# Unifying Phrasal and Word-Internal Ordering: The Final-Over-Final Condition in Superlative Adjectives and Beyond[*]

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## 1 Introduction

Here I describe and analyze a generalization about morpheme order in adjectives, which I argue converges interestingly with a particular proposal about word order in syntax. Specifically, I will focus on the morphology of synthetic comparative and superlative adjectives. In many languages of the world, we see dedicated mutually-exclusive suffixes which add comparative and superlative meaning. In English, these are the comparative *-er* and superlative *-(e)st*, as we see below:

(1)  *English*

 a.  *Plain adjective*
   small

 b.  *With a comparative suffix*
   small-**er**

 c.  *With a superlative suffix*
   small-**est**

However, as discussed extensively in Bobaljik (2012), in some languages superlative adjectives involve a superlative affix that co-occurs with the usual comparative affix. We can see this clearly in Persian, for instance:

(2)  *Persian*

 a.  *Plain adjective*
   kam (=small)

 b.  *With a comparative suffix*
   kam-**tar** (=smaller)

 c.  *With a superlative suffix*
   kam-**tar**-**in** (=smallest)

Bobaljik (2012) and works in a similar vein such as Moskal (2018) and Smith et al. (2019) take an interest in such "containment" phenomena, because of their relation to important generalizations about the distribution of allomorphy, as I'll summarize later. In contrast, today I focus on the morpheme orders that are possible in situations where there are stacked comparative and superlative affixes.

As far as I know, there are three cross-linguistically attested orders for such forms, previewed in (3):

(3)     *Three patterns of comparative (underlined) plus superlative (boxed)*

|            | Plain          | Comparative | Superlative     |
|------------|----------------|-------------|-----------------|
| Persian    | kam (small)    | kam-<u>tar</u>   | kam-<u>tar</u>-`in` |
| Ubykh      | nüsə (pretty)  | <u>ç'</u>a-nüsə  | `a`-<u>ç'</u>a-nüsə |
| Hungarian  | nagy (big)     | nagy-<u>obb</u>  | `leg`-nagy-<u>obb</u> |

In Persian, we see a comparative suffix which is followed by a superlative suffix. In Ubykh, we see a comparative prefix which is preceded by a superlative prefix. And in Hungarian, we see a comparative suffix, but a superlative prefix.

The main point of this paper is to argue that these patterns fit the predictions of the Final-Over-Final Condition (FOFC), defined as follows:

(4)     *Final-Over-Final Condition (FOFC)*
        A head-initial phrase cannot be dominated by a head final phrase (within the same "extended projection").
        [Paraphrased from Sheehan at al. (2017) pg. 1]

In particular, I will argue that if comparative and superlative affixes instantiate syntactic heads, then the FOFC makes the following correct prediction:

(5)     *The FOFC in comparative/superlative adjectives*
        A superlative prefix can combine with a comparative prefix or suffix, but a superlative suffix can only combine with a comparative suffix.

As previewed in (3) above, this prediction is correct, as I will demonstrate in detail.

I argue that this finding is interesting because it is a clear case of convergence in phrasal and word-internal ordering constraints. The literature arguing for the FOFC focuses on phrase-level word ordering, rather than morpheme ordering (though Sheehan et al. (2017) discusses some morpheme ordering generalizations). However, if word-internal morphology is fundamentally a reflection of syntax, as in theories like Distributed Morphology (Halle and Marantz 1993; Harley and Noyer 1999, a.o.), then the FOFC should emerge in both syntax and morphology. Therefore this investigation of adjectives provides a new line of evidence that, at least in the basic case, morphology is simply a reflection of syntactic structure. This is as opposed to lexicalist approaches, in which word-formation and phrase-level syntax are taken to be distinct components of grammar.

## 1.1   Contents of the paper

In section 2, I overview the FOFC, and discuss why we expect it to apply for word-internal morphology as well as phrase-level structure. In section 3, I provide theoretic and empirical background on the morpho-syntax of synthetic comparative and superlative adjectives. In section 4, I show how the FOFC, combined with independent findings about superlative adjectives, lead us to make the predictions previewed above. Section 5 concludes.

## 2   The FOFC and why it should apply in morphology

Here I provide more background on the FOFC and the Distributed Morphology theory, which I argue interact to yield the adjectival patterns previewed above. As mentioned, research arguing for the FOFC is almost totally focused on phrase-level word order patterns. Let's see

more precisely what word order patterns the FOFC predicts. Recall the definition of the FOFC shown above:

(6) *The FOFC*
A head-initial phrase cannot be dominated by a head final phrase (within the same "extended projection").

