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On the Distinction between Arguments and Adjuncts: Questions Posed by Variable Judgments on *Do So* Sentences and Related Issues

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1. Introduction

This paper attempts to shed new light on the question of where in syntactic structure arguments and modifiers may appear, by analyzing some hitherto little-noticed data on *do so* sentences and degree expressions. First, some terminology. A *semantic argument* of a head H is a designated target of fusion (or the conceptual structure filling that position after fusion) in the LCS of H. *Argument* refers ambiguously to a semantic argument and its syntactic realization. *Adjunct* has both a syntactic sense (a sister of an X′ phrase) and a semantically-oriented sense. For the latter, we use the term *modifier* instead. Assuming that the CS of *tidy desk* is basically as in (1), *modifier* can be defined in two ways: (i) in terms of the manner of semantic composition, as a phrase whose concept is added to (rather than fused with) another concept, or (ii) in terms of the CS configuration, as a phrase whose concept is juxtaposed to the concept determining the superordinate concept. Suppose that the lexical entry for the verb *treat* is as in (2b). Then, according to the definition of *argument* given above, the obligatory adverb in (2a) is an argument. It would be inconvenient if we could not call this adverb a modifier. Therefore, let us decide on the second definition of *modifier* above. Thus, in (2a) *cruelly* is both an argument and a modifier.[1]

(1) *tidy desk*: $[_{\text{Thing}}$ DESK $[_{\text{Property}}$ **TIDY**$]]$
(2) a. John treated the man *(*cruelly*).
    b. *treat*: __ NPh **AdvP$_k$/PP$_k$**
        $[\text{ACT-TOWARD}([\ ]_i, [\ ]_h); [_{\text{Manner}}\ ]_k]$

In X-bar theory it is standardly assumed that (internal) arguments appear as complements of the head and modifiers, as adjuncts. Assuming that *do so* is a V′ proform, it follows that *do so* cannot be followed by an argument. Let us examine below how arguments and modifiers actually behave with respect to *do so*.

2. *Do So* and Modifiers

(3) shows that an obligatory adverb, which we have just said is an argument and modifier, behaves as an argument with respect to *do so*.

(3) *He <u>behaved</u> well and you *did so* **badly**.
     (Meisel (1973); cf. Jackendoff (1977: 65))

In (4) the antecedent of *do so* is discontinuous (cf. Culicover and Jackendoff (2005: 285)). We assume, following Schütze (1995) and Pollard and Sag (1987), that the possibility of mid-clause focus correlates with the absence of reordering. Hence, because (5) is fine, we conclude that *quickly* in (4) is base-generated as a sister to the verb, in contradiction with the canonical X-bar theoretic linking.

(4) Mary walked **quickly** to the park, and John
     did so **slowly**.   (Schütze (1995))
(5) John gave the beans QUICKLY to Bill.
          (Ibid.; cf. Jackendoff (1977: 75))
     Cf. *Lou handed a book last SUNDAY to
       the kids. (Pollard and Sag (1987: 180))

Culicover and Jackendoff's (2005: 289) *Do So* Anaphora can handle sentences like (4) with a flat VP structure, interpreting the phrase immediately following *do so* as a modifier.

(6) **Do So** **Anaphora**
     Syntax: $[_{\text{VP}}\ [_{\text{V}}\text{ do}]\ \ [_?\text{ so}]\ <\text{YP}_i^{\text{ORPH}}>\ ]^{\text{IL}}$
     CS: $[_{\text{Action}}\ \mathbf{F}(\ldots); \ldots<\text{Y}_i>\ldots]$

We then face two questions: why does argumenthood take priority over modifierhood in (3) in terms of linking, and what prevents Rule (6) from applying to (3), erroneously predicting it to be grammatical? A possible answer to both is that the fusion relation stipulated in the lexical entry of *behave* blocks alternative ways of linking (see note 5 and Culicover and Jackendoff (p. 260) for relevant discussion). The idea needs a careful formulation and we leave the matter for another occasion.

