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The Big Mess Construction: interactions between the lexicon and constructions[1]

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The so-called Big Mess Construction (BMC) (e.g. *so prominent a punctuation*), introduced by a limited set of degree words, places an adjectival expression in the predeterminer position. In movement approaches, such idiosyncratic properties of the BMC have been attributed to the interaction of functional projections and movement operations, whereas in surface-oriented analyses focus has been placed on the supposition of special constructions and their constructional properties. In this article, we show that neither of these two previous perspectives captures the variations and flexibility of the construction in question satisfactorily. Our approach adopts the view that degree words are functors selecting their head, and attributes the peculiarities to the interactions between the lexical properties of the degree items and the constructional constraints in question.

1 Introduction

The so-called Big Mess Construction (BMC)[2] exemplified by corpus examples like (1) is peculiar in that it has predeterminer adjectival elements followed by an NP with the indefinite article:[3]

(1) *so*-type
  (a) Hunger was now [so powerful] [a force] in its life. (BNC HTM W_ fict_prose)
  (b) Companies with [as strong] [a balance] sheet as yours have been known to seek acquisitions. (BNC HYE S_meeting)
  (c) It tells us just [how big] [a mess] the Government has got us into. (BNC K5M W_newsp_other_report)
  (d) We have far [too great] [a gap] between these two states. (BNC KRG S_brdcast_discussn)
  (e) [This new] [a phoneme] would have two allophones. (BNC K93 W_ac_soc_science)
  (f) It's about [that big] [a diameter]. (BNC KCS S_conv)
  (g) He proved far [more successful] [a dealer] than he had a client. (BNC EUU W_commerce)

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[2] The term originates from Berman (1974).
[3] The corpora we use in this study include the ICE-GB (International Corpus of English, Great Britain), COCA (Corpus of Contemporary American English) and BNC (British National Corpus).

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As illustrated here, this BMC can be introduced by a degree word, but only one of a limited set of degree words including *so*, *as*, *too*, *how*, *this* and *that* licenses the construction. For example, degree expressions like *somewhat* or *very* do not allow the BMC (cf. Bolinger 1972; Bresnan 1973; Huddleston & Pullum *et al.* 2002; among others):

(2) (a) He has [a somewhat different view] (*[somewhat different a view]) of how strong the economy is coming back now. (COCA SPOK Fox_ Sunday)
(b) I have grown up with movies as [a very important part] (*[very important a part]) of my life. (COCA NEWS USAToday)

In addition to this *so*-type given in (1), English also allows a similar BMC-style construction, as attested by naturally occurring data:

(3) *such*-type
(a) Identity is [such] [a powerful force] because it opens a world of meaning larger than physical and material life. (COCA MAG USNWR)
(b) At that time, I didn't realize [what] [a big deal] that was. (COCA NEWS Houston)
(c) They'd been rode [many] [a long mile]. (COCA FIC New Yorker)

The examples show us that like the *so*-type BMC, the adjectival *such*, exclamative *what*, and quantifier *many* can also appear in the NP-external position.[4]

These two types, both consisting of adjectival predeterminers (APD) and an indefinite head NP, display several similarities. Both the *so*-type and *such*-type require the NP to have the indefinite article *a/an*. The similarities can also be observed in the very similar meanings:[5]

(4) (a) He failed to grasp why such a small thing unsettled her. (COCA MAG Ms)
(b) He failed to grasp why so small a thing unsettled her.

In both examples here, there is a small thing that unsettled her: the only difference lies in the nuances of *so* and *such*.

Another intriguing property of these two types arises when some of these APD expressions are combined with a discontinuous modifier (DCM):

(5) (a) It was [so big] a city [that the bishop and the premier of Quebec were living there]. (COCA FIC CanadianAGeograpic)
(b) Surely this wasn't [too high] a price [to pay for all my worldly success]. (COCA FIC FantasySciFi)
(c) It will be much [more widespread] a solution [than just looking at those people]. (COCA SPOK NPR_Science)
(d) Optical systems don't do [as good] a job [as their electronic counterparts]. (COCA NEWS AssocPress)

[4] As noted by Wood & Vikner (2011), *such* and *so* are historically related: *such* in Old English was *swylc* from a Proto-Germanic compound **swalikaz* 'so formed' (*swa* 'so' + **likan* 'form').

[5] We use the term APD to refer to the predeterminer expression while using the 'BMC' to encompass the APD plus the following NP.

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(6) (a) He does [such] a good job [that it hardly seems worthwhile to compete]. (COCA MAG MotherEarth)
(b) You don't have half [such] a hard time [as I do]. (COCA FIC Bk: LittleWomen)

In both (5) and (6) here, there is a syntactic dependency between the APD elements and a second bracketed element such as a CP, an infinitival VP, a *than*-comparative clause, or *as*-relative clause. The dependency between the APD and DCM is tightly constrained in syntactic aspects, as observed from the following:[6]

(7) (a) We found [so] dark a cave that/*why we could not see a thing.
(b) You don't have half [such] a hard time as/*like I do.

The APD *so dark* or *such* requires an indefinite NP, but also places a restriction on the possible type of its DCM: each needs to be introduced by *that* and *as*, respectively. No other but similar expressions can introduce the DCM.

As we have seen, both *so*-type and *such*-type display nontrivial complexities in English syntax. In dealing with these two empirically and theoretically challenging types of BMCs, there have been two main perspectives: movement approaches (e.g. Kennedy & Merchant 2000; Vikner 2001; Matushansky 2002; Wood 2002; Wood & Vikner 2011) and construction-based approaches (e.g. Van Eynde 2007; Kay & Sag 2009). In the former, the APD expression is traditionally moved out of the source NP structure, whereas the latter generates the APD and the BMC with no movement operations but by constructional constraints. As we will see in due course, each of these two perspectives encounter theoretical or empirical issues. The treatment of the DCM construction has also been a challenge to both movement and non-movement syntactic analyses. Within P&P or Minimalist approaches, issues arise as to what motivates the necessary movements (cf. González Escribano 2005). Within nonderivational analyses (cf. de Mönnink 2000; Kay & Sag 2009), difficulties arise as to how to differentiate the dependency of the DCM, which is not truly 'long-distance', from canonical unbounded dependency constructions such as *wh*-constructions.

In this article, we first review some basic properties of these APD and DCM constructions on the basis of the previous literature and a corpus search (mainly using the ICE-GB, COCA and BNC). We conclude that none of the previous approaches accounts satisfactorily for the variations and flexibility of the two constructions. Drawing on corpus findings, we attempt to provide a lexicalist analysis of these two constructions that places the nature of these intriguing constructions in the interactions

[6] Canonical discontinuous modifiers (DCM) include examples like (i) in which the dependent elements are separated by a head noun:

(i) (a) That's a [difficult] question [to answer]. (BNC JK9 S_unclassified)
(b) The same may also be true of a [similar] approach [to curriculum development]. (BNC FAM W_ac_polit_law_edu)

The infinitival VP in (ia) is linked to the adjective *difficult*, whereas the PP in (ib) is to the adjective *similar*. In both cases, the two dependent elements are intervened by the head noun. See Biber *et al.* (1999) and de Mönnink (1996, 2000) for further types of the DCM and their distributional properties.

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between lexical properties and constructional constraints, rather than in movement processes or constructions alone.

2 Properties of the adjectival predeterminers

As we have seen, the *so*-type and *such*-type APDs are similar in that they both can appear in a predeterminer position, but differ with respect to the position of AP: only the *so*-type allows an AP to be in the predeterminer position, as shown in the following contrast (cf. Abney 1987; Huddleston & Pullum *et al.* 2002):

(8) (a) It had been almost two years, and she had been [such] a [young] child. (COCA FIC Storyworks)
(b) *It had been almost two years, and she had been [such young] a child.
(9) (a) So many things could happen to [so young] a child. (COCA FIC Bk:WindDancerStorm)
(b) *So many things could happen to [so] a [young] child.

As noted, both *such*- and *so*-type APDs combine only with the indefinite article *a/an*: no other determiner is licensed (cf. Van Eynde 2006):[7]

(10) (a) *How serious **some** problem is it?
(b) *They are so good Ø bargains I can't resist buying them.
(11) (a) *The drug was such **any** serious problem that there is no other way to deal with it.
(b) *I didn't realize **what** many big deals they are.

With respect to the use of indefinite article, unlike the *so*-type, *such* does not always require an indefinite article. It can combine with a bare NP or plural NP (cf. Siegel 1994; Wood 2002; Spinillo 2003):

(12) (a) Thank you for coming on [such] [short notice]. (COCA SPOK CBS_sixty)
(b) He never mentioned they were [such] [good friends]. (COCA FIC Bk: BordeauxBetrayal)

This cannot happen with *so*:[8]

(13) (a) I am lucky to have *so/such [good friends].
(b) I am not in *so/such [good shape] after all.

