Noun phrases rooted by adjectives
A dependency grammar analysis of the Big Mess Construction

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Abstract

The *Big Mess Construction* (BMC) challenges standard assumptions about NP structure in English, e.g. *so big a mess*. Previous accounts of the BMC are couched in phrase structure syntax and most of them take the noun or determiner *a* to be the head of the phrase. In contrast, the current analysis of the BMC is couched in a *dependency grammar* that views the adjective as syntactic root/head of the BMC phrase. The fact that the BMC distributes as an NP, not as an AP, is due to the category changing ability of the degree adverb. This adverb evokes a change in status of its head word from adjective to noun-like category, similar to the manner in which the definite article *the* can cause a change in status of an adjective to a noun, e.g. *the good, the credible*, etc.

1 Introduction

The *Big Mess Construction* (BMC), also discussed under the rubric of *adjectival predeterminers*, defies standard notions about the structure of NPs (and DPs) in English. Some examples of the BMC used to introduce the phenomenon in the literature are next:

(1) a. how serious a problem…   (van Eynde 2007: 416)
     b. too big a dog…   (Zwicky 2007: 113)
     c. this delicious a lasagna   (Kay and Sag 2012: 229)
     d. so prominent a punctuation…   (Kim and Sells 2011: 335)
     e. so big a part of the present system… (Wood and Vikner 2011: 90)

These phrases have the distribution of NPs, yet the word order each time is unlike that of normal NPs. The adjective precedes the determiner *a*, something which is usually not possible. It becomes possible, however, if a certain type of degree adverb modifies the adjective. The position of the adverb-adjective combination in front of *a* can in fact be obligatory insofar as the more normal NP word order, where the adjective follows the determiner, is blocked, e.g. **a how serious problem…*. The term *Big Mess Construction*, from Berman (1974), is a reference to the example Berman originally discussed and to the challenges to syntactic theory the phenomenon generates.

The BMC is licensed by a limited set of degree adverbs (cf. Huddleston and Pullum 2002: 435; van Eynde 2007: 417; Zwicky 2007: 114; Kim and Sells 2011: 339). This set includes the following members: *as*, *enough*, *how*, *however*, *less*, *more*, *so*, *that*, *this*, and *too*. Similar degree adverbs that modify adjectives fail to license the BMC, e.g. *quite*, *somewhat*, *very*:

(2) a. *big enough a house*, *how big a house*, *so big a house that…*, *that big a house*, *this big a house*, *too big a house*, *as big a house as…*, etc.[1]
     b. **quite big a house*, **somewhat big a house*, **very big a house*

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[1] Observe that *more* and *less* are not included in these examples. These two licensors of the BMC are unique insofar as they can precede or follow the determiner *a*, e.g. *more difficult a problem* vs. *a more difficult problem* (cf. Huddleston and Pullum 2002:

The particular degree adverbs that license the BMC have some trait that other degree adverbs lack. This trait may be an implication of contrast (Aniya 2016: 8–10), although this matter is not explored in this manuscript.

A distinctive trait of the BMC is the appearance of the indefinite article *a* (cf. Huddleston and Pullum 2002: 435; van Eynde 2007: 416; Kim and Sells 2011: 336). Attempts to construct the BMC fail if *a(n)* is absent:

(3) a. that fun a game
     b. *that fun the game

(4) a. too smart a child to…
     b. *too smart children to…

The absence of *a* results in ungrammaticality when some other determiner other than *a* appears as in (3b) and also when a determiner is completely absent as in (4b). Data such as these suggest that the presence of the indefinite article *a* is a necessary condition on the occurrence of the BMC.

Another important trait of the BMC is that the preposition *of* appears optionally. The initial examples of the BMC above are given again next, but this time, the preposition *of* appears each time:

(5) a. how serious **of** a problem…
     b. too big **of** a dog…
     c. this delicious **of** a lasagna
     d. so prominent **of** a punctuation…
     e. so big of a part **of** the present system…

There is dialectal variation in this area. The appearance of *of* is rare in varieties of British English, but more acceptable in varieties of American English (cf. Kennedy and Merchant 2001: 125 n. 24; Zwicky 2007: 113 n. 1; Kim and Sells 2011: 339–40).

