Loss of Movement and Labeling: Grammatical Pressure and Diachronic Change

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1. Introduction

Many modern day *wh-in-situ* languages had productive syntactic *wh*-movement at some point in their history. The paper examines such cases of diachronic loss of *wh*-movement and shows that these instances are in fact a part of a bigger trend to lose syntactic movement in general. I argue that this situation can be deduced from the *preference* for labeling (in the sense of Chomsky 2013, 2015) in a head-phrase configuration, and *dispreference* for both phrase-phrase and head-head mergers from the standpoint of labeling. I will explain the mechanism behind this preference in section 2 along with the basics, consequences, and necessary modifications of Chomsky's (2013, 2015) Labeling Algorithm (LA), which plays a crucial role in the present analysis. Before that, I will introduce some languages that have lost obligatory syntactic XP movement and instead developed *in-situ* strategies in *wh*-questions (section 2). I will argue that the loss of *wh*-movement is closely tied to the loss of specifiers which are created by movement. I will show that labeling-triggered syntactic changes also involve the loss of head movement and I will discuss cases of movement and specifiers which are most persistent in grammar (sections 4-5). Section 6 concludes the paper.

2. The Loss of *Wh*-Movement
2.1. From Old Japanese to Modern Japanese

Modern Japanese (since 15th century) is *wh-in-situ* language, but Old Japanese had *wh*-movement along with a system of *wh*-agreement (Watanabe 2002, Aldridge 2009). This *wh*-agreement system (*Kakarimusubi*) was manifested in the presence of a particle *–ka* on the *wh*-phrase, with the verb taking the nominal ending. In Japanese of the Nara period (8th century) the *wh*-phrase has to precede the nominative-marked subject, following only topicalized elements.

(1) Kasugano-no fuji-ha   chiri-ni-te *nani-wo-**ka**-mo* mikari-no hito-no   ori-te
    Kasugano-GEN wisteria-TOP fall-PERF.CONJ what-ACC-KA-MO   hike-GEN person-NOM   pick-CONJ
    kazasa-mu ?
    wear.on.hair-will
    'Since the wisteria flowers at Kasugano are gone, what should hikers pick and wear on their hair?
    (Man'youshuu1974; Watanabe 2002:182)

In multiple *wh* constructions in Old Japanese (2), one *wh*-phrase moves to a sentential left periphery, while the other *wh*-phrases move to a focus position between T and vP (Aldridge 2009). This is characteristic of languages with obligatory *wh*- and focus movement, such as Polish, where only one *wh*-phrase moves to a high left periphery scope position, the remaining *wh*-s undergoing focus movement (Bošković 2002).

(2) Wa-ga omofu kimi-fa *idukufe-ni* koyofi *tare-to-**ka*** mate-do ki-masa-nu.
   I-_{GEN} long.for you-_{TOP} where-_{DAT} tonight who-with-KA wait-even come-_{HON}-neg
   'I long for you, but though I wait you do not come. (I wonder) where you are tonight and with who.'
   (MYS no. 3277; Based on Aldridge 2009:558)

Both *wh*-movement and the *Kakarimusubi wh*-agreement were lost in Japanese by the 15th century. I take the loss of *wh*/focus movement in Japanese as an example of the loss of specifiers induced by the head-labeling preference, which will be explained in section 3.

2.2. From Archaic Chinese to Modern Chinese

In contrast to modern Chinese, late archaic Chinese of the Warring States period (5th to 3rd century BC) has been assumed to have a type of *wh*-movement.

(3) a. Wu **she** qi ? Qi tian hu?
     I who deceive Deceive Heaven Q
     'Who do I deceive? Do I deceive Heaven?' (Aldridge 2010:8)
   b. Gon *shei* yu yu ?
     You who want give
     'Who do you want to give (it) to?' (Zhuangzi 3.2; Aldridge 2010:7)
   c. **He** **cheng** *bu* ke?
     what city not conquer
     'What city would you not conquer' (Zouzhang, Xi 4; Aldridge 2010:6)

Aldridge (2010) argues for this movement to be an instance of a genuine syntactic XP movement rather than prosodic (contra Feng 1996) or base generation. Notice that *wh*-phrase in (3b) is not adjacent to the verb that selects it and we are dealing here with the movement from the object position across the non-finite complement clause, which indicates that this movement is not clause bound. Examples in (3) seem to indicate *wh*-movement targeting the left periphery, with the subject being in the high Topic position. Aldridge (2010) suggests also a possibility of focus fronting to the edge of vP. Importantly, this cannot be immediate preverbal position, as fronted *wh*-phrases precede the negation (as in 3c).