This constraint predicts three possible ordering schemas, and also rules out one possibility which the FOFC literature argues is generally unattested.
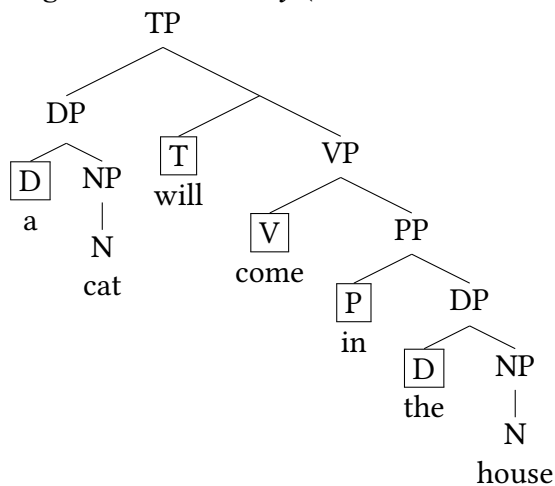
First, the FOFC predicts that consistent head-initial structures should be permitted:

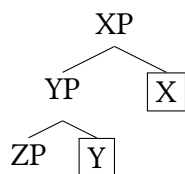(7) ✓ *Consistent head-initiality*

```
        XP
       /  \
    [X]    YP
          /  \
        [Y]   ZP
```
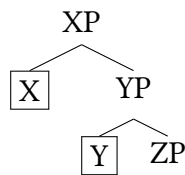
Many languages of the world fit this description, such as English:

(8) *English head-initiality* (vP etc. omitted due to irrelevance)

```
              TP
           /      \
        DP          \
       /  \      [T]      VP
    [D]   NP    will    /    \
     a     |        [V]       PP
           N       come      /   \
          cat             [P]      DP
                           in     /  \
                                [D]   NP
                                the    |
                                       N
                                     house
```

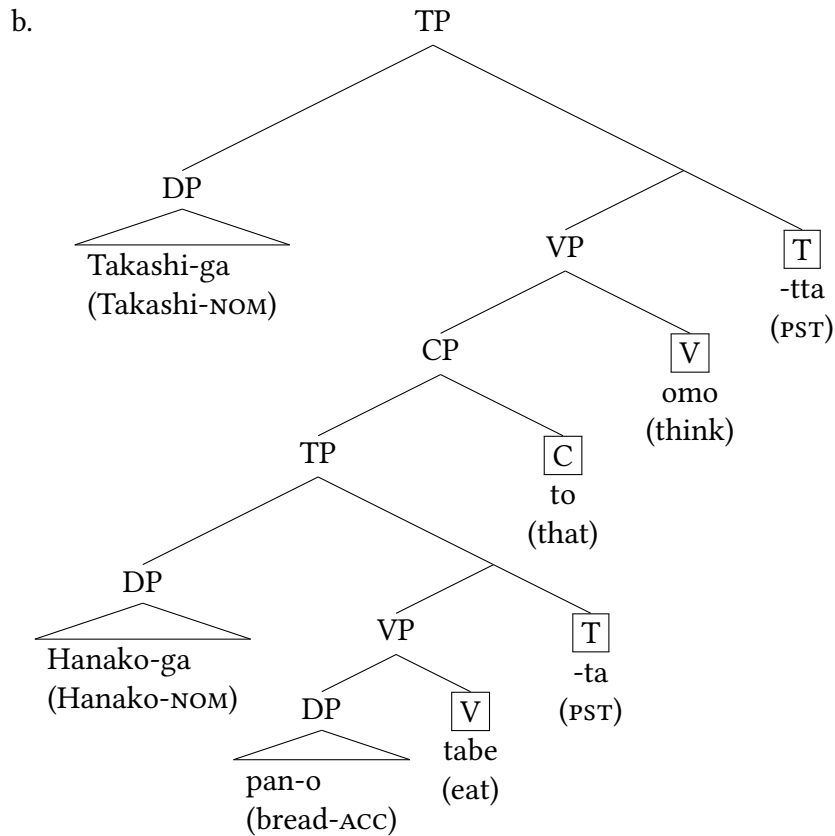Second, the FOFC predicts that consistent head-final structures should also be allowed:

(9) ✓ *Consistent head-finality*

```
         XP
        /  \
      YP    [X]
     /  \
   ZP   [Y]
```

This is one of the most common types of human language, illustrated below with the well-known Japanese:

(10) *Japanese head-finality*
    a.  Takashi-ga  Hanako-ga  pan-o    tabe-ta  to  omo-tta
        Takashi-NOM Hanako-NOM bread-ACC eat-PAST that think-PAST
        'Takashi thought that Hanako ate bread.'

b.

```
                              TP
                 ┌─────────────┴──────────────┐
                DP                            ┌──────┴──────┐
          ┌──────┴──────┐                    VP            ┌─┐
       Takashi-ga                    ┌────────┴─────┐      │T│
     (Takashi-NOM)                  CP             ┌─┐     └─┘
                              ┌──────┴──────┐      │V│    -tta
                             TP            ┌─┐     └─┘    (PST)
                      ┌───────┴────┐       │C│    omo
                     DP           ┌┴─┐      └─┘   (think)
               ┌──────┴──────┐    VP to
            Hanako-ga    ┌────┴────┐ (that)
          (Hanako-NOM)  DP        ┌─┐
                    ┌────┴───┐    │V│   ┌─┐
                  pan-o      tabe └─┘   │T│
               (bread-ACC)  (eat)       └─┘
                                       -ta
                                      (PST)
```

Third, the FOFC permits structures of mixed headedness in which a head-initial phrase dominates a head-final phrase.