The *so*- and *such*-types have different uses. The *so*-type expressions are degree adverbs, but the *such*-type expressions can be either degree or other interpretations. For example, *such* has a 'kind' reading especially when it is used in the postdeterminer position:[9]

[7] The notation ϕ means that no article is realized in this position.
[8] When *so* is used as an (adverbial) conjunct, it can be followed by a plural NP:

(i) (a) That's exactly why I painted them. So other people can appreciate them. (COCA FIC Triquarterly)
(b) I see it more as a need for job training, so young men can connect their work with a reward. (COCA MAG SportsIll)

[9] Bolinger (1972) assumes *such* has basically two semantic functions: intensifying and identifying. See also Wood (2002) and Spinillo (2003).

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(14) (a) Other European countries, such as France and Italy, were excluded because [no such uniform pattern] could be found there. (BNC CLE W_ commerce)
(b) These letters, on their true construction, did not give rise to [any such implied agreement]. (BNC FCL W_ac_point_law_edu)

The expression *such* in both examples here is in the adjective position, denoting a 'kind'. Meanwhile, the degree adverb *so* cannot be in the NP-internal position even with the determiner *no* or *any*:

(15) (a) [No such/*so standard interface] is supplied reducing the available choice to a handful of units. (BNC C00 W_commerce)
(b) The law did not recognise [any such/*so general principle]. (BNC FCL W_ac_polit_law_edu)

Further intriguing properties arise from the lexical idiosyncrasies of *so*-type expressions. Of the *so*-type degree words, the comparative *more* and *less* appear in either the predeterminer or the postdeterminer position:

(16) (a) Any of these could be a sign of [a more serious problem] that needs medical attention. (COCA MAG GoodHouse)
(b) I think it's [more a pragmatic approach], where they want to choose a candidate who can actually win. (COCA SPOK NPR_ATCW)

Our corpus findings indicate that there is no clear preference over the other ordering: we find almost equal frequency for both cases.

As for the other degree words *too*, *that*, *this* and *enough*, the previous literature has often taken it that they cannot appear in the postdeterminer position, but corpus findings indicate that they can appear in the canonical prenominal position, whose frequency we cannot ignore:

(17) (a) It was always his conviction that feeling and character must take precedence over [a too literal representation] of anatomy. (COCA NEWS CSMonitor)
(b) But [a that hard schooling] would avail him nothing here. (COCA FIC BkSF:DragonToken)
(c) If that's not [a good enough excuse], he has others. (COCA NEWS USAToday)

A further complication arises from the possibility of having the preposition *of* between the APD and the head noun. The preposition *of* is often found in actual texts, though there is known dialectal variation (Zwicky 1994; Kennedy & Merchant 2000):

(18) (a) They and their parents are proud of what they have accomplished in [so short of a time]. (COCA ACAD MusicEduc)
(b) Maybe I'm not [as good of a parent] as I thought I was. (COCA SPOK CBS_Sixty)
(c) But no one seemed to want to stay there, and Augusta wasn't willing to let anyone create [too wide of a margin]. (COCA NEWS AssocPress)
(d) The superintendent told the audience that the poor results 'should not have been [that big of a surprise]' because of a change in the math curriculum. (COCA NEWS AssocPress)

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(e) 'As soon as you say that your mom is in the penitentiary, people wouldn't understand [how great of a lady] she really is, how caring she is,' Warren says. (COCA NEWS USAToday)

The preposition *of* here seems to have no semantic content, but the restriction on the indefiniteness ensures that the preposition is a member of this BMC:

(19) (a) *They are proud of what they have accomplished in [so short of the time].
(b) *Maybe I'm not [as good of the parent] as I thought I was.

Corpora examples present an extra puzzle, with the doubling of the indefinite determiner with *such*:

(20) (a) This was the first he had heard of [a such a preposterous event]. (COCA FIC FantasySciFi)
(b) So far as I could see, there was [no such a thing] as a New Yorker story. (COCA ACAD AmerScholar)

These examples indicate that at least to some speakers, the combination of *such* with an indefinite NP does not close off the NP projection; the resulting phrase is a still N′ which can host a limited set of determiners.

What we have observed so far is the complex structure involving the BMC, including two different types of APD – *so*- and *such*-types. Even though the APD expressions can be classified into these two types, each degree item also displays its own peculiar properties. Their distributional possibilities are much more flexible than the previous literature has generally assumed (cf. Spinillo 2003).

3 Interaction with the discontinuous modifier

As noted earlier, some of the *so*-type APDs are linked to a DCM element.[10] For example, the *so*-type APD can be linked to a finite CP, an infinitival VP, a *than* clause, or even a pseudo-relative clause headed by *as*:

(21) (a) [so big] a business [that we couldn't afford to do an acquisition]
(b) [too high] a price [to pay for the moon]
(c) [more eloquent] a comment on the election [than any number of Sinn Fein leaflets]
(d) [less important] a variable [than gender]
(e) [as intelligent] a man [as I would like to be]

The APD and the dependent here are interrupted by the head NP. The dependence between APD and DCM can also be observed with *such*:

(22) (a) Don has [such] a big house [that I actually got lost on the way to the bathroom].
(b) Shelly has [such] beautiful eyes [that she got a job as a make-up model].

Note that the DCM can be introduced even when *so* or *such* is used as a non-APD expression:

[10] The DCM element is optional, as it functions as a modifier.

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(23) (a) The music is [so] loud [that I can't sleep].
(b) She spoke [so] quickly [that I can't understand her].
(24) (a) There's no [such] thing [as a definite statement].
(b) I mean there are [such] things [as political groupies].

In the examples (23), the degree items are not in the predeterminer position. Further, *such* in (24) is not in the APD position but still introduces a DCM expression. This implies that it is not the APD but a simple degree lexical expression *so* or *such* that may introduce the dependency.

We also note that not every degree expression is linked to a DCM (cf. Kay & Sag 2009):

(25) (a) [This] big a business (*[that we couldn't afford to do an acquisition]) is going to take a long time to get over.
(b) [How] high a price (*[to pay for the moon]) will they go to?

Given these observations, we can have at least the following three different types of expression with respect to the APD (cf. Bolinger 1972; Sadler & Arnold 1994; Huddleston & Pullum *et al.* 2002; Kay & Sag 2009):

(26) (a) APD and DCM both possible: *so*, *too*, *more*, *as*, *enough*, *such*, . . .
(b) APD only: *this*, *that*, *how*, *what*, . . .
(c) DCM only: *same* . . . [*as* . . .], *similar* . . . [*to* . . .], Adj-*er* . . . [*than* . . .], *differ* . . . [*from* . . .], *superior* . . . [*to* . . .]

In sum, the two types of APD are different in many respects, and not even all members in the same type behave alike. For example, the degree adverb *so* and *this* are different with respect to the licensing of a DCM; *such* and *what* are also different in this sense. The observations given here reflect the fact that the lexical properties of these expressions play an important role in controlling the BMC as well as the DCM.

4 Functional projections and movement analyses

As pointed out by Kennedy & Merchant (2000), the external syntax of the BMC has presented challenges to movement approaches since, in traditional wisdom, the elements on the left branch cannot be extracted:

(27) (a) *How many does he have [__ books] in the bookcase?
(b) *How interesting did Pico write [a __ novel]?
(28) (a) *How much was he [__ unusual]?
(b) *How did Tom wrote [an __ interesting novel]?

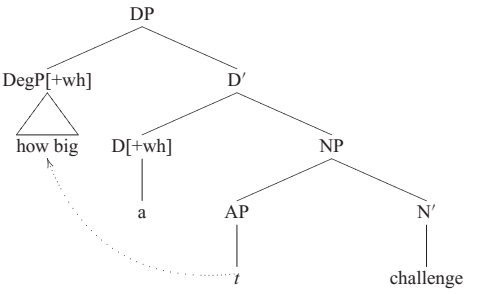
The ungrammaticality of these examples tells us that neither a full AP nor a degree term can be extracted out of the left-branch position of the head NP or the attributive position (Corver 1997, 2002). The BMC has exactly the same configuration in which the APD in the left branch appears to be extracted out of the NP:

(29) (a) Hunger was so powerful [a __ force] in its life.
(b) How big [a __ challenge] do you want?