The purpose of this manuscript is to present and defend a novel (and therefore controversial) analysis of the BMC. A survey of existing accounts of the BMC reveals that the noun, the indefinite article *a*, or the preposition *of* is construed as the syntactic head of the phrase:

Noun as root/head
Bresnan (1973), van Eynde (2007), Klégr (2010), Kim and Sells (2011), Kay and Sag (2012)

Indefinite article *a* as root/head
Haegeman and Guéron (1999: 420–1), Wood and Vikner (2011)

Preposition *of* as root/head
Kennedy and Merchant (2000)

In contrast to these previous accounts, the claim put forward and defended in this manuscript is that the adjective is in fact the syntactic root/head of the phrase.[2] The structural analysis of the BMC pursued and defended below is illustrated next:

(6)

    a. too big a problem   b. too big of a problem

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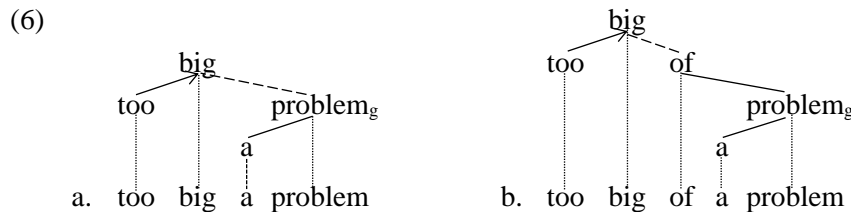
435). This flexibility is not possible with the other licensors, e.g. *that big a house* vs. **a that big house*. The flexibility of *more* and *less* in this area is not explored in this manuscript.

[2] The term *root* is used here in the DG sense of the hierarchically dominant word in a given phrase. In contrast, the *head* of a given phrase is understood to be the parent of that phrase. The designation *root/head* is intended to accommodate both uses of the terminology, that is, in the current DG as well as in phrase structure syntax more generally.

The appearance of the degree adverb *too* forces a shift in category status, adjective to noun-like word. A similar category shift also takes place in simple phrases such as *the worthy*, *the pure*, *the corrupt*, etc., where the appearance of the definite article *the* is enough to shift the category status of the whole from AP to NP. The arrow dependency edge marks *too* as an adjunct. The dashed dependency edge and g-subscript indicate that *rising* is present. *Rising* denotes the particular approach to discontinuities developed by Groß and Osborne (2009), Osborne et al. (2012: 360-366), and Osborne (2014) – more on this below.

This manuscript is organized as follows. Section 2 considers the existing structural analyses of the BMC, rejecting them all. Section 3 presents the entirely projective DG assumed for the analysis of the BMC. Section 4 briefly considers how it comes to pass that a phrase rooted/headed by an adjective can have the distribution of an NP. Section 5 then presents central traits of the BMC that support the adjective as the root of the phrase. Section 6 gives a concluding statement.

2 Existing analyses of the BMC

Previous accounts of the BMC are couched in phrase structure syntax. Despite this fact, these earlier accounts are relevant for the current DG approach, and vice versa. This relevance is due to ability to mechanically convert any strictly endocentric phrase structure to the corresponding dependency structure. This is done here now. Each existing phrase structure analysis of the BMC in this section is (if possible) given together with corresponding dependency structure that results from direct translation to dependency.

As mentioned in the introduction, many existing accounts of the BMC view the noun as the head of the BMC phrase (cf. Bresnan 1973: 306; Klégr 2010: 105; van Eynde 2007: 425; Kim and Sells 2011: 353; Kay and Sag 2012: 238) or, on a DP analysis of nominal groups, the indefinite article *a* (Haegeman and Guéron 1999: 420–1; Wood and Vikner 2011: 95). Such accounts produce structural analyses of the BMC along the following lines:

(7)

a. how long a bridge   b. how long a bridge

(8)

