The Final-Over-Final Condition (FOFC) is a proposed universal ban on the type of disharmonic structure seen in (1), where a head-final projection immediately dominates a head-initial projection (Holmberg, 2000; Biberauer et al., 2014, a.o.).

In (1), head-final $\beta P$ immediately dominates head-initial $\alpha P$, creating a violation of FOFC. Defending a view of FOFC as a language universal, Biberauer et al. (2014) propose an explanation grounded in Kayne’s (1994) Linear Correspondence Axiom (LCA). In this view, head-final structures are more derivationally complex than their head-initial counterparts; they must be derived via a series of roll-up movements. The type of Comp-to-Spec movement needed to form head-final structures is triggered by a movement diacritic, $^\wedge$, which is introduced by certain lexical heads. Functional heads cannot introduce this movement diacritic. However, they can optionally inherit it from the head of their complement. Since $^\wedge$ can only be inherited, not introduced, by functional heads, once the feature is not inherited by a functional head in an extended projection, no higher head will be able to inherit it. This means that once one functional head fails to trigger roll-up movement of its complement, no higher functional head in the extended projection will be able to trigger roll-up movement. The consequence is that no head-initial projection will be dominated by a head-final projection in the same extended projection.\(^1\) Under this type of account, the FOFC-violating structure in (1) cannot be derived via the type of structure in (2).

\(^1\)The relativization to extended projections is necessary to account for data such as the well-formedness of head-initial DPs selected by a head-final V in many languages. The movement diacritic $^\wedge$ is inherited along with a $[\pm V]$ feature that indicates whether the extended projection is verbal ([+V]) or nominal ([−V]).
Here, the head $\gamma$ bears the feature $[+V^\wedge]$. This indicates that it is part of the verbal extended projection and will trigger roll-up movement of its complement, $\delta P$, to surface in a head-final order. The functional head $\alpha$ inherits the feature $[+V]$, but not the movement-triggering feature $^\wedge$, from $\gamma$. Therefore, its complement does not move, and it remains a head-initial projection. Crucially, once $\alpha$ fails to inherit $^\wedge$, $\beta$ can no longer inherit $^\wedge$ to trigger roll-up movement of its complement. This prevents $\beta$ from being a head-final projection.

Like many proposed universals, FOFC is well-known to be subject to certain apparent violations, the status of which has been discussed by a number of authors (Zeijlstra, 2016; Erlewine, 2017; Sheehan et al., 2017, a.o.). The LCA-based account of Biberauer et al. (2014) predicts that apparent violations should not actually involve functional heads in a selection relationship within a single extended projection, due to the nature of how the generalization is derived. While recent work in this vein recognizes several potential paths to apparent FOFC violations (Sheehan et al., 2017), none of these routes are taken to represent true violations of this proposed universal. Instead, they are argued to involve derivations that do not truly instantiate the structure in (1) within a single extended projection, despite surface appearances. In contrast to this approach that takes FOFC to be a universal, others have argued that FOFC should be viewed as a strong tendency, due to processing pressures or syntactic mechanisms other than the LCA (e.g. Hawkins, 1994; Zeijlstra, 2016). Under these views, true instances of the type of structure in (1) may arise in natural language.

In this paper, I present novel data from Amahuaca (Panoan; Peru) in which FOFC is violated. I argue that this FOFC violation is a true instantiation of the type of structure in (1) involving two heads within the verbal extended projection. The Amahuaca pattern is of special interest for the study of FOFC as a potential language universal because, as I will argue, it is not derived via any of the mechanisms that Biberauer (2017) argues are responsible for seeming FOFC violations involving “particles” crosslinguistically. I argue that the type of counterexample presented by Amahuaca is exactly the type of FOFC violation predicted to arise by an account under which FOFC is not a universal ban on the type of structure in (1), but is rather a strong tendency based on the constrained nature of rightward movement (Zeijlstra, 2016). The Amahuaca data thus lend support to an analysis of FOFC that does result from constraints on movement, but not on roll-up movement, as proposed by Biberauer et al. (2014). Instead, the type of movement that must be constrained is rightward movement (Abels and Neeleman, 2012; Ackema and Neeleman, 2002).