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To generate such BMC-involving sentences, P&P approaches have allowed the attributive AP to move into the Spec of DP (cf. Corver 1990; Giorgi & Longobardi 1991; Zamparelli 1995; Haegeman & Guéron 1999). For example, consider a simple configuration given in Kennedy & Merchant (2000: ex. (47)):

(30)



In this kind of approach, the key property is the motivation for the movement for feature checking, as set forth in detail by Kennedy & Merchant (2000). The feature [+wh] is assigned on the DegP, and the phrasal movement is a type of *wh*-movement. The [+wh] feature on DegP is then passed to the head of DP for agreement reasons and the DegP moves to the Spec of DP to create an interpretable feature relationship between a [+wh] DegP and the head of the nominal constituent in which it originates (Corver 1990; Merchant 1999). The feature [+wh] is used to explain the following ungrammatical example (Hendrick 1990; Moro 1997; Lechner 1999; Kennedy & Merchant 2000):

(31) *Pico wrote a more interesting novel than [$_{CP}$ Op$_i$ Brio wrote [$_{DP}$ t$_i'$ a$_{[+wh]}$ [$_{NP}$ t$_i$ play]]].

In the analysis of Kennedy & Merchant (2000), the comparative operator, functioning as the [+wh] attributive, moves to the Spec of DP and then to the Spec of CP. Spec–Head agreement ensures that this [+wh] feature is transferred to the head D. These authors propose (2000: 112) that there is no lexical item in English which can be realised in this D position, and hence the derivation crashes at PF, as some grammatical information cannot be lexicalized.

However, this account is not all there is to say, since the APD need not include a *wh*-expression, as we have seen earlier:

(32) (a) You can do [as good a job] or better.
(b) My life was going to be [this huge a soap opera].
(c) There is [no more noble a sacrifice].
(d) AIDS is [bad enough a problem].

In addition, note the existence of the apparently meaningless *of* before the indefinite article:

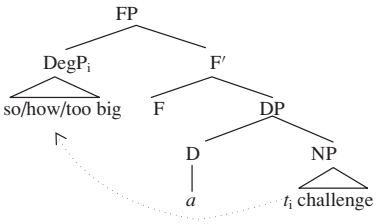
(33) (a) [How long of a novel] did Brio write?
(b) I ate [too big of a piece].
(c) Bob didn't write [as detailed of a proposal] as Sheila did.
(d) If I ever see [that disgusting of a movie] again, I'll ask for my money back.

Even though the *of* insertion in such examples is not accepted in every dialect of English, our corpus examples do include such variation. Such examples motivated

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Kennedy & Merchant (2000) and others to introduce the functional projection FP, a higher layer above the DP:

(34)



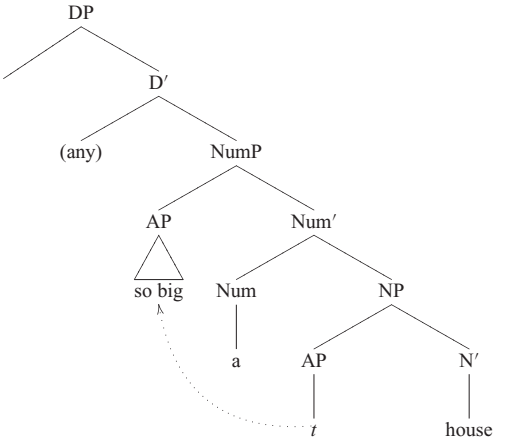
In this revised configuration, the landing site of the DegP is now the Spec of FP. In particular, the head F accommodates the preposition *of*, capturing the ordering of APD followed by a DP.

However, note that this configuration is still not complete, when considering the complexity of the BMC. Leaving aside the issue of how to ensure the D value is not any indefinite but only *a*/*an*, the analysis still does not address the issue of what motivates the movement of the left-branch elements here, other than contributing the motivation to features on the unnamed functional projections F. Further challenges to this type of analysis are raised by corpus data like (35):

(35) (a) He would not cut [**half** [[so good] a figure]].
(b) I will not be the medium of [**any** [[so absurd] a requisition]].
(c) Is there [**any** [such a thing]] as a precision strike at North Korea's nuclear capacity?

Within a functional projection-based approach, the presence of an additional element before the BMC requires one additional position before the FP. As a solution, following Wood (2002) and Wood & Vikner (2011), one could adopt another modified functional projection hierarchy as in (36):[11]

(36)



[11] See Ritter (1992), Matushansky (2002) and Alexiadou *et al.* (2007) for some motivations for introducing the NumP.

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Within this revised functional projection, the derivation now moves the DegP to the Spec of NumP. Since there is still one more layer over this NumP, we could predict the appearance of determiners like *any*. By having one empty slot in the Spec of DP, we might expect one more additional expression preceding *any* or *no*.

As noted in passing by Kennedy & Merchant (2000), this kind of movement (SpecFP or SpecNumP) is driven by some features like [+wh]; but we have seen that not all attributive modifiers carry such [+wh] features. Even if we can have a way of dealing with this issue, questions still remain of how to predict what licenses the phrases which can front, as noted earlier.

We have also seen that each degree adverb displays different lexical idiosyncrasies. For example, comparatives such as *more*/*less* allow optional inversion:

(37) (a) That's [a steeper an angle] than it's really going to be. (COCA SPOK CBS_SunMorn)
(b) He has become [a more disciplined hitter] and a smarter hitter. (COCA NEWS NewYorkTimes)

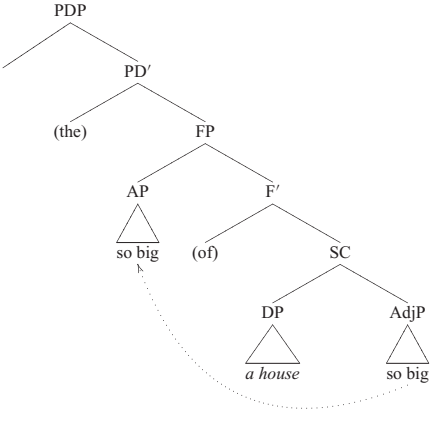
Whatever feature triggers the DegP inversion, the one that *more*/*less* carries is different from the others (cf. Troseth 2004). In addition, observe the behaviour of *enough*:

(38) (a) If that's not [a good enough excuse], he has others. (COCA NEWS USAToday)
(b) And betrayed is not [strong enough a word]. (COCA SPOK CNN_ KingWknd)

The analysis has to guarantee both the movement of the degree item *enough* in the postadjectival position and then movement of the word in the Spec of a higher functional projection. It is hard to find any syntactic motivations for such bidirectional movements, other than positing a purely constructional reason (cf. Culicover & Jackendoff 2005; Goldberg 2006).

In dealing with the similarities and differences between *so* and *such*, Wood & Vikner (2011) provide an interesting movement approach.[12] In particular, they propose that both the *so* + AP and *such* are generated in the predicate position:

(39)



[12] These authors discuss the internal and external syntax of these two etymologically related words *so* and *such* in English, Danish and German.

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This predicate-driven movement is claimed to reflect the property that the attributive AP in the BMC basically functions as a predicative phrase (data from Wood & Vikner 2011):

(40) (a) the shoplifter is ashamed
(b) *the ashamed shoplifter
(c) *the so ashamed shoplifter
(d) so ashamed a shoplifter

Attractive though this analysis appears to be, there are some issues it needs to face. Adjectives like *inner*, *mere* and *wooden* have only attributive uses:

(41) (a) There was a low, wooden form fixed to the wall. vs *The wall is wooden.
(b) Belief is such an intensely inner matter. vs *The matter is inner.
(c) I cannot pay a mere child more than one dollar. vs *The child is mere.

The predicate analysis in which the inverted AP is generated in the predicate position would not then license such non-predicative attributive-only adjectives in the BMC. However, our corpus search reveals counterexamples to this prediction:

(42) (a) Without so much as a waving-line in them, it becomes [so wooden a form].
(b) It may seem a strange requirement in [so inner a matter] as friendship that one should insist upon the objective mood as fundamental.
(c) I boxed a little boy, a nephew of mine, very unrighteously, and he is so little, [so mere a child], that I can't ask his pardon.

The movement-based approaches we have discussed here provide some insights into the complexity of the BMC, in particular in relation to the ordering of the elements involved. However, the properties of degree expressions, APD and BMC indicate that an array of functional projections and movement processes are not enough to capture their flexibility, lexical idiosyncrasies and constructional constraints.

5 A lexicalist, construction-based approach

5.1 HPSG: a brief background

HPSG uses typed feature structures to model linguistic objects. Feature structures of various types specify values for appropriate features. Some of these values are themselves complex feature structures, as, for example, in a word or phrase:[13]

(43)
$$\begin{bmatrix} \langle \text{petted} \rangle \\ \text{HEAD} \begin{bmatrix} \text{POS} & \textit{verb} \\ \text{VFORM} & \textit{fin} \end{bmatrix} \\ \text{ARG-ST} \ \langle \text{NP, NP} \rangle \end{bmatrix}$$

[13] The feature structures used here are abbreviated. See Sag *et al.* (2003) and Kim & Sells (2008).