3. *Do So* and Argument PPs

In the literature, including the recent important work on linking by Randall (2010), it has repeatedly been observed that *do so* cannot be followed by a Path (or Place-inside-Path) PP (hereafter, "*do so* + PP$_{\text{PH}}$"). Some representative examples follow:

  (7) *Dan <u>deposits money</u> in(to) a savings
      account but Ned *does so* **in(to)** a money

market fund.   (Randall (2010))

(8) a. *John <u>wrote a letter</u> to Mary and Fed *did so* **to** Harriet.   (Jackendoff 1990b))

 b. *She <u>rode her bicycle</u> and she *did so* **to** school. (Huddleston and Pullum (2002))

 c. *Willa <u>came</u> to the colloquium, and John *did so* **to** the party.   (Tortora (1998))

 d. *I <u>went</u> to the store but you *did so* **to** the movies.   (Hendrick (1978))

(9) *Willa <u>arrived</u> at the station, while John *did so* **at** the airport.   (Tortora (1998))

(10) a. *I <u>went</u> from Cambridge, but John *did so* **from** some place in Scotland.

 b. *I <u>went</u> through Cambridge, but John *did so* **through** some place in Scotland.
   ((a, b): (Brown and Miller (1999: 401)))

 c. *John <u>ran</u> around the block in the winter and *so did* Alice **around** the reservoir.
                   (Meyers at al. (1996))

Given this array of negative judgments by many scholars, one would feel fully justified in concluding that "*do so* + PP$_{PH}$" is ungrammatical. In reality, however, things are far more complicated. In the literature, there have also been sporadic observations attesting to the existence of disparate or uncertain judgments on *do so* sentences. Thus, Laffut (2006: 112), after putting an asterisk to the *do so* sentences in (11) in accordance with the standard view, remarks: "however, judgements tend to differ a lot with construals of this type. Whereas some people will reject sentences such as [(11a, b)], others will only find them slightly marked." Likewise, Klein (1993: 121) says: "my own intuitions differ from his, as in [(12)] which he [Jackendoff (1977)] marks as strictly deviant." Hedberg and DeArmond (2009) report, citing the paradigm in (13), that they "have found in teaching undergraduate syntax that intuitions are not clear with regard to this test, in that judgments tend to split with regard to [(13b)] and [(13c)], for example."

(11) a. *Joan <u>loaded a sack</u> onto the truck, and I *did so* **onto** the wagon.
                    (Lakoff and Ross (1966))

 b. Did she <u>carve the piece of wood</u> into a toy?－*No, she *did so* **into** a figurine.

(12) a. ?John <u>talked to Bill</u> about Harry, but he didn't *do so* **about** Fred.

 b. ?John <u>talked about Harry</u> to Bill, but he didn't *do so* **to** Fred.

(13) a. Sue <u>worked</u> in a quick manner and Pete *did so* in a slow manner.

 b. ?Fred <u>laughed</u> at the giraffe, and John *did so* **at** the clown.

 c. ?Frank <u>gave a book</u> to the doctor, and Sue *did so* **to** the teacher.

 d. *Kim <u>went</u> to the library, and Mary *did so* **to** the store.

Furthermore, there are examples like the following which are judged neither clearly acceptable nor clearly unacceptable.

(14) a. ??I <u>looked out</u> for Harry, and you *did so* **for** Sam.   (Jackendoff (2002))
   Cf.*I was <u>looking</u> for that book yesterday, and Paul was *doing so* **for** his pen.
                   (Somers (1984: 520))

 b. ?The boy <u>played</u> with the teddy bear, but the girl didn't *do so* **with** the toy car.   (Klein (1993))

 c. ?The old woman <u>danced</u> with her husband, but the bride didn't *do so* **with** the groom.   (Ibid.)

 d. ?John Smith <u>lived</u> with his family, and Debbie Jones *did so* **with** her college friends.   (Ibid.)

 e. ?Abe Lincoln <u>lived</u> in the 19th century, and John Kennedy *did so* **in** the 20th century.   (Ibid.)

 f. ?Kim <u>cleaned the brushes</u> with turpentine, and Terri *did so* **with** water.
                    (Zagona (2007))

 g. ?Kim <u>lay down</u> on the desk and Terri *did so* **on** the floor.   (Ibid.)

 h. ?Julie <u>drank tequila</u> cold, but Jem *did so* **warm**. ("better than [*Ray pushed the door open, but Sandra did so shut*.]")   (Winkler (1996: 29))
   Cf. *Bill <u>drank the coffee</u> hot, and Mary *did so* **cold**. (Culicover (1997: 164))

Finally, it should be noted that it is not particularly difficult to find actual examples of "*do so* + PP$_{PH}$," which, according to the standard view, should be ungrammatical:[2]

(15) *do so* + *into*   (Cf. (7))
    …, who formerly had to <u>translate their Latin</u> into French, now *did so* **into** English.