(11)   ✓ *Head-initial over head-final*

```
        XP
     ┌───┴───┐
    ┌─┐     YP
    │X│   ┌──┴──┐
    └─┘  ZP   ┌─┐
             │Y│
             └─┘
```
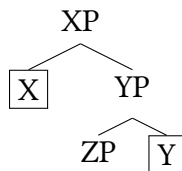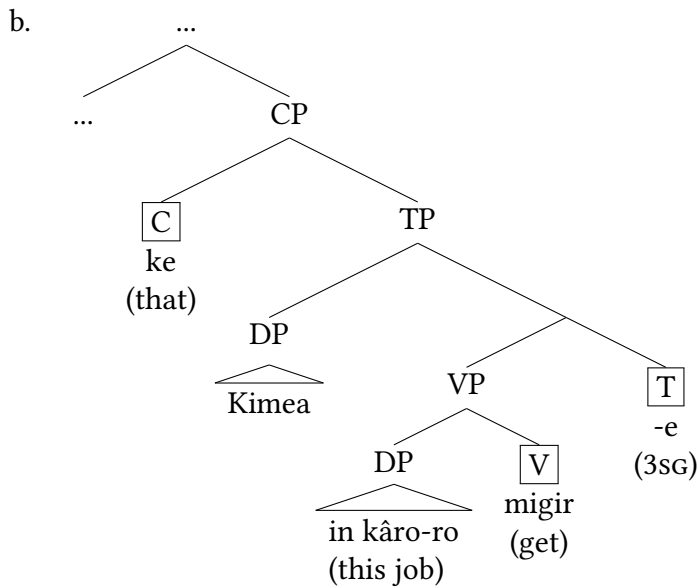
This ordering is attested, for example, in languages that are largely head-final but have head-initial complementizers, like Persian/Farsi:

(12)   *Head-initial complementizer in head-final Persian*
   a.   (Adapted from Sato and Karimi 2016, ex. 25)

   Man goft-am [ **ke**   Kimea in   kâro-ro migir-e      ]
   I     said-1SG   that Kimea this job       will.get-3SG

   "I said that Kimea will get this job."

4

b.

```
                        ...
                  ┌──────┴──────┐
                 ...            CP
                          ┌──────┴──────┐
                        [C]             TP
                         ke       ┌──────┴──────┐
                       (that)    DP              T
                              ┌───┴───┐         [T]
                            Kimea     VP         -e
                                 ┌─────┴─────┐  (3sG)
                                DP          [V]
                            ┌────┴────┐    migir
                         in kâro-ro   (get)
                         (this job)
```

Head-initial CPs in such languages must generally be ordered after V, rather than before V as we would otherwise expect in a head-final language. For instance, in the above Persian example, the object "this job" precedes the V "get" as expected, while the object CP follows the V "said" that presumably selected it. This happens to create a configuration where the head-initial CP is not dominated by a head-final VP.
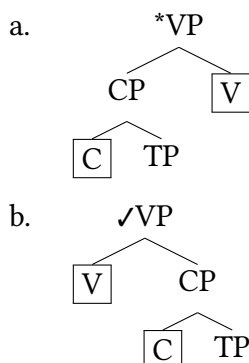
Sheehan et al. (2017) argue that this is a direct effect of the FOFC, which rejects structures where a head-final phrase dominates a head-initial one:

(13)    *Head-final over head-initial*

```
              XP
         ┌────┴────┐
        YP        [X]
    ┌────┴────┐
   [Y]       ZP
```
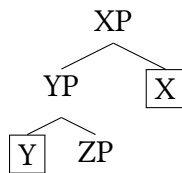
For this reason, a head-initial object CP in an otherwise head-final language cannot be left of V as we would expect, but rather must somehow end up right of V:
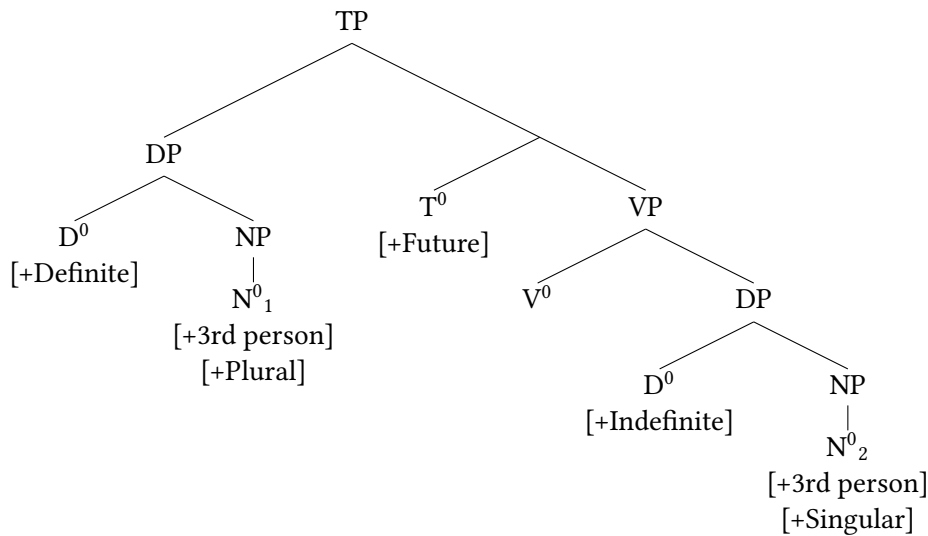
(14)    *No head-final V over head-initial CP*

a.
```
          *VP
      ┌────┴────┐
     CP        [V]
  ┌───┴───┐
 [C]     TP
```

b.
```
          ✓VP
      ┌────┴────┐
     [V]       CP
           ┌───┴───┐
          [C]     TP
```

Hence the name "Final-Over-Final Condition": A final head can only dominate another final head, not an initial one. If the literature in this vein is correct, the FOFC is at least a general tendency in human language syntax. However, it is now worth asking why the FOFC should have anything to do with morphology, as I have previewed above.

