

Control vs. Raising in English

A Dependency Grammar Account

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Abstract

This contribution presents a dependency grammar (DG) account of control and raising in English. Due to the minimalism of DG analyses of sentence structure, the difference between control and raising cannot be captured in the syntactic structure alone. The situation forces the DG account to reach to some other aspect of dependency syntax other than the raw hierarchies of structure to account for the differences between control and raising. This other aspect is valency. Valency has, of course, been a central subtheory of dependency syntax since Tesnière (1959/2015: Book D). By augmenting the valency frames of predicates to distinguish between valents that are and are not semantic arguments of the predicate at hand, the differences between control and raising can be acknowledged and accommodated.

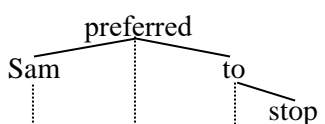
1 Control vs. raising

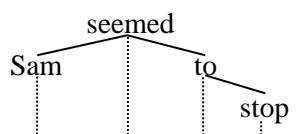
The distinction between control and raising predicates in English and related languages is well established. These two types of predicates have a combinatory potential that appears to be essentially the same at first blush, e.g.

- (1) a. Sam preferred to stop.
b. Sam seemed to stop.

The control predicate *preferred* and the raising predicate *seemed* both combine with a *to*-infinitive. This similarity obscures the fact that there are important differences in how the two behave semantically.

Consider in this regard that many DGs would produce structural analyses of these two sentences that are hierarchically the same, e.g.

- (1) 
a'. Sam preferred to stop.

- 
b'. Sam seemed to stop.

The finite verb in these cases is clearly the clause root, and the subject and *to*-infinitive are then dependents of the root. Given this state of affairs, it might seem that DG has nothing to say about the differences between these two classes of predicates.

The differences between control and raising predicates are substantial. For instance, one can often form the passive of a control predicate, but not of a raising predicate, e.g.

- (2) a. To stop was preferred (by Sam).
b. *To stop was seemed (by Sam).

The expletive *there* can often combine with a raising predicate, but not with a control predicate, e.g.

- (3) a. *There preferred to be objections.
b. There seemed to be objections.

Further, raising often allows the alternative formulation with expletive *it* and a full clause or *to*-infinitive, e.g.

- (4) a. *It preferred that Sam stopped.
b. It seemed that Sam stopped.

The aspect of control and raising predicates that helps one understand how these differences exist lies with the (in)ability of the predicate at hand to semantically select (one of) the valent(s) that it takes. Control predicates semantically select their valent(s), whereas raising predicates do not semantically select (one of) their valent(s).

Semantic selection is indeed the concept necessary for accounting for examples (2–4). The control predicate *prefer* semantically selects an experiencer valent (*Sam* in 1a). The raising predicate *seem* does not, in contrast, place any semantic restrictions on its subject valent, but rather its subject valent must be compatible with the embedded

predicate. This means that just the embedded predicate *to stop* in (1b) semantically selects the subject *Sam*, whereas both the matrix predicate *preferred* and the embedded predicate *to stop* in (1a) semantically select the subject predicate *Sam*. The primary difference between control and raising predicates therefore resides with the locus of semantic selection, i.e. matrix predicate and/or embedded predicate.

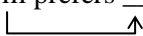
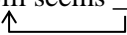
Acknowledging that there are indeed important differences between control and raising predicates, DG would seem to be challenged, since the structural analyses DGs produce of such predicates cannot distinguish any significant hierarchical difference between them, as illustrated with the trees (1a'-b').

The greater goal of this manuscript is to investigate the distinction between control and raising predicates from a DG perspective. The message delivered is that the differences between the two predicate types indeed cannot be captured in the hierarchy of structure, but rather it should be located in the subtheory of valency. Valency frames that are sufficiently augmented to distinguish between argument and non-argument valents can capture the differences between control and raising.

2 Terminology

A control predicate such as *prefer* involves so-called *subject control*, because the matrix subject is also the understood subject of the embedded predicate. A raising predicate such as *seem* is known as a *raising-to-subject* verb because it appears as though the subject of the embedded predicate has been raised into the position of the matrix subject. We build on this sort of terminology here, although the specific terms we employ to denote these predicate types are more exact: *prefer* is called a *subject-to-subject (S-to-S) control* predicate, and *seem* a *subject-from-subject (S-from-S) raising* predicate.

The motivation for this use of terminology is illustrated schematically as follows:



- S-to-S control
- (4) a. Bill prefers ___ to nap in the afternoon.

- S-from-S raising
- b. Bill seems ___ to nap in the afternoon.


