Tense-Binding and the Construal of Present Tense

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This study examines the contributions of INFL, VP and CP to logical forms relevant to the construal of simple tenses in Spanish and English. Hornstein (1981) and Enç (1987) have argued for a "relational" approach to tense construal. Unlike Tense Logic approaches, relational frameworks analyze times as "entities" in the grammars of individual languages, and propose to express certain generalizations bearing on temporal construal as deriving from grammatical principles of the LF component. Informally stated, the "relational" character of construal means that tense is interpreted as involving a relation between times. For example, the construal of tense for the sentences in (1) can be said to involve a relation between two times, the time of speech and the time of John's singing:[1]

(1)	a. John sang.	(1')	a. Juan cantó.	'J. sang.'[2]
	b. John will sing.		b. Juan cantará.	'J. will sing.'
	c. John is singing.		c. Juan canta.	'J. sings/is singing.'

In (1a.-b.), a precedence relation obtains. In (1a), the time of John's singing precedes the time of speaking, while (1b) the time of speech precedes the time of singing. In (1c), neither time precedes the other. In this study, I will assume the correctness of the "relational" approach to tense construal.

In Zagona (1988) it is proposed that 'Times' are expressed syntactically as TEMPORAL ARGUMENTS of a clause. Motivation for that proposal is presented below in Section 1. The central claim of this study, developed in Section 2, is that the range of readings for simple tenses should be expressed in terms of coreference and disjoint reference between temporal arguments of a clause. The primary argument for this

(1) The evaluation time is often referred to as the "moment of speech", symbolized by S. The evaluated predicate is often referred to as "the time of the event", symbolized by E. It should be noted however that many predicates do not involve the assertion of an event, due sometimes to aspectual properties of the verb ("Fred resembles Bill."), or to modal/tense properties of the clause ("Bill might sing." versus "Ellen is singing."). In the present study, no specific semantic content is attributed to the distinction between S and E. Adopting the approach of Reichenbach (1947), Hornstein (1977) and (1981) assumes an additional time, often referred to as "R" (Reference Point.)

For further discussion of "R", see Zagona (1988) and (1989b).

(2) For considerations of space, English and Spanish examples which are equivalent in relevant respects will be given as in (1) and (1'). That is, the English examples can be taken as glosses of the Spanish examples.

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approach is its ability to predict the availability of "present moment" readings for simple present tense in the Spanish sentence (1'c.) above, versus the absence of this reading in the corresponding English simple present tense ("John sings."). It is shown that the contrast follows from the possibility of satisfying Pinciple A of Binding Theory for temporal arguments in Spanish, resulting in temporal anaphora. Section 3 examines the effects of lexical aspect, focusing specifically on contrasts between interpretations of Activity predicates and of State predicates.

1. Temporal Argument Structure.

This section supports the claim that clauses express temporal argument structure. In other words, the times that are related by Tenses are represented in syntactic structures as two distinct temporal arguments subcategorized by INFL (or more specifically the head of the [+/-Finite] Phrase of a clause).[3] INFL has a temporal theta-grid, and assigns a temporal role to its complement (VP), and a role to its external argument. Following Enç (1987), I will take the external time to be in CP. Thus, a tensed clause is temporally transitive, as illustrated in (2):

(2) $[_{CP}\ Arg_i\ C^\circ\ [_{IP}\ NP\ [_{I'}\ I^\circ\ Arg_j\ (=VP)]]]$

In (2), the specifier of CP contains the temporal "Subject" of the clause, which functions as the evaluation time or "moment of speech" with respect to which the VP is evaluated. The VP is the internal temporal argument. These temporal arguments constitute a complete functional complex, which is subject to Binding Theory, as will be discussed in Section 2.[4]

1.1. VP as an internal temporal argument

The *Barriers* analysis of Chomsky (1986) offers an initial suggestion of the notion that VP is in some sense thematically a true argument of INFL. The analysis of head movement of V-to-INFL is based on this suggestion. Theta-marking of VP by INFL allows head-movement to satisfy ECP. In a structure such as (3),

(3) $[_{IP}\ NP\ [V_i\text{+INFL}]\ [_{VP}\ldots t_i\ldots]]$

the trace of V is properly governed by its antecedent as long as VP is not a barrier to government. It is not a barrier on the assumption that VP is theta-marked by INFL, and once movement takes place, VP is L-marked, so it is not a Blocking Category, hence not a Barrier to antecedent government of the trace.[5]

(3) Zagona (1989b) argues that the Fukui and Speas (1986) partition between lexical and functional categories, which analyzes INFL as a functional category, is in fact more compatible with the present approach, once AGR and [+/-Finite] categories are separate. The AgrP is argued to uniformly exhibit functional properties, while FP exhibits lexical properties. For purposes of exposition, here I will treat these two as an amalgamated head at S-structures in both English and Spanish.

