

MORE OR BETTER: ON THE DERIVATION OF SYNTHETIC COMPARATIVES AND SUPERLATIVES IN ENGLISH

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1 INTRODUCTION

As illustrated in (1), English comparatives and superlatives can be synthetic, derived with the suffixes *-er* and *-st*, respectively, or analytic, requiring the freestanding morphemes *more* and *most*. While in some syntactic environments, such as metalinguistic comparison (see Bresnan

Acknowledgments: The first instantiation of this paper, a reaction to Embick and Noyer 1999, was presented at GLOW XXIV (April 8-10, 2001, Braga, Portugal) and benefited from many insightful comments from Rajesh Bhatt, Noam Chomsky, Kai von Stechow, Morris Halle, Ken Hale, Sabine Iatridou, Tania Ionin, David Pesetsky, Carson Schütze, Marcus Smith and Dominique Sportiche, as well as from the GLOW audience. After a ten-year gap, I returned to the issue of synthetic comparatives and superlatives, using their morphosyntactic properties to argue against the prevalent semantic take on the internal structure of comparatives placing the degree morpheme in [Spec, AP]. As a result, this article has profited from the questions and critique at *Leiden SyntaxLab* (March 17, 2011), Degree Workshop at *Sinn und Bedeutung 16* (Utrecht, September 5, 2011) and *Vagueness circle* (Amsterdam, October 7, 2011). I'm also extremely grateful to Eddy Ruys for his ever-available help and advice, as well as to Jonathan Bobaljik and an anonymous reviewer for most valuable discussion.

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1973, Kennedy 1999, among others), only analytic forms are possible, it is generally the case that only "short" adjectives allow synthetic forms:

- (1) a. smarter, tallest, simplest, shallower...
 b. most intelligent, more prudent, most splendid, more beautiful...

It is a standard assumption (see, e.g., Emonds 1976), which I also adopt here, that there is no interpretational difference between the bound morphemes *-er* and *-st* on the one hand, and the free morphemes *more* and *most*. Traditionally (Corver 1997b), synthetic forms have been derived by the movement of A° to Deg°, with analytic forms arising from the insertion of the support morpheme *much* when head-movement fails (*much*-support). Recently, however, an alternative proposal has relegated the derivation of synthetic comparatives and superlatives to a post-syntactic lowering operation: either Local Dislocation (Embick and Noyer 1999, 2001, Embick 2007) or Morphological Merger (Bobaljik 2012); the derivation of synthetic forms by Affix Hopping has not been proposed.¹

In this paper I will argue against lowering/post-syntactic approaches to the derivation of synthetic comparatives and superlatives by demonstrating that the evidence against the head-movement analysis adduced by Embick and Noyer is non-decisive and that a post-syntactic approach cannot account for finer details of the distribution of synthetic and analytic forms.

2 AGAINST LOCAL DISLOCATION

As is well-known, the formation of English synthetic comparatives and superlatives is subject to a prosodic constraint (Marantz 1988, Pesetsky 1979, 1985, Quirk et al. 1985, Sproat 1985):

¹ The third approach, which I will not discuss here for reasons of space, is to derive synthetic forms in the lexicon (Poser 1992). The same result can be achieved in the narrow syntax by head-adjunction at Merge. Space limitations prevent me from discussing the matter further.

the *-er/-est* suffixes can only attach to one-foot stems (McCarthy and Prince 1993).² In other words, only monosyllabic adjectives and disyllabic adjectives with a light second syllable (e.g., *silly* – *sillier*, *yellow* – *yellower*) can give rise to synthetic forms:

- (2) a. *smarter*, #*more smart*; *brightest*, #*most bright*
 b. **beautifuller*, ✓*more beautiful*; **intelligentest*, ✓*most intelligent*

Embick and Noyer 1999, 2001 argue that deriving synthetic forms by head-movement is incompatible with the "Late Insertion" hypothesis, according to which lexical roots are not present in syntax, but are inserted after the spell-out (Marantz 1994): since head-movement occurs before Vocabulary Insertion, no effect from the choice of the lexical root is expected. Embick 2007 argues that the problem also extends to "early insertion" frameworks: syntax should not be sensitive to phonological properties of particular lexical items. Conversely, Local Dislocation, a post-syntactic operation applying to linearized structures, can easily be made sensitive to the phonological properties of the adjectival stem:³

² This well-known constraint is often violated: quite a few disyllabic adjectives form synthetic comparatives but do not have a light second syllable (see section 2 for some discussion). Conversely, Kytö and Romaine 1997 and Hilpert 2008 show that comparatives and superlatives of trisyllabic adjectives found in the British National Corpus are necessarily analytic, though a handful of exceptions, especially for superlatives, can be found.

³ Local Dislocation is sensitive to structure, as well as to the phonological form, which makes it possible for Embick to account for the fact that in metalinguistic comparatives, such as (i) from Bresnan 1973, only analytic forms are possible.

- (i) I am *more angry*/**angrier* than *sad*.

Bresnan 1973 attributes the obligatory *much*-support in (i) to a structural difference from the more standard degree constructions and in particular, to non-adjacency. A similar analysis is adopted by Embick 2007, who proposes that the comparative combines with a null adverb rather than with the adjective. Both structures are incompatible with Local Dislocation, head-movement or Morphological Merger, yielding the impossibility of synthetic forms in all three approaches.