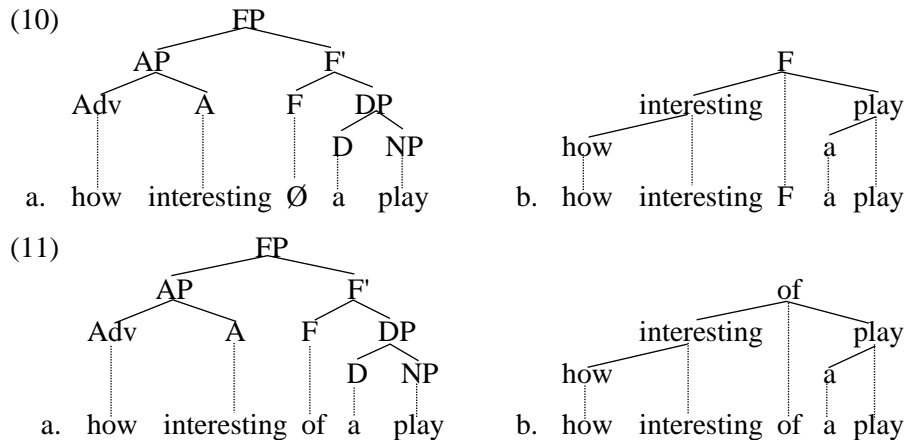a. how long a bridge   b. how long a bridge
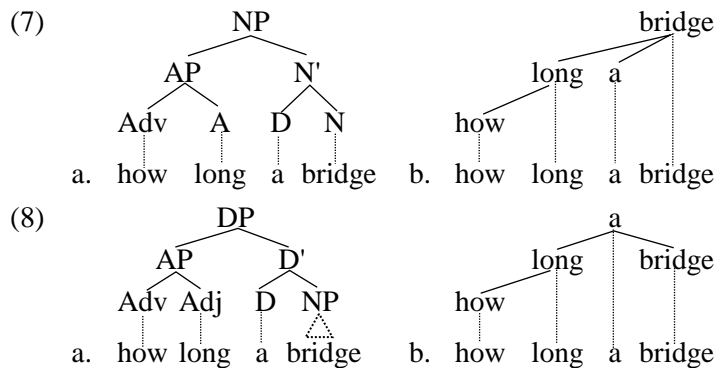
The analyses given as (7a–b) are those of the NP analysis of nominal groups, and the analyses (8a–b), those of the DP analysis of nominal groups. The b-trees are, again, the corresponding DG structures that result from direct translation (phrase structure → dependency). The named sources certainly vary in the specifics of how they analyze the BMC. From the point of view of the alternative account pursued in this manuscript (adjective as root and couched in DG), however, these differences are minor.

A weakness with the analyses given as (7–8) is the inability to deal with the preposition *of*. When *of* appears in the BMC, it is the head of the PP it introduces just as it is otherwise. This situation essentially makes a necessity an analysis that views the BMC with *of* as an exocentric construction, as illustrated next:

(9)

a. how long of a bridge   b. how long of a bridge
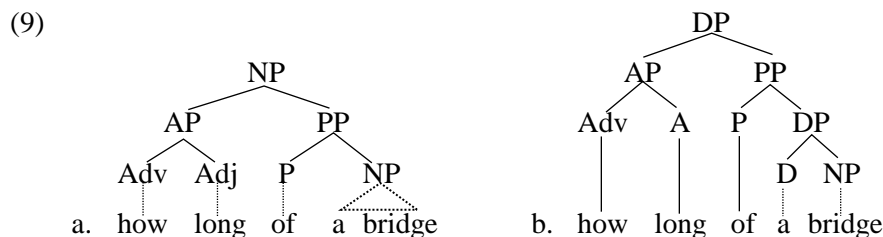
Both of these analyses are exocentric, that is, the root node has a category status that is entirely distinct from that of both of its immediate constituents. DG cannot acknowledge exocentric structures in this manner, and most modern PSGs also avoid exocentric structures as a matter of principle. It is therefore impossible to translate (9a-b) to corresponding dependency structures.

Unlike the accounts just mentioned, Kennedy and Merchant (2000: 124–30) concentrate on the optional appearance of *of* in the BMC (see examples 5a-e) and accommodate it into their analysis of the BMC in a central way that does not result in an exocentric structure. They view the BMC as headed by a functional category that is empty in those instances in which *of* does not appear. When *of* does appear, however, it occupies this head position of the functional category. The analysis they pursue is along the following lines:
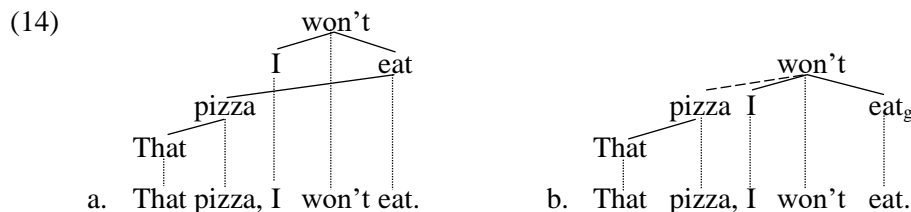
(10)

FP
AP   F'
Adv   A   F   DP
                D   NP

a. how interesting Ø a play

F
interesting   play
how   a

b. how interesting F a play

(11)