Regardless of the landing site of this XP, the movement in question (and especially a long distance *wh*-movement) was available in archaic Chinese but was lost in the Hàn period (Aldridge 2010). Crucially, it is absent in Modern Chinese, similarly to the *suo* relativization strategy, which also involves syntactic movement that is no longer available.

2.3. From the Oldest Iranian Languages to Modern Indic Languages

Looking at Vedic Sanskrit, Hale (1987) reports that in Rigveda (RV), 90% of the occurrences of interrogative *wh*-expression *ká-* (in its variously case-marked forms) appears in the fronted position in the CP. Indeed, it has been reported that Vedic Sanskrit obligatorily places question words in the first position in the clause, as the data in (4) illustrate:

(4) a. **kásya** bráhmaNi jujuSur yúvānaH
     'Whose prayers do the youths enjoy?' (RV 1.165.2a; Hale 1987:8)
   b. **kúha** sthaH **kúha** jagmathuH
     'Where are you two? Where have you two gone?' (RV 1.165.2a; Hale 1987:8)

Obligatory movement in Vedic Sanskrit also takes place in relative clauses. Out of nearly 600 relative clauses in Rigveda, over 500 show the relative pronoun in the first position in the clause (Hale 1987).

(5) a. **yám** u dviSmás tám u prāNó jahātu
     'Whom we hate, let breath leave him.' (RV. 3.33.21d; Hale 1987:16)

b. **yásmād** yóner udārithā….
   'from which womb you arouse…'   (RV. 2.9.3c; Hale 1987:16)

Wh-fronting to the high left peripheral projection within CP in Vedic Sanskrit stands in a stark contrast with modern-day Indic languages such as Hindi or Bangla, which are *wh-in-situ* languages.

2.4. From Latin to Romance

Obligatoriness of *wh*-movement in Latin (6a-c) (including multiple *wh*-movement (6b-c)) contrasts with modern Romance languages like Spanish (7a), Brazilian Portuguese (BP) (7b), or French (7c), which all have developed optional *wh-in-situ*.

(6) a. **Quid** habui facere ?
   what I.had do.INF
   'What did I have to do/should I do?' (Sen.*Contr.* 1.1.19; Ledgeway 2012:137)
   b. Ego **quid**   **cui**   debe-a-m]   sci-o.
   I.NOM what.ACC whom.DAT owe-PR.SUBJ-1.SG   know-PR.1.SG
   'I know what I owe to whom.' (Sen. Ben. 4.32.4; Danckaert 2012: 245)
   c. (…) **Cui**   **quando** nupsit?
        Who.DAT when   she.married
   'When and to whom was she married?' (Ter. *Ad.*670; Spevak 2010:198)

(7) a. Tú invitaste a tu   fiesta a **quién**?
   You invited to your party to who
   'Who did you invite to your party?' (Spanish; based on Reglero 2004:17)
   b. Você convidou **quem** pra sua   festa ?
   you   invited   who to your party
   'Who did you invite to your party?' (BP; Zocca DeRoma 2011:33)
   c. Tu   as   vu   **qui**?
   you have seen whom
   'Who have you seen.' (French; Bošković 2015:252)

As obligatory multiple *wh*-fronting in Latin (Devine and Stevens 2006) preserves the hierarchical order of the arguments (Danckaert 2012), this suggests that we are dealing here with a multiple *wh*-movement language of Bulgarian type, which obeys Superiority.

Therefore, modern Romance Languages in (7) differ from Latin, as they really have a mixed system, in which features of *wh*-movement languages like English are combined with features of genuine *wh-in-situ* languages. Crucially, this is a possibility that Latin lacks.

The development of *wh-in-situ* in Modern Romance can be taken to be an instance of the gradual loss of (the obligatory) *wh*-movement from Latin to Modern Romance as a consequence of the loss of specifier-creating movement.

