b) with LSB, where the relative clause dominates the first instance of *WILL* and *FALL*, but not the final one.

(6) ASL (from Petronio 1993)

a. [WOMAN WILL COME TOMORROW]_r NAME S-U-E

b. *[WOMAN WILL COME TOMORROW]_r NAME S-U-E WILL

‘The name of the woman that will come tomorrow is Sue.’

(7) LSB

a. GIRL [BICYCLE FALL]_r IS HOSPITAL

b. *GIRL [BICYCLE FALL]_r IS HOSPITAL [FALL]_{nn}

‘The girl that FELL off from the bicycle is in the hospital.’

Although it provides an elegant account of E-focus duplication in ASL that by and large can be extended to LSB, Petronio’s proposal faces some conceptual and empirical problems. The conceptual problems are actually more connected to trace theory than her analysis *per se*. Take the relation between the identical heads in E-focus duplication constructions, for instance. Given that this relation is subject to island constraints, as seen in (6b) and (7b), some movement must be involved. However, under trace theory, a moved element must leave an empty category behind and that is not the case of E-focus duplication where the focalized element at the end of the sentence has a replica within IP. Petronio is thus forced to assume that the sentence-final element is base-generated in C^0 and that the relevant movement takes place covertly. The problem with the first assumption is that it implies that the class of C^0 elements in ASL and LSB is open-ended, for any verb or noun, for instance, can in principle be inserted in the head of a $C^0_{[+focus]}$ and this is at odds with the widely accepted view that functional elements such as C form a closed class.

An empirical problem also arises when Petronio’s proposal is extended to LSB. Take the contrast between (8) and (9), for instance.

(8) *LSB*

a. I BOOK [LOSE]_{hn}

b. I LOSE BOOK [LOSE]_{hn}

‘I LOST the book.’

(9) *LSB*

a. JOHN MARY [_aLOOK_b]_{hn}

b. *JOHN _aLOOK_b MARY [_aLOOK_b]_{hn}

‘John LOOK at Mary.’

Under Petronio’s analysis, in (8a) and (9a) *LOSE* and *_aLOOK_b* should be base-generated in the head of a C-final position, allowing recoverability of the deleted verb in the IP-internal position. But if that were the case, why can’t the agreeing verb *_aLOOK_b* be duplicated like the plain verb *LOSE* (cf. (8b) vs. (9b))? The ban on base-generation of phrases as the head of C, which was invoked to account for (3) and (4), clearly cannot be of relevance here, for *_aLOOK_b* is not a phrase. There is an obvious morphological difference between *LOSE* and *_aLOOK_b*, namely, that the latter bears subject and object agreement, as annotated by the indices. But there is no obvious component in Petronio’s analysis where such a distinction could play a role. The additional morphology cannot block base-generation of the sentence-final occurrence of *_aLOOK_b*, as seen in (9a), and arguably cannot block LF movement of the first occurrence either.

We will argue below that the contrast between (8b) and (9b) is indeed related to the contrast between (1) and (2), on the one hand, and (3) and (4), on the other. The two contrasts will be analyzed as instantiations of a more general distinction between

elements that are morphologically simple and elements that are morphologically complex and, following Nunes (1999, 2004), we will argue that this is the relevant distinction that underlies the restrictions discussed above. But before we get to this discussion proper, let us first review Nunes's (1999, 2004) approach to deletion of copies in terms of linearization.

3. Linearization of Chains and Phonetic Realization of Multiple Copies

Reviving the copy theory of movement within the Minimalist Program, Chomsky (1995) proposes that a trace is a copy left by a moved element, which gets deleted in the phonological component (in the case of overt movement). Any version of the copy theory should therefore explain why it is the case that (in general) the lower copies left by movement must be deleted in the phonological component.