The arrows now show the distinction between control and raising. The appearance of *to* or *from*

in the two terms captures the fundamental distinction just sketched in the previous section. The subject valent of the matrix predicate *prefers* in (4a) is conveyed *to* the embedded predicate, so that it can serve as the subject of that predicate. In contrast, the raising predicate *seems* in (4b) raises its subject valent *from* the subject position of the embedded predicate.

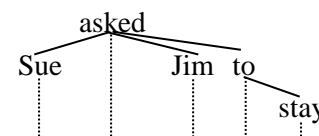
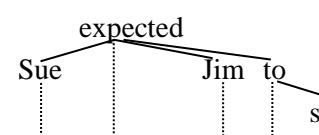
Note that our use of terminology should be understood metaphorically. We do not, namely, advocate a transformational understanding of these structures, but rather we are employing the terminology in a manner that we think is accessible to the widest possible audience. The type of DG we advocate is decidedly monostratal in syntax.

The schematic notions just employed can be extended to denote other types of control and raising predicates. Cases of so-called *object control* and *raising-to-object* can be denoted more exactly as *object-to-subject (O-to-S) control* and *object-from-subject (O-from-S) raising*, e.g.

- O-to-S control
- (5) a. Sue asked Jim ___ to stay.

- O-from-S raising
- b. Sue expected Jim ___ to stay.


The *there*-diagnostic verifies that *ask* is a control predicate, and *expect* a raising predicate: **Sue asked there to be a problem* vs. *Sue expects there to be a problem*.

The dependency hierarchies for these sentences are as follows:

- (5)
- 
- a'. Sue asked Jim to stay.
- 
- b'. Sue expected Jim to stay.

These trees demonstrate again that from the DG perspective, there is no hierarchical difference in the syntactic structure across control and raising predicates. The differences lie, rather, in the lexicon with the combinatory potential of the distinct predicate types.

The types of control and raising predicates mentioned so far are widely acknowledged and have been studied a lot, as is apparent in textbook

accounts (e.g. Haegeman 1991: 237–70, 282–95, Radford 2013: 431–50, Carnie 2013: 431–56). The terminology adopted here suggests, however, that the typology goes further, that is, that additional types of control and raising predicates can be discerned. This is indeed the case. One can also identify *S-to-O* and *O-to-O* control predicates as well as *S-from-O* and *O-from-O* raising predicates. The following tables provide an overview of all eight predicate types with representative examples given.

Control predicates	
S-to-S	<i>ask, attempt, begin, eager, expect, happy, have, hope, refuse, reluctant, start, stop, try, too+adjective, want, willing</i>
S-to-O	<i>available, heavy, light, pretty, ready, soft, tasty, too+adjective</i>
O-to-S	<i>ask, encourage, force, hear, help, listen, persuade, tell</i>
O-to-O	<i>bring, build, buy, create, give, take</i>

Raising predicates	
S-from-S	<i>appear, apt, certain, happen, have, likely, prove, seem, tend, threaten, unlikely</i>
S-from-O	<i>bad, easy, difficult, fun, good, hard, tough,</i>
O-from-S	<i>assess, believe, consider, deem, expect, judge, make, need, see, view, want</i>
O-from-O	<i>have, get, want</i>

Four of these predicate types have already been mentioned and illustrated above. The status of the remaining four as control and raising predicates is less known and certainly controversial. They are illustrated and discussed below in Section 8.

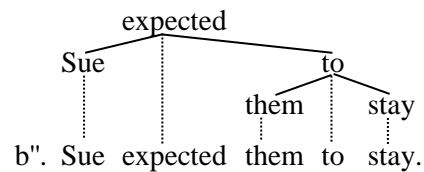
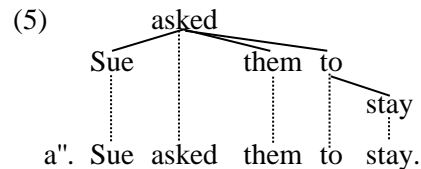
Observe that some predicates appear in more than one category. Many predicates can license control or raising based on context, e.g. *expect, want*. This points to an important aspect of these categories. Most control and raising verbs and adjectives (and nouns) have a combinatory potential that is to a greater or lesser degree flexible, hence

often two or more (often many more) distinct valency frames characterize the combinatory potential of a given verb or adjective (or noun).¹

3 Structural analysis

The dependency trees (1a'–b') and (5a'–b') have demonstrated that the basic structural analyses that DGs produce do not distinguish between control and raising in the hierarchy of structure. This fact seems problematic in view of the differences across the two. One might expect, namely, that given the differing behaviors with respect to passivization, *there*-insertion, and *it*-extraposition that significantly different structures for each would obtain.