(4) The indexing of the temporal arguments in (2) follows from theta marking, which is assumed to imply assignment of a (temporal) referential index as well as a thematic role, following Stowell (1981), Zubizarreta (1985) and later work. The external argument represented in CP will be assumed to be indexical (in at least matrix clauses), and will be argued to bear the features [+pronominal] [-anaphor].

(5) Once FP and AgrP are separated, this holds of movement to F, thus raising the question of how proper government for 'short movement' —to Agr-O— satisfies ECP. This may be handled in a manner similar to the treatment of X° chains of the *Barriers* analysis. In other words, AGR-O might be analyzed as a base adjunction of VP so that the maximal projection AP does not exclude the governor. The issue does not arise for present discussion, since neither English nor Spanish appears to exhibit short movement effects.

The Barriers proposal is, however, paradoxical, since VP is an argument position for head movement, and yet is a non-argument with respect to adjunction. Thus, a theory-internal argument for analyzing VP as a temporal argument of INFL is that it resolves this paradox, and in fact, may explain its effects. If VP is an argument with respect to the temporal argument structure of the clause, movement of its head is analyzable as A-movement as in Barriers. However, VP is a predicate (i.e., non-argument) with respect to the nominal arguments that it selects.[6]

There is evidence relevant for the construal of tenses which also supports the analysis of VP as a temporal argument. This derives from the analysis of periphrastic aspect, as in perfective clauses such as (4)-(5):

(4) a. Juan ha salido. (=(5a.))
b. Juan habrá salido (a las tres). (=(5.b))
c. Juan ya había salido (cuando llegamos). (=(5.c))

(5) a. John has left.
b. Juan will have left (at 3:00).
c. Juan had already left (when we arrived).

In dialects of Spanish which pattern with English in differentiating preterite and perfect in both Past and Present tenses (cf. French, Italian and Catalan), it is necessary to express two independent sets of temporal relations: (a) the relation between the moment-of-speech and the reference time (=*have*), and (b) the relation between the reference time and the event. Under the present analysis, the treatment of times as syntactic constituents leads to the expectation that the second relation holds independent of the first by virtue of the presence of a second Verb Phrase. The perfective verb *have* is thus understood as a head which also subcategorizes a temporal argument:[7]

(6) INFL $[_{VP}$ have $[_{VP}$ left]]
(Arg_i) (Arg_j)

Analyses which assume that construal is based on syntactic relations, but which do not analyze those relations as involving syntactic constituents, cannot express the generalization that a second temporal relation is possible only where there is a separate syntactic constituent of the type shown in (6). Reducing both tense and aspect features to a single type expressed in INFL predicts that languages express morphologically simple tenses with past-perfect and future-perfect readings with the same prevalence as they exhibit simple tenses. Although such cases do exist, they are not possible either in Spanish or in English.

(6) See Zagona (1988) for discussion of syntactic effects of the dual role of VP. It is argued there that VP requires licensing under both clauses of the Principle of Full Iterpretation, i.e., by Subcategorization and Predication.

(7) The External time S could be assumed to be "raised" from the external argument position of *have* in this case, although I know of no empirical effects of this decision. Notice, however, that unlike auxiliary *be,* perfective *have* must be an immediate complement of INFL. For further discussion of the relation between *have* and INFL see Takezawa (1984).

1.2. The External Temporal Argument.

All frameworks of tense construal assume an evaluation time, which, in the preceding discussion, as is conventional, has been informally referred to as the moment of speech. The point to be made here is that this time should be analyzed as a separate argument in the syntax. As mentioned above, I assume the correctness of relational approaches which analyze tense construal as involving syntactically determined relations, based on the fundamental claim that times are "entities" in languages. Given this assumption, the argument may be stated quite simply: tense relates two times, and those times may be disjoint in reference, as in (7). The temporal arguments for (7) are shown in (8):

(7) John left. (8) $[_{CP}\ Arg_i\ [_{IP}$ John $I^{\circ}\ Arg_j]]$

In order to express the disjointness of the two times in (7), there must be two referential indices present. By analogy with assumptions that hold for nominal argument structure, referential indices are present only by virtue of theta-marking. If "times" are treated as arguments in the syntax, it follows that the two indices represent distinct arguments. It is then expected that each one is initially assigned an independent referential index, so disjoint reference is derived unproblematically.