FP
AP   F'
Adv   A   F   DP
                D   NP

a. how interesting of a play

of
interesting   play
how   a

b. how interesting of a play

There are two major drawbacks to this line of analysis given the current DG framework. The first is that in order to accommodate the empty head F shown in (10a), a null node is needed in the corresponding DG analysis, indicated as F in (10b). DGs have in general been reluctant to posit the existence such null elements. The second problem concerns the fact that since the preposition occupies the head position of FP in (11a), the whole is in fact a prepositional phrase, despite being called an FP (functional phrase), and this phrase has the distribution of an NP/DP, not of a PP.
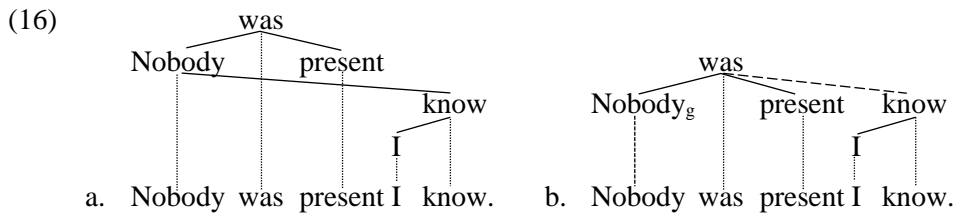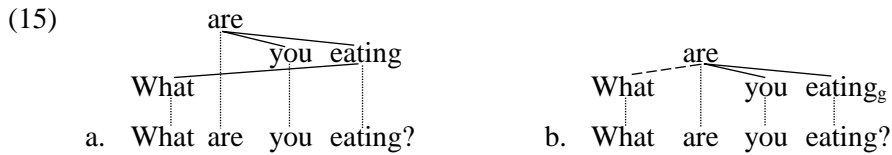
No further attempt is made here to evaluate the analyses given as (7–11) with respect to each other and otherwise. Suffice it to state that the current DG analysis of the BMC is much different, and that an approach that takes the adjective as the root of the phrase is warranted in part due to its ability to address both variants, without or with *of*. The discussion now turns to the DG assumed for addressing the BMC.

3   An entirely projective DG

An entirely projective DG is assumed henceforth. Projectivity violations are avoided by attaching the expression in violation of projectivity to a higher word, overcoming the crossing lines in the tree. A number of DGs pursue, or have proposed, this sort of approach to discontinuities (cf. Schubert 1987: 190; Lobin 1993: 31–35; Heringer 1996: 261; Bröker 1999: 55–59, 2003: 294; Eroms and Heringer 2003: 26; Starosta 2003: 276–279; Groß and Osborne 2009; Osborne 2014).
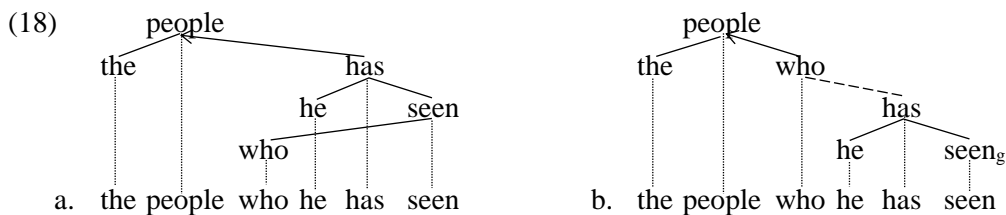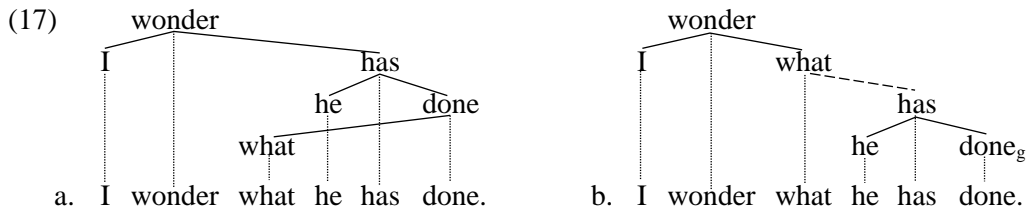
The next examples illustrate how projectivity violations are avoided in the DG assumed henceforth:
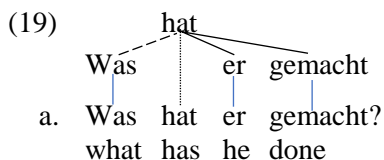
(14)

won't
I   eat
pizza
That

a. That pizza, I won't eat.

won't
pizza I   eat_g
That

b. That pizza, I won't eat.