(16) *do so* + *to*   (Cf. (8))
    … he never <u>talked about his work</u> to anyone and he wondered why he *did so* **to** me.

(17) *do so* + *at*   (Cf. (9))
    … when the French at length <u>arrived</u>. They *did so* **at** Killala Bay, …

(18) *do so* + *from*   (Cf. (10a))

⋯ the majority of Germans who <u>came to SA</u> *did so* **from** those regions.

(19) *do so + through*   (Cf. (10b))

　　Even so, people <u>entering the new building</u> *did so* **through** one of the most impressive library spaces in this country.

The conclusion thus seems inevitable that there do exist idiolectal differences in the grammaticality of sentences containing "*do so + XP*," in particular, "*do so + PP_PH*."

4. *Do So* and PP-Adjunct Rule

Let us distinguish between Dialects A and B. Speakers of Dialect A reject expressions of the form "*do so + PP_PH*" in general, while speakers of Dialect B accept at least some types of them. The first question we should ask about Dialect B is: when a PP appears immediately after *do so*, in which of the two positions shown in (26) does it appear－inside the smallest V' or outside?

(20) a. [$_{V'}$ V NP *PP*]   [give NP *to John*]

　　b. [$_{V'}$ **[**$_{V'}$ V NP**]** *PP*]   [**[**give NP**]** *to John*]

We might opt for structure (20a), adding to the grammar another version of *Do So* Anaphora that interprets the PP following *do so* as an *argument* of the antecedent verb. However, given the apparently confused situation described in section 3, this approach is clearly ill-advised because it leads us to expect a clear-cut dichotomy of judgments. It also offers no insight into when and why "*do so + PP_PH*" becomes possible.

In Dialect B, the PP in question acts semantically like an argument but syntactically like an adjunct. Is there any way to give a PP this Janus-like character? Jackendoff's (1990a) PP-Adjunct Rule (PPAR) has exactly the right property for this job. The rule permits an optional path or place PP to disappear from the strict subcategorization feature of the verb (as in (22b)) and yet fuse into the same LCS position as it did as a regular argument. If we interpret the structural condition of this rule in terms of the same notion of analyzability as used for transformations, a PP is susceptible to this rule even when it appears as an adjunct, as in (20b).

(21)　**PP-Adjunct Rule** (adapted from
　　Jackendoff (1990a) and Randall (2010))
　　Given the syntactic configuration
　　[$_{VP}$V … PP], if the verb's CS contains
　　[… GO (…, [$_{Path}$ … ([$_{Place}$ …])]) …], then
　　the CS of PP may fuse with PATH/PLACE.

(22) a.　*throw*: V, __ NP$_h$ <PP$_k$>,

[CAUSE([　]$_i$, [GO([　]$_h$, [$_{Path}$　]$_k$)])]

　b.　*throw*: V, __ NP$_h$,
　　[CAUSE([　]$_i$, [GO([　]$_h$, [$_{Path}$　])])]

We can now analyze the two dialects as in (23). In both dialects, the optional PP has been dropped from the subcategorization feature, thanks to PPAR. In Dialect A, the PP continues to be a sister of the verb, just like an ordinary argument, but in Dialect B it appears in adjunct position and hence can occur with *do so*.[3]

(23) **Analysis I**

(i) **Dialect A:** *throw*: V, __ NP$_h$
　[CAUSE ([　]$_i$, [GO([　]$_h$, [**Path**　])])]
　　　　　　　　　| PPAR
　　　[$_{V'}$ <u>throw the ball</u> **into the field**]
　　=>*do so into the field