This conclusion differs from the Tense-Anchoring approach of Enç (1987), where the evaluation time is analyzed as a determiner of a (single) temporal argument of a clause. Weighing against that approach is the observation that the evaluation time does not have the semantic character otherwise associated with determiners. Semantically, a determiner maps a common noun (or property) to a Noun Phrase, which is a referring expression (see, for example, Keenan 1987). Thus, the whole expression, determiner+N', can have reference. This approach correlates with the assumption of X'-Theory that only maximal projections appear in non-head positions of a phrase, and thus only maximal projections will be assigned referential indices when theta-marked. A simple NP, consisting of a determiner plus N' does not contain two independently referring expressions, unless a further instance of Theta-marking occurs.

The central empirical consequence of the present approach is that a tensed clause contains a complete temporal functional complex. As a result, if temporal arguments are subject to binding, the domain within which binding is expected to apply is the clause.[8] I turn to this topic in section 2.

2. The Clause as a Temporal Governing Category.

For the following discussion, I will assume parallel treatments of external nominal and temporal arguments. Following Fukui and Speas (1986), I will assume that subjects may be generated as sisters to a theta-marking X', but they must move to

(8) The Tense-Anchoring analysis permits inter-clausal binding in (i):

(i) John heard that Mary was pregnant.

Under a reading of (i) where Mary's pregnancy holds at the time that John heard about it (referred to as the "simultaneous" reading) Enç analyzes the embedded INFL as bound by the matrix INFL:

(ii) John $PAST_i$ [hear [that [Mary $PAST_i$ [be pregnant]]]]

Under the present analysis, the embedded clause contains a temporal Subject so binding of the embedded VP by anything outside the embedded clause would constitute a violation of Principle A.

the Specifier of a functional head for grammatical licensing. The landing site of this movement is the A-position for purposes of Binding. For the NP subject of a clause, this means that generation under VP is possible (as argued by Koopman and Sportiche 1988), but movement to the Spec of a functional category is necessary for Case assignment. For the temporal subject of a clause, generation as a sister to I' is possible in principle, but movement to the specifier of CP —the functional category for Tense— is necessary in order for the null temporal argument to be either ungoverned or properly governed:[9]

(9) $[_{CP} \quad [_{IP}\ Arg_i\ [_{I'}\ INFL\ Arg_j\ (=VP)]]]$ (D-Structure)

(10) $[_{CP}\ Arg_i\ [_{IP}\ NP\ [_{I'}\ INFL\ Arg_j\ (=VP)]]]$ (S-Structure)

2.1. The Temporal Governing Category

I will assume (11) as the definition of Minimal Governing Category, and Binding as in (12):

(11) Minimal Governing Category: the minimal XP containing *a*, a governor for *a*, and a subject, i.e., a "complete functional complex". (Chomsky 1986b: 169.)

(12) Principle A: An anaphor must be bound in its MGC.
Principle B: A pronominal must be free in its MGC.
Principle C: An r-expression is free (in the domain of the head of its chain).

(13) Bound: coindexed with a c-commanding A-position.

The application of these principles can be illustrated for construal of PAST (preterite) in simple clauses. The preterite Past is never overlapping with the evaluation time, and I will claim that it is a (definite) r-expression, subject to Principle C (for convenience of exposition, I will abbreviate the temporal subject as *T* in examples from now on):

(9) I will assume that CP may bear both nominal and temporal indices, so that in cases of WH-movement, the Spec of CP may be occupied by a phrase bearing nominal features, and still be temporally indexed without conflict. This is illustrated in (i)

(i) a. $[_{CP}\ What_{\{a,i\}}\ did_k\ [John\ t_k\ [_{VP}\ e_i\ [see\ e_i]]]$ b. $[_{CP}\ When_{\{a,i\}}\ did_k\ [John\ t_k\ [_{VP}\ e_i\ [leave\ e_i]]]$

In (ia), the WH-phrase bears the index of its trace and a temporal index. This simply implies that the evaluation time of "which x" is the evaluation time. The variable bound by this operator is included in VP, which is past. In other words, the seeing of x is past, but the operator-variable relation is linked to the evaluation time of the question. In (ib), the construal of *when* is entirely parallel. Since *when* is not a temporal argument, it has no temporal index, and it is syntactically licensed as a nominal-type VP adjunct, presumably by a null preposition following Emonds (1985). The evaluation of *when* is linked to the present, but the variable itself is included within the past time of VP. (Temporally, it picks out a time in the interval of the PAST at which John's leaving occurred.) This predicts that VP itself cannot be WH-moved to the Spec of CP:

(ii) $*What_i$ did they e_i?

implying that VP-Preposing is a Topic structure with a null operator, as argued in Zagona (1988). Notice that *what* can bind a null VP in (iii):

(iii) They said they would leave, $which_i$ they did e_i.

