

A Binary Analysis of Resultatives

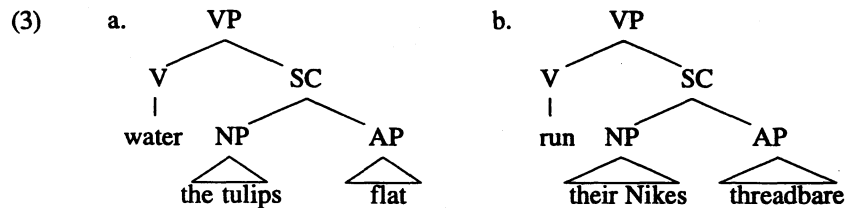
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1. Introduction

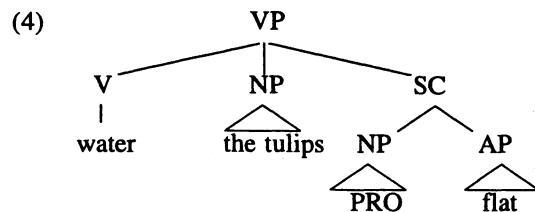
Carrier and Randall (1992) (henceforth C & R) compare three competing analyses of transitive and intransitive resultative constructions such as the following:

- (1) a. The gardener watered the tulips flat.
b. The grocer ground the coffee beans (in)to a fine powder.
c. They painted their house a hideous shade of green.
- (2) a. The joggers ran their Nikes threadbare.
b. The kids laughed themselves into a frenzy.
c. He sneezed his handkerchief completely soggy.

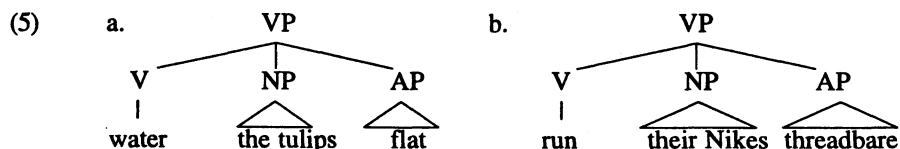
The first two are small clause (SC) analyses, while the third is not. The first SC analysis, termed the Binary SC Analysis, assigns a binary branching VP to both transitive and intransitive resultatives:



The second SC analysis, termed the Hybrid SC Analysis, assigns the same structure as the Binary SC Analysis to intransitives, but assigns a ternary-branching VP containing a SC with a PRO subject to transitive resultatives:



The third analysis, termed the Ternary Analysis, analyzes both intransitive and transitive resultatives as ternary branching VPs in which the postverbal NP and the result phrase are sisters of V:



Carrier and Randall argue that the first two analyses (the SC analyses) are wrong and that the Ternary Analysis is the correct one. As they point out, this conclusion, if correct, has important consequences for the theory of grammar. In particular, it entails "a lack of isomorphism between semantic structure and D-structure on the one hand and between semantic structure and Argument Structure on the other."

I shall argue in this paper that a slight elaboration of a binary SC analysis of resultatives of the form suggested in Bowers (1993: 630, n. 24), but not elaborated in detail there, meets all of their objections to the two SC analyses they discuss and is in fact superior to the Ternary Analysis they propose. My arguments, if correct, lead to a conclusion just the opposite of theirs, namely, that there is a strong isomorphism between semantic structure, argument structure and syntactic structure.

