TOWARD A NONGRAMMATICAL ACCOUNT
OF THEMATIC ROLES

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There has been a renaissance in work on the sensitivity of grammatical
generalizations to such as Agent, Theme, Goal, and Source, referred to here
as THEMATIC ROLES. Our concern in this discussion is to present an approach
to such phenomena which is based on formal semantics and contrast it with
some of the ongoing work on thematic roles. Much of what we have to say
about the particular data we discuss is implicit or explicit in Bach's (1982)
work in so-called English metaphysics. We claim that arguments that some
grammatical phenomenon requires the assumption that thematic roles have
an independent status in linguistic theory, comparable to categories or gram-
matical functions, must be examined carefully. Often the phenomenon
so analyzed may be better explained by generalizations about the entail-
ments and presuppositions of verbs and reasoning from general principles
of human action.

We begin with some comments about some of the different positions
being taken on thematic roles as a preparation for the presentation of our
position. The body of this article is a discussion of some of the data in Nishigauchi (1984).

1. THE DIACRITIC USE OF $\theta$-ROLES

It is not too controversial to claim that the rise of interest in thematic roles in the government-binding (GB) community is due to the introduction (Chomsky, 1981) of the $\theta$-theory, which is not claimed to be a substantive theory of thematic relations. Despite Chomsky’s (p. 35) invocation of the work of Gruber, Jackendoff, Fillmore, and Davidson and the suggestive use of the $\theta$, the $\theta$-criterion and $\theta$-roles themselves are a principally diacritic theory: What is crucial in their use in the core of GB is whether an argument is assigned a $\theta$-role or not, which limits possible structures and thereby constrains the application of rules.

The theory assumes that individual verbs have a $\theta$-grid, a list of $\theta$-roles all of which must be assigned to argument positions, one-to-one in accordance with the $\theta$-criterion. As Chomsky (1981, p. 139) notes, the $\theta$-Criterion construed as restricting assignment of substantive thematic roles is not obviously correct. It is possible to use the criterion in this diacritical way, but it seems to us that in any serious attempt to bring the range of phenomena discussed in the literature under the general topic of thematic roles or relations, the $\theta$-criterion and $\theta$-grids must be revised.¹

These comments are not the preface to a longer critique of the $\theta$-theory of GB, though that would be an interesting debate, but rather are intended to emphasize the word thematic in the title in contrast to theta. We are interested in generalizations which are claimed to require reference to particular thematic roles and not those which can be stated in terms of whether or not some role is assigned. In particular, we are concerned with the semantic content of such roles.

2. ARE THEMATIC ROLES IN THE WORLD OR THE GRAMMAR?

Our position on this question is that the phenomena which purport to show that thematic roles are relevant to the grammar have their ultimate etiology in facts about the world. As an illustration of this consider the sentences in (1).

1 Culicover and Wilkins (1986, p. 123) discuss one way of revising it under a theory which makes substantive use of thematic roles.

(1) a. Fido chased Felix.
   b. Felix was chased by Fido.

It is a commonplace that (1a) and (1b) have different subjects, Fido in (1a) and Felix in (1b), but the two sentences have the same agent; Fido. What is usually glossed over is the use/mention difference here. The only sense in which it is reasonable to think of the subject NP of (1a) as the Agent is the sense in which it is a shorthand for saying that the object (in the world) referred to by the subject is the Agent in the action described by the sentence. What makes Fido an Agent in the event described by (1a) and (1b) is information about Fido and his role in the event, not about the grammatical category or function of anything in the sentence. The lexical meaning of the verb chase is such that in order for a situation to be described by it, certain things must be true of Fido. That is, the meaning of the verb chase is such that certain things are entailed or presupposed about Fido qua dog. For an event to count as an event of Fido chasing Felix, Fido must be moving with an intention of catching Felix and Felix must be moving away from Fido. If one wishes to associate the term agent with one of the two participants, it is reasonable that it be with Fido rather than Felix, because it is Fido’s intentions that are crucial to the event’s being a chase (rather than, say, a fleeing-from). It is our view that the thematic role associated with Fido is the set of entailments concerning Fido which the lexical meaning of the verb chase enforce, and that role names like agent, patient, source, goal, and theme are used as names for types of such sets of entailments.