(ii) **Dialect B:** *throw*: V, __ NP$_h$
　[CAUSE ([　]$_i$, [GO([　]$_h$, [**Path**　])])]
　　　　　　　　　| PPAR
　　[$_{V'}$ **[**$_{V'}$ <u>throw the ball</u> **]** **into the field**]
　　=> ^{OK} do so into the field

Analysis I above was proposed in Yagi (2009). Randall (2010), however, contains some data which are problematic for it. Randall generally rejects expressions of "*do so + PP_PH*" and hence is clearly a speaker of Dialect A, and yet she notes that with verbs like *bag* and *bottle*, "*do so + PP_PH*" is possible:

(24) This cashier *bags* groceries [in plastic bags]
　　while that one **does so** [**in** paper bags].
　　　　　　　　(Randall (2010: 132))

She analyzes the PP in question as an adjunct interpreted by PPAR, as shown in (25) (the notation is Jackendoff's). But notice that this is just like the analysis we adopted for Dialect B.

(25)　*bag*: V, __ NP$_h$
[CAUSE([ ]$_i$, [GO([ ]$_h$,[$_{Path}$TO([$_{Place}$ IN([BAG])])])])]
　　　　　　　　　| PPAR
　　[$_{V'}$ **[**$_{V'}$ bag groceries **]** **in paper bags**]

Thus, a question naturally arises: if a fusion relation between an LCS concept and an adjunct is possible for speakers of Dialect A, why should they not generalize and treat all GO-taking verbs likewise, namely, why should they not simply cease to be speakers of Dialect A and become speakers of Dialect B? Technically, if we adopt the assumption about A-marking discussed in note 3, the analysis in (25) does not directly contradict Analysis I: we can distinguish between ordinary motion verbs like *throw* and the exceptional verbs like *bag* by the presence vs. absence of A-marking on the relevant LCS concept. And yet, intuitively, the situation of the

same speaker allowing the linking pattern in (25) but not that in (23ii) seems quite unnatural. There should perhaps be a stronger distinction between the two types of verbs in Dialect A that serves to prevent the *bag*-type linking from generalizing to ordinary motion verbs.

Let us therefore adopt one aspect of Randall's analysis which, translated into our framework, means that in Dialect A the subcategorization features of ordinary motion verbs are retained irrespective of whether PPAR applies or not. Let us also assume, as is commonly done, that phrases appearing in a subcategorization feature are mapped onto complements of the head (possibly, this too is a makedness principle).[4] Our new analysis looks like this (there is no change for Dialect B):

(26) **Analysis II: Dialect A**

  (i) *throw*: V, __ NP$_h$ <**PP$_k$**>

    [CAUSE ([ ]$_i$, [GO([ ]$_h$, [$_{Path}$]$_k$)])]

                    |Argument Fusion

    [$_{V'}$ throw the ball **into the field**]

  (ii) *throw*: V, __ NP$_h$ (PP)

    [CAUSE ([ ]$_i$, [GO([ ]$_h$, [$_{Path}$])])]

                    | PPAR

    [$_{V'}$ throw the ball **into the field**]

In case (i), where Argument Fusion applies, either the speaker has not yet learned PPAR or the rule is inapplicable because the lexical entry in question has been so firmly established that it has fossilized and the indices remain in place. In case (ii), the PP is not indexed and PPAR applies. In either case, because the PP is mentioned in the subcategorization feature, it appears as a complement of the verb and "*do so* + PP$_{PH}$" is impossible.[5] By contrast, in Dialect B the PP in question has dropped from the subcategorization frame and hence it can appear as an adjunct.

A clear advantage of Analysis II over I is that we can now envisage a way to account for those cases where the same speaker makes different judgments depending on the antecedent verb. Let us consider (13b-d), repeated below:

(13) b. ?Fred <u>laughed</u> at the giraffe, and John *did so* **at** the clown.

    c. ?Frank <u>gave a book</u> to the doctor, and Sue *did so* **to** the teacher.

    d. *Kim <u>went</u> to the library, and Mary *did so* **to** the store.