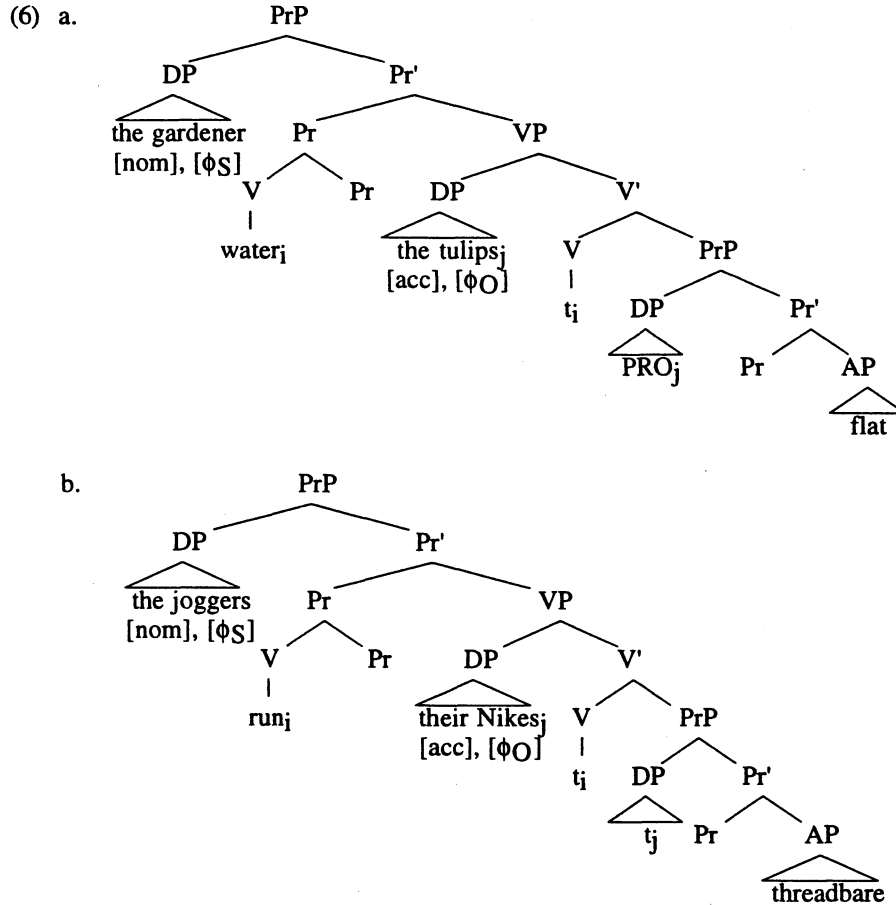
2. A Binary Hybrid SC Analysis

The analysis I propose is like the Hybrid SC Analysis, except that it analyzes transitive resultatives as binary (rather than ternary) structures in which the object is generated in [Spec, V] and the SC is a complement of V. The external argument, following Bowers (1993), is generated in the Spec position of a functional category Pr, which takes a lexical XP as its complement.¹ PrP may either occur independently as a complement or be selected by T. If the former, then XP = AP, PP, NP or VP, producing a variety of different SC structures; if the latter, then XP can only be VP in English (though not in other languages). Integrating this analysis into the minimalist framework along the lines suggested in Bowers (1997), I assume that Pr has strong V-features which cause the head of XP to adjoin obligatorily to Pr.² I assume in addition that accusative case is strong in English and is checked in [Spec, V], while object agreement features are weak and are checked in the specifier of PrP. In a language such as Icelandic, in contrast, object agreement features are optionally strong, thus permitting overt movement of objects into a position to the left of the internal subject in [Spec, Pr] (Object Shift). Similarly, I assume that nominative case is strong and is checked in [Spec, Pr], while subject agreement features are checked in [Spec, T]. Crucially, I assume that case must be checked when a DP is either merged or moved into either [Spec, V] or [Spec, Pr].

¹ Categories similar to Pr that have been proposed in the literature include, among others, the 'VP shell' (Larson, 1988), Voice (Kratzer, 1993), v (Chomsky, 1995), Tr (Collins, 1997). Pr, unlike VP shell and v, is required for predication and is therefore present regardless of how many arguments the verb requires. I assume also that agents of unergative verbs originate in [Spec, Pr], whereas the argument of an unaccusative originates in [Spec, V].

² In Bowers (1993), in contrast, head raising of V to Pr was assumed to be driven by θ -role assignment. Here I remain neutral as to where θ -roles are assigned.

Given these assumptions, the derivations of transitive and intransitive resultatives, respectively, would be as follows:



In both cases, the strong ϕ_S features will ultimately force the subject DP to move overtly to [Spec,T], whereas the ϕ_O features (which are weak in English) will not be checked until LF. Similarly, the strong[acc] case-marked subject of the resultative PrP is forced to move overtly to [Spec,V] to check case features.

It should be immediately apparent that this analysis preserves both binarity and a form of the SC analysis, while at the same time preserving the isomorphism between semantic structure and argument structure, on the one hand, and D-structure, on the other. However, before proceeding to defend this analysis in detail, let me first spell out which of C & R's claims I will not be disputing. A considerable part of their paper is devoted to demonstrating that the postverbal argument in transitive resultatives, contrary to the Binary SC Analysis, is an argument of the verb. I agree completely with their conclusions in this regard, though I believe that the D-structure position of objects is [Spec, V], rather than the complement position. Hence there is no need to discuss the Binary SC Analysis further here. I also concur with their arguments that the result phrase is an argument of the verb, though I disagree with their conclusion that the XP constituent must therefore be a sister of the verb (see §3.2. for discussion).

3. C & R's Arguments Against a SC Analysis of Resultatives

The remaining arguments against any form of SC analysis and in favor of the Ternary Analysis that must be dealt with are the following:

- (i) The result XP is s-selected by the verb and must therefore be both an argument of, and a sister of, the verb for both intransitive and transitive resultatives.
- (ii) Since a wh-result XP can be extracted long distance in both transitive and intransitive resultatives, it must be lexically governed in both, which is only true under the Ternary Analysis.
- (iii) The Hybrid SC Analysis can treat the transitive postverbal NP as an argument only at the cost of making contradictory claims about the barrierhood of result SCs.
- (iv) Extraction of a subpart of the postverbal NP is equally possible in both transitive and intransitive resultatives, a result that is only predicted under the Ternary Analysis, given Kayne's Left Branch Subpart Condition (LBSC).
- (v) Intransitive unergative resultatives cannot lack a lexically specified postverbal NP in D-structure (e.g., **they laughed sick*, **the tenor sang hoarse*), a fact that can only be explained under SC analyses by making special assumptions about the control of PRO, but which can be explained under the Ternary Analysis by adopting either a Mutual C-Command or Mutual M-Command condition on predication.

I take up each of these arguments in turn.