We can imagine a hypothetical world in which phenomena such as morpheme ordering

are determined by a component of the grammar that is totally separate from syntax. If this were so, we would not expect a constraint on phrase-level ordering, like the FOFC, to have any influence on morphology. In contrast, we do expect to find FOFC effects in morphology if the foundation of morphology is syntax, as in a theory like Distributed Morphology. Indeed, in Distributed Morphology it is hypothesized that each morpheme typically instantiates a syntactic head, and is thus associated with a syntactic phrase. I argue that the facts about synthetic superlative adjectives verify this prediction.

The details of Distributed Morphology are not important for this paper, but to make this point explicit it will be useful to summarize its core components. Work in Distributed Morphology argues that the derivation of a sentence first constructs a syntactic tree, which lacks morphological or phonological information.[1] Below, for instance, we have such a tree:

(15)    *A morphology-less structure*

```
                              TP
                 ┌────────────┴──────────────┐
                DP                      ┌─────┴─────┐
           ┌────┴────┐                 T⁰          VP
          D⁰        NP            [+Future]    ┌────┴────┐
      [+Definite]    │                        V⁰        DP
                    N⁰₁                             ┌────┴────┐
              [+3rd person]                        D⁰        NP
                [+Plural]                     [+Indefinite]    │
                                                             N⁰₂
                                                       [+3rd person]
                                                         [+Singular]
```

Next the structure is *spelled-out*, and the morpho(phono)logical form of its terminal nodes is decided using a listed lexicon of Vocabulary Insertion (VI) rules, like these:
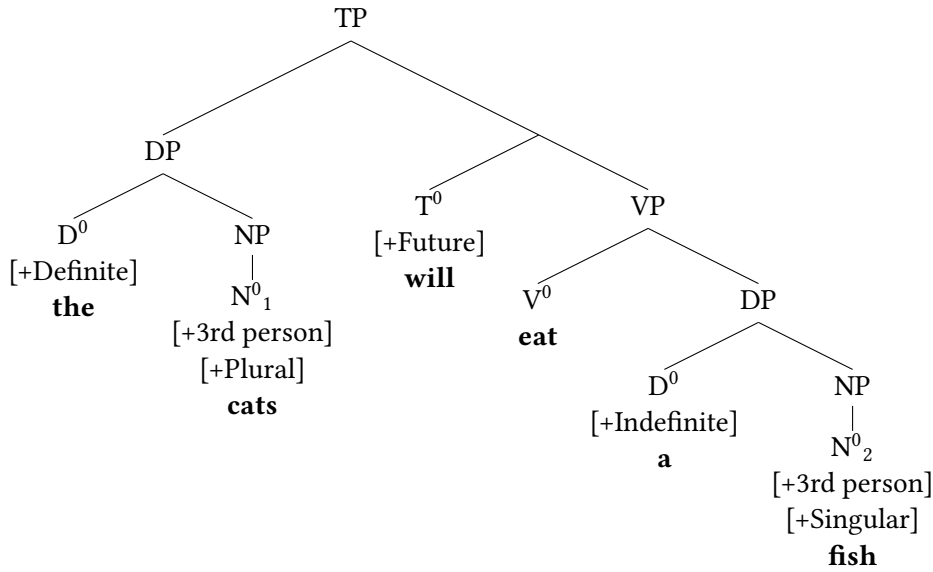
(16)    *Some VI rules for English*
   a.    the ↔ [D, +Definite]
   b.    a ↔ [D, +Indefinite]
   c.    cats ↔ [$N_1$, +Plural]
   d.    fish ↔ $N_2$
   e.    will ↔ [T, +Future]
   f.    eat ↔ V

Here is how the tree shown above looks after these VI rules are applied to it:

---

[1]By hypothesis, at this point the linear order of the tree's constituents has not been established, though it is not possible to actually draw an un-ordered tree.

(17) *The structure after VI rules apply*

TP
├── DP
│   ├── $D^0$ [+Definite] **the**
│   └── NP
│       └── $N^0_1$ [+3rd person] [+Plural] **cats**
└── (T' / VP structure)
    ├── $T^0$ [+Future] **will**
    └── VP
        ├── $V^0$ **eat**
        └── DP
            ├── $D^0$ [+Indefinite] **a**
            └── NP
                └── $N^0_2$ [+3rd person] [+Singular] **fish**

Thus in this theory it is a syntactic tree that precedes, and thus determines (at least in the basic case) the positions of the morphemes in the corresponding sentence. Many argue that spell-out and VI application happens phase-by-phase (see for instance Embick 2010), but this is not relevant for my purposes. If this general perspective on the syntax-morphology relationship is correct, then we expect to find situations where syntactic constraints are reflected in morphology. I argue that this is what we find when we examine morpheme ordering in adjectives with superlative-comparative containment. In the next section I provide more background on the structure of such adjectives, after which we will be ready for the main analysis.