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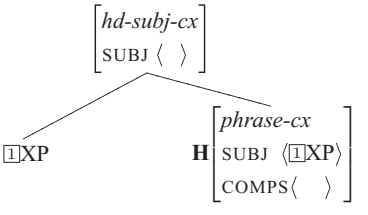
The elements in the ARG-ST (argument-structure) will be realized as SUBJ (subject) and COMPS (complements) in syntax in accordance with the Argument Realization Constraint:[14]

(44)
$$\begin{bmatrix} \langle \text{petted} \rangle \\ \text{HEAD} \begin{bmatrix} \text{POS} & \textit{verb} \\ \text{VFORM} & \textit{fin} \end{bmatrix} \\ \text{SUBJ} \langle \boxed{1}\text{NP} \rangle \\ \text{COMPS} \langle \boxed{2}\text{NP} \rangle \\ \text{ARG-ST} \langle \boxed{1}\text{NP}, \boxed{2}\text{NP} \rangle \end{bmatrix}$$

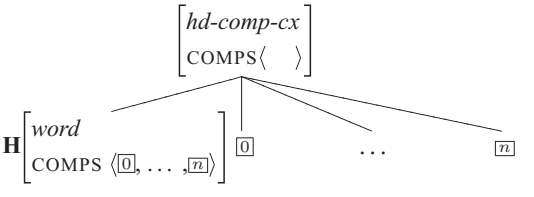
This realization constraint has the ARG-ST at the lexical level linked to the valence features SUBJ and COMPS, which are syntax-sensitive.

In the version of HPSG that we assume here, complex phrases are licensed by grammatical constructions, which are schemata imposing constraints on how component signs can combine to build larger signs. Two constructions of English will suffice for our purposes here, the head–subject construction and the head–complement construction, given both in the form of Pollard & Sag's (1994) schemata and the construction types of Fillmore (1999), Sag *et al.* (2003), Kim & Sells (2008), Sag (2010) and related work:

(45) (a) Head–Subject Construction:



(b) Head–Complement Construction:



[14] The constraint specifies that the first element in the ARG-ST is realized as SUBJ and the remaining values as the COMPS. See Sag *et al.* (2003) and Kim & Sells (2008).

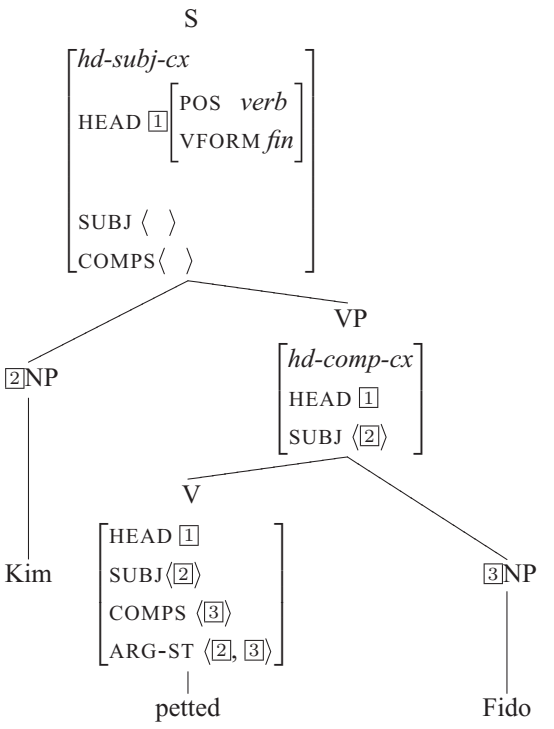
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The Head–Subject Construction in (45a) allows the combination of a VP with its subject, whereas the Head–Complement Construction in (45b) licenses the combination of a lexical head and its phrasal complements. These constructions interact with the Head Feature Principle and the various (partly parochial) linear precedence (LP) constraints to license complex phrasal signs:[15]

(46) The Head Feature Principle:
In a headed construction, the HEAD value of the mother must be identical to the HEAD value of the head daughter.

The well-formed signs defined by our grammar are those that instantiate the mother of some construction, obeying all constraints specified by that construction, all general principles and all linear precedence constraints. We can represent the construction of complex expressions via trees of a familiar sort, which are simply a convenient representation of how a given complex sign (a phrase) is licensed by our grammar. (47) is one such diagram:

(47)



The verb *petted* selects two arguments as given in the ARG-ST value. The first one is realized as SUBJ and the second one as COMPS value. The Head Feature Principle guarantees that the HEAD feature of the verb is eventually identified with that of

[15] See Sag *et al.* (2003) for detailed discussion of the linear precedence constraints.

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the sentence. The ordering among constituents is constrained by the LP constraints specifying that the lexical head precedes its complement, whereas the VP follows the subject.

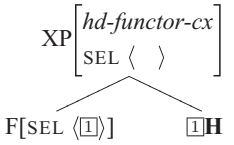
5.2 Head–functor construction

Our analysis, following Van Eynde (2007), starts with the observation that there are many similarities between specifiers and modifiers in languages. For example, in Italian, the same agreement marker appears on specifiers as well as modifiers (data from Van Eynde 2007):

(48) questa bella bambina
this-SG.FEM beautiful-SG.FEM child-SG.FEM
'this beautiful child'

Treating specifiers and modifiers in a uniform way as Van Eynde (2007) and Kay & Sag (2009) do, we assume that specifiers and modifiers are both functors that 'select' their head. More specifically, we accept the view that English employs the head–functor construction in (49) as one of the well-formed phrasal combinations, as represented in the following:

(49) Head–Functor Construction (first version):



What this constructional constraint specifies is that the combination of a head and a functor selecting this head forms a well-formed *hd-functor-cx*. In English, various functor elements can serve as non-head daughters in a local tree and 'select' their head sister through the feature SEL (SELECT). The feature specifies what kind of head a functor (encompassing both modifier and specifier) can combine with in syntax.[16] Examples like the following are all head–functor combinations in which either a modifier or a specifier combines with its semantic head argument:

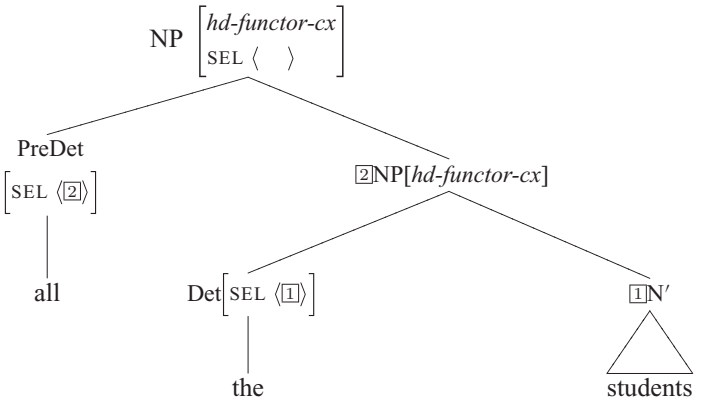
(50) (a) [[$_F$ big] [$_H$ mess]]
(b) [[$_F$ the] [$_H$ big mess]]
(c) [[$_F$ all] [$_H$ the students]]

As an illustration, consider the structure of (50c):

[16] The feature SEL is different from canonical valence features such as SUB and COMPS in HPSG. In addition, differently from Van Eynde (2007) and Sag (2009), the feature SEL as we articulate it here is not a head feature, but a non-head feature passed up to the mother when it is not discharged.

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(51)



As shown here, both *all* and *the* are functors that select an argument head. The functor *the* first combines with the head *students*, and the resulting phrase then serves as the SEL value of the functor *all*. Both combinations are well-formed head–functor constructions.