(3) **Local Dislocation** rule for comparatives and superlatives (Embick 2007:25)⁴

$$\text{Deg}[\text{CMPR}, \text{SUP}] \neg [\dots X \dots]_a \rightarrow [\dots X \dots]_a \oplus \text{Deg}[\text{CMPR}, \text{SUP}]$$

[in English: where the phonological form of $[\dots X \dots]_a$ meets the relevant prosodic condition]

The core property distinguishing Local Dislocation from both head-movement and Affix Hopping is that the former occurs at or after Vocabulary Insertion. As a result, only Local Dislocation can be sensitive to the prosodic structure of individual lexical items. However, as argued by Bobaljik 2012, the problem is that Local Dislocation cannot deal with suppletion: cross-linguistically, synthetic comparatives and superlatives of adjectives such as *good*, *bad*, *little* and *many/much* are often suppletive, and English is obviously no exception:

- (4) a. *good* → *better*, *best*
 b. *bad* → *worse*, *worst*
 c. *little* → *less*, *least*
 d. *many/much* → *more*, *most*

Since the Local Dislocation rule in (3) contains a reference to the phonological form of the adjective in question, the adjectival stem must be spelled out before combining with the comparative/superlative suffix, which incorrectly predicts that stem suppletion, as in (4a), should be impossible. To avoid this outcome, it could be suggested that Vocabulary Insertion into the complex head $[a \ v]_a$ is conditioned by the presence of a comparative/superlative morpheme in the same maximal projection. The empirical problem with such a solution is obvious when we consider the fact that the interaction between the choice of the analytic or the synthetic form and the availability of suppletion should give rise to four options, of which

⁴ Following Sproat 1985, Embick 2007 treats linearization as a two-step process. The first step of fixing local linear precedence relations is followed by the second step: a concatenation procedure, whose result serves as input to Local Dislocation. This refinement does not affect the argument here.

is missing: precisely the one that is enabled if Vocabulary Insertion can be conditioned from outside the target head:

- (5) a. intelligent → more/most intelligent
 b. cute → cuter/cutest
 c. *wuggal → more/most galliwug
 d. good → better, best

Since the pattern in (5c) is cross-linguistically not attested, Bobaljik 2012 argues that the derivation of synthetic forms must precede Vocabulary Insertion and is therefore achieved by Morphological Merger or head-movement. To constrain this process to only apply to certain roots, Bobaljik proposes that it is triggered by the diacritic feature [+m] on the root node, where only roots marked [+m] can be inserted; similarly, Graziano-King 1999 suggests that the selection of the synthetic form is listed in the lexicon. To explain McCarthy and Prince's prosodic generalization, Bobaljik 2012 hypothesizes that the assignment of the diacritic arises as a result of statistical regularities in the input of the language learner.

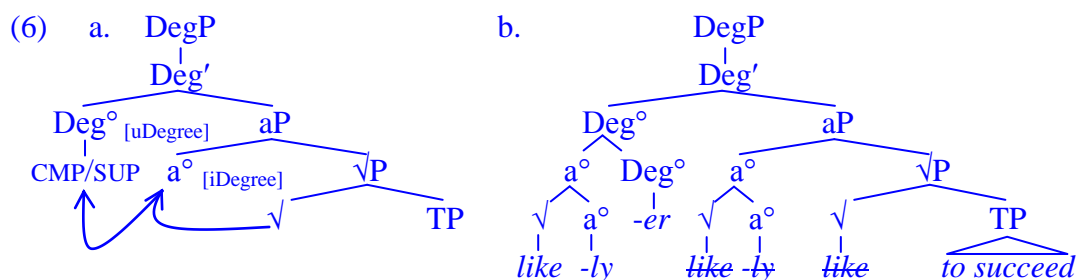
Setting aside the stipulative nature of this proposal, excluding the phonological form of the adjective from the derivation of synthetic forms seems to be incorrect. As demonstrated by Mondorf 2009:24-30, the final consonant cluster of the stem affects preferences in cases of apparent free variation. Thus, considerations of euphony explain why adjectives ending in *-st* are highly unlikely to form synthetic superlatives (cf. Jespersen 1956) while adjectives ending in *-er* or *-re* show a strong tendency for analytic comparatives (cf. also Plag 1998). The diacritic feature approach does not lead us to expect such preferences where the synthetic form is grammatical, and the differing behavior of comparatives and superlatives in the function of the final cluster can only be modeled by postulating two diacritic features instead of one.

Bobaljik 2012 provides yet another empirical generalization that can be used to argue against post-syntactic approaches to the formation of synthetic comparatives and superlatives: cross-linguistically, if the comparative of an adjective is suppletive, the corresponding change-of-state verb is also suppletive. If this correlation is due to the fact that deadjectival change-of-state verbs are derived from the comparative rather than the positive form of an adjective, then comparatives must be derived in narrow syntax, in order for deadjectival verbs to be able to undergo such syntactic processes as head-movement (albeit not in English) or further derivation, including transitivity.

Countering Embick's objections to the derivation of synthetic forms in narrow syntax, I will now show that head-movement can in principle be made sensitive to the choice of a specific lexical item. Following Corver 1997b, let us assume that the comparative/superlative Deg° bears the uninterpretable feature [degree]. Assuming, by an analogy with $\sqrt{\text{to-v}}^\circ$, that $\sqrt{\text{to-a}}^\circ$ movement is obligatory⁵ and the affixal status of the comparative/superlative Deg° triggers overt $\text{A}^\circ\text{-to-Deg}^\circ$ movement, as in (6a), (6b) results:⁶

⁵ Following the standard conventions, I assume that a category-free root projects as a sister of a categorizing x head. Following Kennedy and Svenonius 2006, I hypothesize that the degree argument of the adjective is introduced by a , which therefore comes in at least two flavors: the scalar and the non-scalar ones. For the sake of simplicity, the thematic subject of the adjective is not indicated; where the complex morphological nature of the adjective is irrelevant, I will use the standard A and AP notation.

⁶ If the visibility of the affixal status of a given functional head in syntax is a violation of strict modularity, the alternative is to derive the affixal status of a head as a consequence of its ability to trigger head-movement.