In this paper, we will adopt Nunes's (2004) version of the copy theory, according to which deletion of copies in the phonological component is triggered by requirements of Kayne's (1994) Linear Correspondence Axiom (*LCA*), which takes the linear order of the lexical items of a given structure to be determined by asymmetric c-command. The reasoning goes as follows. In order to converge at PF, a derivation must linearize the lexical items of the lexical array. However, if a derivation has copies, then the *LCA* cannot consistently linearize the terminals, given that some items of the lexical array will be assigned to more than one position. Take the structure in (10a) below, for example, which is formed after *John* moves from the object to the subject position. Since the verb *was* asymmetrically c-commands the lower instance of *John*, the *LCA* requires that *was* precede *John*; by the same token, the *LCA* requires that *John* precede *was* because the upper copy of *John* asymmetrically c-commands *was*. Given that these two instances of *John* are

nondistinct, we reach the contradictory result that *was* should precede and be preceded by *John*.

- (10) a. [Johnⁱ [was [arrested Johnⁱ]]]
b. John was arrested.

In order to circumvent this situation, the system may then employ the operation Chain Reduction, as described in (11) below, which (in the general case) deletes all but one copy.⁴ Thus, the reason why traces are (in general) phonetically null is that if they were not deleted, the structures containing them could not be linearized.

(11) *Chain Reduction*:

Delete the minimal number of constituents of a nontrivial chain CH that suffices for CH to be mapped into a linear order in accordance with the LCA.

Nunes's (2004) approach to deletion of copies can also account for special cases where more than one copy is phonetically realized. Assuming with Chomsky (1995) that the LCA does not apply word-internally, Nunes observes that if a copy gets morphologically reanalyzed as part of a word, that is, if it morphologically fuses (in the sense of Halle and Marantz 1993) with some head, it should become invisible to the LCA and, therefore, it should be disregarded by Chain Reduction. In other words, if a given copy does not create problems for the LCA in virtue of having become an

⁴ This does not entail that the head of the chain is necessarily the link to escape deletion. If the phonetic realization of the head of the chain causes the derivation to crash at PF, a lower copy is pronounced instead (for data and general discussion see Bošković 2001, Nunes 2004, and Bošković and Nunes 2004, among others). For purposes of our current discussion, we will abstract away from this possibility and assume that when applicable, Chain Reduction deletes all copies but the head of the chain.

affix-like element, it will not be deleted by Chain Reduction and the structure will surface with more than one copy phonetically realized.

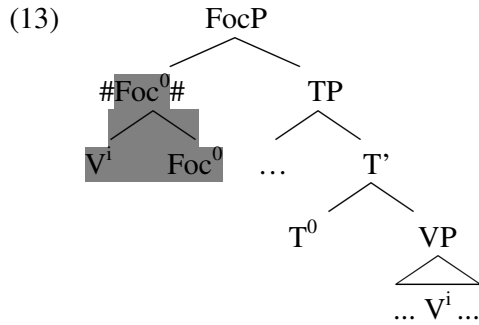
An example should make the proposal clearer. Consider verb clefting in Vata, as illustrated in (12), for instance.

(12) *Vata* (Koopman 1984)

li	O	da	saka	li
eat	s/he	PERF-AUX	rice	eat

‘S/he has EATEN rice.’

Koopman (1984) shows that the two verbal occurrences in (12) cannot be separated by islands, which indicates that they should be related by movement. The problem, however, is that if these occurrences are to be treated as copies under the copy theory, then the structure containing them should not be able to be linearized. Nunes (2004) argues that this possibility does not in fact arise because the higher copy of the verb evades the purview of the LCA in virtue of having been morphologically fused with another head. More specifically, he analyzes verb clefting in Vata as involving verb adjunction to a Focus head in the left periphery, followed by fusion in the morphological component between the moved verb and the Focus head, as sketched in (13) (“#” annotates fusion and the shaded area marks material that is invisible to the LCA).