Indeed, one might strive to accommodate the differences by pursuing distinct structural analyses. For instance, sentences (5a–b) could be analyzed as follows:



The analysis given as (5a") is the same as (5a'). The analysis given as (5b"), however, is different from (5b'); the object *Jim* has been subordinated to the particle *to* in a manner that suggests a small-clause-type account. Certainly, other variations on the analysis given as (5b") are also conceivable. The point to be established next, though, is that there are good reasons to reject analyses along the lines of (5b"). The ternary branching analysis given as (5b') is in fact well motivated (cf. Kunze 1975: 111–2, Schubert 1987: 94–6, and Heringer 1996: 76–7)).

O-to-S control predicates like *ask* and O-from-S raising predicates like *expect* actually behave the same with respect to a battery of other diagnostics, as illustrated next:

Topicalization

- (6) a. *...but **Jim to stay**, Sue did ask.
 b. *...but **Jim to stay**, Sue did expect.
 c. ...but **Jim** Sue did ask to stay.

¹ That nouns license control and/or raising is evident with NPs such as *These hot wings are bitch to enjoy*. Due to

space limitations, however, nouns in this role are not examined in this contribution.

- d. ...but **Jim** Sue did expect to stay.

Clefting

- (7) a. *It was **Jim to stay** that Sue asked.
 b. *It is **Jim to stay** that Sue expected.
 c. It was **Jim** who Sue asked to stay.
 d. It was **Jim** who Sue expected to stay.

Passivization

- (8) a. ***Jim to stay** was asked (by Sue).
 b. ***Jim to stay** was expected (by Sue).
 c. **Jim** was asked (by Sue) to stay.
 d. **Jim** was expected (by Sue) to stay.

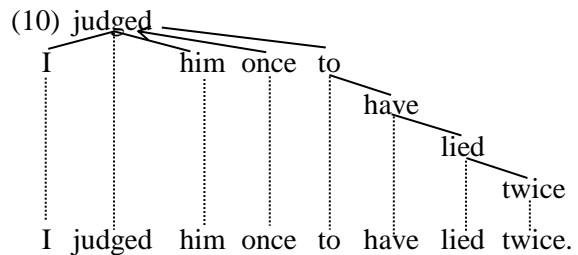
Reflexivization

- (9) a. *Sue₁ did ask **her**₁ to stay.
 b. *Sue₁ did expect **her**₁ to stay.
 c. Sue₁ did ask **herself**₁ to stay.
 d. Sue₁ did expect **herself**₁ to stay.

Each of these four data sets illustrates an aspect of control and raising predicates that supports the relatively flat, ternary-branching analyses given as (5a'-b').

The topicalization data illustrate that *Jim to stay* cannot be fronted, whereas *Jim* alone can be. Similarly, the clefting data illustrate that *Jim to stay* cannot be focused as the pivot of cleft sentence, whereas *Jim* alone can be. The passivization data demonstrate that *Jim to stay* cannot become the subject of a passive sentence, but *Jim* alone can; and the reflexivization data show that if co-reference obtains across the subject and object, then the object must appear as a reflexive; this fact is, then, congruent with the flat analysis, where the object is a dependent of the matrix predicate. In sum, the four diagnostics are consistent with the flat analysis, where *Jim to stay* does not form a constituent (i.e. a complete subtree) and both *Jim* and *to stay* are immediate dependents of the matrix predicate.²

There is a fifth observation that further strengthens the ternary branching analysis given as (5a-b). It is possible to insert an adverb that modifies the matrix predicate between the object nominal and the embedded predicate, e.g.



The arrow dependency edge (pointing from *once* to *judged*) marks *once* as an adjunct. Using a particular visual convention like this in the dependency tree to identify adjuncts has precedent, although the specific convention used varies (e.g. Tarvainen 1981: 61, Engel 1994: 44, Eroms 2000: 85-6).

The position of the adverb *once* between the object *him* and the *to*-infinitive phrase is accommodated if the structural analysis shown is assumed. There is no semantic contradiction, since the adverb *once* modifies the 'judging', and the adverb *twice*, the 'lying'. The alternative analysis that positions *him* as a dependent of *to* (or *have*) would incur a projectivity violation, since *once* would still necessarily be a modifier, i.e. a dependent, of *judged*.

In sum, the fact that control and raising structures receive the same structural analysis here is well motivated and should therefore not be construed as a problem for DG more generally. It does, though, raise the basic question about how DGs can capture the distinction in an insightful way. The point established below is that a DG can do this in terms of the combinatory potential of the relevant predicates. This combinatory potential is captured with valency frames.

4 Phrase structure accounts

Before proceeding to the discussion of valency frames, it is worth considering how the control vs. raising distinction is addressed in some phrase structure grammars (PSGs). The Government and Binding framework explored the distinction between control and raising extensively (e.g. Chomsky 1981: 55-92). It captured the distinction in terms thematic marking and null elements. The null element PRO was put forth as a means of understanding control, and in cases of raising, a trace *t* was placed in the base position of the raised constituent.