3.1. S-Selection of the Result XP

The argument here is that since the verb s-selects the result XP, it must be an argument of the verb, and that this in turn entails that it must be a sister of the verb for both intransitive and transitive resultatives.³ Since there can surely be no disagreement

³ Actually, I find C & R's discussion of s-selection quite confusing. They cite the following data (their (22)-(24)) as support for the claim that "the result predicate is fairly free in terms of category—it can be an AP, PP, or NP—still, not every potential result phrase within these categories is allowed":

- (i) a. She pounded the dough [AP flat as a pancake].
b. She painted the barn [AP red].
c. They ran their sneakers [AP ragged].
- (ii) a. She pounded the dough [pp into a pancake].
b. *She painted the barn [pp (in)to a weird shade of red].
c. They ran their sneakers [pp to tatters].
- (iii) a. *She pounded the dough [NP a pancake].
b. She painted the barn [NP a weird shade of red].
c. They ran their sneakers [NP a dingy shade of grey].

A closer examination of their data, however, seems to reveal that the restrictions in question reflect characteristic c-selection properties of the verbs *pound*, *paint* and *run*, rather than s-selection properties. *Pound* c-selects AP, PP, but not NP; *paint* c-selects AP, NP, but not PP; and *run* c-selects all three categories. In order to explain the contrast between (iiia) and (iiib), they suggest that the result XP must designate a state and that *a weird shade of red* meets this

that the verb *s*-selects the result XP in both intransitive and transitive resultatives, the only question is whether this observation does in fact entail that the result XP must itself be a sister of the verb. The SC analysis proposed above would maintain, in contrast, that it is the PrP constituent containing the result XP as its complement that is an argument of, and hence a sister of, the verb. An argument for sisterhood based solely on *s*-selection is quite weak, since it is easy to show that verbs systematically impose semantic constraints on the VP predicates of infinitive complements, which are uncontroversially larger in size than the VP itself. Consider, for example, contrasts such as the following:

- (7)
- a. Mary forced Bill to learn/*know French.
 - b. John wants/*tried to know French.
 - c. Sue got Bill to leave/*have left/*be leaving.
 - d. John tried to look/appear/*be tall.
 - e. Bill knows how to act/*be intelligent.
 - f. Mary wonders when to turn in/*have turned in the paper.

C & R's arguments seem to be predicated on the following assumption: "Since the semantic features of a result predicate cannot percolate up to the next higher node the way categorical features can, we must assume that the verb *s*-selects the result phrase directly." Example such as those in (7) cast serious doubt on the assumption that semantic features cannot "percolate upward," thereby undermining their conclusion that a result XP must be a sister of the verb.

3.2. Long Distance Extraction of the Result XP

Since the arguments against a SC treatment of result XPs based on *s*-selection are so weak, let's look next at a syntactic argument which, C & R suggest, supports the same conclusion. The basic observation is that long distance extraction of result XPs leads to weak subjacency violations, rather than strong ECP-type violations, leading to the conclusion that result XPs are internal arguments rather than subjects or adjuncts. In particular, the behavior of resultative XP's (both transitive and intransitive) contrasts sharply with that of depictive XP's in this regard:

- (8)
- a. ?How flat do you wonder whether they hammered the metal?
 - b. ?How shiny do you wonder which gems to polish?

requirement, whereas *a pancake* does not. But then why are the constraints exactly the reverse when these NPs are put in a PP, as in (iia) and (iib)? There is surely no question that *s*-selection is necessary, since (iib) is possible, but not **she painted the barn a pancake*. Yet it is not clear that *s*-selection is sufficient, since *pound* is apparently unable to take a result NP of any sort.

The other arguments that C & R put forward in support of *s*-selection seem equally unclear. They observe that APs headed by deverbal *-ing* and *-ed* adjectives are systematically barred from both transitive and intransitive resultatives and suggest rather vaguely that the constraint is a semantic one involving "an aspectual clash between the meaning of resultatives and the meanings of *-ed* and *-ing* adjectives." Is it really that obvious, however, that *-ed* and *-ing* adjectives belong to exactly the same syntactic category as other types of adjectives? What about the possibility of "hybrid" categories? There are even some indications that *-ed* and *-ing* forms might be verbs rather than adjectives, since they systematically resist degree modifiers: **very shined*, **extremely sweating*, **very sickened*, etc.

Finally, they suggest that the existence of idiomatic and quasi-idiomatic V + result XP phrases such as *smite dead*, *drive bonkers*, etc. are an indication that *s*-selection is involved. However, idioms seem at least as lexical as semantic. In the case of completely non-compositionally derivable idioms, they are frozen lexicalized phrases whose meanings are semantically arbitrary. It is unclear why the existence of such idioms entails that the result phrase must be an argument of the verb, hence a sister of the verb.

- (9) a. ?How threadbare do you wonder whether they should run their sneakers?
 b. ?How hoarse do you wonder whether they sang themselves?
- (10) a. *How angry does Mary wonder whether John left?
 b. *How drunk does John wonder whether Mary arrived?

Again, there is no question that resultatives behave with regard to extraction like arguments, while depictives behave like adjuncts. In itself, however, this observation is not sufficient to show that the resultative XP is actually a sister of the verb, since it is possible that the whole SC is moved.