Assuming with Chomsky (1995:337) that LCA does not apply word-internally, if the higher copy of V in (13) fuses with Foc, it will become invisible to the LCA. If so, the LCA only sees one copy of V in (13) and Chain Reduction is not triggered. In other words, the higher copy will be assigned a position in the final string in virtue of being part of the reanalyzed V-Foc terminal, but in this sense it is no different from a syllable being assigned a position in virtue of being part of a word being linearized. The structure will then surface with two copies of the verb, as illustrated in (12).⁵

Two pieces of evidence confirm that the availability of more than one copy of the verb in (13) is contingent on morphological licensing. The first one relates to Koopman's (1984:158) observation that the few verbs in Vata that cannot undergo clefting cannot be subject to morphological processes that apply to other verbs in this language. If these verbs cannot participate in any morphological process, they certainly should not be able to undergo the morphological fusion with Foc⁰ depicted in (13) and should not be allowed in predicate clefting constructions. Second, Koopman observes that the fronted verb of these constructions cannot occur with the particles that appear with the verb in Infl, as illustrated in (14) below. This makes

⁵ It is worth observing that Nunes's (1999, 2004) proposal is not that head movement by itself renders the adjoined head invisible to the LCA. Head movement just provides a configuration that allows fusion in the morphological component; it is fusion that results in LCA invisibility. Whether fusion then applies optionally, obligatorily, or not at all depends on the morphological properties of the heads under consideration.

sense if these particles render the verb morphologically too complex in Vata, thereby preventing the verb from undergoing fusion with the focus head.

(14) *Vata* (Koopman 1984)

a. (*na`) le wa ná-le-ka
NEG eat they NEG-eat-FT

‘They will not EAT.’

b. li (*-wa) wà li-wa zué
eat-tense particle they eat-tense particle yesterday

‘They ATE yesterday.’

What is relevant for our purposes here is that these restrictions indicate that the realization of multiple copies is very sensitive to morphological information, given that multiple copies are only allowed when some copies get morphologically reanalyzed as being part of a fused terminal. As a rule, the “heavier” a given element is, the less likely it is for it to undergo fusion and become part of a terminal, as is further illustrated by contrasts such as the ones in (15), with clitic duplication in Argentinean Spanish, and (16) with *wh*-copying in German.

(15) *Argentinean Spanish* (from Nunes 2004)

a. Yo lo iba a hacerlo.
I it_{CL} went to do- it_{CL}

‘I was going to do it.’

b. *Yo se lo iba a decírselo.
 I him_{CL} it_{CL} was-going to say- him_{CL} it_{CL}
 ‘I was going to say it to him.’

(16) German (from McDaniel 1986)

a. Wen glaubt Hans wen Jakob gesehen hat?
 whom thinks Hans whom Jakob seen has
 ‘Who does Hans think Jakob saw?’

b. *Wessen Buch glaubst du wessen Buch Hans liest?
 whose book think you whose book Hans reads
 ‘Whose book do you think Hans is reading?’

Nunes (2004) analyzes cases such as (15a) and (16a) in terms of morphological fusion and phonetic realization of multiple copies and attributes the ungrammaticality of the corresponding sentences in (15b) and (16b) to the morphological complexity of the link that should be input to fusion. In other words, the morphological complexity of the clitic cluster in (15b) and the phrasal *wh*-element in (16b) blocks fusion and the structure cannot be linearized with more than one copy phonetically realized.⁶

Let us now see how this general proposal can account for E-focus duplication in ASL and LSB.

4. E-focus duplication and phonetic realization of traces

As the reader may have noticed, Vata verb clefting is actually very similar to E-focus duplication in ASL and LSB, the only relevant difference being word order:

whereas in Vata the focused verb appears sentence-initially, in ASL and LSB the focused element appears in a sentence-final position. If we assume with Kayne (1994) that all languages are underlyingly head-initial, the difference should then be just a matter of movement: in ASL and LSB, TP moves past the E-focus head (see Quadros 1999, Lillo-Martin and Quadros 2004, and Nunes 2004, for relevant discussion).