1 Amahuaca clausal syntax and FOFC

Amahuaca is an endangered Panoan language, spoken in Peru and Brazil by approximately 500 speakers (Simons and Fennig, 2017). All data come from the author’s fieldwork with native speakers in Sepahua, Peru between 2015 and 2018. In matrix clauses in Amahuaca, all heads in the verbal extended projection are head final, with the exception of AspP and CP. While CP is FOFC-compliant (it is not dominated by any higher head-final head within its extended projection), AspP is immediately dominated by head-final TP, resulting in the FOFC violation that is of interest to us, illustrated in (3).
In order to see that head-final TP is truly problematic for FOFC, we must first explore the clausal syntax of Amahuaca in more depth. There are three projections that serve as “landmarks”, so to speak, in the Amahuaca clause. Their position is always fixed with respect to other elements. These three projections are C, Asp, and T.

First, we will examine the C projection.² Amahuaca has a second position clitic =mun that appears only in matrix declarative clauses. It displays syntactic second position effects: it must be preceded by exactly one syntactic constituent, regardless of that constituent’s prosodic size. This is illustrated in (4), with an initial DP, an initial PP, and an initial CP.

(4) a. Initial DP

[xano=n hino]=mun jiri=hi=ki=nu
woman=GEN dog=C eat=IPFV=3.PRES=DECL

‘The woman’s dog is eating.’

b. Initial PP

[nihi muran]=mun joni=n jiriti vuna=xo=nu
forest inside=C man=ERG food look.for=3.PST=DECL

‘The man looked for food in the woods.’

c. Initial CP

[hino koshi ka=kun]=mun Juan=nun Maria yohi=xo=nu
dog quickly go=DS=C Juan=ERG Maria say=3.PST=DECL

‘Juan told Maria that the dog had run.’

The type of second position effects exhibited by =mun are consistent with this element being quite high in the left periphery, as is the fact that it disappears in embedded and interrogative contexts. The position of =mun therefore suggests that matrix C is a head-initial projection in Amahuaca.

The second landmark in the Amahuaca clause is the cluster of tense and mood clitics that appears at the far right edge of the clause. These two clitics always surface in the order tense-mood and always appear clause-finally, modulo prosodically offset right dislocation. The mood clitic takes the form =nu in declarative clauses. The morphemes that instantiate T show person agreement with the subject, as seen in (5), and they encode a present versus past distinction, as seen in (6).

²I use C as a label of convenience. This projection has properties of Rizzi’s (1997) Force but also of Focus, as narrow-focused constituents move to its specifier (Clem, 2018). For the purpose of the current analysis, it is not crucial which head in the left periphery is lexicalized by Amahuaca =mun.
In (5), the alternation between =ku and =xo indicates the person of the subject, with =ku indicating first person and =xo indicating third person. In (6a), we see a present tense sentence, indicated by the tense marker =ki, with imperfective aspect (=hi). The contrast between (6b) and (6c) illustrates a minimal contrast between the present tense marker =ki and the past tense marker =xo with perfective aspect, which is unmarked. The alternation between present and past tense serves to indicate a more recent versus a more temporally distant event, with the recent past interpretation of the sentence with present tense marking arising due to the perfective aspect. The full paradigm of tense markers is given in (7).

(7)  
\[
\begin{array}{c|ccc}
\text{tense} & \text{subject person} \\
\hline
\text{present} & =ka & =ki & =ki \\
\text{past} & =ku & =ku & =xo \\
\end{array}
\]

The meaning of these markers as well as the fact that they show subject agreement is consistent with them being in T. The clause-final position of these morphemes thus suggests that T (along with Mood) is subject to head-final linearization in Amahuaca.

Finally, we turn to aspect. The overt aspect markers in Amahuaca indicate imperfective (=hi), perfect (=hax), and habitual (=nox). When aspect is not overtly marked, sentences receive a perfective interpretation, as in (6b) and (6c). Examples illustrating a contrast in aspect markers are given in (8).

(8)  

a. kuntii=mun choka=hi xano=ki=nu  
pot=C wash=IPFV woman=3.PRES=DECL  
‘The woman is washing a pot.’
b. kuntii=mun choka=nox xano=ki=nu
    pot=C  wash=HAB woman=3.PRES=DECL
'The woman washes pots.'

Notice in (8) that aspect appears in a sentence-medial position (to the left of the subject) along with the verb. Clem (2018) argues that caseless subjects and objects that remain within vP are the only arguments that can appear to the right of aspect. Therefore, when the subject appears to the right of aspect marking, as in (8), it is because the subject remains in its base-generated position in Spec,vP. The most straightforward way to account for the fact that aspect marking can appear to the left of vP-internal material is to assume that Asp is a head-initial projection. I assume that the verb appears in this position with aspect marking due to head-movement of V through v to Asp. A structure illustrating the derivation for the sentence in (8a) is given in (9).

