Do So and Lexical Theories of Passivization

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1   Introduction

Standard (since Lakoff and Ross (1966, 1976)) account of *do so*: *do so* refers to (the meaning of) a V′ (originally VP):

(1)   John put his French book on the shelf two hours ago, and

    a.   Tom *did so* too.
            did so = put his French book on the shelf two hours ago

    b.   Tom *did so* an hour ago.
            did so = put his French book on the shelf

    c.   *Tom *did so* on the table (an hour ago).
            did so = put his French book

    d.   *Tom *did so* his English book (an hour ago).
            did so = put on the shelf

(2)
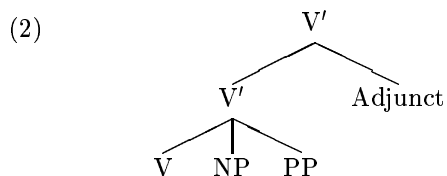
Since what *do so* refers to is minimally a verb with all its arguments, *do so* substitution provides an argument for configurational complement/adjunct distinction, as well as a test for distinguishing complements from adjuncts.

The Problem

(3)   These images might be used by those who had no right to *do so*.
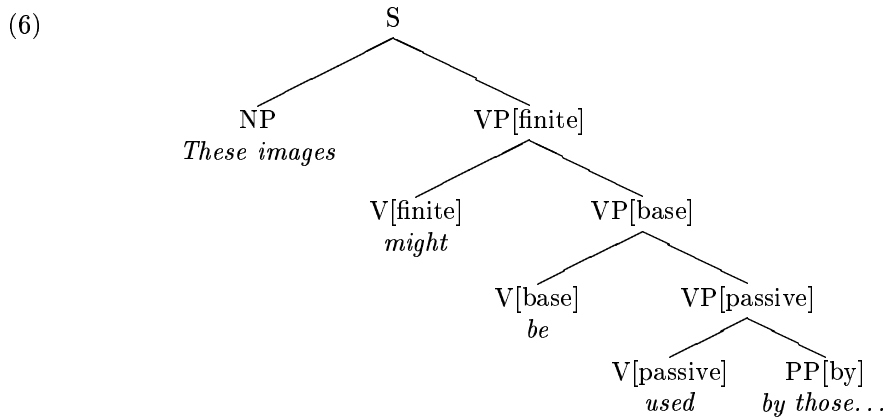   *do so* = use these images

In lexical theories of passivization such as those of Lexical Functional Grammar (LFG; Bresnan (1982)) and Head-driven Phrase Structure Grammar (HPSG; Pollard and Sag (1987, 1994)), the promoted object (*these images*) and the passive verb (*used*) do not form a V′ (or VP) in any sense.

For example, in HPSG:

(4) Passive Lexical Rule (Pollard and Sag, 1987; Grover, 1995):

$$
\begin{bmatrix}
word \\
\text{PHON } \boxed{1} \\
\text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD|VFORM base} \\ \text{SUBJ } \langle \text{NP}_i \rangle \\ \text{COMPS } \langle\boxed{2}\text{NP}\rangle \oplus \boxed{3} \end{bmatrix}
\end{bmatrix}
\implies
\begin{bmatrix}
word \\
\text{PHON } f_{\text{PSP}}(\boxed{1}) \\
\text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD|VFORM passive} \\ \text{SUBJ } \langle\boxed{2}\text{NP}\rangle \\ \text{COMPS } \boxed{3}\oplus\langle(\text{PP}[by]_i)\rangle \end{bmatrix}
\end{bmatrix}
$$