# 3    Background on comparative/superlative structures

Bobaljik (2012) argues that it is a cross-linguistic syntactic universal that superlative adjectives contain the structure that corresponds to a comparative. That is, an adjective phrase (AdjP) is dominated by a comparative phrase (CmprP) in comparatives, which is dominated by a superlative phrase (SprlP) in superlatives:

(18) *Superlatives contain comparatives*
(Adapted from Bobaljik 2012, p. 81, ex. 109)

SprlP
├── Sprl
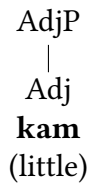└── CmprP
    ├── Cmpr
    └── AdjP
        └── Adj
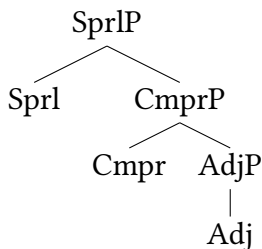
Given this structure, we expect to find some languages where superlative affixes co-occur with comparative ones. As previewed in (3) above this is so, illustrated below for Persian:[2]
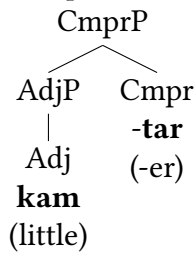
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[2]Works using Distributed Morphology frequently assume that multi-morphemic words arise from the heads that instantiate those morphemes forming one constituent via head-movement. For further discussion see Embick (2010); Arregi and Nevins (2012); Bobaljik (2012). This would entail that in synthetic forms like that in (19c), Adj moves to Cmpr, and Cmpr moves to Sprl. As far as I can see, my arguments neither depend on, nor contradict,
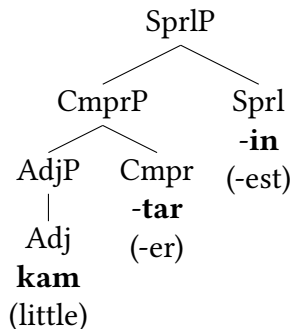
(19)  *Persian*

    a.   *Plain adjective*

```
AdjP
 |
Adj
kam
(little)
```
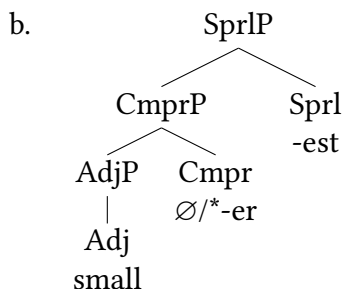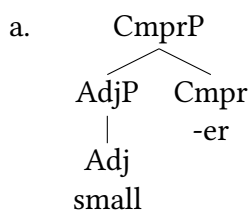
    b.   *Comparative adjective*

```
        CmprP
       /    \
    AdjP    Cmpr
     |      -tar
    Adj     (-er)
    kam
   (little)
```

    c.   *Superlative adjective*

```
            SprlP
           /    \
       CmprP    Sprl
      /    \    -in
    AdjP  Cmpr  (-est)
     |    -tar
    Adj   (-er)
    kam
   (little)
```

We will discuss the full range of such data in detail in the next section.

In some languages such as English, use of a superlative affix prevents use of a comparative one, so we never see these morphemes stacked. Thus it is worth asking whether the superlative really contains the comparative in such languages, since the assumed comparative element must be silent in their superlatives:

(20)  *Comparatives and superlatives in English*

    a.

```
        CmprP
       /    \
    AdjP    Cmpr
     |      -er
    Adj
   small
```

    b.

```
            SprlP
           /    \
       CmprP    Sprl
      /    \    -est
    AdjP  Cmpr
     |    ∅/*-er
    Adj
   small
```

---

this view of word formation. Therefore I set this detail aside.

Bobaljik argues using evidence from suppletion that the comparative is always inside the superlative, even if we don't see it, as in the above diagram. His core observation is that when a language has suppletion of an adjective triggered by use of a comparative, that same suppletion also occurs in the superlative:

(21)  *Suppletion in comparatives inherited by superlatives*
      (Adapted from Bobaljik 2012, p. 28, ex. 30)

|                      | Plain | Comparative | Superlative |
|----------------------|-------|-------------|-------------|
| good (English)       | good  | <u>b</u>etter | <u>b</u>est |
| bad (English)        | bad   | <u>worse</u> | <u>worst</u> |
| good (Danish)        | god   | <u>bed</u>re | <u>bed</u>st |
| good (Estonian)      | hea   | <u>parem</u> | <u>parim</u> |
| good (Kildin Saami)  | šig'  | <u>pɛr'</u>am | <u>pɛr'</u>mus |
| many (Basque)        | asko  | <u>gehia</u>go | <u>gehie</u>n |

In the above examples, we do not have stacked comparative and superlative affixes, but we do see a distinct adjectival form in both comparative and superlative contexts. Bobaljik's proposal is that if there is a VI rule that assigns an adjective a special form in comparative contexts, we indeed expect that rule to also be triggered in superlative contexts, since superlatives always contain comparative structure.