² See Hays (1960:261, 1964:520) and Kunze (1975:13) for the use of the term *complete subtree* of dependency syntax

as being analogous to the constituent of phrase structure syntax.

Given the null elements PRO and t, control and raising predicates were analyzed along the following lines:

Subject control

(11) a. Neil₁ refused PRO₁ to slow down.

Object control

b. They forced Neil₁ PRO₁ to slow down.

Raising-to-subject

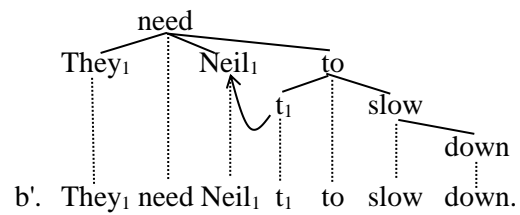
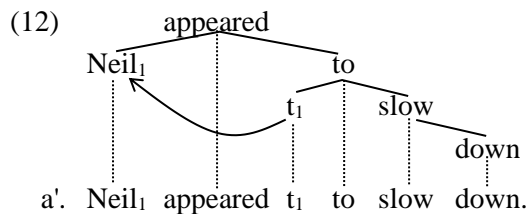
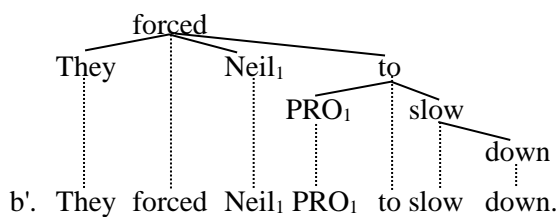
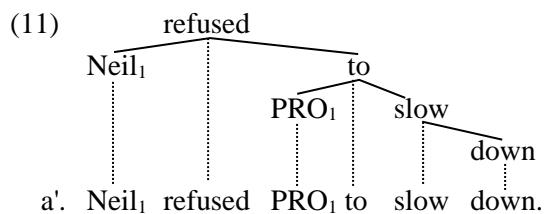
(12) a. Neil₁ appeared t₁ to slow down.

Raising-to-object

b. They need Neil₁ t₁ to slow down.

Hence the fundamental insight that control predicates do, but raising predicates do not, semantically select (one of) their valent(s) is captured via the presence of distinct types of null elements and, in the case of raising, the assumption that movement occurs.

Stepping back for a moment, positing the existence of null elements such as PRO and t is independent of the dependency vs. phrase structure distinction. In this regard, nothing prevents a DG from also addressing the control vs. raising distinction in terms of null elements and movement. One could, for example, advocate for the following structural analyses of the examples just given:



A theory of syntax that acknowledges such null elements takes the control vs. raising distinction to be a phenomenon of syntax. This is particular true of traces, since their existence is contingent upon the occurrence of movement, a transformational notion that is located entirely in syntax.

While nothing prevents a DG from positing the existence of null elements and movement, DGs have traditionally been loath to do so. DG by nature is strongly lexical. This is in fact a necessity, since the minimalism of dependency structures cannot accommodate the richness of category distinctions associated with some PSGs. For instance, DGs are incapable of locating in the rich hierarchy functional categories posited by the Minimalist Program (MP), e.g. Focus Phrase (FP), Agreement Phrase (AgrP), Tense Phrase (TP), Topic Phrase (TopP), etc.

What all this means for the DG analysis of control and raising predicates is that an approach that looks to the lexicon is more consistent with the spirit of dependency syntax. The distinction between control and raising predicates resides with the combinatory potential of the relevant predicates, and this combinatory potential is captured via valency frames.

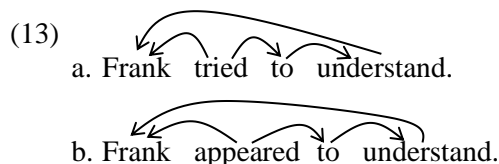
5 Three options

There are three basic options for addressing control and raising in dependency syntax:

1. Networks,
2. An augmented inventory of syntactic relations, and/or
3. Augmented valency frames

The first option, i.e. networks, stipulates additional dependencies to show the extent to which control and raising predicates designate one of their valents to serve as the valent of a lower predicate. The second option adds more syntactic relations and then addresses the difference between control and raising in terms of these additional relations. The third option locates control and raising entirely in the lexicon and distinguishes between them in terms of valency frames. The third option is the one pursued below.