(15)

```
            are
              you  eating
    What
   a.  What  are  you  eating?
```

```
                  are
    What        you  eating_g
   b.  What  are  you  eating?
```

(16)

```
            was
    Nobody       present
                      know
                 I
   a.  Nobody  was  present  I  know.
```

```
                  was
    Nobody_g    present  know
                      I
   b.  Nobody  was  present  I  know.
```

The crossing dependencies in (14a) are due to topicalization, in (15a) to wh-fronting, and in (16a) to extra-position (cf. *Nobody I know was present*). By attaching the constituent in violation of projectivity higher up each time as in the b-trees, the projectivity violation is removed. The dashed dependency edge marks the constituent that has attached higher up, and the g-subscript marks the governor of that constituent.
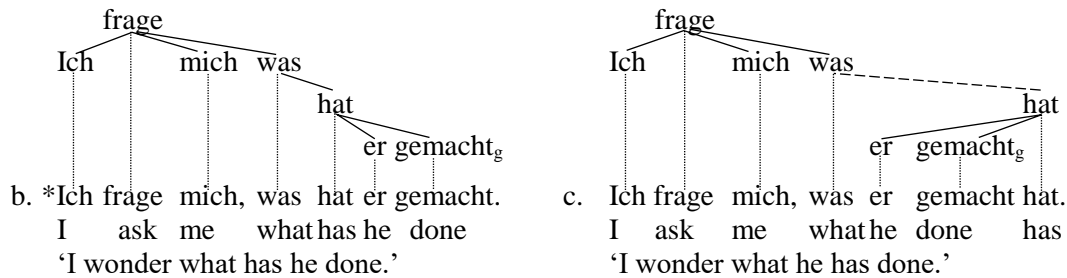
The current DG extends the sort of analysis illustrated with (14-16) to indirect interrogative and relative clauses, although with an important adjustment. It assumes that in indirect interrogative and relative clauses, the interrogative expression or relative proform is the root of the embedded clause, e.g.

(17)

```
    wonder
    I              has
              he      done
              what
   a.  I  wonder  what  he  has  done.
```

```
    wonder
    I          what
                    has
                he      done_g
   b.  I  wonder  what  he  has  done.
```

(18)

```
    people
    the            has
               he      seen
               who
   a.  the people  who  he  has  seen
```

```
    people
    the        who
                    has
                he      seen_g
   b.  the people  who  he  has  seen
```

The crossing dependencies in the a-trees are again overcome in the b-trees by attaching the *wh*-element each time to a higher word. In these cases, however, this is done in such a manner that the wh-word becomes the root of the embedded clause. Osborne (2014) motivates the b-analyses in terms of systematic differences in word order across matrix and embedded wh-clauses in English (e.g. *What has he done?*, **I wonder what has he done* vs. *I wonder what he has done*).

A similar systematic difference in word across matrix and embedded interrogative and relative clauses occurs in German, e.g.

(19)

```
            hat
    Was         er  gemacht
   a.  Was  hat  er  gemacht?
       what  has  he  done
```

frage
Ich   mich was
              hat
               er gemacht$_g$

frage
Ich   mich was
                  hat
                   er gemacht$_g$

b. *Ich frage mich, was hat er gemacht.
   I   ask me   what has he done
   'I wonder what has he done.'

c. Ich frage mich, was er gemacht hat.
   I   ask me   what he done   has
   'I wonder what he has done.'

The V2 (verb second) word order of German is maintained in matrix w-clauses in (19a). In the embedded w-clauses in (19b-c), in contrast, VF (verb final) word order becomes necessary, as demonstrated by the ungrammaticality of (19b) in comparison to the grammaticality of (19c). These systematic differences are accommodated as indicated, that is, by establishing a direct link between the w-expression of embedded interrogative clauses and the matrix predicate.

This analysis of embedded interrogative clauses is supported further by the fact that the *wh*-word is linked directly to the preceding predicate, hence the manner in which the matrix predicate (here *wonder* and *sich fragen*) takes an interrogative object valent is accommodated because there is a direct dependency between that matrix predicate and the interrogative word (here *what* or *was*), the latter being the primary marker of an interrogative clause or phrase. This situation is shown in (17b), where *what* is a child of *wonder*, and in (19c), where *was* 'what' is a child of *frage* 'ask'. Extending this sort of analysis to relative clauses as in (18b) is then not a big step.

The approach to discontinuities established in this section is important for the analysis of the BMC. The sort of analysis assumed here for embedded interrogative clauses and relative clauses just sketched is also assumed for the BMC.