For those speakers who accept (13c) but not (13d), we can make the necessary distinction by saying that for them the optional PP is absent from the subcategorization frame of *give* but

present in that of *go*, as shown in (27). The Path PP can therefore appear as an adjunct with *give* but not *go*. Why this difference? Our conjecture is that for many speakers, the subcategorization frame of *go* has fossilized because *go* occurs at such a high rate with a Path PP.

(27) a. *give*: __NP ([$_{V'}$ [$_{V'}$ give NP] PP] =>^{OK}(13c))

    b. *go*: __ (PP) ([$_{V'}$ go PP] =>*(13d))

What about *laugh* in (13b)? As attested by examples like (28a, b), there do seem to be speakers who accept "*do so at* NP" with *laugh*. Analysis II predicts that their grammar satisfies two conditions, specified in (29b).

(28) a. Dunstan himself seldom <u>laughed</u>, and when others *did so* **at** his serio-comic sayings, it disconcerted, and, …

    b. Although no one felt like <u>laughing</u>, they unwittingly *did so* **at** his innocence, …

(29) a. *laugh*: __ (at NP)

      ([$_{V'}$ laugh at NP] => *do so at NP)

    b. *laugh*: __ (**+** *At*-Adjunct Rule)

      ([$_{V'}$ [$_{V'}$ laugh] at NP] => ^{OK}do so at NP)

First, "*at* NP" does not appear in *laugh*'s subcategorization frame. Second, instead, what we might call *At*-Adjunct Rule exists in their grammar; the rule interprets "*at* NP" occurring in adjunct position as an argument of a class of verbs including *laugh*. Now, the crucial question is the plausibility of this rule. For such a rule to be established, the relevant class of verbs must be delineated in syntactic and semantic terms and the conceptual role "*at* NP" fulfills in their LCS must be specified. While there are verbs like those in (30a) which resemble *laugh (at)* in containing an element of ridicule in their sense, their number is quite small and their occurrence seems to be rather rare. It is also unclear whether the target class of verbs should be broadened so as to include such verbs as those in (30b).

(30) a. *scoff* at *jeer* at *jibe* at *sneer* at

    b. (i) *smile* at /(ii) *glare* at *look* at

Thus, the situation is quite different from that of motion verbs, where the target class of verbs can be easily identified, their number is quite large, their use is extremely frequent and the semantic role of the PP is quite clear. In the light of this contrast, it seems fair to say that *At*-Adjunct Rule is not strongly supported by linguistic data available to learners and is therefore not firmly established. Its status is unstable, and that probably is an important factor in the disparity of judgments on "*do so at* NP" with *laugh*.

In conclusion, Analysis II, which makes

crucial use of subcategorization features, is more promising than Analysis I, and hence we adopt the former over the latter. It should be noted that both analyses are incompatible in some crucial respect with some of the recent, innovative theories of syntax and the lexicon. Below are brief comments on what thorny questions *do so* sentences pose for such theories.

Randall's (2010) linking theory is constructed in such a way that facts of Dialect A are derived on principled grounds, which in turn makes Dialect B a serious challenge for her theory.

Bare Phrase Structure does not allow non-branching nodes like the inner V' in (31). It is therefore unclear how sentences in which *do so* replaces a single verb can be accounted for, let alone how Dialects A and B can be described.

(31) Bare Phrase Structure: *[V' [V' [V speak]] softly]   (Cf. Hasegawa et al.(2000: 81))

VP-shells cannot handle Dialect B, as is obvious from the non-constituency of the verb and its object in (32), nor even Dialect A, on certain assumptions about the position of modifiers (cf. Jackendoff (1990b: 452).

(32)   VP-shell: [*give* [a book [*t* [to Mary]]]]

Pustejovsky (1995: 126) claims that "the conflated sense for the verb *float* [as in "*float into the cave*" /TY] exists only phrasally and not lexically." But if *float* does not have a lexical entry representing the motion sense, then it is difficult to see how Dialects A and B can be distinguished at all in his framework.

Thus, to the extent our analysis of *do so* is successful, it supports the conventional notions of phrase structure and lexical entries on which it is based.