(9) \[
\text{CP} \quad \text{choka=hi} \quad [\text{TP} \quad \text{asv=xano tO tV t}]=\text{ki}=\text{nu} \]
\[
\text{pot=C  wash=IPFV} \quad \text{woman}=3.\text{PRES=DECL}
\]
'The woman is washing a pot.'

In (9), the subject remains in Spec,vP, the verb undergoes head movement to head-initial Asp, and the object moves to Spec,CP for information structural reasons (Clem, 2018).

The fact that vP material appears to the right of aspect marking indicates that Asp is not head final. Under the assumptions of the LCA, its complement does not undergo movement to Spec,AspP. Problematic, then, from the point of view of FOFC is that T is head-final. All clause-internal material except for the higher Mood clitic appears to the left

\footnote{In sentences that lack overt aspect marking, the verb appears immediately to the left of tense. This suggests that V (and potentially v) may be a head-final projection, as represented in (9), but nothing crucial hinges on this assumption.}
of T. Thus, on Biberauer et al.’s (2014) proposal, T must be able to trigger roll-up movement of its complement. At the same time, though, the theory also makes it impossible for T to inherit the roll-up movement diacritic if Asp did not bear this feature. Therefore, the disharmonic heads Asp and T instantiate a true FOFC-violating structure.

2 The “exceptionality” of particles

As noted earlier, there are many seeming exceptions to FOFC that have been argued to not actually involve the type of structure in (1). One generalization that can be made about many of these apparent exceptions is that they involve “particles”, elements that are relatively inert syntactically. Biberauer (2017) argues that purportedly FOFC-violating structures of the form [[Head-Complement] . . . Particle] (H-C...Part) are typically actually FOFC-compliant due to specific properties of their underlying syntax that allow the appearance of FOFC to arise without instantiating the structure in (1). This line of argumentation is attractive, given the apparent FOFC violation seen in Amahuaca, because the heads involved are morphophonological clitics that always appear in a fixed structural position (i.e. “particles”). Specifically, it is attractive to treat Asp as the relevant head, vP as its complement, and T as the seemingly FOFC-violating particle. In this section, I will demonstrate that none of the potential avenues explored by Biberauer for avoiding a true FOFC violation in H-C...Part structures can account for the FOFC-violating Amahuaca structure in (3). Thus, the Amahuaca data remain unaccounted for by a theory that assumes that FOFC is a result of constraints on roll-up movement.

The first way of deriving a FOFC-compliant H-C...Part order that we will consider assumes that the particle is an adverb, rather than a head in the clausal spine. Biberauer (2017) proposes that many non-inflecting TAM elements are truly adverbial rather than being functional heads in the extended verbal projection. In the cases of these adverbial particles, they are often doubled by a functional head that encodes a less-specific temporal meaning. The Amahuaca data do not easily lend themselves to this type of view. First of all, T, the FOFC-violating particle, inflects for the person of the subject, as demonstrated again in (10). This is unexpected if it is an adverb, rather than a functional head.5

(10) a. koshi=mun ka=hi hun=ka=nu  
   quickly=C go=IPFV 1SG=1.PRES=DECL
   ‘I am running.’

b. koshi=mun ka=hi jan=ki=nu  
   quickly=C go=IPFV 3SG=3.PRES=DECL
   ‘He is running.’

Additionally, the element in T does not encode a highly specific temporal meaning as is often the case for adverbial expressions, but rather encodes only a simple present versus

5Of course, some languages have been argued to have agreeing adverbs. Interestingly, some instances of the Panoan phenomenon of participant agreement (Valenzuela, 2003) could be analyzed as involving an agreeing adverb. However, even if these structures do involve an adverb that agrees, rather than some reduced clausal constituent, the adverb agrees only in case, not in the person of the subject. Therefore, if the elements argued to be in T were adverbs, they would be unusual in being the only adverbs in Amahuaca that agree in person and not in case.
past distinction. Further, the enclitic argued to instantiate T is not doubled by another auxiliary-like element in the structure that encodes tense – it is the only overt encoding of tense in the sentence. In all of these respects, T in Amahuaca behaves like a standard tense head and unlike a temporal adverb.

The second FOFC-compliant path to an H-C...Part structure involves a structure where the head-initial projection is not the complement of the particle. This can arise in two different ways. First, there can be intervening functional structure between the two elements, such that the head-final projection does not immediately dominate the head-initial projection. If there is more functional structure, the type of movement that derives the H-C...Part order may not actually involve Comp-to-Spec roll-up movement. However, there is no evidence in Amahuaca for any intervening functional structure between Asp and T (nor are there many plausible candidates crosslinguistically for such a head). The second way that such a configuration can occur is if the particle is actually structurally lower than the head-initial head. In Amahuaca, the relevant head is Asp and the particle is T. There is no evidence that T is lower than Asp, and to posit this would violate Cinque’s (1999) hierarchies.