(14) María cantó
$[_{CP}\ T_i\ [NP\ TNS+AGR\ VP_j]]$

(14') Mary sang.
$[_{CP}\ T_i\ [NP\ TNS+AGR\ VP_j]]$

The structures in (14) satisfy Principle C straightforwardly, since VP bears an index that is disjoint from that of the external argument.

The imperfect Past, on the other hand, may be analyzed as an indefinite. It satisfies Principle C as long as it is disjoint from "NOW", but it additionally undergoes QR, adjoining to IP:

(15) María cantaba.
$[_{CP}\ T_i\ [VP_j\ [NP\ TNS+AGR\ e_j]]]$

(15') Mary used to sing.
$[_{CP}\ T_i\ [VP_j\ [NP\ TNS+AGR\ e_j]]]$

The reading provided by the LFs in (15) is of indefinite past instance(s) of singing.[10, 11]

2.2. Temporal Anaphora and Readings of Simple present Tense.

In (16)-(19) are shown the range of readings of the simple present tense for Activity verbs:

(16) FUTURE:
a. María canta mañana.
b. Comemos a las siete.
c. Miramos la televisión esta noche.

(16') FUTURE:
a. Mary sings tomorrow.
b. We eat at 7:00
c. We watch TV tonight.

(17) "DEONTIC MODAL":
¿Qué sabe hacer?
a. Canta.
b. Escribe poesía.
c. Ya anda.

(17') "DEONTIC MODAL":
What can she do?
a. She sings.
b. She writes poetry.
c. She walks already.

(18) GENERIC (Habitual):
a. María canta (siempre).
b. Esa chimenea humea.
c. Come muy poco.

(18') GENERIC (Habitual):
a. Mary (always) sings.
b. That chimney smokes.
c. She eats very little.

(19) PRESENT MOMENT:
a. María canta (en este momento).
b. Comen.
c. Elena mira la televisión.

(19') PRESENT MOMENT:[12]
a. Mary sings (+right now).
b. They eat (+right now).
c. Helen watches TV (*right now).

(10) The past progressive is not construed identically, since it asserts a specific occurrence of the activity during a past interval. I will assume it to be a Past equivalent of the Present periphrastic progressive: ("María estaba cantando cuando entramos". "Mary was singing when we came in".)

(11) Unlike English, Spanish imperfects can be counterfactual, as pointed out by M. Suñer (personal communication):

(i) Juan cantaba, pero le cancelaron la función.
J. sing+imperf., but they cancelled(Pret.) the event on him
J. was to sing, but they cancelled the event on him.

I have no explanation for this, but it seems that it may be related to the availability of deontic, or "root modal" readings with main verbs. (See 2.2)

(12) The adverb *right now* in these examples can have a future reading. The reading that is excluded is the true ongoing-present reading, as is possible in English present progressives such as "Mary is singing right now."

The analysis to be developed claims that Present-tense is not name-like as is the Preterite. Rather, it is underspecified, so that its construal is partially dependent on its binding-theoretic relation to other clausal constituents. This discussion will be primarily concerned with the readings in (18)-(19), which assert the occurrence of an activity in a non-precedence relation with the evaluation time. Before turning to these, let us consider briefly the readings in (16) and (17), which are in a sense non-present readings. The future construal of (16) involves subsequence of the activity to the evaluation time. In Zagona (1989), it is argued that present tense can be construed as future time (as in (16)) if there is a modally construed A-bar binder for it. The readings in (17) do not assert an event at all, but rather the ability of the subject to perform the specified activity. I return to the latter briefly below in connection with the Generic present. For purposes of exposition, I continue to show TNS and AGR as an amalgamated head of IP.