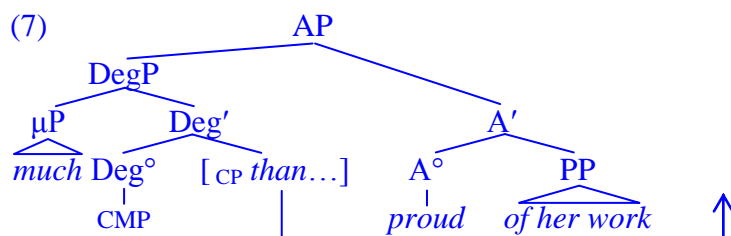


At spell-out the structure in (6b) (Abney 1987, Bowers 1987, Corver 1990, 1991, 1997a, 1997b) is evaluated and the lexical properties of various morphemes come into play. Assuming that *-er/-est* can only attach to "short" stems, a "long" adjectival stem will fail to be merged in this position, which leads to the Last Resort operation of *much*-support. Since the root node and the affixal a° still need to be spelled out, the adjectival stem surfaces in the lower position (a°), yielding the analytic form.⁷

A potential objection comes from the fact that the syntactic structure in (6) is not the only one hypothesized for comparatives and superlatives. Indeed, Bowers 1975, Jackendoff 1977 and more recently, Heim 2000, 2006 and Schwarzschild and Wilkinson 2002, among many

⁷ As noted by Poser 1992, Basque verbal morphosyntax exhibits a synthetic/analytic imperfective paradigm that gives rise to exactly the same sort of issues: synthetic forms of the present and past tenses are only available for a handful of verbs while the rest must use periphrastic forms. Crucially, as discussed by Arregi 2000, there is no systematic semantic distinction between the two classes of verbs and for both the periphrastic forms can be used to express habituality. Arregi argues, contra Laka 1993, that the synthetic forms are derived by V-to-T movement, which is therefore sensitive to the choice of particular lexical items, however this sensitivity is achieved. The same point can be made in relation to the ability of the lexical verbs *be* and (in some dialects of English) *have* to undergo head-movement. As the focus of this paper is on lowering and/or post-syntactic operations rather than Late Insertion, I will not pursue the matter here.

others, presuppose that the comparative DegP is merged as [Spec, aP] – a structure that is not compatible with either head-movement or Affix Hopping:⁸

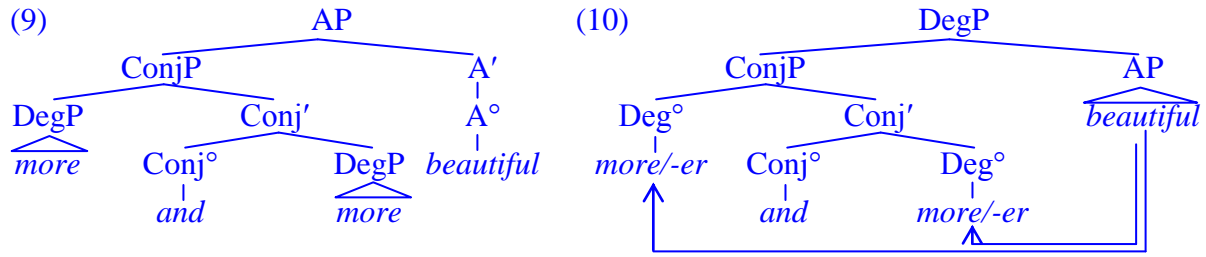


To rule out the structure in (7) it must be demonstrated that synthetic comparatives cannot be derived by either Local Dislocation or Morphological Merger – the two operations that can combine the relevant terminals in this configuration. As discussed above, Local Dislocation is excluded by its inability to account for suppletion (Bobaljik 2012), while Morphological Merger cannot straightforwardly account for the prosodic constraints on the availability of the synthetic forms. In addition, evidence against the derivation of synthetic comparatives and superlatives by any form of lowering, including Affix Hopping, comes from coordinated comparatives like (8), which Jackendoff 2000 argues to be incompatible with the usual assumptions about the structure of comparatives:

- (8) a. more and more beautiful
 b. prettier and prettier

Indeed, the coordinated comparative morphemes in (8a) can be projected as in (7), i.e., as a conjunction of DegPs in [Spec, AP], or as in (6), where Deg° heads are coordinated:

⁸ The structure in (7) has been mostly used for comparatives, with evidence drawn from ellipsis resolution and scope interaction with intensional verbs; for the (in)applicability of the same motivation for superlatives see Stateva 2000a, 2000b, 2002, 2003, Sharvit and Stateva 2002, Matushansky 2008, among others.



The question arises how to derive (8b) from these underlying structures. As Jackendoff notes, no lowering operation is able to derive the coordination of synthetic comparatives (8b) in the structures in (9) or (10): an additional copy of the adjective is required for both affixes to combine with a phonological host. Crucially, since head-movement and Affix Hopping are inapplicable in the configuration in (9), there is no way to derive examples like (8) and we must conclude that the configuration in (7) is not available, contra Heim 2000, 2006.⁹ noting

⁹ Jackendoff's examples are compatible with the structure in (7) if the analytic (8a) and the synthetic (8b) forms have the different underlying structures in (i-a) and (i-b), respectively. However, if both structures in (i) are available, examples like (ii) are incorrectly predicted to be grammatical (with the same interpretation):

- (i) a. [AP [ConjP [DegP more] and [DegP more]] beautiful]
 b. [ConjP [AP [DegP ~~-er~~ [AP pretty+er]] and [AP [DegP ~~-er~~ [AP pretty+er]]]]
- (ii) a. *[AP [ConjP [DegP more] and [DegP ~~-er~~] pretty +er] = (i-a) with Local Dislocation
 b. #[AP [ConjP [DegP more] and [DegP more]] pretty] = (i-a) with affixation failure & *much*-support
 c. #[ConjP [AP [DegP more [AP beautiful]] and [AP [DegP more [AP beautiful]]]] = (i-b)

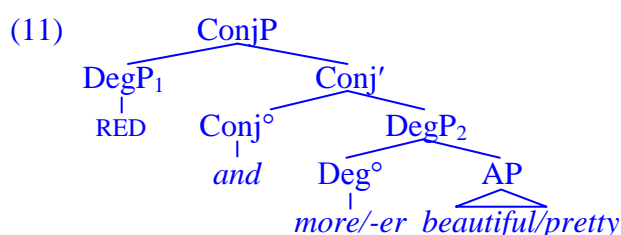
Furthermore, though Jespersen 1956 claims that a conjunction of a synthetic and an analytic comparatives, as in (iii), is possible, Mondorf 2007 demonstrates its extreme rarity across different corpora, in the synchronic, as well as diachronic perspective. I hypothesize that in modern-day English a conjunction of two comparatives with the same lexical head (and therefore the structure in (i-b)) is impossible:

- (iii) grow bolder and still more bold

To the extent that (iii) is available, its interpretation is different from Jackendoff's coordinated comparative, suggesting that the positive form of the adjective (*bold*) serves as the basis for the second conjunct (see section 3 for discussion).

that head-movement in the configuration in (6) would represent an otherwise unattested case of across-the-board insertion (rather than the usual across-the-board extraction), Jackendoff concludes that (8) cannot be derived from the structure in (10) either.