In fact, there is evidence in support of just this conclusion. It has been noted by Huang (1993) that though the anaphor in a fronted complex wh-NP has a wider range of coreference possibilities than it does in situ:

- (11) a. Which pictures of himself_{i/j} did John_i think Bill_j liked?
 b. John_i thought Bill_j liked pictures of himself*_{i/j}.

an anaphor in a fronted VP can only be coreferential with the NP that would necessarily bind it if it remained in situ:

- (12) a. Criticize himself*_{i/j} John_i thinks Bill_j never will.
 b. John_i thinks Bill_j will never criticize himself*_{i/j}.

Huang concludes that the fronted VP constituent must contain the trace of a moved internal subject. Extending these observations, Bowers (1993) observes that the same must be true of fronted predicate AP constituents:

- (13) a. Proud of himself*_{i/j} John_i doesn't think Bill_j will ever be.
 b. Proud of himself*_{i/j} John_i doesn't consider Bill_j.

and argues that the identical behavior of the two processes of VP fronting and predicate AP fronting can only be explained if both are contained in a PrP constituent.

Consider in the light of these observations the behavior of fronted wh-AP constituents:

- (14) a. How proud of himself*_{i/j} does John_i think Bill_j is?
 b. How proud of himself*_{i/j} does John_i consider Bill_j?
 c. How proud of each other*_{i/j} do the men_i think the women_j are?
 d. How proud of each other*_{i/j} do the men_i consider the women_j?

Clearly, it is not just the wh-AP constituent that is fronted but the whole PrP containing the AP, along with the trace of the raised subject of the PrP. Now all we need to do is to construct a resultative wh-AP containing an anaphor and see if it behaves in the same way as the SC complements of verbs like *consider*. A transitive resultative of the relevant kind would be the following:

- (15) How close to each other*_{i/j} did they_i bend the ends_j of the rods?

As predicted, the anaphor in the wh-AP can only be coreferential with the NP of which it is predicated, suggesting that it is the whole PrP, along with its PRO subject, that is moved:

- (16) [CP[PrP PRO_i how close to each other*_i/j] did they_i bend the ends_j of the rods_i]?

This confirms that in resultatives, as in other SC constructions, it is not the XP constituent that is moved but rather the PrP containing it. Hence it must be the PrP, as hypothesized, which is the sister of V.

3.3. Barrierhood of Result SCs

A different sort of argument against the Hybrid SC Analysis has to do with the barrierhood of the SC constituent. C & R observe that in order for the subject of the intransitive result clause to receive case in an example such as *the joggers ran their Nikes threadbare*, it must be assumed either that SCs are non-maximal projections (as in Hornstein and Lightfoot (1987)) or that a verb may govern across an SC barrier (following Kayne (1985) and Hoekstra (1988)). Whichever device we choose, that same device will be needed in any case to explain the case-marking of the subjects of SC complements of verbs such as *consider*, and it will also rule out examples such as [the joggers_i ran [SC PRO_i sick]], since PRO will be governed. But now, they observe, we have a problem, since the same will be true of a transitive resultative such as [the gardener watered the tulips_i [SC PRO_i flat]]: PRO should be governed here too, incorrectly predicting the sentence to be ungrammatical. Hence, they conclude, the Hybrid SC Analysis requires contradictory assumptions concerning the barrierhood of the resultative SC.

The analysis proposed in §2 is not subject to this objection. The reason is straightforward. Under this analysis, case in intransitive result clauses (and in the SC complements of *consider*-type verbs) is not assigned in situ. Rather, the lexical subject of a PrP complement raises into object position to check case. All that needs to be assumed, then, is that PrP is a barrier to government.⁴ If the subject of PrP is lexical, as it is in the case of intransitive resultatives, then it must raise to object position to check case. If the object position in the matrix PrP has an object, as it does in the case of transitive resultatives, then a lexical subject for the resultative PrP is ruled out and the only possibility is for its subject to be PRO. Hence under the modified hybrid analysis proposed here, no contradictory assumptions concerning the barrierhood of PrP are necessary.

3.4. Extraction of a Subpart from Postverbal NP

The fact that ECM constructions involve raising to object under my analysis takes care of another argument against the SC analysis of resultatives. C & R observe that extraction of a subpart of the postverbal NP is equally acceptable in both transitive and intransitive resultatives, and in depictives:

- (17) a. the gang that I shot the leaders of dead
b. the trees that the wind blew the tops of bare

⁴ Note that under the minimalist assumptions outlined earlier, the concept of government can be dispensed with; hence the problem of barrierhood simply doesn't arise.

- (18) a. the Nikes that I ran the soles of threadbare
 b. the gang that I drank the leaders of under the table
- (19) a. the gang that I saw the leaders of naked
 b. the book that I read the beginning of in French

Now if Kayne (1985)'s condition prohibiting the extraction of a subpart of a left branch (the Left Branch Subpart Condition, or LBSC) were correct, then the Hybrid SC Analysis would predict a difference in grammaticality between the examples in (17) and (18), since the subject of the SC is a left branch in (18) but not in (17). But there is no difference in grammaticality. Hence, C & R conclude, the Ternary Analysis must be correct.