Importantly, diachronic loss of *wh*-movement is not confined to the limited sample offered here. We can find cases like e.g. Egyptian Arabic, with the obligatory *wh-in-situ* for arguments and optional movement of *wh*-adjuncts[1] (Soltan 2011), Babine-Wisuwit'en (Athabascan) (Denham 1997), Ancash Quechua (Cole & Hermon 1994a), or Malay (Cole & Hermon 1994b), with true optional *wh*-movement, or finally examples like Navarro-Labourdin dialect of Basque, which has been developing *wh-in-situ* for matrix *wh*-questions (Duguine & Irurtzun 2014). All of them can be analyzed along the lines proposed here, i.e. as a trend to lose syntactic movement and maintain a head-phrase configuration for the sake of labeling. The details of the analysis are explained in the next section.

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[1] If adjunction does not require labeling for interpretation (Hornstein and Nunes 2008) we can assume that movement in case of adjuncts differs from arguments as it is not motivated by labeling. Additionally, change from specifiers (i.e. {XP,YP} configuration) to adjuncts could be another strategy for grammar to get rid of disfavored feature-sharing configuration.

3. Labeling and the Loss of Specifiers

I propose that diachronic loss of XP movement can be deduced from the preference for head-complement $\{X,YP\}$ configuration where the head X^0 is selected by Labeling Algorithm (LA) (Chomsky 2013, 2015) as a label. Here is how we can derive this preference and explain the diachronic facts.

Chomsky's LA is based on a minimal search which finds an appropriate element to provide a label for the whole structure. A head X^0, being a lexical item, can immediately provide a label in a head-phrase merger. When two phrasal projections are merged $\{XP,YP\}$, it is not obvious which one should serve as the label; LA finds the respective heads, i.e. X^0 and Y^0, but the search result is too ambiguous to determine the label of this whole merger. Chomsky (2013) shows two possibilities to resolve such ambiguity: movement of one of the phrases (assuming that traces/copies are invisible for LA), or feature-sharing between XP and YP.

Chomsky presents labeling in a head-phrase and a phrase-phrase configuration as two equal instances of mechanical execution of LA occurring at the point of Transfer. There is some evidence, however, that these assumptions are problematic and should be revised.

Bošković (2016b) shows that without labels the points of Transfer cannot be established, as they are determined by phases, which are in turn determined by labels. Since we cannot know whether an object is a phase or not without knowing its label, a phase (and Transfer) determination requires labeling in the first place (phases are objects like CP or DP). Some labeling then must be done *prior* to spell-out.

This brings us to the second problem with Chomsky's LA; labeling in a head-phrase configuration differs significantly from labeling in a phrase-phrase merger. In the former case, the minimal search of the LA, a syntactic operation based on locality considerations, returns the closest syntactic head as the label for the created syntactic object. This is not the case in the latter, where head-identification gives an ambiguous result and something additional has to happen for a label to be determined: either movement of one of the phrases, or a successful agreement between them. Labeling in these configurations therefore is not equal. I assume here that labeling in a head-phrase configuration is computationally less costly and indeed can be taken to be a straightforward and mechanical execution of the LA, unlike labeling in a phrase-phrase merger.

The difference between the labeling in a head-phrase and a phrase-phrase structure translates into the difference in the timing of labeling. Namely, head-labeling can apply as soon as possible in the narrow syntax (to determine phasal spell-out), with labeling by feature-sharing being postponed once the points of spell-out have been established. This, in fact, gives us a straightforward solution to the problem of the timing of labeling. Now, let us look again at the diachronic facts connected to the loss of XP movement, discussed in section 2.

Chomsky argues that movement is motivated by labeling. I propose that this is true, but the configuration created by movement is problematic: label determination in such cases has to resort to additional operations, e.g. feature-sharing, which makes it more costly, and is therefore dispreferred by grammar. If this is the case, we may expect that language will show a tendency to eliminate such structures and even put the pressure to maximize the preferred option, i.e. the head-complement configuration. This preference for head-phrase mergers and dispreference for the other syntactic configurations manifests as the loss of specifiers and a tendency to lose syntactic movement that creates these specifiers. The diachronic trend to lose *wh*-movement discussed in the previous section, can be therefore explained by the pressure imposed by the LA on syntactic structure and structural changes occurring due to such a pressure. This could be a factor playing a role in *Diachronic Reanalysis* (Roberts 2007), e.g. in resolving structural ambiguity towards structural simplification and less computational cost.