(5)
$$
\begin{bmatrix}
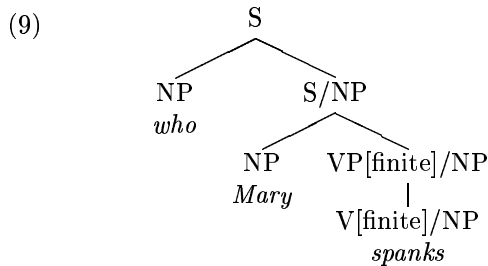word \\
\text{PHON } \langle \text{use} \rangle \\
\text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD|VFORM base} \\ \text{SUBJ } \langle \text{NP}_i \rangle \\ \text{COMPS } \langle\boxed{2}\text{NP}\rangle \end{bmatrix}
\end{bmatrix}
\implies
\begin{bmatrix}
word \\
\text{PHON } \langle \text{used} \rangle \\
\text{SYNSEM|LOC|CAT} \begin{bmatrix} \text{HEAD|VFORM passive} \\ \text{SUBJ } \langle\boxed{2}\text{NP}\rangle \\ \text{COMPS } \langle(\text{PP}[by]_i)\rangle \end{bmatrix}
\end{bmatrix}
$$

(6)

```
                        S
              _____
             /                        \
           NP                      VP[finite]
       These images            _____
                              /                   \
                         V[finite]             VP[base]
                          might           _____
                                         /                \
                                    V[base]            VP[passive]
                                      be           _____
                                                  /                 \
                                            V[passive]            PP[by]
                                              used              by those...
```

Another problem for HPSG: traceless approach to extraction (Sag and Fodor, 1994; Sag, 1997).

(7) John is a man who Mary spanks. She doesn't *do so* very often, though.[1]

(8)
$$
\begin{bmatrix}
word \\
\text{PHON } \langle \text{spanks} \rangle \\
\text{SYNSEM} \begin{bmatrix} \text{LOC|CAT|COMPS } \langle\boxed{2}\text{NP[LOCAL }\boxed{3}]\rangle \\ \text{NONLOC|SLASH } \{\} \end{bmatrix}
\end{bmatrix}
\implies
\begin{bmatrix}
word \\
\text{PHON } \langle \text{spanks} \rangle \\
\text{SYNSEM} \begin{bmatrix} \text{LOC|CAT|COMPS } \langle\rangle \\ \text{NONLOC|SLASH } \{\boxed{3}\} \end{bmatrix}
\end{bmatrix}
$$

(9)

```
              S
        _____
       /            \
      NP           S/NP
     who       _____
              /          \
            NP        VP[finite]/NP
           Mary           |
                     V[finite]/NP
                        spanks
```

The Claim

- The problem does not lie in the lexical approach to passivization (or extraction), but in the *do so* test.

- Specifically, *do so* does not refer to (the meaning of) a syntactic constituent, but rather to a pragmatic (conceptual) object.

_____

[1](7) is on the basis of Kaplan (1976).

2 Surface vs. Deep Anaphora

2.1 *Do So* as Surface Anaphora

Hankamer and Sag (1976): there are two types of anaphoric processes: syntactically controlled (surface anaphora) and pragmatically controlled (deep anaphora). There are two properties which distinguish them:[2]

- a deep anaphor, but not a surface anaphor, can be used deictically (cf. (10) below);

- a surface anaphor, but not a deep anaphor, requires syntactic parallelism with the antecedent (cf. (11)).

For example, Verb Phrase Ellipsis is an instance of surface anaphora, while *do it* is a deep anaphor.[3]

(10) a. [Hankamer attempts to stuff a 9-inch ball through a 6-inch hoop]
    Sag: # It's not clear that you'll be able to. (VPE)

 b. [Same context]
    Sag: It's not clear that you'll be able to do it. (*do it*)

(11) a. Nobody else would take the oats down the bin,
  i. so Bill did.
  ii. so Bill did it.
 b. The oats had to be taken down to the bin,
  i. *so Bill did. (VPE)
  ii. so Bill did it. (*do it*)

Sag and Hankamer's (1984) account:

- surface anaphora are interpreted in terms of propositional (close to syntax, short term memory effects) representations;

- deep anaphora are interpreted in terms of discourse models.

The claim that *do so* refers to a V′ makes sense only if *do so* is treated as a syntactically controlled (i.e., surface) anaphor. In fact, Hankamer and Sag (1976) and Sag and Hankamer (1984) do argue that *do so* is a surface anaphor:

(12) [Hankamer again attempting to pass 9″ ball through 6″ hoop]
    Sag: #I don't think you can *do so*.

(13) a. Nobody else would take the oats down to the bin, so Sam *did so*.
 b. *The oats had to be taken down to the bin, so Sam *did so*.