Once again, the revised hybrid analysis proposed here is immune from this objection by virtue of the fact that the subject of PrP in intransitive resultatives is raised to object position. Hence the extraction facts, under my analysis, are correctly predicted to be the same for both transitive and intransitive resultatives. Note furthermore that under the analysis proposed in Bowers (1993), extraction from the subject of the SC complement of verbs such as *consider* should also be possible, since their subjects are also raised into object position. In fact, it was examples of the following sort that Kayne originally used to motivate the LBSC:

- (20) *the man that I consider the brother of honest

However, C & R themselves have cast doubt on the validity of Kayne's data, noting that other examples that are parallel in structure sound fine:⁵

- (21) the gang that I consider the leaders of immoral

Another argument that Kayne put forward in support of the LBSC was that though the following sentence has either a resultative or a depictive reading:

- (22) The lion ate the knuckles of the hunter raw.
 = a. . . . until they were raw (resultative)
 = b. . . . when they were raw (depictive)

extraction of *the hunter* leads to a sentence with only the depictive reading:

- (23) the hunter that the lion ate the knuckles of t raw
 ≠ a. . . . until they were raw
 = b. . . . when they were raw

Once again, as C & R correctly note, the facts are far from clear. The verb *chew*, for instance, seems to have both a resultative and a depictive reading whether a subpart of the subject is extracted or not:

- (24) The lion chewed the knuckles of the hunter raw.
 = a. . . . until they were raw
 = b. . . . when they were raw

⁵ C & R suggest in note 38, and again in section 7, that this fact might provide support for a ternary analysis of *consider* and its complements, as well. But, as we have just seen, the data is also consistent with the revised hybrid analysis.

- (25) the hunter that the lion chewed the knuckles of raw
 = a. . . until they were raw
 = b. . . when they were raw

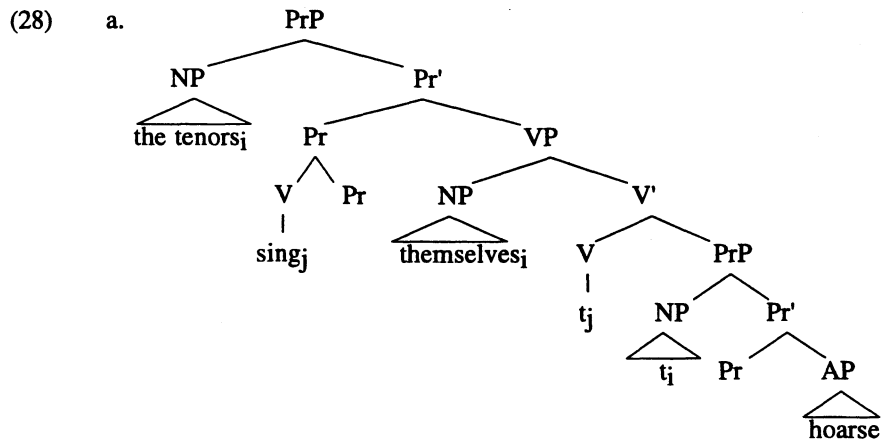
They suggest that *eat*, in contrast to *chew*, cannot form a resultative at all, a judgement I concur with. In short, there appear to be no clear cases where extraction from the subject of a putative SC complement is impossible, as is predicted by my analysis.⁶

3.5. Control

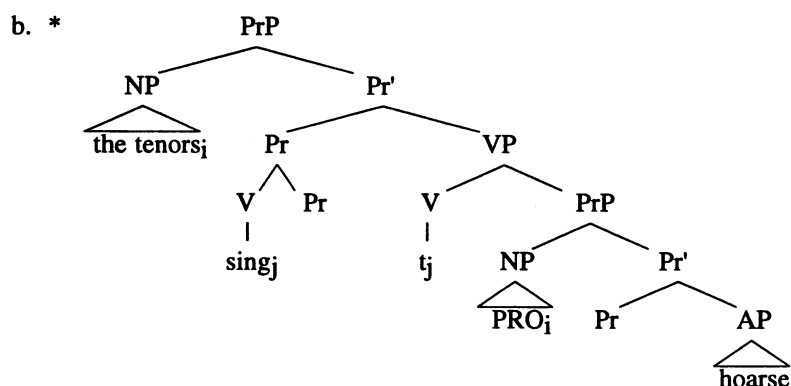
The last argument in support of a ternary analysis and against a SC analysis of resultatives has to do with C & R's observation that unergative intransitives apparently require a lexical postverbal NP and prohibit PRO:

- (26) a. The tenors sang themselves hoarse.
 b. *The tenors sang hoarse.
- (27) a. Joggers often run themselves sick.
 b. *Joggers often run sick.