With these considerations in mind, let us examine in detail the derivation of the LSB sentence in (17), for instance, assuming with Lillo-Martin and Quadros (2004) that in ASL and LSB, TP is dominated by a projection of E-focus, which in turn is dominated by a projection of topic, TopP (see Rizzi 1997), as sketched in (18).

(17) *LSB*

I LOSE BOOK [LOSE]_{hn}

‘I LOST the book.’

(18) [_{TopP} Top [_{E-focP} E-foc [_{TP} ...]]]

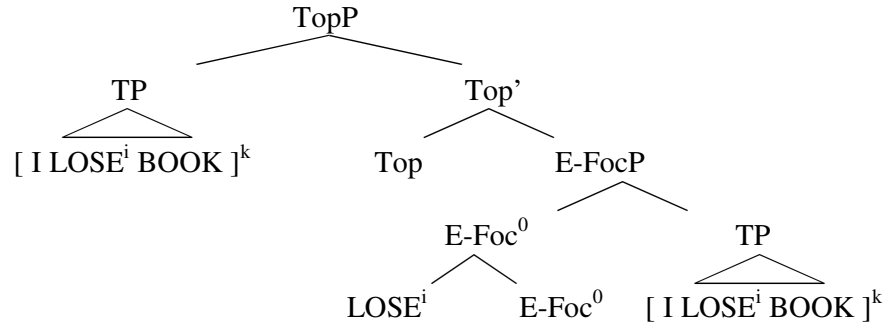
Assuming that E-foc has a strong (head-)feature, a head bearing an emphatic focus feature must move overtly and adjoin to E-foc. In (17), this is the case of *LOSE*, which is then copied and merged with E-foc, yielding the structure in (19).

(19) [_{E-focP} LOSEⁱ+E-foc [_{TP} I LOSEⁱ BOOK]]]

The TP then moves to [Spec, TopP] after the Top head is introduced in the derivation, leaving a copy behind, as shown in (20).

⁶ See Nunes 1999, 2004 and Bošković and Nunes 2004 for further discussion and additional cases of

(20)



Now suppose that after the structure in (20) is spelled out, $LOSE^i+E-foc$ may optionally undergo fusion in the morphological component. If it does, the fused copy of $LOSE$ will then be invisible to the LCA, as represented in (21).

(21) [_{TopP} [_{TP} I LOSEⁱ BOOK]^k [_{Top'} Top [_{E-focP} #LOSEⁱ+E-foc# [_{TP} I LOSEⁱ BOOK]^k]]]

Applying to the TP chain in (20), Chain Reduction then deletes the lower copy, yielding (22) below, which finally surfaces as (17). Crucially, the realization of the two copies of $LOSE$ in (21) does *not* create contradictory linearization problems of the type discussed earlier (cf. (10a)), because the LCA takes $\#LOSE+E-Foc\#$ as an atomic terminal element and does not look inside it. In other words, the reanalyzed copy will be disregarded by the LCA and will only be assigned a position in the surface string as a by-product of the linearization of the composed terminal $\#LOSE+E-Foc\#$.

(22) [_{TopP} [_{TP} I LOSEⁱ BOOK]^k [_{Top'} Top [_{E-focP} #LOSEⁱ+E-foc# [_{TP} I LOSEⁱ BOOK]^k]]]

constructions with more than one copy phonetically realized.

If, on the other hand, morphological reanalysis does not occur after the structure in (20) is spelled out (recall that morphological fusion affecting E-Foc is taken to be optional), all the copies are visible to the LCA. Chain Reduction must then apply to both the TP-chain and the head-chain, keeping the head of the chain in each case, as respectively illustrated in (23a) and (23b), yielding (24), which is the version of (17) without duplication.⁷

- (23) a. [_{TopP} [_{TP} I LOSEⁱ BOOK]^k [_{Top'} Top [_{E-focP} LOSEⁱ+E-foc [~~TP~~ I LOSEⁱ BOOK]^k]]]
 b. [_{TopP} [_{TP} I ~~LOSEⁱ~~ BOOK]^k [_{Top'} Top [_{E-focP} LOSEⁱ+E-foc [~~TP~~ I LOSEⁱ BOOK]^k]]]

(24) *LSB*

I BOOK [LOSE]_{hn}

‘I LOST the book.’

