Michelle Sheehan, **Theresa Biberauer**, **Ian Roberts**, and **Anders Holmberg**. 2017.*The Final-Over-Final Condition: A Syntactic Universal*. Cambridge, Massachusetts: MIT Press. Pp. 446. $102.84 (softcover).

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The book under review puts forward a syntactic constraint called the final-over-final condition (FOFC), which is presented as a reflection of the asymmetry of the syntax of natural language. Chapter 1 is an introduction to the constraint. Chapter 2 provides empirical evidence for the constraint. Chapter 3 demonstrates the pervasiveness of the constraint across categories. Chapter 4 discusses the FOFC in relation to structure and linear order. Chapter 5 explores the hypothesis that the FOFC is a constraint on speech processing. Chapter 6 extends FOFC to adjuncts. Chapter 7 explores the idea that William's Head-Final Filter (1982) might be subsumed under the FOFC. Chapter 8 is an exploration of the FOFC in the nominal domain. Chapter 9 tackles apparent counter-examples to the FOFC. Chapter 10 discusses the FOFC in free word order languages. Chapter 11 discusses the FOFC in morphology.

What the FOFC is. The FOFC is, according to Sheehan, Biberauer, Roberts and Holmberg (2017), a condition which describes an asymmetry in natural language. Consider the syntactic configurations in (1):

(1)
  a. A head-initial phrase (a phrase where the head precedes its complement) immediately dominates a head-initial phrase in the same extended projection (an abundant harmonic configuration, p. 12)
  b. A head-final phrase (a phrase where the head follows its complement) immediately dominates a head-final phrase in the same extended projection (an abundant harmonic configuration, p. 12)
  c. A head-initial phrase immediately dominates a head-final phrase in the same extended projection (an attested, though much less common, disharmonic configuration, p. 12)
  d. A head-final phrase immediately dominates a head-initial phrase in the same extended projection (a very uncommon – or non-existent – configuration, p. 12)

The hypothesis put forward by the authors is that the syntax of natural language is biased in that it allows a head-final phrase to immediately dominate a head-final phrase (configuration b in (1) above), but disallows it from immediately dominating a head-initial phrase (configuration d in (1) above). This is the FOFC. Crucial to the theory proposed by the authors is the notion of extended projection (Grimshaw 1991, 2000). Thus, a head-final VP that immediately dominates a head-initial DP does not count as an FOFC violation, as V and D belong to distinct extended projections. Thus, (2) below is not a FOFC violation.

(2) [[D NP $_{DP}$] V $_{VP}$]

The FOFC: A syntactic universal or a processing effect? The authors propose that the FOFC is a syntactic universal. However, they do not seem to be strongly

committed to that view, as they seem to be willing to allow for the possibility that the condition might ultimately find its explanation in a processing-based account; that is, a third factor account, in the sense of Chomsky (2005: 7) (see, for example, p. 93 for such a statement).

Shehan's Model of the FOFC. A word about Shehan's model (2011, 2013a,b, cited in chapter 5 of Sheehan, Biberauer, Roberts and Holmberg 2017) needs to be said here. Certainly, this model explains FOFC violations elegantly. However, one should notice that this model still invokes the Linear Correspondence Axiom (LCA) as one of the last resort mechanisms which steps in when everything else fails. This means that this model does not fare better than other models (specifically Biberauer, Holmberg and Roberts 2014, as cited in Sheehan, Biberauer, Roberts and Holmberg 2017) where the LCA is crucial to the explanation of FOFC violations. Second, in addition to the LCA and the directionality feature lexically marked on heads, this model requires another relation to explain the facts, namely transitivity (i.e., if X is lexically marked to precede Y and Z is lexically marked to follow Y, then X precedes Z by transitivity). The question here is the following: what is the formal status of transitivity in this model?

Further empirical evidence in support of the FOFC. Standard Arabic (SA) also exhibits effects of the Head Final Filter (Williams 1982), and hence of the FOFC. Although adjectives follow nouns in SA, there is one exception, namely: degree adjectives, as in *ʔaTwal* 'taller', precede the head noun. Thus, PP complements/adjuncts of the degree adjective must be extraposed; otherwise, the structure is ungrammatical, as they constitute FOFC violations. This is seen by the following contrasts:

(3) a. ʔ-abHaɵ-u   ʕan   *ʔaTwali*   *rajul-i-n*   fii
         1SG -look-IND   for   tallest.GEN man-GEN-INDEF   in
         l-qaaʕat-i
         the-hall-GEN
         'I look for the tallest man in the hall/I am looking for the tallest man in the hall.'

     b. ʔ-abHaɵ-u   ʕan   *rajul-i-n*   *ʔaTwali min*
         1SG-look-IND   for   man-GEN-INDEF   taller.GEN than
         ʔax-ii-hi   fii   l-qaaʕat-i
         brother-GEN- his   in   the-hall-GEN
         'I look for a man taller than his brother in the hall/I am looking for a man taller than his brother in the hall.'