Assuming that such examples have the following structure:



⁶ It should be noted, however, that my analysis raises questions concerning the proper formulation of the LBSC, since all objects, whether D-structure or derived, are in [Spec, V], and are therefore left branches. Strictly speaking, then, extraction of a subpart of any object should be ruled out by the LBSC. Perhaps prohibiting extraction from any left branch is simply too general. But whatever the status of the LBSC might turn out to be, the extraction facts cited by C & R in support of a ternary analysis follow equally well from the revised hybrid analysis proposed here.



there is apparently nothing to prevent either a raising structure or a control structure, leading C & R to conclude that the SC analysis requires an extra stipulation arbitrarily ruling out structures of the form (28b). The ternary analysis, in contrast, can rule out (28b), while allowing (28a), by adopting a mutual c-command or m-command condition on predication.

Here I shall argue that C & R's observations are simply empirically incorrect. First of all, there are many languages that do allow structures of the form (28b). In Chinese, for example, structures such as (28a) and (28b) are regularly in free variation, exactly as the SC theory predicts:

- (29) a. Fanjin xiao-feng-le.
F. laugh-insane-asp
'Fanjin laughed to the extent of becoming mad.'
- b. Xiaochou tiao-fan-le.
clown jump-bored-asp
'The clown jumped (so long that he got) bored.'

Furthermore, I believe that it is possible even in English to find examples that are most plausibly analyzed as instances of the supposedly illicit structure (28b). Thus, consider examples such as the following:

- (30) a. John blushed (*himself/*Mary) scarlet/a deep shade of pink/to the roots of his hair.
b. Mary struggled (*herself) free/out (of her bonds).
c. The horse galloped (*itself) clear (of the fire)/away (from the fire).

The verb *blush* is clearly unergative (cf. **Mary blushed John (scarlet)*); it can take a resultative complement with either an AP, NP or PP; and it prohibits a lexical subject. Now the shoe is on the other foot: the Ternary Analysis is unable to account for the data in (30), while the modified binary analysis predicts the existence of such examples. The only thing special that needs to be said about English is that some verbs (e.g., *sing*) select resultative raising complements, while others (e.g., *blush*) select resultative control complements. But this is no stranger than the fact that some verbs (e.g., *believe*) select infinitival raising complements, while others (e.g., *try*) select infinitival control complements.

I conclude this section by showing briefly that certain other control facts that C & R argue can only be explained in terms of a mutual c- or m-command condition on predication in a ternary structure can be explained equally well by the binary hybrid analysis proposed here. Consider first the fact that the subject of a resultative predicate cannot be contained in a PP:

- (31) a. The winemakers stomped (*on) the grapes flat.
b. The professor lectured (*to) the class into a stupor.

C & R argue that the Hybrid Analysis requires a special condition on control stipulating that an object of a preposition cannot control the PRO subject of a SC. In fact, no special condition at all is required to rule out such examples. There are two possible structures to consider. Suppose first that the PP is in [Spec, V]:

- (32) [PrP the winemakers stomped_i [VP [PP on the grapes_j] [t_i [PrP PRO_j flat]]]]

In this case, the structure is ruled out by the standard c-command condition on control. Such a condition is needed independently to rule out control of the PRO in a depictive SC complement from within a PP and also to rule out control of infinitive complements from within a PP:

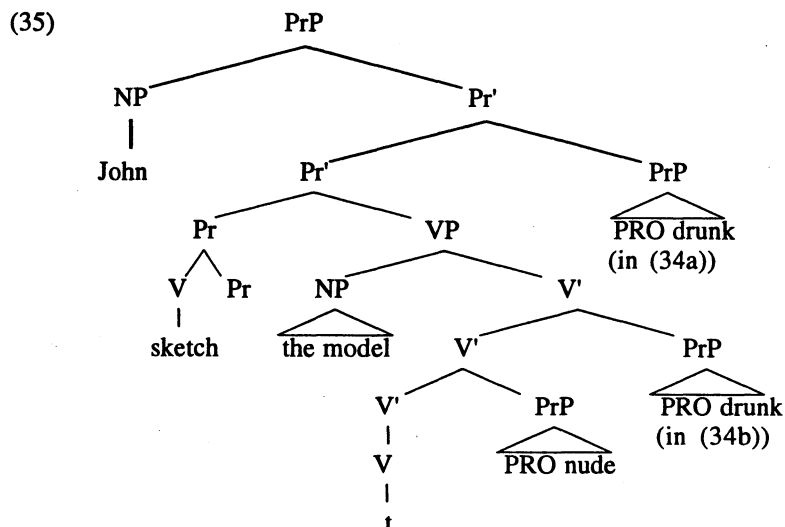
- (33) a. The lion gnawed (*on) the bone raw.
b. *John vowed to Mary to leave.

The second possibility is that the PP is a complement of V. In that case also, examples such as those in (31) are ruled out by the usual c-command condition, if it is assumed that the SC complement is a V'-adjunct. If, on the other hand, the SC complement is itself a complement, then they are ruled out either by the c-command condition on control or by the condition that all syntactic structure is binary branching.