2.2 Problems

Do so does not obey the syntactic parallelism requirement.

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[2]Hankamer and Sag (1976) discuss a wider range of differences, but only the two cited here survived the ensuing debate (Williams, 1977; Schachter, 1977; Hankamer, 1978; Sag, 1979; Sag and Hankamer, 1984).

[3]Examples from Hankamer and Sag (1976). The cross-hatch (#) indicates that the sentence is incompatible with the context.

Passive Antecedents   Examples of active/passive mismatch abound.[4]

Dalrymple *et al.* (1991):

(14)   The formalisms are thus more aptly referred to as information- or constrained-based rather
       than unification-based, and we will *do so* here.   (Shieber, 1989, page 2)
       do so = refer to the formalisms as...

(15)   It is possible that this result can be derived from some independent principle, but I know of
       no theory that *does so*.   (Mohanan, 1983, page 664)
       does so = derives this result from...

Kehler and Ward (1995):

(16)   Section 1 provides the examples to be derived by Gapping, and a formulation of Gapping
       capable of *doing so*.   (Neijt 1981)
       doing so = deriving the examples by Gapping

(17)   As an imperial statute the British North America Act could be amended only by the British
       Parliament, which *did so* on several occasions.   (Groliers Encyclopedia)
       did so = amended the BNAA

Some of the examples found by Meijs (1984) in BROWN and LOB corpora:

(18)   For the only time in the opera, words are not set according to their natural inflection; to *do
       so* would have spoiled the dramatic point of the scene.   (Brown N 09 1310)
       do so = set words according to their natural inflection

(19)   [E]xternal forces should not be applied arbitrarily out of mere power available to *do so*.
       (Brown G 22 1550)
       do so = apply external forces

(20)   The intention behind the legislation was to insure that the money should be used for rein-
       statement wherever it was possible and economic to *do so*...   (LOB H 05 06)
       do so = use the money for reinstatement

(21)   They had been married for six years, but the salary raise, on the expectation of which they
       had *done so*, had not materialised.   (LOB M 02 85)
       done so = married

Some of the mismatches found in the COBUILD corpus:

(22)   <p> However painful to the victims and their relatives, it should be obvious # that every
       last villager who torched his neighbour's house will not be indicted. To *do so* would be to
       set community against community once again...   (N2000960217)
       do so = indict them

(23)   Mr Garcia said he had known the money was deposited with the BCCI, but the decision to
       do so had been taken by the officials alone.   (S1000910801)
       do so = deposit the money

(24)   Eventually a Czechoslovak-German treaty will be signed — since it is in both countries'
       interest to *do so*.   (S1000910801)
       do so = sign the treaty

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[4]Such cases of active/passive mismatches are noted also by Bouton (1969) and Kaplan (1976).

(25) The same system applies to all day tours but note that some of them have to be booked in advance. You can *do so* by sending a fax or telex. (E0000002243)
do so = book them / a tour in advance

(26) <p> If you're the owner of a Smart Socket, which automatically routes your calls via the cheaper route, this will need to be replaced with a Smart Socket Plus, if you haven't already *done so*. (E0000002319)
done so = replaced Smart Socket with Smart Socket Plus

Some other naturally occurring examples:

(27) In Section 5, I will show that such examples can be treated with respect to the same formal meaning representation language as before, but *doing so* requires abandoning a static view of verb phrase ellipsis. (Webber, 1979, p.4-4)
doing so = treating such examples...

(28) At various points in this book we will encounter response patterns of continuously graded character. These can of course be simulated digitally, but perhaps it is worth asking whether to *do so* misses the point. (Jackendoff, 1983, p.12)
do so = simulate these digitally

(29) We have seen extensively that such compositional structure can be discovered and formalized, and that there are numerous theoretical advantages to *doing so*, in both the lexical and the extralexical domains. (Jackendoff, 1990, p.283)
doing so = discovering and formalizing...