With the postulation of the Head–Functor Construction as one of the well-formed English phrasal types, we can account for the complex distributional possibilities of *such*. In dealing with the distribution of *such*, we first need to consider the fact that *such* cannot combine with a definite NP, as in **such the big mess*, though it is allowed to combine with an indefinite NP, as in *such occasions*. This means that functors like *such* require the sister to carry a special marker value originating from an expression like *a* (in contrast to *the*). For this purpose, following Van Eynde (2007), we introduce the feature MRK (MARKER) whose value is passed up to the mother from a non-head daughter.[17]

We also need to consider that, as noted earlier, *such* has flexible distributional possibilities. For example, *such* can also appear in the determiner or adjectival position (cf. Wood 2003; Kim & Kim 2009), in addition to the predeterminer position:

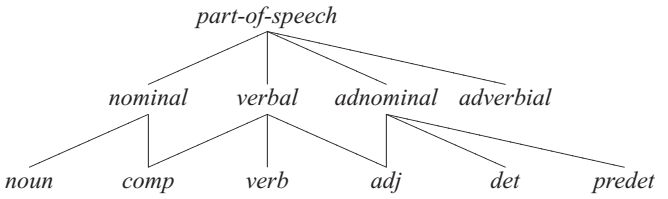
(52) (a) I would imagine that nobody has done **such** a thing. <ICE-GB:S1B-023 005:1>
(b) I'm normally oppressed by **such** paintings. <ICE-GB:S1B-018 171:1>
(c) Many **such** parents will be tempted to wash their hands of their responsibilities. <ICE-GB:W2C-007 080:2>

All these three positions can be taken as 'adnominal' in the sense that they appear in the prenominal position. As a way of expressing this observation, rather than assigning three different lexical categories to each of these three different cases, we introduce the category *adnominal* as a supertype, shown in the following hierarchy of parts of speech:

[17] Motivations for introducing the feature MRK and related constraints can be found in Van Eynde (2007) and Kay & Sag (2009), as well as in our analysis below.

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(53)



This multiple inheritance hierarchy, adopted from Kim & Sag (2005), is meant to capture many similarities between lexical categories (cf. Flickinger & Nerbonne 1992). As is well known, NP and CP behave like *nominal* elements, whereas CP and VP are *verbal* in the sense that they both denote a propositional meaning. Predeterminers, adjectives and determiners behave alike in many languages and are treated as belonging to the same category *adnominal*.[18]

To reflect the combinatorial constraints and distributional possibilities we have just observed, we assume that the word *such* belongs to the supercategory *adnominal* with an N′ as its SEL value:[19]

(54)

$$\begin{bmatrix} \text{FORM } \langle \textit{such} \rangle \\ \text{SYN} \begin{bmatrix} \text{POS } \textit{adnominal} \\ \text{SEL } \left\langle \text{N}' \ [\text{MRK } \textit{unmrk}] \mid \text{NP}[\text{MRK } \textit{a}] \right\rangle \end{bmatrix} \end{bmatrix}$$

The lexical information indicates that *such* can select either an unmarked N′ or an indefinite NP. The feature MRK picks out some property of a word or a phrase which other aspects of the constructions may be sensitive to. In most cases, the value of MRK is *unmrk* (*unmarked*).[20] The simple lexical entry in (54) would then first project structures like the following:

[18] In languages like Korean, for example, adjectives and determiners can both act like a modifier in the prenominal position, showing no ordering restrictions and no complementary distribution:

(i) (a) chakhan ku haksayng
honest the student
'the honest student'
(b) ku chakhan haksayng
the honest student
'the honest student'

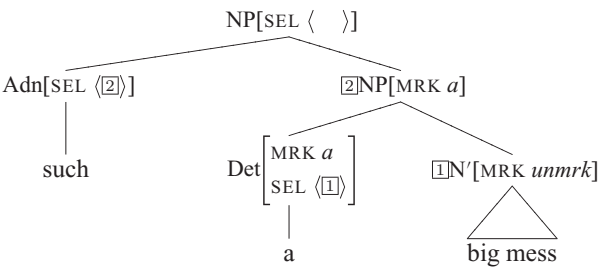
We assume that English also needs a lexical supertype *adnominal* encompassing both adjectives and determiners.

[19] The notation | in the SEL value means that *such* can select either an N′ or a full NP whose MRK value is *a*. We could simplify this SEL value by introducing a meta-marker value like *nondefinite* which has two subtypes *unmrk* and *a*. This would then enable us to say *such* selects a nominal element whose MRK value is only *nondefinite*.

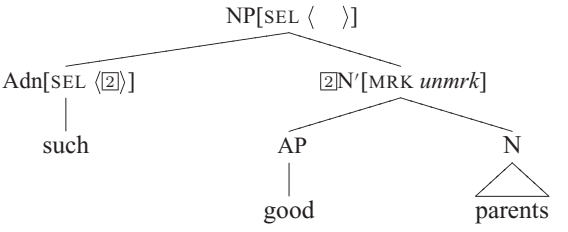
[20] The MRK value, which is a non-head feature, plays an important role in specifying the value of determiner. See Van Eynde (2007) for further constraints on MRK.

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(55) (a)



(b)

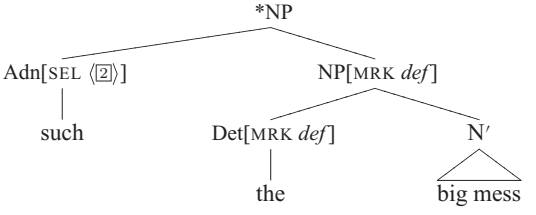


In the structure (55a), both *such* and *a* are functors selecting an indefinite NP and an unmarked N′, respectively. (55b) is similar in that *such* forms a *head–functor–cx* with its head phrase *good parents*. However, due to the tight restriction on the MRK value, the analysis would not license phrases such as these:

(56) *such the big mess, *such this dog, *such my dog, *such many dogs, *such any dog, . . .

These are all unacceptable simply because the functor *such* would have to combine with an NP whose MRK value is *def* (*definite*), as shown in (57), in violation of the lexical entry for *such* (see (54)):

(57)



The present analysis can also be extended to other peculiar distributions of *such*:[21]

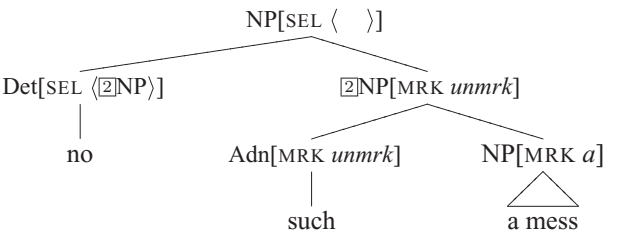
(58) (a) There was no foreseeable possibility of **any such a** scheme.
<BNC A8X 960>
(b) Without promotion, there is **no such a** thing anymore.
<BNC HCX 352>

Such examples indicate that the combination of the functor *such* with its head does not close off the NP projection. To generate such combinations, the only thing we need to assume is that *such* has a MRK value *unmrk* and that determiners like *no* or *any* select for nominal expressions which are *unmrk*:

[21] See Altenberg (1994) for detailed discussion of the functions of *such*.

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(59)



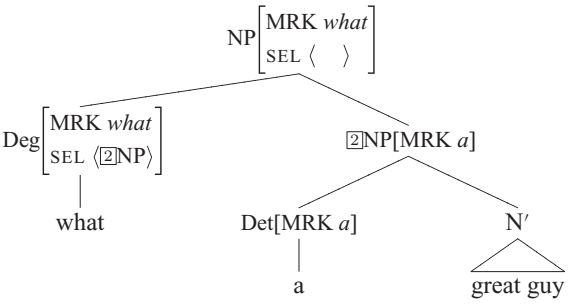
This approach will rule out examples like **no a man* and **no the man*: both *a* and *the* have their own MRK value passed up to the mother and the resulting phrase *a man* or *the man* will then have MRK values *a* and *the* respectively.

The lexical information of *such*, interacting with the constructional properties of the Head–Functor Construction, can therefore encompass the flexible distributions of *such* (cf. Siegel 1994; Seppänen *et al.* 2002; Spinillo 2003).[22] However, the closely related *what* is actually quite different from *such*, and it only appears in the predeterminer position. For example, *what* can combine with an indefinite NP, bare countable or uncountable N′:

(60) (a) The fans can understand what [a great guy] he is. (COCA NEWS Atlanta)
(b) What [remarkable children] you are. (COCA NEWS SanFrancisco)
(c) What [wonderful food] it is. (COCA MAG MotherEarth)

We can assign the correct lexical properties to *what* in order for it to be a functor, licensing such examples:[23]

(61)



As shown here, the NP *a great guy* has a non-empty MRK value. The functor *what* combines with this head NP, forming a head–functor construction. Note that the resulting phrase also has a MRK value inherited from the functor *what*. This also means that a structure like (61) could not be an argument of a functor such as *no* or *any*, which requires a nominal expression with no MRK value:

[22] As a reviewer points out, only a limited range of determiners can be in this Det position; **this such a mess* is not possible, for example. This in turn means that the determiner *no* lexically requires an unmarked N′ as its head expression.

[23] The analysis sketched here is similar to Van Eynde (2007).