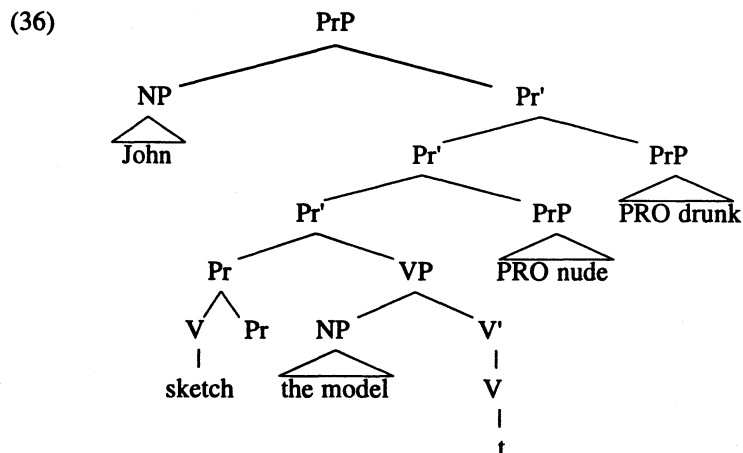
Consider next the data summarized in (34)(C & R's (120)):

- (34) a. John sketched the model_i_j [nude]_i [drunk as a skunk]_j.
b. John_i sketched the model_j [nude]_j [drunk as a skunk]_i.
c. John_i_j sketched the model [nude]_i [drunk as a skunk]_j.
d. *John_i sketched the model_j [nude]_i [drunk as a skunk]_j.

What this shows is that given two depictives, both may be *subject-oriented*; both may be *object-oriented*; the inner one may be *object-oriented* and the outer one *subject-oriented*; but the inner one may not be *subject-oriented* and the outer one *object-oriented*. The theory proposed here provides a straightforward account of these facts in terms of the usual assumption that PRO is controlled by the nearest c-commanding antecedent. I assume that *object-oriented* depictives are V'-adjoined PrPs with a PRO subject and that *subject-oriented* depictives are Pr'-adjoined PrPs with a PRO subject. The facts can then be handled as follows. In (34a), shown in (35), the nearest c-commanding antecedent of both *PRO nude* and *PRO drunk* is the object *the model*. In (34b), also shown in (35), the nearest c-commanding antecedent of *PRO nude* is the object *the model*, while the nearest c-commanding antecedent of *PRO drunk* is the subject *John*.



In (34c), shown in (36), the nearest c-commanding antecedent of both *PRO nude* and *PRO drunk* is the subject *John*. To get (34d), *PRO drunk* would have to be both c-commanded by *the model* and to the right of *PRO nude*, an impossible configuration.



Hence all the facts can be accounted for under standard assumptions about control.

3.6. Summary

I have shown that all of the arguments put forward by C & R in support of the Ternary Analysis and against the Hybrid SC Analysis are inapplicable to the modified binary SC analysis proposed in Bowers (1993). The proposed binary analysis does not lead, for example, to contradictory barrierhood requirements for PrP, nor does it lead to wrong predictions regarding extraction of subparts of the postverbal NP in any instance. Not only are C & R's arguments inapplicable, but in many cases there are strong counterarguments against the ternary analysis and in support of the proposed version of the binary analysis. It has been shown, for instance, that a moved *wh*-resultative phrase cannot be just the lexical result-XP, but rather must be the whole PrP containing it,

arguing against their view that the lexical XP is a sister of V. Likewise, not only can all the facts of control be explained equally well by the standard c-command condition, given the revised binary SC analysis proposed here, but the special properties of control in unergative resultatives actually argue against their claim that predication is best explained in terms of a mutual c- or m-command condition on ternary structures and in support of the standard view. Before drawing any general conclusions, however, I shall first discuss a number of further arguments against the ternary analysis.

4. Arguments Against the Ternary Analysis of Resultatives

In this section I show that a number of the arguments in Bowers (1993) in support of a SC analysis of predication apply equally well to resultatives.

4.1. Conjoined Structures

It is quite generally the case that ATB extraction of the verb from a conjoined VP is possible, producing examples such as the following:

- (37) a. Mary considers John a fool and Bill a wimp.
 b. Sue will put the books on the table and the records on the chair.
 c. You eat the fish raw and the beef cooked.

Such structures are impossible to generate under a ternary analysis of the VP, but are straightforwardly analyzable under the binary PrP analysis of predication proposed here. Exactly the same argument can be applied to both transitive and intransitive resultatives:

- (38) a. The gardener watered_i [VP [VP the tulips_j t_i [PrP PRO_j flat]] and [VP the zinnias_k t_i [PrP PRO_k bare]]].
 b. Joggers tend to run_i [VP [VP their Nikes_j t_i [PrP t_j threadbare]] and [VP their Air Jordans_k t_i [PrP t_k flat]]].

Independent support for the claim that the object and its resultative complement constitute a constituent can also be derived from RNR sentences such as the following:

- (39) a. John watered and Bill mowed the tulips flat.
 b. Mary ran and Sue walked her Nikes threadbare.

Finally, it is apparently possible to conjoin resultatives that belong to different categories:

- (40) a. She pounded the dough [AP flat as a pancake] and [pp into the shape of a heart].
 b. They ran their sneakers [AP threadbare] and [NP a dingy shade of gray].