(30) [A]lthough Jackendoff (1990:195) suggests that the for-PP can be given precisely such an event interpretation, he provides no formal mechanism for *doing so*... (Verspoor, 1997, p.77)
doing so = giving the for-PP precisely such an event interpretation

(31) In France and Germany, for example, pregnant women were given their husband's clothes during labor in the belief that *doing so* would transfer the wives' pains to their husbands. ("The Expectant Father: Facts, Tips, and Advice for Dads-to-Be", Armin A. Brott and Jennifer Ash, 1995, Abbeville Press)
doing so = giving pregnant women their husband's clothes

Nominal Antecedents Meijs (1984):

(32) Its cord was useless in effect, so I'd no trouble in its removal, on *doing so* I was dumbfounded by its unexpected contents. (LOB L 15 41)
doing so = removing its cord

(33) Beyond that, Allied disagreement about military intervention in Laos / despite warnings that they might *do so* / allowed Moscow to carry out with impunity a series of military and diplomatic moves... (Brown A 34 1170)
do so = intervene in Laos

Kehler and Ward (1995):

(34) The defection of the seven moderates, who knew they were incurring the wrath of many colleagues in *doing so*, signaled that it may be harder to sell the GOP message on the crime bill than it was on the stimulus package. (Washington Post)
doing so = defecting

(35) Even though an Israeli response is justified, I don't think it was in their best interests to *do so* right now. (provided by Dan Hardt)
do so = respond

COBUILD:

(36) The blind adherence of this Government to the dictates of Brussels, when no # other member state attempts to *do so*, has ruined the British meat industry. (N2000951118)
do so = adhere to the dictates of Brussels

(37) The Independent says the departure from the Communist Party of the reform faction would be far more significant than its limited numbers may suggest. The paper says that if they *did so*, they might begin to construct the first viable, organised opposition to the communist establishment. (S1000900702)
did so = depart from the Communist Party

(38) They have not defined the conditions of the withdrawal or offered any indication that they will *do so* under the rules and laws of war... (S2000910226)
do so = withdraw (?)

Split Antecedents   Meijs (1984):

(39) What I am suggesting is that when we delay, or when we fail to act, we *do so* intentionally...
(Brown H 18 350)
do so = delay or fail to act

(40) To the degree, however, that Schiller emancipates nature from reason, to the degree that he "breaks through the Kantian dogma", as Baumecker asserts with approval, he *does so* without adequate systematic justification. (LOB J 53 34)
does so = emancipates... and breaks through...

Other examples:

(41) ...featuring people (like Woody Allen himself) who can't sing and can't dance, but *do so* anyway. (Barry Norman, "Films of the Year", 02.01.1998, BBC WORLD)
do so = sing and dance

(42) Fortunately, the first person to die in 1990 and the first couple to file for divorce in 1990 were allowed to *do so* anonymously. (Roeper, 1990)
do so = die and file for divorce, respectively

(43) What is security? A computer is considered secure if you can depend on it to behave as you expect. Yes, this is intentionally vague. This definition depends a lot on your expectations. If you expect your data to remain unread and unmodified by others and no one is able to *do so*, then your machine is considered secure.
(http://www.acm.uiuc.edu/workshops/security/overview.html)
do so = read or modify your data

3   *Do So*, Pragmatically Speaking

The cases of nominal and split antecedents are not compatible with the view that *do so* refers to a V$'$: there is no V$'$ in the surface syntax that *do so* could refer to. It does not seem plausible

that at some **syntactic** level nominal phrases are really V''s. It seems even less plausible that split constituents are **syntactically** merged into a single V'.

Below, we present even more direct arguments for the stance that *do so* refers to meanings constructed at the pragmatic level of representation.

Generalization

(44) Kohl, Europe's longest-serving statesman, won the last general election in 1994 after trailing badly in the polls beforehand. Despite widespread disenchantment with his rule and unemployment nudging a post-war record of 5m, he could yet *do so* again. (The Sunday Times, 22.02.98)
do so = win a general election (after trailing badly in the polls beforehand)

In order to understand this text, a generalization from 'win **the last** general election' to 'win **a** general election' must be made.