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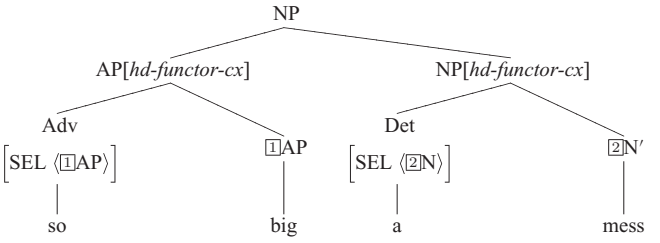
(62) *any what a great guy, *no what remarkable children, no a great guy,

As seen in (59), determiners like *any* or *no* require the head NP to have no MRK value. The interaction with these determiners shows us that the resulting combination of the functor *what* and its head is different from the combination of *such* and its head. At this finer level of detail, this entails that the *such*-type BMC needs to be differentiated into two subtypes with different constraints on the resulting phrase, displaying their lexical idiosyncrasies.

5.3 On the so*-type BMC*

The behaviour of the *so*-type BMC is partly similar to that of the *such*-type BMC, but there are several differences. One main difference is that *so* first combines with an AP and then an indefinite NP as represented in the following structure:[24]

(63)



In this structure, the APD *so big* and the NP *a mess* are both well-formed head–functor constructions. The question then arises as to what licenses the combination between the AP *so big* and the indefinite NP *a mess*. We could, as Van Eynde (2007) and Kay & Sag (2009) do, posit a special construction that licenses this combination.[25] However, we take a slightly different direction. Rather than assigning this combinatorial power to a construction at the phrasal level, we attribute the combinatorial possibilities to the lexical properties of degree words *so* or *such*. Recall that both *so*- and *such*-type degree words can appear in a (immediate or non-immediate) predeterminer position:

(64) (a) *so*-type: *so*, *as*, *too*, *this*, *that*, *more*, *how*(*ever*)
as good a singer, how strange a story, too hot a day, how(ever) brave a soldier, far cheaper a method, . . .

[24] As noted in Van Eynde (2007), another possible structure is the one where the indefinite article selects the APD as its specifier, and the resulting phrase (DetP) serves as the specifier of a common noun. One problem that such an analysis encounters lies in classical constituency tests in *Never before had we seen* [*that big*] [*a bridge*] vs **Never before had we seen* [*bridge*] [*that big a*]. This contrast indicates that the APD and the following indefinite article do not form a constituent. See Van Eynde (2007) for further discussion of the possible problems facing such an analysis.

[25] Van Eynde (2007) posits a special construction to license an AP with the functor *so* to combine with an indefinite NP. Kay & Sag (2009), slightly differently from Van Eynde (2007), introduce a construction *apd-cxt* (adjectival predeterminer construction). Simplifying slightly, the phrase *so big* has a constructional property which adds an indefinite NP as its SEL value.

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(b) *such*-type: *what*, *many*, *half*, . . .
many a time, such a disgrace, what a pity, half an hour, . . .

There is no doubt that the degree words play a crucial role in licensing these combinations. In addition, consider the following simple variations of *so* and *such* with a DCM again:

(65) (a) The industry is so big a mess (that no one can control it).
(b) The industry is such a big mess (that no one can control it).

If we consider the *so*- and *such*-types of examples, the question arises of whether a uniform analysis for both is possible. As we have seen, *so* also has much more flexible, distributional possibilities even with a DCM:

(66) (a) The music is so loud (that I can't sleep).
(b) The gentleman spoke so quickly (that I couldn't understand him).

Here *so* does not participate in a structure with an NP dependent after the AP or AdvP, but directly combines with an optional DCM, showing us that this must be one of its lexical properties.

In order to capture the necessary generalities as well as being able to determine idiosyncratic properties, our analysis minimizes the postulation of phrasal constructions but places the combinatorial power in the lexical properties of *so* and *such*. In addition, we assume that the functor can select more than one element – including a DCM – as represented in the following lexical information:

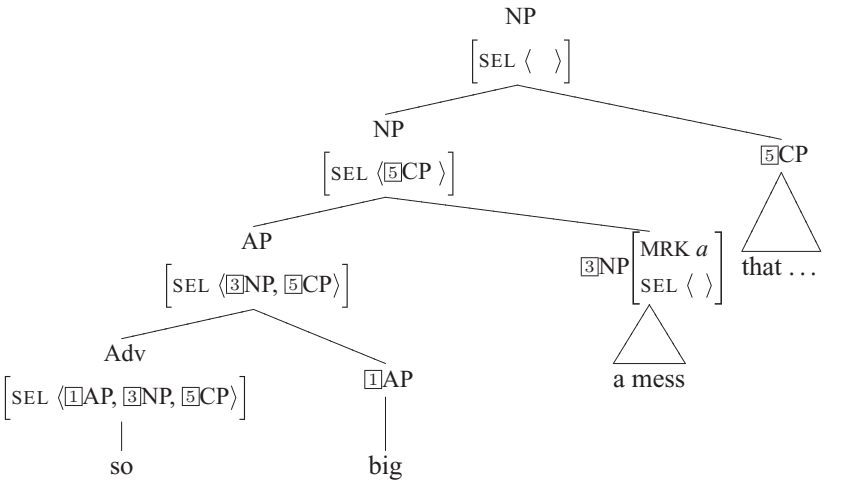
(67)
$$\begin{bmatrix} \text{FORM } \langle so \rangle \\ \text{HEAD} \begin{bmatrix} adv \\ \text{SEL} \langle \text{AP}, \left(\text{NP} [\text{MRK } a] \right), \text{CP} [that] \rangle \end{bmatrix} \end{bmatrix}$$

Slightly different from *such*, the adverbial functor *so* can select one obligatory dependent together with two optional dependents including a DCM. This reflects the fact that while the DCM is optional and discontinuous, the presence of the DCM is dependent upon the degree word which licenses it.[26] In the present analysis, the combination of the AP and the following NP is thus not a constructional constraint, but is licensed by the lexical properties of the degree item *so*. This lexical specification, together with an assumption that the functor combines with one head element at a time, would license the following binary-branching structure:

[26] Kay & Sag (2009) treat the DCM dependency as an extraposition process. Since the DCM comes immediately after the BMC, we treat it as a lexical dependency. See also de Mönnink (2000) and Müller (2004).

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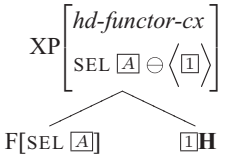
(68)



The functor *so*, selecting three dependents, first combines with its AP head, discharging the first AP requirement of the SEL feature. The result will then combine with the NP head *a mess*, forming a bigger Head–Functor Construction. Then, this once again combines with the third dependent DCM clause, fulfilling the SEL requirement.

It may be observed that the combinations here are controlled not by the head but by the functor, and the value of the SEL value is passed up to the mother from the non-head daughter until it is discharged. This requires us to slightly revise the Head–Functor Construction in (49) as follows:

(69) Head–Functor Construction (second version):



The notation A here designates a list, while ⊖ is a subtraction operation on the list. This revised construction dictates that the value of the SEL feature is passed up to the mother, minus the discharged part. This is stated in words in (70):

(70) Head–Functor Construction:
A phrase's SEL value is identical with that of a functor (non-head) daughter minus the discharged value.

The revised constraint guarantees that the unsaturated SEL value is passed up to the mother.

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As a reviewer points out, examples like (*very*) *few houses* require further elaboration of our constraint. In such examples, it is *few* that requires a plural head noun *houses*. This means that when the head *few* combines with the functor *very*, the SEL feature that it carries needs to pass up to the mother. This is one main reason why Van Eynde (2007) treats the SEL feature as a head feature. In the present analysis, to allow the SEL value of the functor as well as that of the head daughter to pass up to the mother phrase, we need to slightly revise (70), as in the following:[27]

(71) Head–Functor Construction (final version):
A phrase's SEL value is identical with the combination of its functor's and head daughter's SEL value minus the discharged value.

The features MRK and SEL are both inherited from functors, but the latter is different in the sense that the value from the mother is also passed to the mother. This mechanism, reminiscent of foot features in GPSG and argument composition in HPSG, thus allows the certain values in head or non-head daughters to pass up to the mother (see Gazdar 1981 for foot features and Abeillé *et al.* 1998 for argument composition).

The present analysis allows degree expressions like *so* and *such* to carry more lexical restrictions on their possible dependents. One difference between the two, mentioned above, is that the former can place the restriction on the first NP dependent after forming a phrasal combination with an AP, while *such* imposes its constraints directly:

(72) (a) *[[so big] [the mess]], *[[so big] [many the mess]], *[[so big] [somewhat mess]], . . .
(b) *[[such] [the big mess]], *[[such] [many the big mess]], *[[such] [somewhat big mess]], . . .

In addition, note that unlike *such*, *so* does not combine with a bare NP; nor can it combine with plural NPs:

(73) (a) You have been [*so/such good friends] to the students.
(b) You are in [*so/such good shape].