Let us take stock. By reinterpreting Petronio’s (1993) analysis under Nunes’s (2004) proposal that deletion of copies is triggered by linearization considerations, we were able to maintain the attractive properties of Petronio’s (1993) proposal, without facing the conceptual and empirical problems it faces. First, we did not need to resort to base-generation in C⁰; thus our analysis is exempt from the problem of tacitly

⁷ Technically speaking, chain links are to be identified in terms of their content and their sisterhood configuration (see Chomsky 1995). The chain formed by adjoining *LOSE* to E-foc, for instance, is the chain CH1 = ((LOSE, E-Foc), (LOSE, BOOK)), that is, the copy of *LOSE* that is sister of E-foc and the copy of *LOSE* that is the sister of BOOK. Notice that the latter description applies to both copies of *LOSE* within the copies of TP in (23a); hence, Chain Reduction of CH1 can delete the copy of *LOSE* in

treating functional elements such as C as open-class items. The focused element that appears in the rightmost position of the sentence reaches this position via overt movement; hence, the island properties displayed by E-focus constructions are also adequately captured.

Second, by assuming that E-focus may optionally fuse with the head adjoined to it in the morphological component, we account for why the copy left behind by the proposed overt movement may be phonetically realized or deleted. If the adjoined head fuses with E-focus, it will become invisible to the LCA and the whole structure can be linearized without the deletion of its trace; on the other hand, if fusion does not take place, deletion of the IP-internal copy is then required to allow the linearization of the whole structure. By assuming with Nunes (1999, 2004) that realization of multiple copies can only be licit if morphological fusion targets a given copy, we are able to account not only for the unacceptability of (3) and (4), repeated below in (25) and (26), but also for the contrast in (5) in LSB, repeated here in (27).

(25) *ASL* (from Petronio 1993)

a. *[IX LIKE ICE-CREAM LIKE ICE-CREAM]_{hn}

‘I LIKE ICE-CREAM.’

b. [ANN WANT LEAVE WANT LEAVE]_{hn}

‘Ann wants to leave.’

the higher copy of TP, as shown in (23b). For further discussion, see Nunes 2003, 2004 and Bošković

(26) *LSB*

a. *NEXT MONTH I WILL-GO ESTRELA NEXT MONTH

'I will go to Estrela NEXT MONTH.'

b. *JOHN BUY CAR YESTERDAY BUY CAR

'Yesterday, John BOUGHT A CAR.'

(27) *LSB*

a. JOHN MARY [_aLOOK_b]_{hn}

b. *JOHN _aLOOK_b MARY [_aLOOK_b]_{hn}

'John LOOK at Mary.'

By taking E-focus duplication to involve head-adjunction, the derivations of the sentences in (25) and (26) are excluded as they would require adjunction of a phrase to a head. Notice, however, that even if such adjunction were allowed in the syntactic component, the morphological complexity of the adjoined phrases should block fusion with E-focus and, consequently, duplication would be blocked. As a rule, the more morphologically complex a given element is, the less likely it is for it to undergo fusion and become part of a terminal. And it may be the case that the addition of specific morphemes (which may vary from language to language) makes the resulting element morphologically “too heavy” to become reanalyzed as part of a word. This seems to be what is going on in (27) in *LSB*. Head adjunction of _aLOOK_b in the syntactic component with the corresponding deletion of the IP-internal copy is indeed admitted, as shown in (27a). However, verbal agreement morphology in *LSB*, like Infl particles in *Vata* (cf. (14)), arguably makes the inflected verb

and Nunes 2004.

morphologically “too heavy” to become reanalyzed as part of a word. Once the two copies of ${}_a\text{LOOK}_b$ are visible to the LCA, the attempted derivation of (27b) then crashes because the structure cannot be linearized.⁸

An additional virtue of the analysis reviewed above is that it does not treat E-focus duplication constructions as idiosyncratic features of ASL and LSB. Rather, it attempts to deduce their properties from general properties of the computational system regarding the phonetic realization of copies. Hence, it is then no surprise that the same kinds of morphological restrictions that we find in ASL and LSB are also found in other languages.