Another example:

(45) Created a life peer by Harold Wilson in December 1964, he had earlier # that year been elected chairman of the TUC and, as a Labour peer, presided # over the 1965 Brighton Congress the first member of the House of Lords ever # to *do so*. <p>   (COBUILD N2000960102)
do so = preside over a TUC Congress

Here, in order to generalize from 'preside over **the 1965 Brighton** Congress' to 'preside over **a TUC** Congress', one has to apply world knowledge, namely, that the 1965 Brighton Congress was a gathering of the Trade Union Congress.

Two more examples of a similar kind:[5]

(46) IN TURN YOU AGREE </h> <p> bull; To buy at least one book of your choice **from each of the first 4 magazines** and continue to *do so* for as long as you decide to remain a member. <p> bull; If after 4 magazines you wish to cancel your membership, you may do so by giving 1 month's notice in writing. <p> That's all!   (COBUILD E0000002486)
do so = buy at least one book from each magazine

(47) <p> The # recommendations of the 1991 report, which urged increased funding for Queensland councils, was rejected by the Federal # Government # the first time it had *done so* in the 14-year history # of the Grants Commission. <p>   (COBUILD N5000951115)
done so = rejected the recommendations of a Grants Commission report

Enrichment   Antecedents to *do so* can also be created 'on the fly' by enriching the meaning of a VP occurring in the text. This is exemplified by (48) below.

(48) In order to assure the most productive use of the limited amount of time available to question witnesses, all witnesses scheduled to appear before the Subcommittee are required to submit 200 copies of their prepared statement and an IBM compatible 3.5-inch diskette in ASCII DOS Text or 5.1 WordPerfect format, for review by Members prior to the hearing. Testimony should arrive at the Subcommittee on Trade office, room 1104 Longworth House Office Building, no later than Tuesday, September 9, 1997. Failure

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[5](47) has an additional complication in the form of an active/passive mismatch.

to *do so* may result in the witness being denied the opportunity to testify in person. (`http://www.house.gov/ways_means/tr-14.htm`)
do so = submit 200 copies... to... by Tuesday...

The meaning of *do so* is here 'submit 200 copies of one's prepared statement... to the Subcommittee on Trade office... by Tuesday, September 9, 1997'. The V' '*submit...*' provides only part of this meaning, the rest is provided by the next sentence. Constructing the complex meaning is a non-trivial pragmatic process.[6]

(Truly) Missing Antecedents   Finally, it is possible for *do so* to refer to meanings not introduced directly by any textual elements, but rather inferred from the context.

(49)   `<p>` Anyway, there are your pears, just nicely poached, not too soft and not too hard. You know this because you have prodded one of the pieces with the tip of a sharp knife. Out with the corks of wine, assuming you haven't *done so* already, and empty it into a saucepan. (COBUILD N0000000357)
done so = opened wine

Other examples of this kind:

(50)   In the scientific arena researchers routinely challenge study results by repeating experiments and seeing if they come out the same way. When asked whether R.J. Reynolds planned its own study of Joe Camel and teenage smoking habits, spokeswoman Carter said her company has no plans to *do so* at this time.   (COBUILD S2000920520)
do so = conduct its own study...

(51)   We want to have your business for a long time. This method of business is what got Marathon to this level of business performance and will continue to *do so* as long as we stay in business. Integrity, Competitive, High Tech are some of a few descriptions of the Marathon Publication. (`http://www.flash.net/~mpinc/intro.html`)
do so = keep Marathon on this level of business performance (?)

4   Some Implications

The result of the previous sections is that *do so* is pragmatically controlled. Here are some consequences of this observation.

For LFG and HPSG   Pragmatic analysis of *do so* lets LFG and HPSG off the hook.

For the Deep vs. Surface Anaphora   The basis for the deep/surface anaphora theory is the observation that pragmatically controlled anaphors are exactly the anaphors that can be used deictically. *Do so* shows that this correlation is not strict: it can be pragmatically controlled, but cannot (?) be used deictically.[7]