This view of thematic roles does not commit us to the idea that they are discrete, in that there is a limited set of thematic roles which can be defined so as to hold consistently across verbs. It is possible that if one were to catalog all of the entailments associated with the arguments of predicates and then to consider the intersection of those entailments for all of the arguments which are called “Agents,” some nonempty set of entailments would result.² We doubt that such a fixed set of roles could be defined in this way.

This issue is important in clarifying the question of whether thematic roles are to be accorded theoretical significance in linguistic theory independent of grammatical relations and lexical semantics. If there is such a fixed set of roles, it can be added to the vocabulary for stating grammatical generalizations. Principles which make reference to these roles lose their generality when further distinctions among role types must be drawn, calling into question their theoretical independance of the lexical semantics of individual verbs.

For example, consider the generalization about the control of the empty NP of a purpose clause proposed in Jones (1985a, p. 114).³

² In the terms of Dowty (1988), this is the question of whether there is a set of l-thematic role types to which grammatical generalizations make reference.

³ Jones (this volume) addresses this issue more directly.
(2) S[subject-gap] P[urpose] C[auses] must be controlled by a (subsequently) possible Agent.
O[bject-gap] PC must be controlled by a (subsequently) possible Patient. [Emphasis added]

Assume that (2) represents a true generalization which constrains the construal of the gap in a purpose clause. Does it provide support for according to Agent and Patient some theoretical status independent of the semantics of the purpose clause construction and the verbs which allow it? It might, if the italicized parts of (2) could be replaced by the unqualified use of the role name without altering role assignments made by matrix or embedded predicates. But, as Jones takes pains to point out, only the qualified version in (2) is possibly true.

Our suspicion is that in fact proposed grammatical generalizations which mention thematic roles, when taken together, do not produce a small set of consistently applicable role names. To establish this point in detail would require more than we can put into this brief article; hence the words Toward a in the title. Here we discuss some of the data dealt with in Nishigauchi (1984), the burden of which is that control of the empty category PRO is established in some cases by reference to a hierarchy of thematic roles in the sense of Jackendoff (1972, p. 43).

3. NISHIGAUCHI'S HIERARCHY OF RELATIONS IN CONTROL

We begin by developing Nishigauchi's analysis of thematic control cases (infinitival relatives, purpose clauses, and infinitival indirect questions) step by step, showing at each stage how we believe the control generalizations in question follow from a theory of human action and the semantics of the verbs involved, and also pointing out additional data in some cases which seem consistent with our view of thematic roles but not with his.

Nishigauchi's starting point is the hypothesis, proposed in Jackendoff (1972) and Grimshaw (1975), that the controller of the null subject in these constructions is always the NP bearing the Goal role. As (3) (= Nishigauchi's (4a,b)) shows, the structural position of the controller is not constant, but the Goal role often is; Susan is Goal in the event described by (3a), and John is Goal in the event described by (3b).

(3) a. Bill bought for Susan, a large flashy car [PRO to drive].
   b. John received from Susan a book [PRO to read].

We suggest that this first fact follows from three things: (a) The semantics of the purpose construction entails that the action described by the infinitive is the purpose for which the action of the main clause was performed. (b) Bach's observation (1982, p. 54) that "a necessary condition for you to do something with an object, or use it to some end ... , is that you have it available, or in your control, or that it be in your 'control space.'" (c) The semantics of the purpose construction is future oriented, i.e., to be performed later than the action of the main clause. Given these three facts, it is only reasonable that the bearer of the Goal role (and only this bearer) can be understood as the missing subject of the purpose clause, as the Goal is, by definition, the person in whose possession the Theme resides when the actions entailed by the main clause are over, and therefore the person in whose possession the referent of the Theme will be at the later time that the purpose clause refers to.

Nishigauchi's first qualification of the Jackendoff–Grimshaw hypothesis is that in cases like (4) (= (8)), the controller of the null subject is not Goal, but Location, and in fact there is no Goal here (because these sentences are stative, not active).

(4) a. John, owns a car [PRO to carry his belongings in].
   b. Man, retains [the ability [PRO to deceive himself]]

Our explanation for (4a) is the same as for (3): it is who has the car (and therefore who can use it to some end) that is relevant there; the fact that the object undergoes no change here but does in (3) is of no consequence. For (4b), our explanation is an equally common sense one: It is asserted that man has the ability in question, and one's abilities can only be characterized in terms of what one can do oneself, not in terms of what others can do. For such cases, Nishigauchi modifies his principle to say that either Goal or Location must be the controller. He assumes that the subjects of own and retain are not Goals but Locations, and further that every sentence will have either a Goal or a Location, but not both of these thematic roles.