To illustrate, let's consider the Danish paradigm for 'good', which can be described by the following VI rules:

(22)  *Some VI rules for Danish*

    a.   Adj ↔ god
    b.   Cmpr ↔ -re
    c.   Sprl ↔ -st
    d.   Cmpr ↔ -∅ / ___ Sprl
    e.   Adj ↔ bed / ___ Cmpr

The VI rules in (22a-c) simply state the usual forms of 'good', the comparative, and the superlative affixes. The rule in (22d) states that the comparative is silent when adjacent to the superlative, which describes the fact that comparative and superlative affixes do not co-occur in Danish, as we saw in (21) above. The rule in (22e) states that this adjective is assigned the form *bed* in comparative environments. Importantly, the rule in (22e) will be triggered both in comparatives, and in superlatives, since the latter contains the structure of the former:
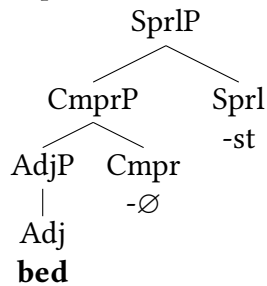
(23)  *Danish*

    a.   *Plain adjective*
       AdjP
        |
       Adj
       god

    b.   *Comparative adjective*
         CmprP
         ⌒
     AdjP   Cmpr
      |      -re
     Adj
     **bed**

c. *Superlative adjective*

```
            SprlP
           /    \
       CmprP     Sprl
       /   \      -st
   AdjP    Cmpr
    |       -∅
   Adj
   bed
```

The same type of analysis works for all the patterns we saw in (21) above. An important component of Bobaljik's arguments is that SprlP always contains CmprP, not the other way around. The proposal that SprlP dominates CmprP is essential for capturing the facts about morpheme ordering in superlative-comparative containment forms, which I do next.

# 4 Predicting morpheme order in superlative adjectives

We have now established that superlative structures contain the comparative:

(24)    *Superlative contains comparative*
        (Adapted from Bobaljik 2012, p. 81, ex. 109)

```
        SprlP
       /    \
    Sprl    CmprP
           /    \
        Cmpr    AdjP
                 |
                Adj
```
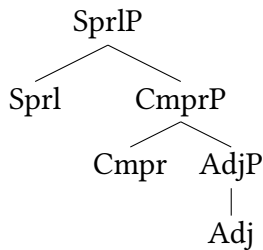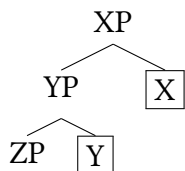
Let's combine this hypothesis with the FOFC, and see what we predict. Recall the word order patterns that the FOFC permits:
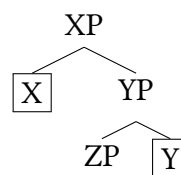
(25)    a. ✓ *Consistent head-initiality*
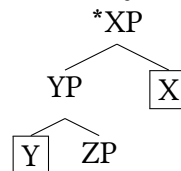
```
            XP
           /  \
        [X]    YP
              /  \
          [Y]    ZP
```

c. ✓ *Head-initial over head-final*

```
            XP
           /  \
        [X]    YP
              /  \
            ZP    [Y]
```
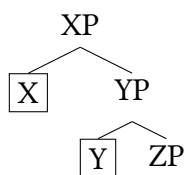
b. ✓ *Consistent head-finality*

```
            XP
           /  \
        YP     [X]
       /  \
     ZP    [Y]
```

d. *No head-final over head-initial*

```
            *XP
           /  \
        YP     [X]
       /  \
     [Y]    ZP
```
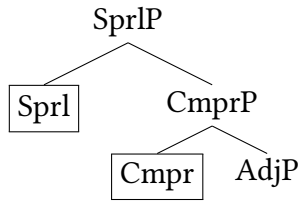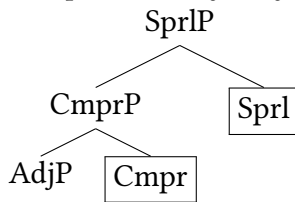
If in these schemas we replace ZP with AdjP, YP with CmprP, and XP with SprlP, we generate the following morpheme orderings for stacked superlative-comparative forms:

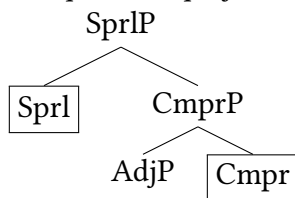(26)     *The FOFC's predictions for comparative/superlative adjectives*
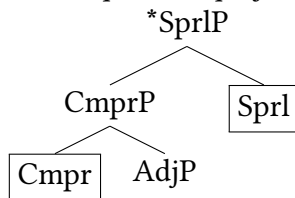
    a.    ✓ *Superlative prefix before comparative prefix*

```
         SprlP
        /     \
   [Sprl]    CmprP
            /      \
        [Cmpr]    AdjP
```

    b.    ✓ *Superlative suffix after comparative suffix*

```
          SprlP
         /     \
     CmprP    [Sprl]
    /     \
  AdjP  [Cmpr]
```

    c.    ✓ *Superlative prefix with comparative suffix*

```
        SprlP
       /     \
   [Sprl]   CmprP
           /      \
         AdjP   [Cmpr]
```

    d.    *No comparative prefix with superlative suffix*

```
         *SprlP
        /      \
    CmprP     [Sprl]
   /     \
[Cmpr]  AdjP
```

So when the superlative and comparative are both prefixes or suffixes, the superlative should be outermost, since it is structurally higher (26a-b). The only mixed order predicted is superlative prefix over comparative suffix (26c), since the reverse would violate the FOFC (26d). I argue that these predictions are correct, as I show next.
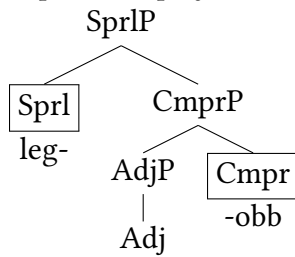
The following data is all from Bobaljik (2012), which is the most extensive collection of relevant facts that I know of. The predicted mixed superlative form, with a prefixal superlative and suffixal comparative, is quite well attested:

(27)     *Comparative suffix with superlative prefix (also Polish and other Slavic languages)*

|  | Hungarian (Uralic) | Czech (Slavic) | Latvian (Baltic) | Chukchi (Chukotkan) |
|---|---|---|---|---|
| CMPR | ADJ-<u>obb</u> | ADJ-š-*í* | ADJ-âk-*ais* | ADJ-əŋ |
| SPRL | [leg]-ADJ-<u>obb</u> | [nej]-ADJ-š-*í* | [vis]-ADJ-âk-*ais* | [ənan]-ADJ-əŋ |

In (28) below we see a tree for a Hungarian superlative:

(28) *Superlative prefix with comparative suffix in Hungarian*

```
            SprlP
           /    \
      ┌──────┐  CmprP
      │ Sprl │  /    \
      └──────┘ AdjP  ┌──────┐
       leg-    │     │ Cmpr │
              Adj    └──────┘
                      -obb
```

Superlatives in Czech and Latvian fit the same structure, though in these languages we see additional suffixes. These are agreement markers (De Clercq and Wyngaerd 2017; Prauliņš 2012), which I will not analyze here. Importantly in contrast, I am aware of no examples with a comparative prefix and superlative suffix, which is the other potential mixed configuration. This is exactly what we expect given the FOFC, which does not permit a head-final SprlP to dominate a head-initial CmprP:

(29) *Unattested: Comparative prefix with superlative suffix*

```
            *SprlP
           /     \
       CmprP    ┌──────┐
       /   \    │ Sprl │
  ┌──────┐ AdjP └──────┘
  │ Cmpr │  │
  └──────┘ Adj
```
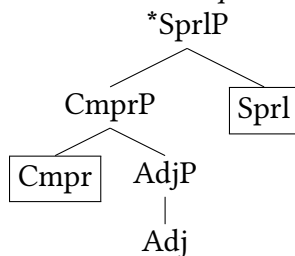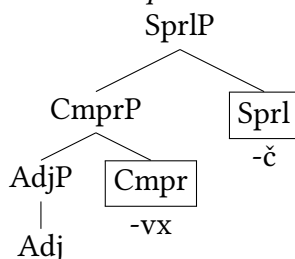
The two consistent patterns, fully head-initial and fully head-final, are indeed attested as we predict. When the comparative and superlative are both head-final, we expect the superlative to follow the comparative as shown above, and this is correct:

(30) *Suffixes for comparative and superlative*

|      | Persian (Iranian) | Cimbrian (Germanic) | Lithuanian (Baltic) | Batsbi (Caucasian) |
|------|-------------------|---------------------|---------------------|--------------------|
| CMPR | ADJ-<u>tar</u> | ADJ-<u>ar</u> | ADJ-<u>iau</u> | ADJ-<u>vx</u> |
| SPRL | ADJ-<u>tar</u>-│in│ | ADJ-<u>ar</u>-│ste│ | ADJ-<u>iaus</u>-│ia│ | ADJ-<u>vx</u>-│č│ |

Below is an illustrative tree for Batsbi:

(31) *Batsbi comparative and superlative suffixes*

```
           SprlP
          /    \
      CmprP   ┌──────┐
      /   \   │ Sprl │
   AdjP ┌──────┐└──────┐
    │   │ Cmpr │  -č
   Adj  └──────┘
          -vx
```
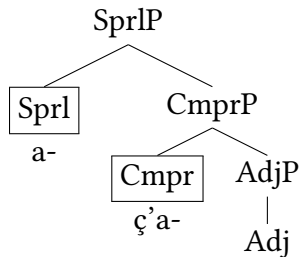
The predicted fully head initial pattern with a superlative prefix outside of a comparative one is also attested, though it seems less common.

(32) *Prefixes for comparative and superlative*

|      | Ubykh (Caucasian) | Georgian (Kartvelian) |
|------|-------------------|-----------------------|
| CMPR | ç'a-ADJ | <u>u</u>-ADJ-es-*i* |
| SPRL | │a│-<u>ç'a</u>-ADJ | │sa│-<u>u</u>-ADJ-es-*o* |

The clearest example here is Ubykh:

(33)   *Superlative and comparative prefixes in Ubykh*

```
              SprlP
         ┌──────┴──────┐
      ┌─────┐        CmprP
      │ Sprl│     ┌────┴────┐
      └─────┘  ┌─────┐    AdjP
        a-     │ Cmpr│      │
               └─────┘     Adj
                 ç'a-
```
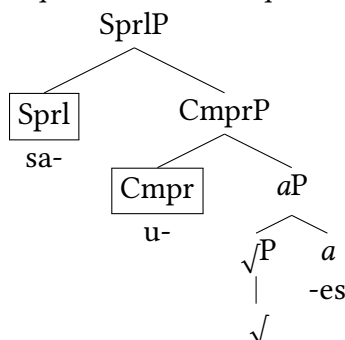
In comparison, Georgian is more complicated. I discuss this next.

## 4.1   On Georgian and the analysis of circumfixes

Following Hewitt (1995), the final vowels in the Georgian comparative/superlative are agreement markers that we can ignore. However, according to Hewitt (p. 40) the Georgian comparative is a circumfix *u- -es*, which is preceded by a prefix *sa-* in the superlative, as we see in (32) above. The expectations for circumfixes in the context of the FOFC are not obvious. If we take Hewitt's circumfix analysis at face value, one half of the Georgian comparative is a prefix (*u-*). If this prefix indeed instantiates a head-initial phrase that plays a role in contributing comparative semantics, then the FOFC predicts that this head should be unable to be dominated by a head-final phrase.