For Structural Complement/Adjunct Distinction   If *do so* refers to pragmatic objects, *do so* facts cannot be invoked as arguments for syntactic complement/adjunct distinction.
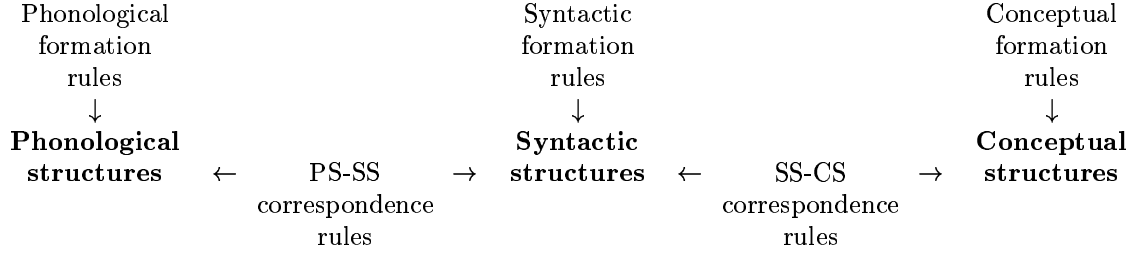
---

[6]In this process, the *testimony* must be identified as referring to the *prepared statement, testimony should arrive* should be understood roughly as 'the witness should ensure that it arrives...', etc.

[7]This was independently noted by Kehler and Ward (1995).

8

A Appendix: *Do So* and Conceptual Structures

Do so seems to be treatable in terms of Jackendoff's (1983, 1990, 1997) Conceptual Semantics. (It is not the aim of this section to provide a formal analysis of *do so*, but only to suggest a way of approaching this problem.)

Jackendoff (1997, p.39):

Phonological formation rules			Syntactic formation rules			Conceptual formation rules
$\downarrow$			$\downarrow$			$\downarrow$
Phonological structures	$\leftarrow$ PS-SS correspondence rules	$\rightarrow$	**Syntactic structures**	$\leftarrow$ SS-CS correspondence rules	$\rightarrow$	**Conceptual structures**

Conceptual structures (CSs):

- this is the "level of mental representation... at which linguistic, sensory, and motor information are compatible" (Jackendoff, 1983, p.17);

- it encompasses both semantic and pragmatic linguistic levels;

- rules of inference map conceptual structures into conceptual structures; "I include in this component not only rules of logical inference but also rules of invited inference, pragmatics, and heuristics" (Jackendoff, 1990, p.17);

Basic account of *do so*:

- syntactically, *do so* does not subcategorize for any complements (but may be combined with adjuncts);

- conceptually, *do so* refers to a salient conceptual structure (CS) of type [ACTION],[8] i.e., to an [EVENT] with the actor's role abstracted;

- the [ACTION] CS associated with a (nonstative) verb normally has all its roles filled; this is the minimal [ACTION] that *do so* can refer to;

- normally, attaching an adjunct amounts to constructing an extended conceptual structure, hence the complement/adjunct effect of *do so*.

Case Study: Generalization Jackendoff (1983, p.81): conceptual structures can represent both tokens and types.

(52) $\left[\begin{array}{l} \text{STATE} \\ \text{IS AN INSTANCE OF } ([\text{TOKEN}]_i, [\text{TYPE}]_j) \end{array} \right] \leftrightarrow \left[\begin{array}{l} \text{TOKEN} \\ \text{INSTANCE OF } ([\text{TYPE}]_j) \end{array} \right]_i$

(53) $\left[\begin{array}{l} \text{STATE} \\ \text{IS AN INSTANCE OF } ([\text{TOKEN}]_i, [\text{TYPE}]_j) \end{array} \right] \leftrightarrow \left[\begin{array}{l} \text{TYPE} \\ \text{EXEMPLIFIED BY } ([\text{TOKEN}]_i) \end{array} \right]_j$

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[8]This parallels Jackendoff's (1983) suggestion regarding *do it*.

Jackendoff (1983, p.92) provides an example of using pragmatic anaphora to derive [TYPE]s from [TOKEN]s:

(54)   Those [*pointing to a single Cadillac*] are expensive.

A similar process takes place in the case of examples such as (44) above: the CS associated with *the last general election* is a [TOKEN] CS which is an instance of a [TYPE] CS associated with *a general election*.