5. The Internal Structure of AP

In accordance with X-bar theory, AP is standardly assumed to have the internal structure shown in (33a). But there is evidence that the structure in (33b) is also necessary.[6] First, if the *so* in (34a) counts as evidence for (33a), then the *so* in (34b), which replaces a modifier-adjective sequence, should also count as evidence for (33b). Second, (35a) and (35b) correspond to the two structures in (33), respectively (Yagi (1987: 108)). ((36a, b) are attested examples of the same type as (35a).) Third, though Baltin (2006: 242) assumes that (37) derives by extraposition of PP, the examples in (38) cannot be considered as resulting from extraposition of PP from the CP-Spec *wh*-phrase, because the PP is in mid-IP

position, followed by another IP element. Finally, the most natural assumption about the position of *enough* and *indeed* in (39) is to adopt the structure in (33b): obligatory downward movement of these modifiers is theoretically too problematic.

(33) a. [Adv/Deg **[A PP]**] [very [*fond of music*]]
  b. [**[Adv/Deg A]** PP] [[*very fond*] of music]

(34) a. Bob is [very [serious about Mary]], but [less [**so**]] than Paul.   (Carnie (2002))
  b. . …., if students are unduly critical about less than perfect language use when they are taught in one instructional language, but they are not **so about** similarly imperfect language use when taught in a different instructional language, then …

(35) a. They are [more [*afraid of us*]] than we are [__ [*afraid of them*]].
  b. They are [[*more afraid*] of us] than we are [_____ [of them]].

(36) a. I'm more proud of her performance in the film than I am *proud of things in my life*.
  b. … this bill is more important to the Judiciary Committee than that committee is *important to the bill*.

(37) ***How fond*** are you ***of Sally***?

(38) a. I now realize *how afraid* I was *of my father* while growing up …
  b. I lied to Momma, that's *how crazy* I was *about him* at the time.
  c. … to tell *how much more important* God had become *to her* as a result.
  d. *How much more distant* is Sirius *from us* than the sun?

(39) a. John was fond **enough** of music.
  b. I was very glad **indeed** of your success primarily for your own sake, …

The structure in (33b), in which an argument occupies an adjunct position, raises an important question for our analysis of *do so*. Analysis II crucially assumes that elements appearing in subcategorization frames appear as complements of the head, and the structure in (33b) clashes with that assumption. We might consider as a way out positing an adjectival version of PPAR, but that is not likely to be a general solution because adjectives similar in meaning often take different prepositions, as illustrated in (40).

(40)   ignorant *of* /oblivious *to* /unfamiliar *with* /clueless *about*

To proceed further, we must scrutinize afresh the internal structures of other categories than VP and AP, and we leave it for future study.[7]

The dual linking possibility posited for verbs' and adjectives' arguments is something natural in the constructionist framework, which can express a many-to-one correspondence between meaning and structure quite easily, as opposed to approaches, typified by analyses in so-called formal semantics, that posit a rigid meaning-structure relationship based on functional application and binary branching.[8] It is an interesting question whether the state of affairs arrived at here obtains more generally.

6. Concluding Remarks

We have argued that PPAR interacts with subcategorization features to produce room for variations in the possibility of "*do so* + PP$_{PH}$," allowing some speakers to project semantic arguments as adjuncts. Considering that linking is one of the central issues in linguistic theory, it is noteworthy that it is rules of a particular language, not parameterized principles, that are used in our analysis. If we are on the right track, this should be taken as a reminder that constraining the rule system remains as important an issue as ever.

We have seen that our analysis of *do so* casts doubt on some of the recent theories of syntax and the lexicon. It also conflicts with the proposed dual structure of AP. We are thus left, as usual, with new puzzles to explore.

NOTES

[1] A participant in the state or event expressed by a predicate is not necessarily an argument in our sense. Thus, the concept HORSE in the LCS of the verb *horse* ('provide with a horse') is not A-marked (in the sense of Jackendoff (1990a)) and hence not an argument for us. Likewise, the instrumental *with*-phrase occurring with a verb like *chop* is not an argument in our sense even if verbs like *chop* always entail the use of an instrument (Koenig et al. (2002)). Our definition of argument also differs from the configurational definition given by Culicover and Jackendoff (2005: 164); for them, arguments and modifiers are separate, which is perhaps a problem in view of (3) below.

[2] The attested examples cited in this paper all come from books. Due to space limitations, information about the sources is omitted.