Nishigauchi's second supplemental condition is prompted by cases like (5) (= Nishigauchi's (10)–(12)).

(5) a. They deprived Mary, of the money [PRO to pay her rent with].
   b. We soon forgot that defiance cost us, the ability [PRO to speak the language of animals].
   c. They freed Mary, of an obligation [PRO to fulfill for herself].
   d. It cured Mary, of the desire [PRO to kill herself].

In these cases (all infinitival relatives), the controller is not Goal but Source; in fact there is no Goal role specified by the sentence (it is not specified what happens to the money, ability, obligation, and desire after Mary ceases to have them). Therefore Nishigauchi adds Source as one of the roles that can exercise

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4 This suspicion seems to be shared by Culicover and Wilkins (1986, note 11), despite their use of the classical set of roles as elements of the vocabulary of grammatical theory.
thematic control. It must be specified, however, that Source may be chosen only if there is no Goal specified in the sentence, because examples like (3) have a Source as well as a Goal.

The notion of using an object is still the determining factor of control in the first of these examples, though it is entailed or presupposed in a more indirect way than before. Part of the semantics of deprive is that the object removed from the purview of its possessor is one to which the possessor attaches some value, i.e., it can be put to some desirable use. It is hard to make sense of the assertion that someone deprived Mary of the empty milk carton she threw in her trash can, or of her hopelessly irreparable can opener, because it is difficult to imagine what purpose or value such objects could have had for her. The infinitival relative in (5a), by its semantic nature, must characterize a purpose to which the money is, at some point, to be put, and Mary is both mentioned in the sentence and entailed to be someone who would have a purpose for it (before it was taken from her). In the remaining three cases, the infinitives are noun complements (to ability, obligation, and desire), and the semantics of cost, free, and cure is such as to presuppose that Mary (or us in (5b)) had these properties at one time. But to characterize an ability as "to do something" is only intelligibly understood as saying that if one has that ability, one can do it oneself, not that someone else can do it, and similarly for obligation and desire.

Given that someone is asserted to have had these qualities, it is this former possessor of them that must be understood as subject of the infinitive, and no one else.

Though Nishigauchi assumed that no verb could ambiguously allow either Source or Goal as controller, we note that rob permits just this ambiguity:

(6) The administration's tax plan robbed people of money to pay the interest with.

This ambiguity is brought out by modifying (6) as in (7a) or (7b).

(7) a. The administration's tax plan robbed people of money to pay the interest on their home mortgages with.

b. The administration's tax plan robbed people of money to pay the interest on the national debt with.

The reason that the appearance of this ambiguity is in accord with our position is that the semantics of rob entails both that the former owner attached some value to the object stolen (i.e., would have been able to put it to some purpose) and that the thief would now do so as well. It is for this reason that it is difficult to understand the assertion that someone robbed Mary of the empty milk carton she put in her trash can; how could either Mary or the thief care about an empty milk carton? As the existence of some purpose for the stolen object is implied on the part of both participants, both are reasonable controllers for the infinitive's subject.

Note, on the other hand, the difficulty that such an ambiguity presents for Nishigauchi's analysis in terms of thematic role assignments, since, as he points out, it is a consequence of his general theory that any verb will uniquely assign each of its thematic roles to some NP.

Another condition which Nishigauchi adds is necessary because of cases like (8).

(8) ? John received a book from a man [PRO to talk to].

As he observes, this is difficult to interpret, and if interpretable at all, must have a generic interpretation for the missing subject. Yet his analysis, at this point, would predict John to be the controller, because John bears the role of Goal. He concludes that the relevant fact here is that the NP of which the infinitive is a part (on the infinitival relative analysis), namely a man, is not the Theme of the sentence, whereas the corresponding NP is the Theme in all cases discussed up to this point. So for control of a subjectless infinitive to be thematically determined, the infinitival must either be part of the theme constituent or else be predicated of it (in the sense of Williams, 1980). Noun complements and infinitival relatives are instances of the former; purpose clauses are instances of the latter.