These reflect lexical differences between the two degree words.

As noted above, the *so*-type APD can also be followed by the preposition *of*. Our corpus search indicates that the most frequent cases of *of*-insertion are with the APD

[27] A formalization of this construction could be as in (i):

(i) Head–Functor Construction:

$$\begin{bmatrix} \textit{hd-functor-cx} \\ \text{CAT} \mid \text{SEL} \ \boxed{A} \oplus \boxed{B} \ominus \langle \boxed{1} \rangle \\ \text{NONHD-DTR} \ [\text{SEL} \ \boxed{A}] \\ \text{HD-DTR} \ \boxed{1}[\text{SEL} \ \boxed{B}] \end{bmatrix}$$

As this feature structure indicates, the mother's SEL value is the union (marked by the list operation $\oplus$) of the non-head functor daughter's SEL value and the head daughter's SEL value, minus the discharged value. This discharged value ($\boxed{1}$) is the head daughter itself.

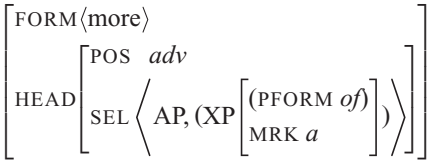
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trigger *more*. Other triggers such as *so*, *too*, *as*, *too*, *this* and *that* are also possible, but less frequent:

(74) (a) It is [more simple of a tip]. (COCA NBC today)
(b) Maybe I am not [as good of a parent] as I thought I was. (COCA SPOK CBS_sixty)

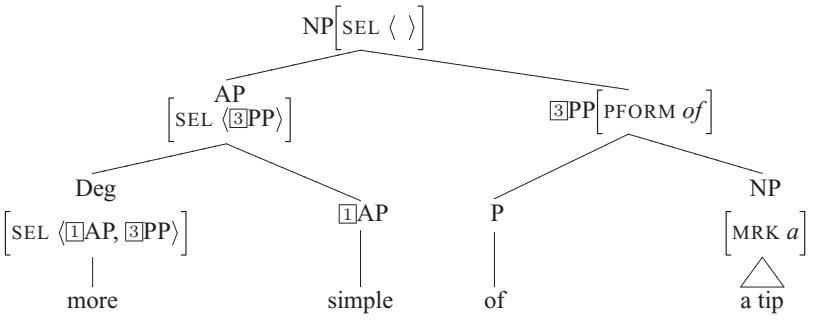
In the present system, the only thing we need to do is to modify the lexical entry slightly:

(75)



As shown in the lexical entry, the APD trigger can select either an indefinite NP or a PP with the meaningless *of*. The preposition *of* is optional, but *a* is obligatory. This lexical information will project a structure like the following:[28]

(76)



As noted by Wood & Vikner (2011), predicative adjectives are preferred in the BMC. This may suggest that the preposition *of* is introduced to mark the fact that the prepositional object is the complement of the adjectival element. This structure can then be interpreted as reflecting the property such that when a degree item like *more* selects an AP, it can further require a dependent NP or a PP with *of* with no meaning difference. Note that even with the PP dependent, its object NP still needs to observe the indefiniteness constraint:

(77) (a) It is more simple of a/*the trip.
(b) Maybe I am not as good of a/*the parent as I thought I was.

[28] Bennis *et al.* (1998) take *of* and *a* to occupy the same head, comparing the Dutch and English N *of* N construction.

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As we have noted earlier, there is another variation which needs to be lexically specified, supporting the direction of our analysis. For example, the degree items *more* and *enough* can either be in the APD or used in the postdeterminer position:

(78) (a) more a pragmatic approach vs a more pragmatic approach
(b) big enough a house vs a big enough house

This is variation in the SEL value in the present analysis. That is, *more* or *enough* will lexically select either an N′ (*pragmatic approach*) or a full NP (*a pragmatic approach*). In addition, note that *more* does carry a MRK value, passing it up to the mother phrase. In section 5.2, we saw that expressions like *no* or *any* can combine with any unmarked nominal expression. The combined possibilities from these lexical properties are illustrated by corpus examples like the following:

(79) (a) There is no more noble a sacrifice. (COCA NEWS NewYorkTimes)
(b) There is no more serious a task for Congress than deciding whether to impeach a sitting president. (COCA NEWS Houston)

In these examples, *more* will form a BMC first, after combining with *noble a sacrifice*, and this BMC phrase is what the functor *no* selects. The lexical properties, together with the combinatorial possibilities of the head–functor construction, can explain variation in the formation of BMCs.

5.4 More on APD and DCM together

As we noted earlier, some of the *so*-type and *such*-type BMCs can also be linked to another syntactic expression, such as an *as*- or *that*-clause in a discontinuous position, which we call a DCM:

(80) (a) It is also [so] [dark] [a cave] [that we could not see a thing].
(b) It is [so] [intense] [a light] [as to blind the eyes].
(81) (a) It was [such] [a good job] [that I would never have quit].
(b) He does [such] [a good job] [that it hardly seems worthwhile to compete].
(c) You don't have half [such] [a hard time] [as I do].

These examples indicate that the functor *so* and *such* can select more than one element which functions as a modifier. The type of this DCM is also restricted:

(82) (a) *It is also [so] [dark] [a cave] [which we could not see a thing].
(b) *It was [such] [a good job] [which I would never have quit].

As noted earlier, this dependency intuitively originates from the degree words *so* and *such*, not from a construction such as the APD. The present analysis can provide a

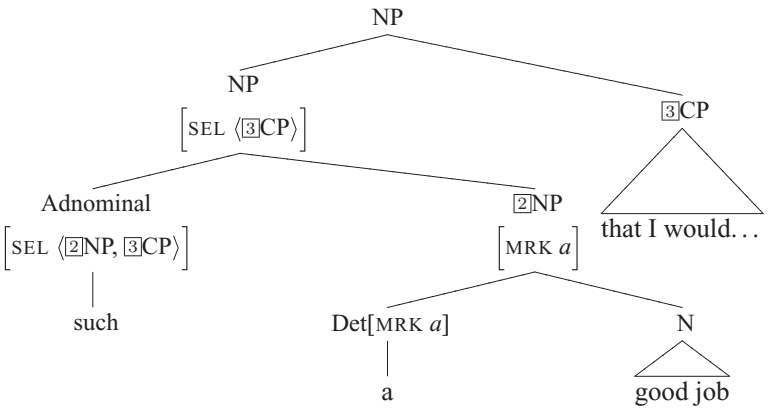
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simple way of stating this dependency, allowing the degree items to select one more dependent:

(83)
$$\begin{bmatrix} \text{FORM } \langle \textit{such} \rangle \\ \text{SYN} \begin{bmatrix} \text{POS } \textit{adnominal} \\ \text{SEL} \langle \text{NP}[\text{MRK } a],\ (\text{CP}[\text{MRK } \textit{as/that}]) \rangle \end{bmatrix} \end{bmatrix}$$

This kind of lexical information will project a structure like the following for (81a):

(84)



As shown here, *such* has two dependents: an indefinite NP and a CP. It first combines with the indefinite NP *a mess*, forming a head–functor phrase. The result will once again combine with the resulting CP clause. We treat the relationship between the BMC and the DCM not as a type of movement or dislocated phenomenon but as a locally bound construction.

6 Conclusion

We have attributed the discontinuous properties of *so*- and *such*- type degree expressions to their lexical properties, rather than to independent constructions. Their behaviour is the result of interactions between their lexical properties and the properties of more general constructions. This way of looking at the two types of BMC has allowed us to capture the properties of *so*- and *such*-type expressions in a uniform, lexicalist way. In particular, the BMCs are special in the sense that they select two (or more) arguments. In addition to head–complement relations, head–functor relations also play an important role in grammar. In our analysis, some discontinuous constructions are not really discontinuous, but are selected by the degree elements.

The analysis we sketched reflects the following basic observations:

- Intuitively, the degree adverbs determine what to combine with; they are functors.
- *So*- and *such*-type degree expressions are not different as functors; but they are different in what they select as their arguments.

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• A functor can select more than one argument, as a head does. The value of the feature SEL is a *list* (a sequence of values).

• A head–functor construction is a binary structure in which a functor combines with its arguments one by one.

Interactions among constructional and lexical constraints provide us with a way of capturing complex phenomena including the DCM. Every language employs a certain number of constructions which cannot be predicted only from general grammar rules. Based on our in-depth corpus search, it is clear that in a full-scale analysis we need to pay close attention to the trade-off between very specific lexical properties and constructions with more generality.