Again, such structures are impossible to generate under a ternary analysis, but are straightforwardly analyzable as instances of a conjoined PrP or Pr':

- (41) She pounded_i [VP the dough_j t_i [PrP PRO_j [Pr'[Pr' e [AP flat as a pancake]] and [Pr' e [pp into the shape of a heart]]]]]

4.2. Quantifier Floating

It is shown in Bowers (1993) that the distribution of floated quantifiers in postverbal position in English can best be explained under the assumption that the floated quantifier

is adjoined to a PrP with a PRO or trace subject. The position of floated quantifiers in transitive and intransitive resultatives provides further support for this analysis and at the same time confirms the correctness of a binary analysis of resultatives:

- (42) a. The gardener watered_i [VP the tulips; t_i [PrP all [PrP PRO; flat]]].
 b. The jogger ran_i [VP his Nikes; t_i [PrP both [PrP t_i threadbare]]]

Under a ternary analysis of resultatives, in contrast, there is no principled way of explaining why floated quantifiers are impossible when there is no SC complement following the object:

- (43) *The gardener watered the tulips all.

Suppose we were to assume, as a possible alternative, that the quantifier attaches directly to the resultative AP:

- (44) She [VP pounded the cookies [AP both [AP flat]]]

it would then be difficult to explain why, for example, such APs cannot appear as prenominal modifiers:

- (45) *the both flat cookies

In contrast, these facts follow automatically from the analysis of resultatives proposed here.

5. Conclusion

If the Ternary Analysis proposed by C & R were correct, we would be forced to the conclusion that just because a subject and predicate form a semantic unit, it is not necessarily the case that they form a corresponding constituent in the syntax. Nor would it be the case that they correspond to a single argument position in the θ -grid of the resultative verb. The consequence, as they observe, would be "a lack of isomorphism between semantic structure and D-structure on the one hand and between semantic structure and Argument Structure on the other." At the same time, the ternary analysis would make it impossible to uphold the θ -criterion in its strongest form. Specifically, it would not be "the case that every sister of V is represented as an argument at the level of AS." Furthermore, it would be possible for a single NP to receive more than one θ -role. In short, acceptance of the ternary analysis would require that we accept a significant weakening of the relation between syntax and argument structure, between syntax and semantics, and between argument structure and semantics. It also entails, of course, giving up the hypothesis that all branching in the syntax is binary

I have argued, contrary to C & R, that the ternary analysis is wrong. I have proposed instead a binary version of what they term the "hybrid" SC analysis. This analysis, in contrast to theirs, makes it possible to maintain a virtually complete isomorphism between syntax, argument structure and semantics. Whenever a subject and predicate form a semantic unit, there is a corresponding constituent in the syntax, namely, PrP. This constituent in turn corresponds to a single argument position in the θ -grid of a verb (or to a single adjunct position, in the case of 'depictive' SCs). Furthermore, the θ -criterion can be maintained in its strongest form. Specifically, every chain is assigned one and only one θ -role. Thus, it is not possible for a single chain to receive more than one θ -role. Nor is

it possible for an argument position in the syntax (unless it is part of a chain) to lack a corresponding θ -role.

Clearly, the binary analysis of resultatives that I have proposed makes it possible to maintain a far more restrictive theory of grammar than the ternary analysis of C & R. If my theory is correct, the mapping between syntax, argument structure and semantics is quite transparent, meaning that a child attempting to learn a natural language has to learn virtually nothing concerning mapping between semantics, argument structure and syntax. Under the ternary theory, in contrast, the mapping is quite opaque in certain respects, since the overt syntax need not correspond directly to the argument structure and semantics or vice-versa. These non-transparent aspects of the mapping relation would then have to be learned inductively somehow. All other things being equal, a more restrictive theory of grammar is preferable to a less restrictive theory, since the former is more likely than the latter to contribute to an explanation of the fundamental problem of language acquisition.

I conclude by asking, with regard to the particular properties of resultative constructions, whether the proposed theory might provide a basis for explaining the specific 'resultative' meaning of the PrP complement in these constructions, as opposed to the 'depictive' meaning found in adjunct clauses. Concretely, can the two interpretations of a sentence such as *they raced the horses sweaty*, namely, "they raced the horses until they were sweaty" vs. "they raced the horses while they were sweaty", be derived in a principled way from the representations argued for here? I believe they can. Let's assume that complements are uniformly assigned the θ -role 'goal' in the sense of Gruber (1965), Jackendoff (1972), and others, and that objects are assigned the θ -role 'theme'. It follows that the racing of the horses moves them, in an abstract sense, to a particular goal which in this case is the state of being sweaty: hence the 'resultative' meaning. In contrast, when the PrP *sweaty* is a V'-adjunct, it does not receive a θ -role at all. Instead, it is construed simply as a modifier of the verb *race* and is simultaneously predicated of the theme NP *the horses*, yielding the non-resultative 'depictive' interpretation. I am thus claiming that the structural position of the PrP, together with the meaning assigned to it, jointly determine the meaning of the whole. As confirmation of the correctness of this analysis, note that if another goal phrase is added to the sentence (e.g., *they raced the horses to the barn sweaty*), the resultative interpretation of the PrP is no longer possible, only the depictive one. This result follows automatically from general principles under the binary analysis I have proposed, but would have to be arbitrarily stipulated under the ternary analysis.

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