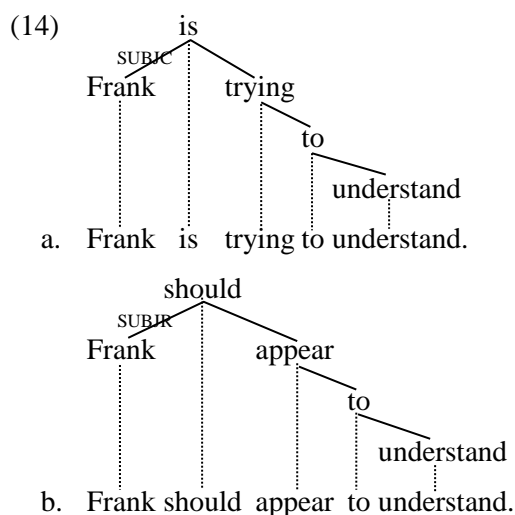
Most DGs conceive of syntactic structure in terms of trees. Trees are not a necessity, however. When a dependency grammar allows a given word to have more than a single parent word, it assumes networks. Word Grammar (e.g. Hudson 1990) is perhaps the most prominent DG to assume networks. The Word Grammar analysis of control and raising structures is along the following lines:



The fact that *Frank* is the logical subject of both the matrix and the embedded predicate is indicated directly in these cases by the fact that both *tried/appeared* and *understand* are shown as the parent of *Frank*.

While these networks accommodate the fact that *Frank* is the valent of two predicates at the same time, the presence of the additional dependency does not alone distinguish between control and raising. Something more is needed to this end. This necessity brings the discussion to the second option, namely an augmented inventory of syntactic relations.

Many DGs take the syntactic relations to be primitive and grant them an important role in the theory of syntax. In this regard, the distinction between control and raising might be addressed in terms of an augmented list of syntactic relations – cf. Mel'čuk and Persov (1987). The additional relations would be such that they would discern when control or raising is present. One might, for instance, posit distinct syntactic relations along the following lines (SUBJC = subject control, SUBJR = subject raising):



The presence of the labels indicating the pertinent syntactic relations in these two cases would discern and distinguish between control and raising. Note, however, the presence of the auxiliary verbs, *is* in (14a) and *should* in (14b). Their presence combined with the fact that the subject is an immediate dependent of the finite verb obscures the insight that it is the content verbs *tried* and *appeared* that are responsible for the presence of the syntactic relations SUBJC and SUBJR.

The points just established reveal difficulties associated with the first two options for discerning and distinguishing between control and raising in dependency syntax. The first option, i.e. networks, is rejected here in part because we believe trees are a simpler and more principled basis for dependency syntax. The second option, i.e. an augmented inventory of syntactic relations, is also deemed insufficient for capturing the distinction between control and raising because they alone do not make clear that control and raising phenomena are closely linked to specific predicates.

The third option, namely valency frames, avoids networks at the same time that it ties control and raising closely to specific predicates. The discussion now turns to these valency frames.

6 Valency frames

There is a long tradition of using valency frames, especially in the German language literature. In German, a valency frame is often called a *Satzmuster* ‘sentence pattern’. Dictionaries of German provide dozens of *Satzmuster* as a guide to correct use of verbs and adjectives (and other types of predicates), e.g. *dtv Wörterbuch der deutschen Sprache* (1978: 30–3). To my knowledge, however, these dictionaries do not distinguish between control and raising predicates in a consistent and principled manner. The discussion here henceforth demonstrates how these frames can distinguish between control and raising predicates in English.

Table 3 gives the symbols employed in the valency frames below. The table is intended to serve as a quick reference guide to the valency frames introduced and discussed further below.

Symbol	What the symbol means
a	Marks an argument valent; the absence of this subscript indicates that the valent is not an argument of its governor

f, nf	valency frame given is valid for the finite/nonfinite form of the verb
N	Nominal (noun, pronoun, or noun phrase)
Pa	(Passive) perfect participle, e.g. <i>eaten, understood, worked</i>
T	to-infinitive phrase, e.g. <i>to stay</i>
R	R indicates that that valent is to be understood in terms of raising ; the valency carrier does not syntactically select that valent
<u>N</u> , <u>N</u>	Single underline marks that valent as the subject argument of a predicate lower in the structure; double underline marks that valent as the object argument of a lower predicate
↑	Up-arrow indicates that the valent does not appear as a dependent of the predicate, but rather it appears elsewhere in the structure or situational context

The valents of a predicate are enclosed in square brackets [...] and the predicate itself is put in small caps and positioned to the immediate left of the brackets, e.g. *Harry loves Harriet* – LOVE_f [N_a, N_a].

The machinery given in the table is just enough to address control and raising and distinguish between them. The list of categories and labels necessary for a full account of valency patterns in English would be much larger, of course.

7 To/from-subject predicates

The following four subsections provide examples of the four types of control and raising predicates already mentioned above. These predicates have the/a matrix valent serving as the subject argument of the embedded predicate. In order to have more space for the discussion for the more controversial types of control and raising discussed in Section 8, the discussion in this section is very brief.