We believe that this new condition also is consistent with our position. The NP bearing the Theme role is, by definition, the object whose ownership (or location in a general sense) is at issue. It is asserted or presupposed to be changed from the Source or to the Goal, or else to stay in the ownership of the Location in the case of a stative sentence. A purpose clause, by definition, modifies the NP denoting the object which is used, rather than an NP which might name the person who owns, acquires, or loses this object. An infinitival relative, likewise, restricts the reference of its head via a purpose it can serve or goal it can satisfy (The man to see is John, A book to read is on the table), and, as a matter of human action, the referents of such NPs are not Goals or Sources.

To summarize Nishigauchi's analysis to this point, he says that an argument \( \beta \) can control a PRO \( \alpha \) in a certain domain if (a) \( \alpha \) is the Theme or else is predicated of the Theme in that domain, and (b) \( \beta \) bears the highest thematic relation on the primary location hierarchy in that domain, where this hierarchy is one that orders Goal above Source and Location.

A final complication for Nishigauchi is provided by (9a,b).

(9) a. John bought a mirror [PRO to look at himself in].

b. John bought Mary a mirror [PRO to look at herself / *himself in].
The NP John is Goal in (9a), and does, as expected, control the PRO. But if this were the correct analysis, we would expect that same NP to remain the Goal in (9b). Yet not it but rather the NP Mary controls the PRO there. Nishigauchi suggests that there are really two transitions in (9b), first a transition of the mirror from the seller to John (with John as Goal), and then a transition of the mirror from John to Mary (with Mary then as Goal); he concludes that it is the final location of the Theme that determines the controller in such cases. We note, however, that this position about (9b) seems to depart radically from Nishigauchi’s basic view that thematic role assignment (as defined in the GB theory) determines controller, since, as already mentioned above, it is a basic tenet of that theory that only one NP may be given a particular thematic role in one sentence; Nishigauchi does not offer any way of resolving his apparently contradictory claims that both John and Mary are assigned the Goal roles in (9b).

On the other hand, (9b) is, we feel, perfectly consistent with our belief that the verb’s entailments and facts about human actions always determine the controller: If John bought Mary the mirror, then Mary, not John, is to end up in possession of it, so only she will be in a position to use it for some purpose. To interpret the sentence (with himself substituted for herself) as saying that he intends the mirror for Mary as well as for the purpose of viewing himself in it is to ascribe contradictory purposes to John, and this is apparently not consistent with the uniqueness of purpose implied by all these constructions, a fact which presumably also rules out *John bought a sponge to take a bath with to wash the car with.

Furthermore, there appear to be at least a few examples in which the intended possession of the Theme by one person is not inconsistent with its use by a different person, but rather, this use indirectly benefits the person who possesses it. One such case would be (10a), when used in the special context established by (10a):

(10) a. In recent weeks, John has been spending the night at Mary’s house quite regularly, and every time he has done this he has used Mary’s toothbrush to brush his teeth. This annoyed Mary a great deal.

b. So to satisfy Mary, John bought her a second toothbrush to brush his teeth with when he stayed at her house.

The reading of (10b) we are interested in is the one in which John uses the toothbrush to brush his own teeth (i.e., not one in which Mary brushes John’s teeth), and we find this reading quite natural for (10b). We believe that it is our common understanding of how the use of an instrument by one person can benefit a different person who owns it that saves this interpretation from the inconsistency that prevents the subject-controlled reading of (9b). On the other hand, this reading of (10b) contradicts Nishigauchi’s claim that it is always the final possessor (location) of the theme that controls the PRO in a purpose clause or infinitival relative.

4. CASES OF OBLIGATORY CONTROL

We next turn to some examples of obligatory control, i.e., the subcategorized infinitival arguments of verbs like promise and persuade. While we argue that the control pattern of these infinitives complies with the same principles of rational actions and verb entailments as do the Nishigauchi thematic control cases already discussed, we believe that, in addition, these control relations have been "grammaticalized." That is, they have become a learned part of the grammar (more exactly, of the semantic interpretation of lexical items and/or compositional interpretive principles). This is similar to the analysis given to Neg Raising in Horn (1978) and Horn and Bayer (1984). They argue that Neg Raising, while having its origin in conversational implicature, has nevertheless acquired the status of a grammaticalized process. It is therefore interesting to ask the following questions: Can the intra- and extrasentential context be manipulated in these grammaticized cases in such a way that a controller different from the normal obligatory controller of the infinitive becomes the more natural controller according to these principles of action and verb entailments? If so, what interpretation(s) are possible when this happens? It turns out that the rational principles of control can override the grammatical determination of control in some cases, though varying degrees of reduced acceptability result from this conflict.