4   NP distribution

The BMC has the distribution of an NP, not of an AP. This fact is probably the reason why an analysis like the current one that positions the adjective as the root/head of the phrase has not been proposed until now. The current account must address how it comes to pass that a phrase the root of which is an adjective can have the distribution of an NP. The answer to this question is now offered. This answer is that the degree adverb that licenses the BMC changes the adjective to a noun-like category in a manner similar to how the definite article can change the category status of an adjective to a noun.

Consider the ability of the definite article *the* in the following cases to change the category status of what is normally an adjective:

(20) a. the best and brightest
      b. The Good, the Bad, and the Ugly (Title of the 1966 spaghetti western)
      c. the wealthy, the poor, the lazy, the insightful, the helpful, etc.

These phrases distribute as NPs, not as APs. The definite article *the* causes a change in status from adjective to noun. In a similar vein, the appearance of the degree adverb in the BMC causes a change in category status, again from adjective to noun-like category. One might object that such cases actually involve noun ellipsis: the head noun is elided and one should therefore not view the adjective in such cases as having taken on the category status of a noun. The problem with this objection is that many of these cases do not allow the appearance of the noun without a shift in meaning. A phrase such as *the wealthy* is distinct in meaning from the phrase *the wealthy people*; the former expresses an abstract trait of what it is to be wealthy that is beyond what the latter expresses.

5   Support for the analysis

The following sections consider some traits of the BMC and establish that these traits are supportive of the current account, that is, that the adjective is in fact the root of the BMC phrase.

5.1 Appositives

There is flexibility in the position of the adverb-adjective combination of the BMC. The combination can also follow the noun (cf. Huddleston and Pullum 2002: 435; van Eynde 2007: 424; Wood and Vikner 2009: 96), e.g.

(21) a. that big a bridge
      b. a bridge that big   (van Eynde 2007: 424)

(22) a. so little altered a house
      b. a house so little altered   (Wood and Vikner 2009: 96)

Such post-noun positioning is only possible with the adverbs that license the BMC: *a bridge very big*, *a house somewhat altered*. The observation in this area that helps support the current analysis (adjective as root) is that in post-noun position, the adverb-adjective combination appears where appositives appear, and appositives are nouns or noun phrases, not adjectives or adjective phrases.

    Compare the following structures, the first containing an appositive NP, and the second the adverb-adjective combination of the BMC, but in post-noun position:

(23)

a. my cat, my best friend

b. a cat that friendly

The adverb-adjective combination *that friendly* in (23b) has the syntactic status of an NP in the same way that the appositive *my best friend* in (23a) is an NP. In both cases, the post-dependent is predicative.

    One can extend these insights to instances of the BMC. Since an analysis of *that friendly* as an appositive NP in *a cat that friendly* is plausible, it is also plausible to extend the account to instances of the BMC such as *that friendly a cat*, the string *that friendly* retaining its status as noun-like:

(23)

c. that friendly a cat

This demonstrates further that an analysis in terms of apposition is appropriate for examples such as (23b), that is, the adverb-adjective combination has a status that is similar to that of an NP in apposition. Switching to the BMC in (23c), the fact that *that friendly* can appear in a position associated with NPs supports the account here that views *friendly* as the root of the entire phrase *that friendly of a cat*, a phrase that has the distribution of an NP rather than of an AP.
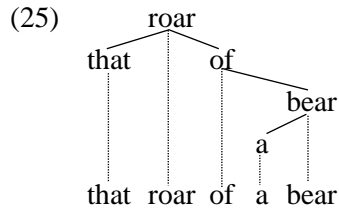
5.2 Converse NPs

The existence of a related construction in which a noun corresponds to the adjective of the BMC supports the adjective as the root in the BMC. NPs such as *a bear of a guy* are clearly related to the BMC (cf. Bennis et al. 1998; Kennedy and Merchant 2000: 126, Wood and Vikner 2011: 96; Aniya 2016: 3):

(24) a. a bear of a guy   (cf. Bennis et al. 1998: 87)
      b. a jewel of an island   (Wood and Vikner 2011: 96)
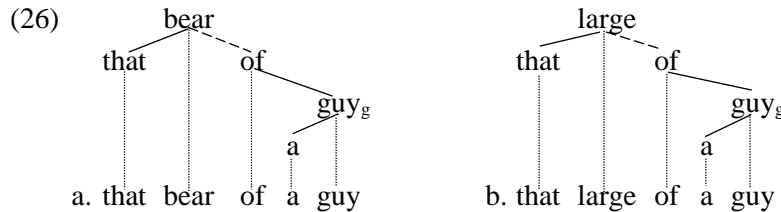   c. that idiot of a boy   (Aniya 2016: 3)

As with the BMC, the (second) noun must be a singular count noun (e.g. *bears of guys*, *jewels of islands*, *idiots of boys*). These unique NPs are called *converse NPs* here because the canonical hierarchical relationship between modifier and modified is upside down, that is, the modified is a dependent of the modifier.