7.1 S-to-S control

S-to-S control predicates are numerous and they occur frequently. Both verbs and adjectives can establish S-to-S control, e.g.

- (15)
-
- a. Frank tried to rest.
b. TRY_f [N_a, T_a]
- (16)
-
- a. Susan would like to drink vodka.
b. LIKE_{nf} [N_a↑, T_a]
- (17)
-
- a. They are reluctant to continue.
b. RELUCTANT [N_a↑, T_a]

The single underline under N marks that valent as controlling the embedded *to*-infinitive predicate. Hence the single underline marks that valent as the understood subject valent of the *to*-infinitive. The up-arrow in (16b) indicates that that valent is not a dependent of the nonfinite *like*, but rather it appears higher in the structure – in this case, as a dependent of the root verb *would*.

The up-arrow is a convention that helps characterize the primary combinatory difference between finite verbs and other nonfinite forms of predicates. For the use of similar means to indicate that the subject valents are typically not dependents of nonfinite forms, see Heringer (1996: 44, 62) and Starosta (2003: 275–6).

7.2 S-from-S raising

S-from-S raising also occurs with both verbs and adjectives, e.g.

- (18)
-
- a. She is certain to fall asleep.
b. CERTAIN [R↑, T_a]
- (19) a. The fridge is threatening to explode.
b. THREATEN_{nf} [R↑, T_a]

- (20) a. They are unlikely to succeed.
 b. UNLIKELY [R↑, T_a]

These valency frames differ from those just given in the previous section regarding the presence of R and the absence of the _a subscript on R. The R indicates that that valent is not syntactically selected by its parent, and the absence of the _a subscript always indicates that that valent is also not semantically selected by its parent. At the same time, the single underline continues to indicate that that valent serves as the subject argument of the embedded infinitival predicate.

7.3 O-to-S control

O-to-S control predicates are also numerous, and they occur frequently as well. Examples follow:

- (21)
-
- a. She asked me to come early.
 b. ASK_f [N_a, N_a, T_a]

- (22) a. They have forced him to try it.
 b. FORCE_{nf} [N_a↑, N_a, T_a]

- (23) a. Jill told us to start immediately.
 b. TELL_f [N_a, N_a, T_a]

The object now controls the embedded *to*-infinitive, functioning as its subject argument. The single underline continues to indicate that that valent serves as the understood subject valent of the embedded predicate.

7.4 O-from-S raising

O-from-S raising predicates have the matrix object, as opposed to the matrix subject, being semantically selected by the embedded nonfinite predicate. Only verbal predicates can do this, e.g.

- (24)
-
- a. We consider you to be reliable.
 b. CONSIDER_f [N_a, R, T_a]

- (25) a. They will need us to help them.
 b. NEED_{nf} [N_a↑, R, T_a]

- (26) a. He wants them to leave.
 b. WANT_f [N_a, R, T_a]

The R and the absence of the _a subscript on the R are again the means by which raising is indicated. The single underline continues to show that that valent serves as the subject valent of the embedded predicate.

8 To/from-object predicates

The following four subsections consider S-to-O and O-to-O control predicates as well as S-from-O and O-from-O raising predicates. The extent to which the predicates discussed are indeed control or raising predicates is less acknowledged and/or controversial. This, then, is arguably the merit of the current account; it discerns generalizations about control and raising predicates that have been overlooked.

8.1 S-to-O control

The typical S-to-O control predicate is an adjective, e.g. *available*, *fit*, *heavy*, *light*, *pretty*, *ready*, *soft*, *tasty*, *ugly*, *unavailable*:

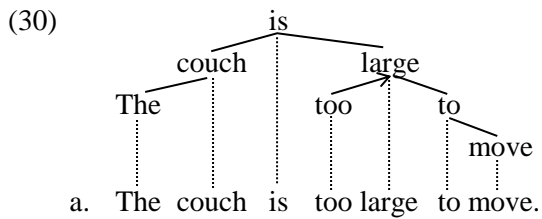
- (27)
-
- a. Susan is pretty to look at.
 b. PRETTY [N_a↑, T_a]
 c. *It is pretty to look at Susan.

- (28) a. These nuts are tasty to snack on.
 b. TASTY [N_a↑, T_a]
 c. *It is tasty to snack on these nuts.

- (29) a. This coat is soft to touch.
 b. SOFT [N_a↑, T_a]
 c. *It is soft to touch this coat.

The unacceptability of the c-sentences here reveal that *pretty*, *tasty*, and *soft* are not raising predicates. The b-examples show how the combinatory potential of these predicates is captured in valency frames. The double underline marks the subject valent as controlling an object that appears lower in the structure. The fact that the subject N bears the _a subscript indicates that raising is not involved.