The alternative that Jackendoff does not consider is syntactic reduplication:¹⁰



Assuming that RED uniformly copies the contents of Deg°, the structure in (11) derives both (8a), where reduplication results in the repetition of the degree morpheme, and (8b), where reduplication is preceded by head-movement of A° into Deg°, yielding a complex head as the source for reduplication. Lowering analyses, on the other hand, cannot take the same

¹⁰ The analogous construction in French (i) is clearly syntactically formed and completely incompatible with an across-the-board movement analysis, since it does not involve coordination:

- (i) a. *de plus en plus belle*
 from more in more beautiful
- b. *de meilleur en meilleur*
 from better in better

Further investigation of cross-linguistic availability and realization of Jackendoff's comparatives is required to verify the hypothesis that the first conjunct is not itself a comparative morpheme. Importantly, coordinated comparatives share their inability to combine with an overt standard of comparison with the semantically similar comparatives of incremental change (Beck 2000, Zwarts, Hendriks and de Hoop 2005):

- (ii) a. *Each subsequent apple was more succulent.* Beck 2000
- b. *The final exams get easier each year.* Zwarts et al. 2005
- c. *Wolves get bigger as you go north from here.* Carlson 1977

I leave this topic for future research.

syntactic head as the source for the reduplicative morpheme: since in synthetic forms Deg° is adjoined to A° rather than the other way around, RED has to copy Deg° in analytic forms and A° in synthetic forms. Likewise, allowing RED to copy the first phonological word following *and* seems unlikely for syntactic reduplication.

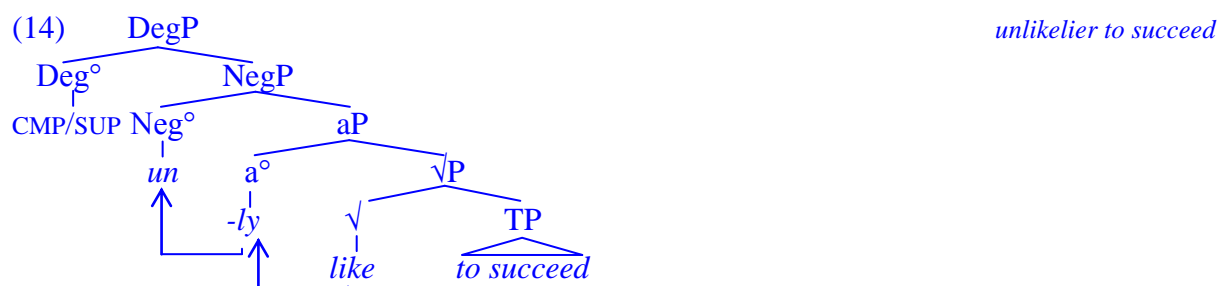
The final issue to be resolved (noted as a challenge for Local Dislocation in Matushansky 2001 and discussed by Embick 2007 in a footnote)¹¹ is the comparative bracketing paradox (Pesetsky 1979, 1985, Sproat 1985). As is well-known, the addition of the negative prefix *un-* doesn't affect the ability of an adjectival stem to form a synthetic comparative or superlative:

- (12)a. [[un + happy, likely, lucky] + Deg°] → unhappier, unhappiest, unluckiest...
 b. [[un + interesting, fortunate] + Deg°] → most uninteresting, more unfortunate...

As Pesetsky 1979 shows, for the purposes of synthetic comparative/superlative formation *un-*prefixed adjectives behave as if the resulting structure is (13a) rather than the semantically transparent (13b). To solve this problem Pesetsky 1985 derives the structure in (13b) from that in (13a) by LF movement of the suffix, as in (13c) – a proposal that cannot be adopted if synthetic forms are derived in syntax, as in (14) (see Sproat 1985 and Marantz 1988 for other problems with Pesetsky's analysis):

- (13)a. [un-[A-er/st]]
 b. [[un-A]-er/st]
 c. [[un-[A-~~er/st~~]]-er/st]

¹¹ Marantz 1988 addresses the bracketing paradox in (12) in the context of Morphological Merger. However, as Morphological Merger is not conditioned by linear adjacency, the prefix *un-* doesn't function as an intervener. Bobaljik 2012 proposes that the prefix *un-* is transparent with respect to the diacritic feature [+m].



The fact that the negative prefix *un-* does not affect synthetic comparative and superlative formation in the structure (14) can be accounted for under the hypothesis (Siegel 1974, cf. also Pesetsky 1979 on the post-cyclic status of Russian prefixes) that the prefix *un-* is post-cyclic. If only one-foot adjectives can give rise to synthetic forms (McCarthy and Prince 1993) and a post-cyclic prefix is extrametrical, *un-* is correctly predicted to have no effect on the derivation of synthetic forms. The extrametrical status of at least some prefixes¹² is also supported by the exceptions to McCarthy and Prince's generalization, i.e., those English disyllabic adjectives with final stress that nonetheless allow synthetic forms. Only for two of these, namely, *diffuse* and *remote*, does the frequency of synthetic comparatives approach the frequency of analytic comparatives (Hilpert 2008): 14 occurrences of *diffuser* to 34 occurrences of *more diffuse* and 87 occurrences of *remoter* to 179 occurrences of *more remote*. Both these adjectives could have been re-analyzed by native speakers as containing a prefix, which would explain why no other stress-final disyllabic adjective approaches these