    The noun-as-root (or determiner-as-root) analysis is challenged by converse NPs. The difficulty they generate is due in part to the fact that the occurrence of the preposition *of* is obligatory (*a bear a guy*) and

therefore the structure seems to always match the normal hierarchical relationships in NPs containing an *of*-PP. Examine the following analysis of a "normal" NP in (25):

(25)
```
        roar
    that      of
                bear
              a
    that roar of  a bear
```

It seems natural to extend this structural analysis to converse NPs like *that bear of a guy*. The result, then, is that the structural analyses of the two constructions, converse NPs and the BMC, which, again, are clearly related, are closely similar:

(26)
```
      bear                           large
   that      of                   that      of
               guy_g                          guy_g
             a                              a
 a. that bear of a guy        b. that large of a guy
```

The difference in modifications relations across (26a) and (26b) is captured in the DG analyses in terms of the dashed dependency edge and $_g$-subscript; they indicate that modification relations are the opposite of normal. The modification relations in (26b) are indeed upside down, the modifier *that large* hierarchically dominating what it modifies, i.e. *a guy*.

To summarize the point, positioning the adjective as the root/head of the BMC establishes parallelism in structure across converse NPs and the BMC. If the noun or the determiner were the root/head of the BMC, this parallelism would not obtain.

5.3 Extraposition

An *of*-PP of the BMC can be extraposed in the same manner that the *of*-PP of a normal NP can be extraposed. Such instances of extraposition are most acceptable when the relevant NP is predicative and questioned:

(27) a.   Which picture **of your friend** was it?
      b.   Which picture was it **of your friend**?

(28) a.   Which analysis **of that problem** was it?
      b.   Which analysis was it **of that problem**?

This pattern repeats itself in cases of the BMC:

(29) a.   How reliable **of a friend** is he?
      b.   How reliable is he **of a friend**?

(30) a.   How typical **of a politician** is she?
      b.   How typical is she **of a politician**?

While the a-sentences are perhaps preferable, the b-sentences are passable. What these examples suggest is that the structure of a BMC phrase such as *how reliable of a friend* is similar to the structure of the NP *which picture of your friend*. In both cases, the *of*-PP can be extraposed.

When the *of*-PP is extraposed from an object or subject phrase, acceptability decreases. This reduction in acceptability is, however, consistent across normal NPs and the BMC:

Extrapostion from object NP
(31) a.   Which picture **of your friend** do you like?
      b.   ?Which picture do you like **of your friend**?
(32) a.   How difficult **of a problem** did you solve?
      b.   ??How difficult did you solve **of a problem**?

(33) a. Which picture **of your friend** is best?
   b. *Which picture is best **of your friend**?
(34) a. How difficult **of a problem** was given?
   b. *How difficult was given **of a problem**?

These examples all demonstrate that the potential to extrapose the of-PP of the BMC is approximately the same as the potential to extrapose the of-PP of a normal NP. This supports the adjective of the BMC as the root of the phrase, since only in this manner is the parallelism in structure achieved across the BMC and normal NPs.

5.4 Left elbows and extraposition within NP

An established fact about the structure of NPs in English (and other languages) is that a pre-modifier of the root/head noun cannot itself be modified by a post-modifier. Osborne (2003) investigates the phenomenon from a DG perspective. He characterizes the relevant constraint as a "ban on left elbows". Some examples of the sort he discusses are illustrated next in the a-, b-, and c-examples:

(35) a. *a tired of the music man
   b. *a tired man of the music
   c. a man tired of the music
   d. so tired a man of the music that…

(36) a. *a satisfied with her grade student
   b. *a satisfied student with her grade
   c. a student satisfied with her grade
   d. too satisfied a student with her grade to….

The a-sentences illustrate that the entire AP, *tired of the music* and *satisfied with her grade*, cannot precede the noun that it modifies. The b-sentences show also that the complement of the adjective alone cannot be extraposed to the other side of the noun. In contrast, the NPs are fine if the entire AP is positioned after the noun, as demonstrated with the c-examples. The d-examples are the relevant ones in the context of the BMC. We see there that the complement of the adjective can in fact be separated in the linear dimension from its head adjective by the noun; the BMC allows this.