An interesting aspect of S-to-O control is that many adjectives can be coerced into becoming such predicates by the appearance of *too*, e.g.



- a. The couch is too large to move.
 b. TOO LARGE [N_a↑, T_a]

- (31) a. Tom is too clever to fool.
 b. TOO CLEVER [N_a↑, T_a]

- (32) a. This essay is too long to read.
 b. TOO LONG [N_a↑, T_a]

Without *too*, the adjectives *large*, *clever*, and *long* are not control predicates. The ability of the degree adverb *too* to coerce adjectives that alone are not control predicates is also true in cases of S-to-S control, e.g.

- (33) a. Frank is too lazy to get up early.
 b. TOO LAZY [N_a↑, T_a]

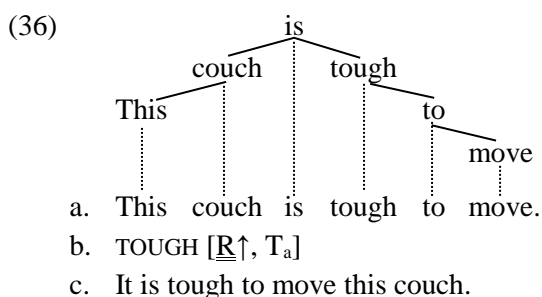
- (34) a. Larry is too slow to catch us.
 b. TOO SLOW [N_a↑, T_a]

- (35) a. Harriet is too careful to get caught.
 b. TOO CAREFUL [N_a↑, T_a]

The combinatorial difference across (30–32) and (33–35) is captured with the underlines, double vs. single.³

8.2 S-from-O raising

S-from-O raising is more widely known under the rubric of *tough-movement* – a reference to the adjective *tough* as the typical predicate that licenses such movement (e.g. McCawley 1998: 107–10, Culicover and Jackendoff 2005: 342–47). The double underline again serves to indicate that the valent serves as the object of a lower predicate, e.g.



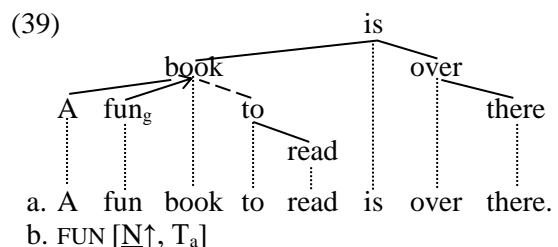
- a. This couch is tough to move.
 b. TOUGH [R↑, T_a]
 c. It is tough to move this couch.

- (37) a. The floor is easy to clean.
 b. EASY [R↑, T_a]
 c. It's easy to clean this floor.

- (38) a. A break is good to get.
 b. GOOD [R↑, T_a]
 c. It's good to get a break.

The double underline shows that that valent serves as the object of the/a predicate appearing lower in the structure. The R and the absence of the _a subscript on the R valent indicate that that valent is neither syntactically nor semantically selected by the predicate.

The valency frames just introduced to capture the combinatory potential of S-from-O raising are also capable of characterizing these predicates when they are used attributively – although an additional assumption is necessary, e.g.



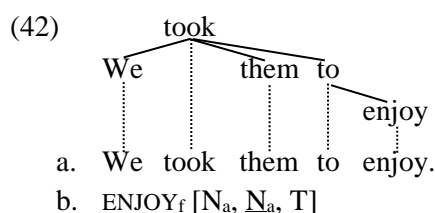
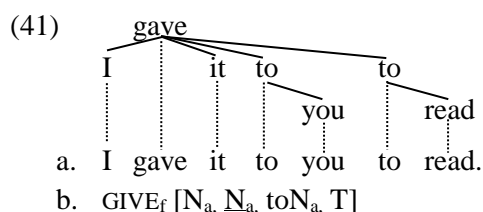
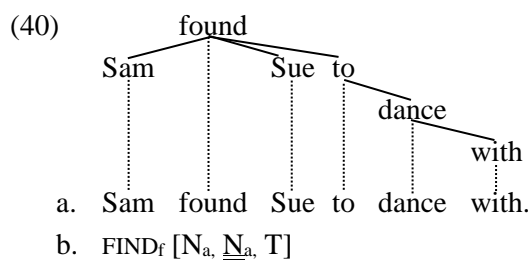
- a. A fun book to read is over there.
 b. FUN [N↑, T_a]

The attributive adjective *fun* clearly governs the *to*-infinitive *to read*. The word order is such, however, that a non-projective structure should obtain due to the intervening noun *book*. To overcome this non-projective structure, rising is assumed, as indicated with the dashed dependency edge and the _g subscript (see Groß and Osborne 2009). Note that in such cases of a predicate used attributively, the up-arrow in the valency frame continues to capture the fact that the subject valent of the predicate is not a dependent of that predicate. Note also that the R valent does not occur. In cases of attributive use, the subject valent is always a nominal.