¹² The A-to-A prefixes *over-*, *extra-* and *super-* are also incompatible with synthetic forms, but here not only their prosody (they are all disyllabic and accented), but also their semantics (see section 3 for some discussion) might be responsible. The monosyllabic English prefixes *re-* and *de-* do not form adjectives, others, such as *anti-* or *pre-*, do not combine with adjectival stems, while the negative *in-* selects for Latinate stems, which are derived and therefore tend to be at least disyllabic.

ratios or such frequencies.¹³ Whether the post-cyclic status of a morpheme is realized as a diacritic or in some other way is orthogonal to my purposes here.¹⁴

To summarize, comparative and superlative suppletion provides evidence against deriving synthetic forms by Local Dislocation (Bobaljik 2012). Paradoxically, the prosodic constraint on synthetic forms is shown to support the head-movement analysis and to be incompatible with Morphological Merger. All lowering operations, as well as Jackendoff's (1977) structure (7) in general, are excluded by Jackendoff's (2000) conjoined comparatives, which also argue for a head-movement analysis in conjunction with reduplication. Finally, the cyclic approach to the comparative bracketing paradox is equally compatible with the derivation of synthetic forms by head-movement or by post-syntactic lowering operations.

In the next section I will simultaneously address the blocking effect of modifying adverbs and provide further evidence against a post-syntactic analysis by showing that the derivation of synthetic forms is also conditioned by the semantics of the adjectival stem.

¹³ The remaining disyllabic adjectives with word-final stress in Hilbert's list are *absurd* (16/1), *compact* (18/4), *corrupt* (5/1), *intense* (169/4), *mature* (141/14), *obscure* (40/2), *polite* (23/7), *robust* (95/1), *secure* (156/4), *severe* (227/9) and *sincere* (12/2), with the numbers in parentheses indicating the word-counts of analytic and synthetic comparatives in the British National Corpus. Synthetic superlatives of longer adjectives are noticeably more frequent than their synthetic comparatives, though their use is also clearly emphatic in some way, approaching them to absolute superlatives, a.k.a. elatives. Whatever additional factors facilitate the formation of synthetic superlatives with adjectives that resist synthetic comparatives, the pragmatic effect accompanying it is difficult to reconcile with a post-syntactic derivation of synthetic forms.

¹⁴ While Newell's (2005) Late Adjunction analyses of bracketing paradoxes necessitates a different structure (with Neg° adjoined to a°), Embick (2007) hypothesis that Vocabulary Insertion at Neg° takes place after Local Dislocation extends the notion of post-cyclic operations to post-spell-out syntax. Due to space limitations, I will not investigate the matter any further.

3 SCALARITY AND NORM-RELATEDNESS

As I observed in Matushansky 2001 (the generalization is also implicit in the work of Clarke 2001; see also Jovanović 2009), non-scalar adjectives like *French*, *right* or *male* do not form synthetic comparatives or superlatives in English, irrespective of their phonology:

(15) This is a ??realer/*goldener/??faker/*Frencher sword.

Martin Hilpert's research provides support for this generalization. A measure of inherent scalarity is the ratio of comparatives (or other contexts engaging the degree argument, such as superlatives, combination with *such*, etc.) to positive forms. While Hilpert 2008 observes that higher scalarity leads to a higher percentage of morphological comparative formation, Martin Hilpert, p.c., notes that the effect is the strongest for short adjectives: analytic comparatives and superlatives of monosyllabic adjectives typically have low scalarity.

Embick 2007 suggests that the unavailability of synthetic forms for non-scalar adjectives is due to their semantic incompatibility with comparison. While this hypothesis explains why non-intersective monosyllabic adjectives (e.g., *main*, *past*, *real*) permit neither synthetic nor analytic forms, as illustrated in (16), it cannot be all of the answer. Indeed, intersective non-scalar adjectives can form analytic comparatives/superlatives with a coerced interpretation (= *having more/the most properties associated with being French, right or male*):

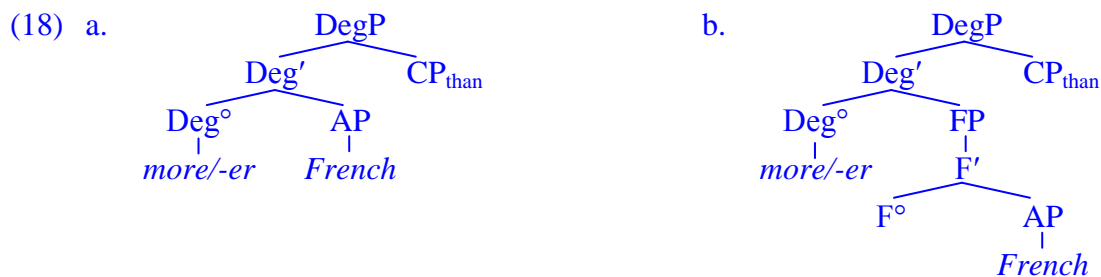
(16)a. This is the *mainer/*/? more main reason.

b. He is a *paster/*/? more past king.

(17)a. *Becky's aunt is Frencher/deader/wronger than Napoleon.

b. Becky's aunt is more French/more dead/more wrong than Napoleon.

Two ways of deriving the impossibility of synthetic forms with non-scalar adjectives can be envisaged. Under one view, a non-scalar adjective does not bear the [degree] feature and therefore cannot be attracted to Deg°, as in (18a). Under this view, coercion is not reflected in syntax. Under the other view, coercion is effected by a separate head, as in (18b). To block the derivation of the synthetic form this head must be stipulated to not attract the adjective. A further problem with this latter hypothesis is that additional stipulations must be made to account for the fact that the coerced meaning of non-scalar adjectives is not available in the absence of a degree head.



Crucially, such purely semantic features as [degree] are not expected to be available after the spell-out on the PF branch of the computation. The fact that synthetic comparatives and superlatives must be scalar therefore argues against deriving them post-syntactically.