Let us first consider some entailments and presuppositions that are constant across all the subcategorization frames for promise (and some related verbs); purely for expository convenience (and without any analytical significance), we label the arguments A, B, and C.

(11) A B C


b. Mary promised John to leave.

c. Mary promised John a book.

d. Mary promised John that she would leave at 10 P.M.

e. Mary promised John that he would leave at 10 P.M.

As the final revisions to this article were being made, Comrie (1985) came to our attention. This paper arrives at a similar conclusion about these cases and contains much additional interesting data which may further support the conclusion.
In each case, we suggest, the referent of A is entailed (or presupposed) to have some control (in a nonlinguistic sense) over C. That is, Mary cannot offer, give, or promise John a book unless she has (or eventually will have, in the case of promise) a book at her disposal. But in (11c), by the same token, the possibility of leaving must be available to Mary; it is this fact which makes examples like (12) anomalous.

(12) ??Mary promised John to be five feet tall.

Thus, we propose, the fact that the subject of promise controls its infinitive complement (rather than its object) is virtually inviolable, given the basic meaning of promise and the facts of human action. We can further see this entailment of promise in examples (11d,e), where no control in the grammatical sense is involved: (11d) meets this condition in an almost trivial way, since whether Mary leaves at 10 P.M. is, normal circumstances, under Mary’s control. But (11e) reveals this entailment of promise in a more striking way, as we must imagine a more unusual circumstance in which Mary is in a position to determine whether John leaves at 10 P.M. or not, in order to understand (11e) as describing a felicitous promise. A second entailment common to all these examples is that the referent of B has some interest—positive or negative—in C, is not affectively neutral with respect to it. (In the case of promise, we would say “positively disposed toward C,” except that promise is also used in colloquial speech to describe a kind of threat, as in (13a).)

(13) a. I promise you that if you do that one more time, you’ll stay in your room until I tell you you can leave it.
   b. I promised John that he would be 5 feet tall.

Moreover, it is entailed that B would not ordinarily have C without A’s intervention (and for this reason it would be odd to say (13b) in the case where he is 5 feet tall). In the case of (11a,b) of course, the nonneutral disposition of B is toward possessing the object C. In (11c–e), there is a nonneutral disposition toward making the state of affairs described by C true.

Let us turn our attention now to the much-discussed (Hust and Brame, 1976, p. 255; Bresnan, 1982d, pp. 403–405) example (14b) and its (slightly less acceptable) active counterpart (14a). ⁶

(14) a. Someone promised John to be allowed to leave.
   b. John was promised to be allowed to leave.

⁶ The explanation given in Bresnan (1982d) is very similar to the one given here, though we believe that there are some potential differences. The LFG explanation depends upon the distinction between closed COMPs and XCOMP s and a particular linguistic theory of control. The account given here makes use only of a nongrammatical notion of consistency of entailments.

These examples, of course, are noteworthy because the only sensible interpretation we can assign to them is one in which the complement of promise is controlled by its object (in (14a), or by its subject in the passive (14b)), rather than by its subject (in (14a), or by its unmentioned agent in (14b)). We propose that the unexpected acceptability of such examples is due to the fact that the thematic entailment relations for promise discussed above are preserved in (14), even though the grammaticized control relation is not. That is, in (14a), the A-argument of promise is understood as the agent of the situation described by the complement to be allowed to leave, and therefore A can be understood to have control (in the nonlinguistic sense) of C, i.e., of the state of affairs in which John has permission to leave. Also, we can understand that B would not have C without A’s intervention, and that C is a state toward which B might reasonably be favorably or unfavorably disposed, rather than neutral.

It is less clear why (14b) should be more acceptable than (14a). We hypothesize that the object-controlled reading of (14b) has, in addition to its sensibleness in terms of generalizations about human action, a grammatical factor in favor of it, namely, whatever is responsible for Visser’s generalization: “A passive transform is only possible when the complement relates to the immediately preceding (pro)noun” (Visser, 1973, 3:2:2118). Given that (14b) obviously is passive, Visser’s generalization implies that we are dealing with an object-control verb (whereas active sentences with infinitive complements are sometimes object controlled, sometimes not). (14a) does not benefit from the effect of Visser’s generalization and is thus less palatable. Another factor that contributes to the acceptability of (14) is the passive verb be allowed in the complement, as is witnessed by the lesser acceptability of (15) vis-a-vis (14).