Case Study: Missing Antecedents   Missing antecedents are really CSs (contextually) associated with (and made salient by) certain other CSs. For example, consider (51) above. Assume that *get* (as in *x got y to z*) has roughly the following CS:

$$
(55) \quad \left[\begin{array}{l} \text{EVENT} \\ \text{CAUSE}([\text{THING}]_x, \left[\begin{array}{l} \text{EVENT} \\ \text{GO}([\text{THING}]_y, \left[\begin{array}{l} \text{PATH} \\ \text{TO}([\text{PLACE}]_z) \end{array} \right]) \end{array} \right]) \end{array} \right]
$$

Jackendoff (1990, p.27) posits the following inference rule:

$$
(56) \quad \text{At the termination of } \left[\begin{array}{l} \text{EVENT} \\ \text{GO}([\text{X}], \left[\begin{array}{l} \text{PATH} \\ \text{TO}([\text{Y}]) \end{array} \right]) \end{array} \right]
$$
$$
\text{it is the case that } \left[\begin{array}{l} \text{STATE} \\ \text{BE}([\text{X}], \left[\begin{array}{l} \text{PLACE} \\ \text{AT}([\text{Y}]) \end{array} \right]) \end{array} \right]
$$

Applying this rule to (a part of) (55), we get (roughly) the meaning of *do so* in (51):

$$
(57) \quad \left[\begin{array}{l} \text{EVENT} \\ \text{CAUSE}([\text{THING}]_x, \left[\begin{array}{l} \text{STATE} \\ \text{BE}([\text{THING}]_y, \left[\begin{array}{l} \text{PLACE} \\ \text{AT}([\text{PLACE}]_z) \end{array} \right]) \end{array} \right]) \end{array} \right]
$$

Case Study: Adjuncts Filling Argument Roles   Miller (1990, 1992) shows that *do so* can refer to a part of the meaning of a V′:[9]

(58)   John kicked Mary and Peter *did so* to Ann.

(59)   John spoke to Mary and Peter *did so* to Ann.

(60)   John spoke to Mary and Peter *did so* with Ann.

Miller (1990, 1992) notes that "the relevant factor for acceptability of a PP complement after *do so, do it, do that*, is... whether or not the PP complement is acceptable as a complement for main verb *do* with a thematic role compatible with that which the corresponding complement of the antecedent verb has with respect to the antecedent verb" (Miller, 1992, p.96). For example, in (61)–(63) the thematic role of the PP adjunct of *did so* is incompatible with the thematic role of the complement of the antecedent verb.

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[9]Similar cases involving *do it, do the same thing* and *happen* are discussed by Akmajian (1973). (See also Jackendoff (1997, pp.75–78).)

(61) ??John kicked Mary and Peter did so for Ann.

(62) ??John spoke to Mary and Peter did so for Ann.

(63) ??John went to Paris and Peter did so to Rome.

In the framework of Conceptual Semantics, this can be formalized in the following way:

- following Akmajian (1973) (and Jackendoff (1997, p.76)), contrastive foci (*John* and *Mary* in (58)) are extracted from the CS of the antecedent clause;

- *do so* refers to the residual meaning (*x kicked y* in (58));

- the subject and the adjunct provide respective meanings for x and y.

The compatibility of thematic roles between the adjunct of *do so* and the complement of the antecedent verb is ensured via adjunct correspondence rules similar to those in Jackendoff (1990, pp.161f.). For example, in case of *to*-adjuncts (cf. (58)):

(64) *To-Patient Adjunct Rule* (simplified)

If V corresponds to $\left[\begin{array}{l} \text{EVENT} \\ \text{AFF}^-([\ ], [\text{X}]) \end{array} \right]$, with [X] unindexed, and NP corresponds to [Y],

then $[_\text{S} \ldots [_\text{VP} \text{V} \ldots [_\text{PP} \text{to NP}] \ldots] \ldots]$ may correspond to $\left[\begin{array}{l} \text{EVENT} \\ \text{AFF}^-([\ ], [\text{X/Y}]) \end{array} \right]$

Why is (1c) unacceptable?

(1c) *John put his French book on the shelf two hours ago, and Tom *did so* on the table...

This is because English *on*-adjuncts do not have the GOAL role (the role of the PP argument of *put*).

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