I will now argue that the scalarity constraint on the derivation of synthetic forms correctly predicts that comparatives and superlatives that are formed from APs modified by adverbs (Embick and Noyer 1999, 2001, Embick 2007) and PPs must be analytic.

3.1 The semantics of synthetic forms

In considering the interaction of synthetic comparative/superlative formation with adverbial modification, Embick 2007 discusses three semantic classes of adverbs:

- (19)a. amazingly smart, incredibly tough, unbelievably short degree
 b. ploddingly slow, happily drunk, clearly glib, flatly honest, rudely late manner
 c. physically strong, technically proficient, structurally weak aspect

Starting with degree adverbials (Embick's (2007) "roughly evaluative adverbs"), Embick and Noyer 1999, 2001 and Embick 2007 take the contrast below as an argument against the head-movement derivation of synthetic forms: since verb-movement (a paradigmatic example of head-movement) is not blocked by structurally intervening adverbs, the question arises why such adverbs should block synthetic comparative/superlative formation:

- (20)a. Mary is the most amazingly smart person.
 b. *Mary is the amazingly smartest person.

Challenging the relevance of (20b), Williams 2006 suggests that the ungrammaticality of such examples is due to the fact that they can only be interpreted as metalinguistic (Bresnan 1973), while Kiparsky 2005 proposes that the freestanding superlative morpheme in (20a) can only be interpreted as forming a constituent with the adverb *amazingly*. While accepting Embick's arguments against both claims, I emphasize that comparatives and superlatives of modified APs necessitate a prior context introducing the relevant concept into the discourse. To exclude Kiparsky's bracketing, consider superlative AP predicates, where the bracketing in (21a) is excluded and (21b) remains the only structure available:¹⁵

¹⁵ Empirically, the acceptability of AP-internal superlatives appears to depend on the possibility of retaining the superlative interpretation in the absence of the associated definite article, i.e., in the predicate position and the DP-internally, as witnessed by the restricted distribution of [*(*the) best*]-known vs. the less constrained (*the*) [*most well-known*]. Due to space limitations, I set this matter aside.

(21) Jessamine was the most amazingly drunk.

- a. *[the most amazingly] drunk
- b. the most [amazingly drunk]

Crucially, native speakers accept (23) only if the prior context contains some discussion of amazingly drunk individuals, out of which the most [amazingly drunk] one is discussed:

- (22)a. *We were all amazingly drunk then, but Jessamine was the MOST amazingly drunk.
- b. *Guess what -- Ron has become the most amazingly drunk in the bar.

Jonathan Bobaljik, p.c., suggests that *amazingly drunk* in this context is a complex lexical entry, akin to the syntactically complex structures that can appear as the left member of a compound (e.g., an *"off the beaten track" place*, a *"holier than thou" attitude*). If correct, this hypothesis would exclude synthetic comparative formation by suggesting that an affix cannot attach to such a structure. The main problem with this proposal is that it is not independently motivated: for instance, concept formation is also operative in DP-internal AP modification (Bouchard 2002, 2005) and is fully compatible with such inflectional morphology as gender, number or case, as illustrated by Russian:

- | | | | | | | | |
|--------|--------------------------|--------------|-------------|----|--------------------------------|----------------|-----------------|
| (23)a. | o | belyx | medved'ax | b. | ot | ussurijskoj | tigr-ic-y |
| | about | white-PL-LOC | bear-PL-LOC | | from | Siberian-F.GEN | tiger-FEM-F.GEN |
| | <i>about polar bears</i> | | | | <i>from a Siberian tigress</i> | | |

It has also been claimed that modified NPs are compatible with derivational morphology, leading to such bracketing paradoxes as *the nuclear scientist*, *a derivational morphologist* or indeed (23b) (cf. Pesetsky 1979), while Hoeksema 2012 notes that synthetic forms of elative compound adjectives, such as *dirt poor*, are marginally possible in Dutch. The impossibility of synthetic comparatives and superlatives for degree-modified APs cannot therefore be due

to the incompatibility of concept formation with affixation, though it might interact with head-movement.

Having rejected the head-movement account, Embick and Noyer hypothesize that (20b) cannot be derived because the adverb linearly intervenes between the comparative affix and the adjective, blocking Local Dislocation. However, the intervention effect is not linear: for a degree modifier PP to be interpreted in the scope of the comparative (with the concomitant concept formation, as in (20b)), the analytic form, as in (24), must be used; the synthetic forms in (25) can only mean that the degree to which Jude is smarter than Joe is amazing:

(24) Jude is more smart to an amazing degree than Joe.

(25)a. Jude is smarter to an amazing degree than Joe.

b. Jude is smarter than Joe to an amazing degree.

To explain these facts I propose that the unavailability of synthetic forms with modified APs is due the fact that, being norm-related, they are not scalar.¹⁶ The link between norm-relatedness and non-scalarity is supported by the fact that analytic comparatives of one-foot scalar adjectives are typically norm-related (Rett 2008):¹⁷

¹⁶ The property of norm-relatedness (Bierwisch 1989, Krasikova 2009, 2010) is also known as "comparative presupposition" (Kiefer 1978), orientedness (Seuren 1984), or evaluativity (Doetjes, Neeleman and van de Koot 1998, Rett 2008). A degree construction can be interpreted in a norm-related way due to a number of reasons. Thus in English norm-relatedness is a property of equatives and interrogatives of negative adjectives (Bierwisch 1989, Rett 2008), as well as of certain cases of cross-polar nomalies (Bierwisch 1989), while in Russian norm-relatedness obtains regardless of the polarity of the predicate (Krasikova 2009, 2010). We set these issues aside here.

¹⁷ Norm-relatedness is not the only reason for the appearance of the analytic form with short adjectives. For other factors inducing its use, such as metalinguistic interpretation (Bresnan 1973), prosody, etc., see Kytö and Romaine 1997, Lindquist 2000, Mondorf 2002, 2003, 2009 and Hilpert 2008. Assuming that the scalar and the

- (26)a. The most clear/clearest evidence comes from the third trial.
- b. The ending is even more subtle/subtler.