Hence, the tendency to lose syntactic movement and specifiers created by this movement is expected. Importantly, it gives us a prediction that the direction of grammatical change, all else being equal, should be towards the loss of movement, not its gain, because it results in maximizing the preferred syntactic head-complement configuration and eliminating the dispreferred ones. [2]

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[2] See also van Gelderen (2015, 2018) for a different account of language change along the lines of Chomsky's LA.

4. Labeling and the Loss of Head Movement

While discussing a merger of two heads, Chomsky (2015) talks about a merger of roots with functional elements that provide them with a category. Labeling in such cases is straightforward. Head-head constructions, however, are not restricted to such non-ambiguous cases. Instances of head-head mergers where both heads have categorial specifications can be analyzed along the lines of a merger of two phrases: they are too symmetrical for labeling and the same kind of ambiguity arises when minimal search of LA encounters {X, Y}. In this case again, either agreement (see Roberts 2010) or movement is required.

Such cases are predicted to be dispreferred from the point of view of labeling and therefore diachronically unstable, similarly to the cases of XP movement just discussed. This is borne out. The loss of head-movement is one of the best attested historical changes cross-linguistically, with cases of English losing V-to-T-to-C and Old Romance losing Verb Second (V2) configuration (Wolfe to appear) being widely discussed.

In fact, V2 may be expected to be particularly fragile diachronically, as it involves two dispreferred operations: (1) movement of the finite verb to C, and (2) movement of some phrasal XP category to Spec,CP. I will return to the cases of V2 in the next section.

5. Multiple Movement and Specifiers

Discussing the loss of movement and connected with it loss of specifiers, I must address cases where specifiers still exist, and syntactic movement persists. I argue that there is a whole class of specifiers which are hard to be lost.

I assume that movement can be driven either by the moving element or the target. If the movement is driven by the former, all elements of this sort move (as in multiple *wh*-fronting in Slavic). If it is driven by the target, only one element moves (e.g. English *wh*-movement). It is easy to lose a specifier if it is the target that has a movement-driving [uF] feature, since the two are directly tied (as soon as the relevant feature enters the structure, movement takes place). On the other hand, if moving elements have [uF], there is no such direct relationship between this feature and the specifier/movement, hence we may expect such specifiers (and movement in such cases) to be more persistent. Additionally, I assume that the loss of *wh*-movement does not go directly from a multiple *wh*-fronting stage, but it proceeds as follows: multiple *wh*-fronting → single *wh*-fronting → *wh-in-situ*.

In that vein, if there are cases of *gaining* Specs, we may expect that they will be specifiers whose creation is driven by a [uF] of the moving element, not the target. This is because the latter would have to involve a change of giving [uF] to the head and this would directly give us a specifier. In the former case, however, we would be dealing with the change in the lexical property of an item, which is not directly related to the creation of the specifier.

Verb movement in V2 could be analyzed as movement associated with the feature of the moving element: verbs in early Indo-European languages, similarly to the 2nd position clitics, were accentless elements that had to be second in their Intonational Phrase (Harris and Campbell 1995, Bošković 2016).[3] XP movement in V2, on the other hand, seems to be motivated by the feature of the target. Both finite verbs and enclitics shared the requirement to have some element in front of them. Verb movement then can be expected to be more persistent than the XP movement. This is attested e.g. in Welsh (Bury 2002), with V2 being lost but the VSO order being retained.

6. Conclusion

I have argued that there is a preference in grammar for a head-phrase merger {H,YP}, with a merger of two phrases {XP,YP}, as well as two heads {X,Y}, being dispreferred. This results in the diachronic loss of specifiers and the loss of movement, which can be regarded as a consequence of a trend to reduce

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[3]As the creation of specifiers in V2 languages could be motivated by prosody (Bošković 2016), the situation where gaining a Spec is permitted is when it is motivated by interface-related pressures, i.e. of phonology or pragmatics.

the dispreferred {XP,YP}configuration, for which to be labeled, some additional processes, such as movement and feature-sharing, have to take place. I have shown that another configuration, i.e. a head-head {X,Y} merger, is a subject to the same constraints, therefore diachronically attested loss of head-movement can be deduced from the same dispreference for such a symmetric configuration. This gives us a very interesting prediction that diachronically we should observe the loss of movement instead of its gain. The present system also predicts that cases of gaining specifiers must be interface-driven and should be attributed to extra-syntactic factors, such as prosody or pragmatics.