(15) a. ??Someone promised John [PRO to be given a ride].
   b. John was promised [PRO to be given a ride].

We suspect that be allowed in the complement of (14) stresses the responsibility of the unmentioned giver of this permission for the truth of John is allowed to leave. There is clearly an entailment that argument A has control over C, in spite of the fact that A is not its syntactic controller.

Another verb that (for some speakers, at least) vacillates between subject and object control is ask. In addition to its familiar object-controlled interpretation (16a), some speakers allow the subject-controlled interpretation (16b).

(16) a. Mary asked John [PRO to shave himself].
   b. Johnny asked his mother [PRO to go to the movies].

Note that there is a parallel between the entailment relations in (16) and (17).
(17) a. Johnny asked his mother for permission to go to the movies.
    b. Johnny asked his mother for a chocolate cookie.

In all these cases, B is entailed to have (nonlinguistic) control
over the C argument, and in all these cases, A stands to benefit from C if the
request is fulfilled. But in (16b) there is syntactic control of C by A, while in
(16a) there is syntactic control of C by B. The difference in the two meanings
of ask responsible for this is between requesting permission to do something
yourself, (16a), and requesting that someone else do something which benefits
you, (16b).

We will now consider whether Visser's generalization and other manipulations of
the examples will affect the acceptability of these two interpretations in a way
parallel, mutatis mutandis, to promise. If we passivize (16b), we should expect
the interpretation in which Johnny goes to the movies to vanish, and indeed
it does.

(18) a. *Johnny's mother was asked [PRO, to go to the movies].
    b. Johnny's mother was asked [PRO, to go to the movies].

If we change the complement of (16b) to one where it is implausible that B
would have (nonlinguistic) control over it, the sentence is anomalous.

(19) *Johnny asked his mother [PRO, to behave himself].

Note that this is so even though himself prejudices the reading in favor of
subject control. As we saw in the case of promise (in (14)), when entailments
and human action principles come in conflict with grammatical principles, it is
the former that win out. Thus (19) is bad, and (14) is good.

As a final experiment in the interaction of grammatical control and non-
linguistic thematic control, it is natural to ask whether this kind of reversal
of grammatical control can be produced with classic object-control verbs,
such as persuade and convince. Indeed it can, as (20b) indicates, given the
context (20a).

(20) a. John, a prisoner, was reviewed today by the parole board to
determine whether he was eligible for an early parole. A number
of behavior problems on his record argued against his release.
    b. However, he made such a favorable impression in his interview that
he finally convinced the parole board to be allowed to take an early
parole after all.

Here, the passive to be allowed again permits the complement to be
understood as describing a state of affairs that is in the nonlinguistic control of
the parole board, though the syntactic controller is thereby made to be the
subject, contrary to the normal behavior of convince. The example sounds

TOWARD A NONGRAMMATICAL ACCOUNT OF THEMATIC ROLES

fairly acceptable to us, at least as acceptable as (14b). As Visser's generalization
predicts, such a subject-controlled interpretation is impossible in the passive:

(21) *He made such a favorable impression that the parole board was
    convinced by him, [PRO, to be allowed to take an early parole].

It is possible, of course, if we replace the passive complement with active one:

(22) He made such a favorable impression that the parole board, was
    convinced [PRO, to allow him to take an early parole].

5. CONCLUSION

To reiterate our main point, we believe that principles of control of subjectless
infinitives are ultimately determined by entailments of verbs together with principles
of human action that exist quite apart from language. This is so both of Nishigauchi's
cases of so-called thematic control, and, to a certain extent, of obligatory control as
well. Since thematic roles are properly understood, in our view, as merely labels for
clusters of verb entailments and presuppositions, it is not surprising that principles
of control appear to be describable to a significant extent in terms of discrete θ-roles
viewed as a part of grammatical theory. However, closer inspection shows that these
correlations of thematic roles with grammar break down in certain cases, while the
explanation of control in terms of verb entailments and human action theory
continues to describe them correctly. This implies to us that a theory of
grammar—and the compositional semantic rules that interpret grammatical
structures—does not really miss any important generalizations by failing to
include θ-roles as grammatical notions, for the true locus of these
generalizations lies elsewhere.

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