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References

Abeillé, Anne, Daniele Godard & Ivan A. Sag. 1998. Two kinds of composition in French complex predicates. In Erhard Hinrichs, Andreas Kathol & Tsuneko Nakazawa (eds.), *Complex predicates in nonderivational syntax*, 1–41. San Diego: Academic Press.

Abney, Steven. 1987. The English noun phrase in its sentential aspect. PhD dissertation, MIT.

Alexiadou, Artemis, Lilianne Haegeman & Melita Stavrou. 2007. *Noun phrase in the generative perspective*. Berlin: Mouton de Gruyter.

Altenberg, Bengt. 1994. On the function of *such* in spoken and written English. In Nelleke Oostdijk & Pieter de Hann (eds.), *Corpus-based research into language*, 223–39. Amsterdam: Rodopi.

Bennis, Hans, Norbert Corver & Marcel den Dikken. 1998. Predication in nominal phrases. *Journal of Comparative Germanic Linguistics* 1, 85–117.

Berman, Arlene. 1974. Adjectives and adjective complement constructions in English. PhD dissertation, Harvard University.

Biber, Douglas, Stig Johansson, Geoffery Leech, Susan Conrad & Edward Finegan. 1999. *Longman grammar of spoken and written English*. London: Longman.

Bolinger, Dwight. 1972. *Degree words*. The Hague: Mouton de Gruyter.

Bresnan, Joan W. 1973. Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4(3), 275–343.

Corver, Norbert. 1990. The syntax of left branch constructions. PhD dissertation, Tilburg University.

https://doi.org/10.1017/S1360674311000062 Published online by Cambridge University Press

Corver, Norbert. 1997. *Much*-support as a last resort. *Linguistic Inquiry* 28, 119–64.
Corver, Norbert. 2002. On three types of movement within the Dutch nominal domain. In Martine Coene & Yves D'hulst (eds.), *From NP to DP*, vol. 1: *The syntax and semantics of noun phrases*, 297–328. Amsterdam: John Benjamins.
Culicover, Peter & Ray Jackendoff. 2005. *Simpler syntax*. Oxford: Oxford University Press.
de Mönnink, Inge. 1996. A first approach to the mobility of noun phrase constituents. In Carol E. Percy, Charles F. Meyer & Ian Lancashire (eds.), *Synchronic corpus linguistics: Papers from the 16th International Conference on English Language Research on Computerized Corpora*, 143–57. Amsterdam: Rodopi.
de Mönnink, Inge. 2000. A moving phrase: A multi-method approach to the mobility of constituents in the English noun phrase. In John M. Kirk (ed.), *Corpora galore: Analyses and techniques in describing English*, 133–47. Amsterdam: Rodopi.
Fillmore, Charles. 1999. Inversion and constructional inheritance. In Gert Webelhuth, Jean-Pierre Koenig & Andreas Kathol (eds.), *Lexical and constructional aspects of linguistic explanation: Studies in constraint-based lexicalism*, 113–28. Stanford: CSLI Publications.
Flickinger, Daniel & John Nerbonne. 1992. Inheritance and complementation: A case study of easy adjectives and related nouns. *Computational Linguistics* 19(3), 269–309.
Gazdar, Gerald. 1981. Unbounded dependencies and coordinate structure. *Linguistic Inquiry* 12, 155–84.
Giorgi, Alessandra & Giuseppe Longobardi. 1991. *The syntax of noun phrases*. Cambridge: Cambridge University Press.
Goldberg, Adele. 2006. *Constructions at work*. Oxford: Oxford University Press.
González Escribano, José Luis. 2005. Discontinuous APs in English. *Linguistics* 43(3), 563–610.
Haegeman, Liliane & Jacqueline Guéron. 1999. *English grammar: A generative perspective*. Oxford: Blackwell.
Hendrick, Randall. 1990. Operator movement in NP. In Aaron L. Halpern (ed.), *Proceedings of the 9th West Coast Conference on Formal Linguistics*, 249–64. Stanford: CSLI Publications.
Huddleston, Rodney & Geoffrey Pullum *et al.* 2002. *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.
Kay, Paul & Ivan A. Sag. 2009. Not as hard a problem to solve as you might have thought. *Proceedings of the HPSG-09 Conference*. Stanford: CSLI Online Publications.
Kennedy, Christopher & Jason Merchant. 2000. Attributive comparative deletion. *Natural Language and Linguistic Theory* 18, 89–146.
Kim, Jong-Bok & Kyeongmin Kim. 2009. A functor treatment of *such*: A corpus-based approach. *Korean Journal of Linguistics* 33(4), 853–70.
Kim, Jong-Bok & Ivan A. Sag. 2005. Variations in English object extraposition. *Proceedings of the 41st Annual Meeting of the Chicago Linguistic Society*, 192–212. Chicago: CLS.
Kim, Jong-Bok & Peter Sells. 2008. *English syntax: An introduction*. Stanford: CSLI Publications.
Lechner, Winfried. 1999. Comparatives and DP-structure. PhD dissertation, University of Massachusetts.
Matushansky, Ora. 2002. Movement of degree/degree of movement. PhD dissertation, MIT.
Merchant, Jason. 1999. The syntax of silence: Sluicing, islands, and identity in ellipsis. PhD dissertation, University of California.
Moro, Andrea. 1997. *The raising of predicates: Predicative noun phrases and the theory of clause structure*. Cambridge: Cambridge University Press.
Müller, Stefan. 2004. Continuous or discontinuous constituents? A comparison between syntactic analyses for constituent order and their processing systems. *Research on Language and Computation* 2(2), 209–57.

https://doi.org/10.1017/S1360674311000062 Published online by Cambridge University Press

Pollard, Carl & Ivan A. Sag. 1994. *Head-driven phrase structure grammar*. Stanford: CSLI Publications.
Quirk, Randoph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1985. *A comprehensive grammar of the English language*. London: Longman.
Ritter, Elizabeth. 1992. Cross-linguistic evidence for number phrase. *Canadian Journal of Linguistics* 37, 197–218.
Sadler, Louisa & Douglas J. Arnold. 1994. Prenominal adjectives and the phrasal/lexical distinction. *Journal of Linguistics* 30, 187–226.
Sag, Ivan A. 2010. Sign-based Construction Grammar: An informal synopsis. In Hans Boas & Ivan A. Sag (eds.), *Sign-based Construction Grammar*. Stanford: CSLI Publications.
Sag, Ivan A., Tom Wasow & Emily Bender. 2003. *Syntactic theory: An introduction*. Stanford: CSLI Publications.
Seppänen, Aimo, Solveig Granath & Lars Danielsson. 2002. The construction 'AdjP–a(n)–Noun' in Present-day English syntax. *Leuvense Bijdragen* 91, 97–136.
Siegel, Muffy. 1994. *Such*: Binding and the pro-adjective. *Linguistics and Philosophy* 17, 481–97.
Spinillo, Mariangela. 2003. On *such*. *English Language and Linguistics* 7(2), 195–210.
Troseth, Erika. 2004. Negative inversion and degree inversion in the English DP. In Marcel den Dikken (ed.), *Linguistics in the Big Apple: CUNY/NYU working papers in linguistics*, 1–15.
Van Eynde, Frank. 2006. NP-internal agreement and the structure of the noun phrase. *Journal of Linguistics* 42(1), 139–86.
Van Eynde, Frank. 2007. The Big Mess Construction. In Stefan Müller (ed.), *The proceedings of the 14th International Conference on Head-driven Phrase Structure Grammar*, 415–33. Stanford: CSLI Publications.
Vikner, Sten. 2001. Predicative adjective agreement. In Kirsten Adamzik & Helen Christen (eds.), *Sprachkontakt, Sprachvergleich, Sprachvariation: Festschrift für Gottfried Kolde*, 399–414. Tübingen: Niemeyer.
Wood, Johanna. 2002. Much about *such*. *Studia Linguistica* 56(1), 91–115.
Wood, Johanna. 2003. Number phrase and fronted pre-modifiers in Middle English. *Proceedings of the 32nd Western Conference on Linguistics*, 305–18. Fresno, CA: Dept of Linguistics, CSU.
Wood, Johanna & Sten Vikner. 2011. Noun phrase structure and movement: A cross-linguistic comparison of *such*/*sådan*/*solch and so*/*så*/*so*. In Petra Sleeman & Harry Perridon (eds.), *The noun phrase in Romance and Germanic: Structure, variation, and change*, 89–110. Amsterdam: John Benjamins.
Zamparelli, Roberto. 1995. Layers in the determiner phrase. PhD dissertation, University of Rochester.
Zwicky, Arnold. 1994. Exceptional degree markers: A puzzle in internal and external syntax. *OSU Working Papers in Linguistics* 47, 111–23.

https://doi.org/10.1017/S1360674311000062 Published online by Cambridge University Press