Under its most natural interpretation, *the most clear evidence* in (26a) is *clear*, while the truth of (26b) entails that the ending is subtle. Synthetic comparatives and superlatives in the same environment do not have this effect: *the clearest evidence* could still be murky, and an ending that is *subtler* can still be pretty blunt.

Further evidence linking analytic forms to norm-relatedness comes from the attenuative suffix *-ish*. Though adjectives derived with *-ish* are vague (*a tallish mountain* is clearly not of the same height as *a tallish girl*), they do not form synthetic comparatives and superlatives. While it could be suggested that their prosody (they are minimally disyllabic) is to blame, the lexical semantics of *-ish* is a more likely culprit. As argued by Kagan and Alexeyenko 2011, *-ish* asserts that a property holds of an individual to a degree slightly exceeding the standard of comparison, i.e., *-ish* is clearly norm-related.

On the syntactic side, two ways of encoding norm-relatedness have been proposed. Under one view, that of Bierwisch 1989 and Krasikova 2009, 2010, the basic meaning of a scalar adjective is vague and norm-related, while its scalar interpretation is derived. In this approach a norm-related adjective is not marked [degree] and therefore cannot be attracted to Deg^o, as in (18a). On the other hand, Rett 2008 adopts the opposite perspective, where the norm-related interpretation results from the introduction of the EVAL operator (intended also as a replacement of POS, see Kennedy 1999). If EVAL is a head that does not attract A^o, as in (18b), the derivation of an analytic form is impossible. As a result, under both views norm-related adjectives should pattern with non-scalar adjectives in not giving rise to a synthetic comparative or superlative.

norm-related readings of an adjective are not in any sort of competition derives the optionality of analytic forms in contexts where the positive is true.

What remains now is to demonstrate that adverbial modifiers yield non-scalar APs. The use of expressive adverbs, for instance, entails the applicability of the positive form:

- (27) a. *We are none of us amazingly drunk, but Peter is the most amazingly drunk.
 b. *Neither of them is amazingly drunk, but Peter is more amazingly drunk than Sue.

Both examples (27) give rise to a contradiction on the assumption that a degree-modified AP should entail the positive form. Degree modification in the second conjunct of (27a) must entail that Peter is amazingly drunk, which is denied by the first conjunct; the same is true for (27b), and a contradiction results.¹⁸ The question therefore arises whether the derivation of synthetic forms is blocked by the syntax of norm-relatedness.

I will now demonstrate how the scalarity constraint on synthetic comparative/superlative formation can also account for the blocking effect of non-degree adverbial modifiers.

3.2 Manner adverbials

As noted by Embick 2007, adverbs specifying the manner in which the property denoted by the adjective holds also block synthetic comparative/superlative formation:

- (28) a. Robert is more unobtrusively smart/*unobtrusively smarter than Jessamine.
 b. Lois was more earnestly dull /*earnestly duller than David.

¹⁸ More complex are examples like (i). On the one hand, intuitively the use of low-degree adverbs like *somewhat* or *slightly* means that the positive AP cannot be used. However, an attempt to explicitly negate the positive form leads to a perceived contradiction, unless the second instance of the adjective is interpreted in an emphatic way, as if it had been modified by the adverb *really*. I leave the matter for future research.

- (i) a. # Isabelle is slightly drunk, but she's not drunk.
 b. # The issue is somewhat unusual, but it is not unusual.

Although many manner adverbs, for instance, *ploddingly* in *ploddingly slow*, do not have natural PP paraphrases, for less idiomatic modifiers it can be demonstrated that PP adverbials also block synthetic comparative formation: the adverbial PP can be interpreted in the scope of the comparative morpheme in (29a), but not in (29b). More precisely, only the former is compatible with the prior context where the relevant concepts (*smart in an unobtrusive way*, *dull in an earnest way*) are introduced:¹⁹

- (29)a. Jackie is more smart in an unobtrusive way/dull in an earnest way than Rose.
 b. #Jackie is smarter in an unobtrusive way/duller in an earnest way than Rose.

I contend that this pattern is expected once we take into account the semantic contribution of the adverbial. Thus the fact that manner adverbials can combine with non-scalar adjectives or even with verbs shows that they are not lexically specified for a scalar AP, unlike degree adverbials (examples from COCA (Davies 2008-)):

- (30)a. it is an amusing alternative that all but the [most **ploddingly**] **literal-minded** would find unobjectionable for a summer evening's entertainment.
 b. Amidst the six giant turbines, huge orange cranes **ploddingly move back and forth** overhead.

Abstracting away, for the sake of simplicity, from all intensional arguments of the verb would give manner adverbials the semantic type $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$. In order for them to combine with a scalar AP, the AP would have to be interpreted as vague/norm-related (type $\langle e, t \rangle$), as discussed above. As a result, we correctly predict that comparatives of manner-modified APs

¹⁹ Here also, comparatives formed with the freestanding degree morpheme *more* give rise to an alternative bracketing, where *more* combines with the adverb to the exclusion of the adjective, as well as to a metalinguistic interpretation (where *more* can be replaced by *rather*). Both these readings will be disregarded here.

are norm-related. Assuming that norm-related APs have the syntax of a positive form entails that they can only be analytic:

(31)a. Jackie is more unobtrusively smart than Rose.

⇒ Jackie and Rose are both unobtrusively smart.

b. Lee is more quietly brilliant than Charles.

⇒ Lee and Charles are both quietly brilliant.

To summarize, the fact that both manner adverbs and PPs denoting manner disallow the formation of synthetic comparatives and superlatives removes a potential argument in favor of deriving synthetic forms by Local Dislocation. The fact that manner adverbials force the AP they combine with to be interpreted as non-scalar allows us to derive the blocking effect of manner adverbials from the scalarity constraint on the availability of synthetic forms.

3.3 Aspect adverbials

As observed by Embick 2007:fn.32, aspect adverbials (cf. Bartsch 1987, Kennedy 1997 and Bierwisch 1989) are compatible with synthetic comparatives or superlatives:

(32)a. Mary is physically stronger than John.

b. This building is structurally weaker than that one.