According to the analysis advocated here, E-focus constructions in ASL and LSB without duplication are simply instances of remnant movement, comparable to English remnant movement sentences such as (28a).

(28) a. ... and elected, John never was.

b. $[_{XP} [_{VP} \text{elected } \text{John}^i]^k] [_{X'} X [_{TP} \text{John}^i] [_{T'} \text{never } [\text{was } \text{VP-elected } \text{John}^i]]]$

Given the structure in (28b), Chain Reduction applies to the VP chain, deleting its lower link. Applying to the chain headed by *John*, Chain Reduction deletes the leftmost copy of *John*, since its structural description in terms of sisterhood is identical to the rightmost copy of *John* (see fn. 7 and references cited there). In other words, as far as the deletion of copies is concerned, E-focus without duplication does not essentially differ from VP-fronting in English.

⁸ But it is important to emphasize that, putting aside the clearcut case of phrases *vs.* heads, the notion of morphological complexity is defined in a language-specific manner. For instance, agreeing verbs behave as morphological complex in LSB, but not in ASL, and negation blocks fusion in Vata, but not in ASL. In the best of possible words, the specific notion of complexity that obtains in a given language should correlate with other grammatical properties, requiring a detailed analysis of the

In turn, E-focus duplication constructions are analyzed as remnant movement constructions where one copy becomes invisible to the LCA, by being morphologically fused with a given head. And again, we do find comparable cases in other languages (see Nunes 2004 for discussion). Take emphatic affirmation constructions in European Portuguese, for instance, as illustrated in (29).

(29) *European Portuguese* (from Martins 2004)

Ele comprou o carro, comprou.

he bought the car bought

‘He did buy the car.’

Martins (2004) argues that in sentences such as (29), the verb moves from its position within TP and adjoins to the polarity head Σ , followed by remnant movement of TP to [Spec, CP]. Assuming Nunes’s (2004) analysis of phonetic realization of multiple copies, Martins proposes that rightmost instance of the verb is fused with the head it adjoins to, becoming invisible to the LCA; hence its trace within the moved TP is not targeted by Chain Reduction and the sentence surfaces with two copies of the verb. As we would expect, if the verb is morphologically complex in virtue of having a stress-bearing prefix (see fn. 8), emphatic affirmation is not allowed, as illustrated in (30).

morphosyntactic system of each language in question. In this regard, see Quadros 1999 for syntactic

(30) *European Portuguese* (adapted from Martins 2004)

*O candidato contra-atacará amanhã, contra-atacará.

the candidate counter-attack-FUT tomorrow counter-attack

‘The candidate will indeed counter-attack tomorrow.’

In other words, superficial differences aside, E-focus duplication in ASL and LSB and emphatic affirmation in European Portuguese, for instance, are derived on the basis of the same kinds of syntactic and morphological computations, with no differences of modality.

5. Concluding remarks

We have seen that the kinds of morphological restrictions attested in E-focus duplication in ASL and LSB are essentially the same ones found in duplication constructions in spoken languages that result from syntactic movement/copying. To the extent that (lack of) deletion of chain links in ASL and LSB was shown to be regulated by the same linearization considerations found in spoken languages, the analysis discussed here provides an indirect argument to show that sign languages are linearized like spoken languages. In other words, linearization of chains appears to be insensitive to differences of modality.

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properties that independently distinguish agreeing verbs in ASL from agreeing verbs in LSB.

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