     c. *ʔ-abHaɵ-u   ʕan   *ʔaTwali*   *min*   *ʔax-ii-hi*
         1SG-look-IND   for   taller.GEN   than   brother-GEN-his
         rajul-i-n   fii   l-qaaʕat-i
         man-GEN- INDEF   in   the-hall-GEN

(4)
     a. ʔ-abHaɵ-u   ʕan   *ʔaTwal-i*   *rajul-i-n*
         1SG-look-INDIC   for   tallest.GEN man-GEN-INDEF
         ʕalaa l-ʔiTlaaq
         on   the-absoluteness
         'I look for the absolutely tallest man/ I am looking for the absolutely tallest man.'

b. *ʔ-abHaθ-u   ʕan   *ʔaTwal-i*   ʕalaa   l-ʔiTlaaq-i
   1SG -look-INDIC   for   tallest.GEN on   absoluteness-GEN
   rajul-i-n
   man-GEN-INDEF

A problem for the FOFC. One of the authors' claims is that the FOFC is active even in morphology. That is, the structure of the word obeys the FOFC. One counter-example that comes to mind is from Standard Arabic compounds. Consider the following Arabic compound:

(5)   [[jawaaz]$_N$ [safar]$_N$-ii]$_{DP}$
       permit   travel-my
      'my passport'

In this N+N compound (see Ryding 2014: 82), the left element in the compound seems to be the head of the compound. This is confirmed by the fact that it is this element of the compound that inflects for number, gender and case, as can be seen below:

(6)   a. jawaaz-**aat**   safar-ii
         permit-**PL.F**   travel.SG-my
         'my passports'

      b. *jawaaz   ʔasfaar-ii
         permit.SG   travel.**PL**-my

(7)   a. ʔuriid-u   jawaaz-**a**   safar-ii
         want-1.PRES-INDIC   permit-**ACC** travel-my
         'I want my passport.'

      b. taHadath-tu   ʕan   jawaaz-**i**   safar-ii
         talked-1SG   about   permit-**GEN** travel-my
         'I talked about my passport.'

The possessive dependent pronoun *-ii* 'my' in (5) above is suffixed to the second element of the N+N compound. According to the authors, this is an indication that its head (D) is a projecting head. Note, however, that this will create a FOFC violation, given that the head of a head-final phrase, D, will be dominating the head of an initial phrase, the first element N of the N + N compound.

The FOFC and falsifiability: One of the major strengths of the theory proposed in this book is that it is made falsifiable by the strong predictions made by the proponents of the theory. One such prediction is related to the pathways along which language change proceeds diachronically. The prediction is stated as follows: A change from head-final to head-initial languages must take place "top-down". This is schematized in (8):

(8)   [[[OV]T]C]---> [C [[OV] T]]---> [C [T [OV]]]---> [C [T [VO]]] (p. 21)

Conversely, any change from a head-initial language to a head-final language must take place "bottom-up". This is schematized in (9):

(9)   [C [T [VO]]]---> [C [T [OV]]]---> [C [[OV] T]]---> [[[OV] T] C] (p.21)

Another strong prediction that is made in the book concerns first and second language acquisition. Regarding first language acquisition, the authors predict that synthetic compounds of the form [*V+N-er*] which violate the FOFC are much fewer in number than other errors children make and are short-lived during the process of first language acquisition. As far as adult second language acquisition is concerned, the prediction is that errors of the forms [V+N-er] or [V+N-ing] such as *quench-thir-ster*, *keep-peacing*, etc., should not be attested.

The FOFC and adjuncts. One major claim in the book is the strong hypothesis that FOFC-effects do not only hold in configurations of the form [[$_{VP}$ V Object] Aux $_{AUXP}$] but are rather general in nature in that they also hold in configurations of the form [$_{VP}$ V X] AUX $_{AUXP}$], where X is the functional head licensing adjuncts (p. 101). By extending the FOFC-effects to include adjuncts, the authors seem, at times, to be standing on less firm ground when defending their theory against what look like clear cases of counter-examples (e.g., pp. 102–114).

Conclusion. All in all, if proved to be correct, the theory advanced in this book would constitute a real breakthrough in the field of theoretical linguistics. Drawing on typological observations of the Greenbergian type and proposing theoretical claims couched within the Chomskian approach to language is very exciting. Notwithstanding those occasions in the book where the reader feels that the authors are pushing their theory forward by brute force, one is reminded of what David Pesetsky, who wrote the foreword, calls "[e]nlightened persistence in the face of apparent counterevidence" (p. xii). The lesson that the authors seem to put forward is that the FOFC falls in the category of good ideas, and good ideas need to be pursued unless faced with compelling counterevidence. This book is a must-read for theoretical linguists of all stripes, language typologists, historical linguists, first and second language acquisitionists. It can also be of great interest for scholars working in fields of science other than linguistics.

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