This leads us to expect that when this comparative structure is dominated by a SprlP, the head of SprlP must be a prefix, as indeed it is (*sa-*). To make this analysis concrete, first I suggest that the prefix *u-* heads CmprP in Georgian, since it resembles the Georgian adverb *upro*, 'more' (Hewitt 1996, p. 40). Second, I suggest that the second half of the circumfix, the suffix *-es*, represents a separate functional head. In Distributed Morphology, many works argue that lexical categories like V, N, and Adj consist of category-neutral roots ( $\sqrt{}$ ) dominated by category-assigning heads, respectively, $v^0$, $n^0$, and $a^0$ sSee for instance Embick and Marantz 2008; Embick 2010). I suggest that this *-es* is an allomorph of the adjective-forming *a* which is triggered in comparative contexts. This gives us the following FOFC-compliant structure for the Georgian superlative:

(34)   *Superlative and comparative prefixes in Georgian*

```
              SprlP
         ┌──────┴──────┐
      ┌─────┐        CmprP
      │ Sprl│     ┌─────┴─────┐
      └─────┘  ┌─────┐       aP
        sa-    │ Cmpr│    ┌───┴───┐
               └─────┘   √P       a
                 u-       │       -es
                          √
```

An analysis along similar lines could also be applied to two other cases Bobaljik discusses which appear to involve circumfixes—Cherokee and Svan:

(35)    *Further examples potentially involving circumfixes*

   a.    *Cherokee* (Iroquoian, Bobaljik 2012, p. 106)
         osda 'good'
         **dajehla** 'better'
         <u>wi</u>-**dajehl**-<u>ƛ̃ʔi</u> 'best'

   b.    *Svan* (Kartvelian, Bobaljik 2012, p. 28, ex. 30j)
         ezár 'good'
         <u>xo</u>-**č**-<u>a/ēl</u> 'better'
         <u>ma</u>-**č**-<u>ēne</u> 'best'

Circumfixal comparatives/superlatives do not obviously violate the FOFC, and can likely be analyzed in FOFC-compliant ways. Importantly, none of the circumfix examples we have seen involve anything resembling use of a comparative prefix with a superlative suffix, which is the configuration that is uniquely ruled out by the FOFC.[3]

# 5    Conclusion

I have argued that the attested morpheme orders that we see in adjectives with superlative-comparative containment emerge from the following proposals: Superlative affixes instantiate a SprlP, comparative affixes a CmrpP, and the former dominates the latter. The FOFC constrains ordering in syntactic structures. We fully expect word-internal FOFC effects like this one if morphology realizes syntactic structures, as in theories like Distributed Morphology. I also discussed a puzzle about Korean negative prefixes which is less straightforward, which I suggested may emerge from the influence of "extended projections".

   The general perspective on morpho-syntax defended here is that, in the basic case, morpheme ordering is a direct reflection of syntactic structure (and thus semantic scope). This is essentially the insight of the *Mirror Principle* (Baker 1985). However, there are good reasons to think that other morpho-phonological requirements sometimes create word forms that are not a straightforward reflection of syntax. A variety of languages have *infixes*, which following McCarthy and Prince (1993, 1998), are prefixes/suffixes shifted inward for phonological reasons. There are also known cases of *templatic* morphology, where affixes must occur in fixed orders that do not transparently reflect their structural relations (Hyman 2003). So while morphemes may be introduced in a way that directly reflects syntax, independent requirements of the morphology and phonology may later re-arrange them. When such separate factors do not come into play, we expect to find syntactic constraints reflected in morphology, as I have argued here using synthetic superlatives.[4]

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   [3]De Clercq and Wyngaerd (2017) argue that the Czech comparative should be split into two phrases, expressed by the suffixes *-ěj* and *-š*, though the two only rarely are both visible simultaneously. In situations where both suffixes are present, the superlative still involves use of a prefix *nej-*, as we saw in (27) above. De Clerq and Wyngaerd continue to posit that the superlative dominates comparative structure throughout their analysis, so their "split comparative" proposal does not arrive at any consequences that contradict the FOFC. The following Czech example showing all morphemes, for instance, is FOFC-compliant:

(i)    (Adapted from De Clercq and Wyngaerd 2017, ex. 16)
       [$_{SprlP}$ nej-$_{Sprl}$ [$_{Cmpr2P}$ [$_{Cmpr1P}$ [$_{AdjP}$ moudř ('wise') ] -ěj$_{Cmpr1}$ ] -š$_{Cmpr2}$ ] ]

   [4]Deniz Ozyldiz points out that *unlockable*, which can mean either "not able to be locked" or "able to be unlocked", is FOFC-violating under the second reading, where *-able* takes scope over and thus presumably dominates the negative prefix *un-*:

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(i)     *Low scope of negation in "unlockable" should violate the FOFC*
        [[ un- lock$_V$ ] -able$_{Adj}$ ]

As Sheehan et al. (2017) discuss (see 9.2.2, 11.3.3), negation in a number of languages is not FOFC-compliant. This does not solve the puzzle, but it does indicate that there is potentially a more general phenomenon that is responsible for this fact.