References

Aldridge, Edith. 2009.Short *Wh*-movement in Old Japanese. *Japanese/Korean Linguistics* 17:549-563.

Aldridge, Edith. 2010.Clause internal *wh*-movement in Archaic Chinese. *Journal of East Asian Linguistics* 19:1-36.

Bošković, Željko. 2002. On multiple wh-fronting. *Linguistic Inquiry* 33: 351-383.

Bošković, Željko. 2015. Phrasal movement: Wh-movement. In *The Handbook of Parameters*, ed. by Antonio Fábregas, Jaume Mateu, and Michael Putnam, 251-279. London: Bloomsbury.

Bošković, Željko. 2016a. On Verb Second and Clitic Second. Ms., University of Connecticut.

Bošković, Željko. 2016b. On the timing of labeling: Deducing Comp-trace effects, the Subject Condition, the Adjunct Condition, and tucking in from labeling. *The Linguistic Review* 33:17-66.

Bury, Dirk. 2002. A reinterpretation of the loss of Verb-Second in Welsh. In *Syntactic Effects of Morphological Change*, ed. by David Lightfoot, 215-231.Oxford: OUP.

Chomsky, Noam. 2013. Problems of Projection. *Lingua* 130:33-49.

Chomsky, Noam. 2015. Problems of Projection: Extensions. In *Structures, Strategies, and Beyond-Studies in Honor of Adrianna Belletti*, ed.by Elisa Di Domenico et al., 3-16. Amsterdam: John Benjamins.

Cole, Peter & Gabriella Hermon. 1994a.Is there LF wh-movement. *Linguistic Inquiry* 25: 221-262.

Cole, Peter & Gabriella Hermon. 1994b. Is wh-in-situ really in-situ? *Proceedings of WCCFL 13*.

Danckaert, Lieven. 2012. *Latin Embedded Clauses: The Left Periphery.* Amsterdam: John Benjamins.

Denham, Kristin.1997. *A Minimalist Account of Optional WH-Movement.* Doctoral Dissertation, University of Washington.

Devin, Andrew, and Laurence Stephens. 2006. *Latin Word Order: Structured Meaning and Information.* Oxford: OUP.

Duguine, Maia and Aritz Irurtzun. 2014. From obligatory WH- movement to optional WH-in-situ in Labourdin Basque. *Language* 90: 1-30.

Gelderen, Elly van. 2015. Problems of Projection: The role of language change in labeling paradoxes. *Studia Linguistica*: 1-15.

Gelderen, Elly van. 2018. Cyclical Change and Problems of Projection. Lingbuzz/003815 [v1].

Hale, Mark. 1987. *Studies in the Comparative Syntax of the Oldest Indo-Iranian Languages.* Doctoral dissertation, Harvard University.

Harris, Alice, and Lyle Campbell. 1995. *Historical Syntax in Cross-Linguistic Perspective*. Cambridge: Cambridge University Press.

Ledgeway, Adam. 2012. *From Latin to Romance. Morphosyntactic Typology and Change.* New York: Oxford University Press.

Reglero, Lara. 2004. *A'-Dependencies in Spanish and Basque*. Doctoral dissertation, University of Connecticut.

Rudin, Catherine. 1988. On multiple questions and multiple *wh*-fronting. *Natural Language and Linguistic Theory* 6:445-501.

Roberts, Ian. 2007. *Diachronic Syntax*. New York: Oxford University Press.

Roberts, Ian. 2010. *Agreement and Head Movement.* Cambridge: MIT Press.

Spevak, Olga. 2010. *Constituent Order in Classical Latin Prose.* Amsterdam: John Benjamins

Soltan, Usama. 2011. On Strategies of question-formation and the grammatical status of the Q-particle huwwa in Egyptian Arabic Wh-questions. *Proceedings of PLC 34.*

Watanabe, Akira. 2002. Loss of Overt Wh-Movement in Old Japanese. In *Syntactic Effects of Morphological Change*, ed. by David Lightfoot, 179-195. Oxford: OUP.

Wolfe, Sam. To appear. *Verb Second in Medieval Romance.* Oxford: OUP.

Zocca DeRoma, Cynthia L. 2011. *Divide et Impera - Separating Operators from their Variables.* Doctoral dissertation, University of Connecticut.

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