[3] If PPAR is essentially as formulated in (21), it is necessary to assume that even after PP is dropped from the subcategorization frame in (23), the Path concept in the LCS continues to be designated as an argument (that is, it should

be A-marked, though no longer indexed), with the condition that fusion into an LCS constituent dominating, or dominated by, an A-marked constituent is prohibited. Otherwise, PPAR would erroneously produce sentences like **the train passed in the tunnel* (as opposed to *it passed through the tunnel*) (Jackendoff (1990a: 252)). The principle requiring semantic arguments to be mapped onto complements of the head should therefore be regarded as a violable, markedness principle (otherwise, Dialect B would be impossible). Thus, though it is a marked option, a phrase can be an argument and an adjunct at the same time. It also should be noted that the above assumption about A-marking plainly contradicts that part of the Theta-Criterion that bans undischarged theta-roles, (because, we assume, the PATH constituent is A-marked but not expressed in *The train passed*). The latter condition, however, is of questionable status anyway and can hardly be regarded as a deciding factor.

[4] A rather baffling aspect of Randall's data on *do so* sentences involving *bag* is that she claims (p. 114) that *bag* can occur with "*in* NP" but not with "*into* NP"—an unexpected co-occurrence restriction between a verb and an adjunct. Because it is not difficult to find actual examples of *bag* occurring with *into*, it is likely that for many, if not most, people either preposition is fine. But the question is how we should describe her intuition about *bag*. One plausible way is to regard the subcategorization-related mapping principle as a markedness principle, as we did with the canonical argument-complement mapping above. Then, we can say that for those who share Randall's intuition about *bag*, the verb's subcategorization feature explicitly mentions *into* and a V' boundary, as in "__ NP]$_{V'}$ *into* NP", at the cost of increased complexity.

In passing, note that it is also an important question how children can learn the adjunct status of the PP occurring with *bag*. The meaning of the verb does not seem to offer any helpful clues in this respect.

[5] There is a loose end here that must be tied up. Suppose that the optional PP in the subcategorization frame of *throw* has not been chosen. Then, as it stands, if a Path-PP occurs independently as an adjunct, "*do so* + PP$_{PH}$" is predicted to be possible even in Dialect A, with *do so* replacing "[$_{V'}$ *throw* NP]" and PPAR interpreting the Path-PP, just as in Dialect B. (Notice that this uninvited application of PPAR cannot be prevented by Randall's Prohibition Against Double Fusion.) One possible solution is to adopt the proposal about A-marking in note

3 and say that PPAR cannot apply to an A-marked constituent. Another is to say that PPAR cannot apply to a verb whose subcategorization frame contains a PP, assuming that parentheses and brackets are not abbreviatory devices but part of the system of rule application allowing the rule to apply *as if* it consisted of multiple rules (hence *throw* in (26) has only one subcategorization feature, not two). The problem we face here seems essentially the same as that of preventing *Do So* Anaphora or modifier-adjunct linking from applying to (3). Perhaps, a general principle akin to the Elsewhere Condition gives priority to lexically specified operations over more general ones. If so, the above stipulations about PPAR will prove unnecessary.

6 The fact that adjectives occur much earlier with a degree modifier than with an argument PP in child language may very well have to do with the establishment of structure (33b).

7 One might argue that sentences like (i) have the structure in (ii) and hence that VP too has a structure paralleling (33b). But differential degree modification is possible between discontinuous phrases (*He is older than her by two years*) and so (i) falls short of counting as evidence for (ii)

(i) Last year it **more than doubled** [the program's budget] [to $21 million].

(ii) a. [$_{V'}$ [$_{V'}$ more than V] NP to NP]

8 Thus, Kennedy (1999: 133) would have to posit one more entry for each type of *more*: e.g. (ii), in addition to his (i), for phrasal comparatives.

(i) ⟦more⟧ = λGλyλx [MORE(G(x))(G(y))]

(⟦distant⟧ =λyλx.the degree to which x is distant from y)

(ii) ⟦more⟧ =λGλ**z**λyλx
[MORE(G(**z**)(x))(G(**z**)(y))]   (Cf. (38d))

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