Interestingly, as noted by Embick, aspect adverbs are also the only class of adverbs that can appear post-adjectivally, as in (33c), which is the word order expected if the synthetic forms are derived by head-movement. As Embick also notes, manner adverbs can appear post-adjectivally in the positive form as well, as (34) illustrates:

- (33) a. *Mary is the smartest amazingly person in the class. degree
 b. *Jackie is smarter unobtrusively than Rose. manner
 c. This building is weaker structurally than that one. aspect

(34) Mary is strong physically.

Embick 2007 further hypothesizes that the optional post-adjectival position is somehow connected to the ability of an adverb to outscope the comparative morpheme. Sharpening this observation, I propose that the post-adjectival position of an adverb results from adjunction to DegP. Independent support for the ability of aspect adverbials to attach to DegP comes from the fact that with analytic comparatives and superlatives, where no sort of movement is assumed to have taken place, aspect adverbs can appear either above or below *more*:

- (35) They are both technically proficient guitarists, but...
 a. Cindy is a more technically proficient guitarist than Rick.
 b. #Rick is a technically more proficient guitarist than Cindy.

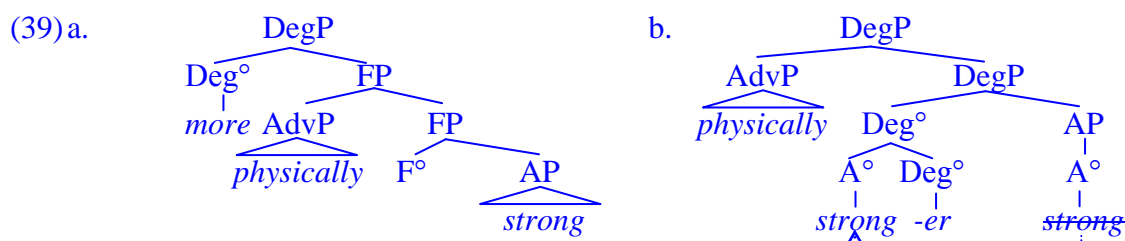
Unsurprisingly, a difference in order entails a difference in interpretation: (35a) attributes to Cindy a higher degree of technical proficiency, while (35b) claims that Rick is more proficient from the technical standpoint only, though the distinctions become more subtle with different adverbs. PP correlates of aspect adverbs behave similarly: only the analytic form is compatible with the PP modifier treated as part of a complex concept:

- (36) a. The verb "go" is more light with respect to its phonology than the verb "fall".
 b. The verb "go" is lighter with respect to its phonology than the verb "fall".
- (37) a. This book is easier in a hard to define way.
 b. This book is more easy in a hard to define way.

Here also, the analytic form is norm-related, though the effect is obscured by the fact that the positive form in contradictory statements like (34) can be interpreted stereotypically (see also fn. 18):

- (38)a. I'm more technically proficient than I used to be, but I'm not ^{??}(really) proficient.
 b. Though neither kid is ^{??}(really/truly) physically strong, Anna is more physically strong/#physically stronger than Liz.

I conclude that, like manner adverbials, aspect adverbials modify the positive form of the adjective, adjoining to FP in Rett's model (39a) or to a non-scalar AP, whose head cannot move to Deg°, in Krasikova's model. An aspect adverbial adjoining to the comparative DegP, as in (39b), does not block synthetic comparative formation:



To summarize, in this section I argued that the derivation of synthetic comparatives and superlatives is constrained by the semantic properties of the AP. In particular, I showed that in English intersective non-scalar adjectives, such as *French*, cannot give rise to synthetic forms. I attributed to the same scalarity constraint the fact that analytic comparatives and superlatives of scalar adjectives are norm-related and then demonstrated that comparatives of APs modified by adverbs or PPs also are.

4 CONCLUSION AND FURTHER QUESTIONS

In this paper I provided evidence in favor of deriving synthetic comparatives and superlatives by the syntactic process of head-movement, as opposed to a post-syntactic process, such as

Local Dislocation or Morphological Merger. As I showed, the former cannot account for comparative suppletion (Bobaljik 2012), while the latter cannot easily deal with phonological constraints on the synthetic forms. Jackendoff's coordinated comparative construction cannot be derived by any lowering operation, which also rules out the structural alternative with the comparative DegP in [Spec, AP]. Conversely, the copy nature of head-movement can be used to account for phonological constraints on adjectival stems (contra Embick and Noyer 1999, 2001).

I have also argued that the blocking effect of adverbial modification is semantic in nature: empirically, modified APs are norm-related. Assuming that norm-related APs are non-scalar allows us to assimilate modified APs to non-scalar APs, which do not allow synthetic forms in English. The existence of a semantic constraint on the formation of synthetic comparatives and superlatives is also more compatible with a syntactic rather than a post-syntactic (PF) derivation on the assumption that purely semantic features, such as [degree], are not available at PF.

There are some indications, however, that non-scalar adjectives and norm-related APs do not always pattern the same. Thus in German and Dutch non-scalar adjectives give rise to synthetic forms, while comparatives and superlatives of norm-related APs either can only be analytic (Dutch) or are ineffable (German). It is tempting to hypothesize that the difference between Dutch and German is due to the general availability of analytic comparatives in the former (a relatively recent innovation), but more research is required in order to determine whether languages with both synthetic and analytic comparatives and superlatives available always pattern the same in disallowing the former option for modified APs.

Another issue that I have not discussed here is that of double comparatives, as in *the most unkindest cut of all* (Corver 2005, González-Díaz 2007), which can in principle result from Affix Hopping followed by *much*-support, but do not seem to be compatible with a head-

movement analysis. Linked to that are multi-dependent comparatives like *John is (much) taller than Mary than Bill is*, which Bhatt and Pancheva 2004 analyze as involving haplology of a double synthetic comparative, though their acceptance by native speakers is varied. I leave these matters as a topic for further research.

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