The third way that H-C...Part orders can arise without violating FOFC is if the particle is not within the same extended projection as the head. This can be because the particle has a distinct categorial feature from the head or because it lacks a categorial feature altogether. Evidence that an element lacks a categorial feature specification can come from its ability to appear in various structural configurations and to select complements of various categories (Biberauer, 2017). However, Amahuaca T consistently appears in the same clause-final position, and it selects a verbal ([+V]) complement. Some evidence that the complement of T is consistently [+V] comes from non-verbal predication. In non-verbal predication structures that lack a [+V] element, T is absent, as seen in (11a).

(11) a. vakoma=mun hitziz=nu
    water=C hot=DECL
    ‘The water is hot.’

b. vakoma=mun hitziz ja=xo=nu
    water=C hot be=3.PST=DECL
    ‘The water was hot.’

In (11a), no tense marker appears with the non-verbal predicate hitziz ‘hot’. This can be contrasted with the situation in (11b). Here, when the past tense marker =xo is used, the verb ja ‘be’ appears as well. This distribution thus suggests that, not only does T have a categorial specification, but it has the same categorial specification as its complement, namely [+V].

The final means of arriving at a FOFC-compliant H-C...Part structure that Biberauer (2017) proposes is one in which the particle is actually not present in the narrow syntax, but only at PF. Some negative concord particles that appear to violate FOFC can potentially be analyzed as PF reflexes of agreement with another negative element in the clause. However, this type of solution seems problematic for Amahuaca. While it is true that Amahuaca T realizes subject agreement, which may be post-syntactic (Bobaljik, 2008), T also encodes a present versus past distinction that is not encoded by another element in
the clause. Therefore, there is little independent motivation for analyzing it as a concord element.

In conclusion, none of the special properties of particles and their surrounding environment discussed by Biberauer (2017) apply to the Amahuaca example of Asp and T. Thus, an analysis of Amahuaca T as an adverb (for example) could of course be posited to save the FOFC universal, but only in a way that chips away substantially at the falsifiability of the universal claim. If we diagnose matters such as adverb status according to independent diagnostics, the Amahuaca configuration seems to involve a true violation of FOFC within the verbal extended projection.

3 Rightward movement and FOFC

Zeijlstra (2016) offers an alternative account of FOFC which does not take it to be a universal that results from the LCA and constraints on roll-up movement. Instead, Zeijlstra (2016) argues that there is a ban on rightward movement (Abels and Neeleman, 2012), and that this restriction yields a strong tendency to avoid configurations where a head-final projection immediately dominates a head-initial one. Specifically, he argues that FOFC is simply a typological tendency due to the fact that rightward head-movement must not cross dependents of the moving head, because this type of illicit movements creates conflicting linearization statements (Ackema and Neeleman, 2002). Therefore, the classic FOFC-violating structure in (12), will only be permissible if $\beta$ is never a movement target for $\alpha$. If it were a movement target, then $\alpha$ would have to cross $\gamma$P, which is ruled out.

![Diagram of FOFC structure](image)

The account pursued by Zeijlstra (2016) predicts that the type of final-over-initial structure found in Amahuaca should be attested. Under Zeijlstra’s model, head-final structures are not more derivationally complex than their head-initial counterparts; they can involve base-generation of the head-final order, rather than being derived via roll-up movement. Therefore, Amahuaca T can be base generated as a head-final structure, regardless of the headedness of the projection that it selects. What matters for this account of FOFC is movement between head-initial and head-final heads. In Amahuaca, there is no evidence that T ($\beta$) is ever a movement target for Asp ($\alpha$). In fact, no illicit rightward head movement is needed to account for the Amahuaca pattern. Rightward head movement from V to v is possible since this movement is string-vacuous, and head movement of the complex head V+v to Asp is leftward.

To summarize, the FOFC-violating structure instantiated by Amahuaca Asp and T is not predicted by accounts such as that of Biberauer et al. (2014), which relies on the LCA to derive a universal ban on final-over-initial structures within an extended projection. However, the Amahuaca-type configuration where a higher head-final head is never a movement target for a lower head-initial head within its extended projection is exactly the type of exception to FOFC predicted to exist by Zeijlstra’s (2016) account, which relies
on a general rightward movement ban. Therefore, the Amahuaca data provide empirical support for treating FOFC as a strong tendency due to constrained rightward movement, rather than a universal due to constrained roll-up movement.

References