8.3 O-to-O control

Candidates for an analysis in terms of O-to-O control are listed next: *bring*, *build*, *buy*, *create*, *find*, *give*, *take*, e.g.

³ An anonymous reviewer points out that combinations such as *too large*, *too lazy*, etc. are not stored in the lexicon as single lexical items and that an account of such data in terms of valency is hence problematic. This matter is open issue.



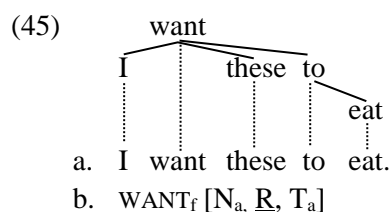
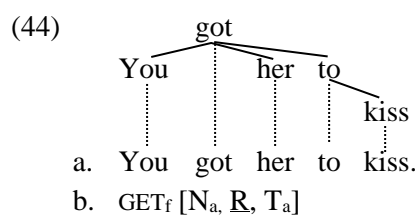
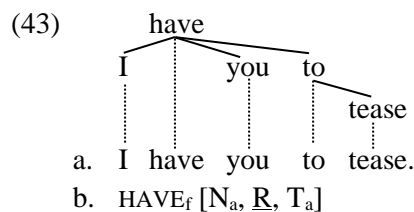
The flatness of structure here is motivated by diagnostics for constituents – see examples (6–9). These diagnostics reveal that, for instance, *Sue to dance with* in (40) is not a constituent, e.g. topicalization: *...and Sue to dance with Sam found; clefting: *It is Sue to dance with that Sam found. In addition, we know that the *to*-infinitive phrases are not dependents of the objects *Sue*, *it*, and *them* because definite nouns and pronouns do not typically take dependents. Furthermore, the fact that *to read* in (41a) is separated from *it* by *to you* refutes the notion that *it* and *to read* could form a constituent (i.e. a complete subtree).

Another noteworthy aspect of these examples is the absence of _a subscript on the T valent. This indicates that those valents are not arguments of the parent predicate; they are, rather, secondary predications the presence of which is optional. Their actual status is a difficult issue (valent or adjunct?) that cannot be addressed here appropriately due to limited space.

Finally, observe that control is doubly present in these cases, since the subject of the *to*-infinitive is also a matter of control – although of nonobligatory control, as example (41a) reveals, where the understood subject of the *to*-infinitive is the *to*-argument, not the subject. That nonobligatory control is involved is also evident in the fact that insertion of a *for*-phrase in these examples can shift the controller from the subject to the object of *for*, e.g. *For the kids, we took the snacks to enjoy* – the kids will enjoy the snacks.

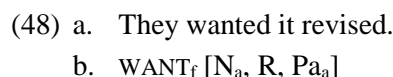
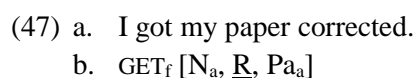
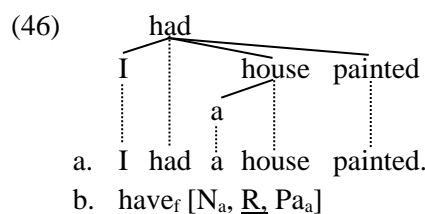
8.4 O-from-O raising

The final type of raising is O-from-O raising. This type of raising occurs infrequently. We are aware of just a couple of verbs that qualify as such predicates: *have*, *get*, and *want*, e.g.



Observe as well that the object R in these examples is a definite pronoun. This fact again supports the flat analysis shown, since it contradicts the alternative analysis that positions the *to*-infinitive as a dependent of the object – definite pronouns do not accept postdependents. Observe that as with the examples of O-to-O control in the previous section, nonobligatory subject control is also present in these examples. We again know that control is pragmatically determined in such cases because it is possible to vary the understood subject of the *to*-infinitive, e.g. *For my kids, I want these to eat*.

Another interesting aspect of these predicates is that they also alternatively license O-from-S raising, e.g.



Used in this way, the predicates *have*, *get*, and *want* no longer involve control. The appearance of the passive participle forces the account to assume that the object functions as the subject of the embedded participle, rather than as its object.

9 Conclusion

This contribution has presented a DG account of obligatory control and raising. Due to the minimal nature of dependency structures, the distinction cannot be captured in the hierarchy of words; it can, rather, be captured in valency frames. The valency frames introduced here distinguish between control and raising mainly via the presence/absence of the _a subscript and the R valent. When _a subscript is absent, the valent is not semantically selected by the predicate. A particular merit of the approach is its ability to distinguish between various types of control and raising predicates, eight in all.

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