   The following DG structures illustrate how the phenomenon is addressed in the current DG framework:

(37)
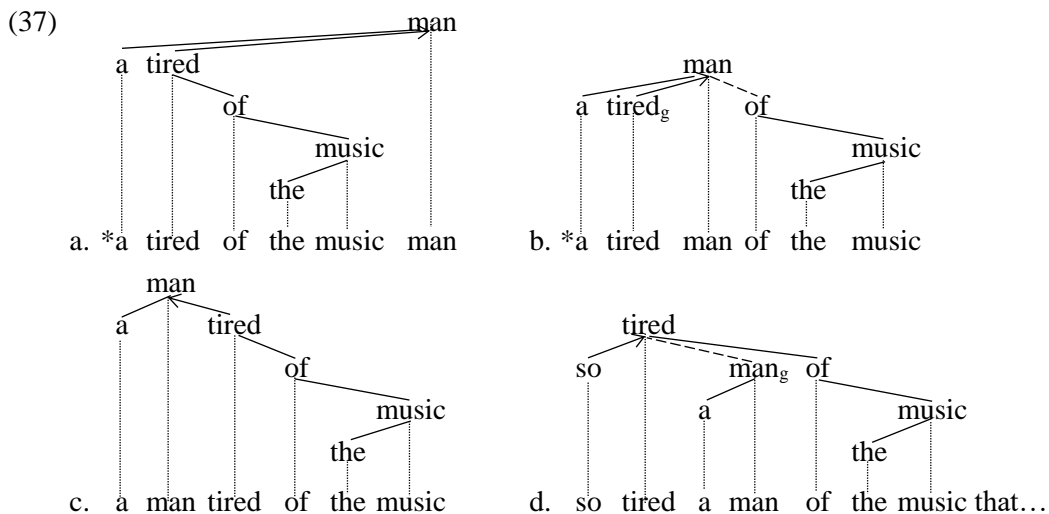
Osborne (2003) addresses the ungrammaticality of examples like (37a) in terms of a ban that blocks a pre-dependent of a noun from itself taking a post-dependent. The constraint is likely due to the grammar's desire to reduce center embedding and thus render NPs easier to produce and process in general. Center-embedding increases dependency distance values and is hence a drag on the efficient production and processing of

syntactic structures. The ungrammaticality of (37b) is addressed in terms of the discontinuity: for some reason, the PP complement of an attributive adjective cannot be extraposed. The grammaticality of example (37c) is expected insofar as it violates neither of the previous two constraints. Example (37d), the most relevant one from the perspective of the BMC, also violates neither of the two constraints, for there is no pre-dependent of the noun that itself takes a post-dependent, nor is extraposition of *of the music* present, since the PP *of the music* remains a dependent of the adjective *tired*.

　　The point to these examples is that the current analysis of the BMC is congruent with both the ban on left elbows in NPs and the inability of extraposition from an attributive adjective to occur within NPs. If, in contrast, the noun or determiner were the root, the resulting structures would not be congruent with these constraints. In particular, both would contradict the ban on extraposition within the NP:

(38)

a. so tired a man of the music   b. so tired a man of the music
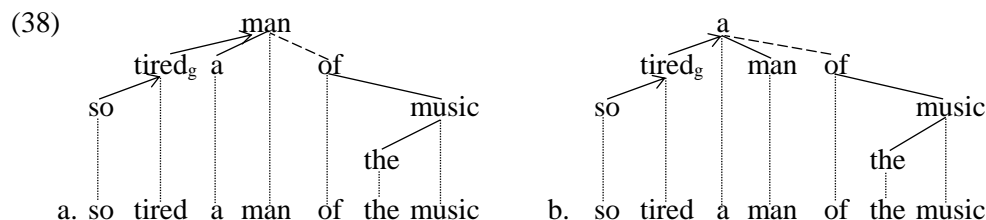
On these structural analyses, the PP *of the music* has been extraposed within the NP. The same is true of the phrase structures that would result from translation (dependency → phrase structure).

6　Conclusion

This manuscript has presented a novel account of the BMC couched in a DG approach to syntax. It has been argued that the adjective is in fact the syntactic root/head of the BMC. If space had allowed, further sources of support for the analysis could and would have been produced, such as data from gapping and the recursiveness of embedding, that is, one instance of the BMC can be embedded in another, e.g. *ʔI can't believe that Trump actually wrote that long of that insulting a tweet*.

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