Returning to the readings in (18) and (19), I will show that the former readings can be derived by satisfying Principle B, and the reading in (18), Principle A. I begin with the analysis of (18), a reading which is possible in Spanish, but not in English. Consider first the S-structure of (19'a), shown in (20):

(20) $[_{CP}\ T_i\ [_{IP}$ Mary$[_I$ (does)$]\ [_{VP}$ sing$]_j]]$

The proposed account of the absence of a present-moment reading for (20) is that the internal temporal argument cannot be anaphoric, since the external temporal argument is not accessible as a binder. The inaccessibility of the temporal subject is suggested to follow from the interaction of temporal and nominal functional complexes. Specifically, if both functional complexes are taken into account, the smallest available MGC for VP in (20) will be IP, rather than CP. Consequently, the temporal subject for VP is outside the VP's MGC, and VP cannot be A-bound by its temporal subject. Temporal anaphora is thus not possible. Let us assume for the moment that both functional complexes are taken into account in defining a MGC for the VP. To further evaluate the hypothesis that the present-moment reading is excluded in English in this way, let us examine the S-structure for the corresponding example (19) in Spanish, shown in (21):

(21) $[_{CP}\ T_i\ [_{IP}$ María $[$canta$_j]_{VP}$ $e_j]]]$

On the assumption that Spanish main verbs freely move to INFL, the availability of the present-moment reading for (21) may be derived, if the VP is understood to inherit a temporal (co-)index from its head. In this case, the MGC for the X° chain is CP, since CP is the minimal category which contains a governor for V+INFL. Since CP also contains the temporal subject, VP can satisfy Principle A, and an anaphoric reading is possible. I will stipulate that VP inherits its feature specification in this way, by agreement with its head. The hypothesis for English is thus supported, in that there is a configurational difference between the S-structures subject to Principle A in the two languages. To the extent that there is a correlation between V-fronting and the availability of Present-moment readings across languages, which appears to hold at least for Romance and Germanic, versus Chinese and Korean, the hypothesis is further supported.[13]

(13) The fact that this does seem to hold quite generally for languages with V-movement was originally pointed out to me by Rex Sprouse (p.c.)

The wider availability of Generic and Deontic present readings can be derived by satisfying Principle B, where IP is taken as the MGC:

(22) María canta. $[_{CP}\ T_i\ [_{IP}$ María I° $VP_j]]]$

(22') Mary sings. $[_{CP}\ T_i\ [_{IP}$ Mary I° $VP_j]]$

In (22), one possibility that can be immediately excluded is that VP has no governing category (i.e., is temporally PRO). This must be excluded since VP has a governor: INFL. Also excluded is the possibility that VP is temporally an anaphor. Within its governing category, the only A-antecedent is the subject, *Mary*. Since *Mary* does not have a temporal index, VP cannot satisfy full interpretation unless it is anaphoric to a temporal argument. Thus, the two options in (22) are that VP satisfy Principle B or Principle C. The only means of satisfying Principle C would be to take [-PAST] VP as an indefinite, so that it undergoes QR at LF:

(23) $[_{CP}\ NOW_o\ [_{IP}\ VP_i\ [_{IP}$ María I° $e_i]$

I will not exclude this possibility, but will show that it is not necessary. Suppose VP were to be analyzed as a temporal equivalent of a pronominal, so that it satisfies Principle B by being free in IP. In this case, the external temporal argument is outside the MGC, and may be taken as an A-bar position relative to VP. If the IP is construed as an open sentence, the temporal subject can bind the VP predicationally:

(24) a. $[_{CP}\ T_i\ [_{IP}$ María I° $VP_k\ ]]]$ (S-structure)

b. $[_{CP}\ T_i\ [_{IP}$ María I° $VP_i]]]$ (LF')

The deontic reading may then be characterized as an absence of such a predication relation, such that no event is asserted.

To summarize, generic and deontic readings are claimed to be interpreted temporally under Principle B, with the "pronominally" construed time either predicated of NOW, deriving present generic readings, or predicated internally of the nominal subject, deriving Deontic readings. Only in case of movement of V-to-I (TNS), can VP have a present moment reading, since V-to-I expands the GC for VP, so that Principle A can be satisfied.

3. States

A potential counterexample to the above claim as to the syntactic distribution of temporal anaphora is the construal of "States", which are exemplified in (25):

(25) a. That box *contains the papers.* (25') a. Esa caja contiene tus papeles.

b. Fred *seems foolish.* b. Pedro parece bobo.

c. Martha *resembles Susan.* c. Marta y Susana se parecen.

d. Henry *is tired of studying.* d. Enrique está cansado de estudiar.

Vendler (1967) claims that States are parallel to the activities discussed above in two respects. First, they have duration, or occur over time (unlike "Achievements" such as *reach the top, spot something*); second, they are said to differ from accomplishments such as *draw a circle, read a book*, in that any moment in the interval of the predicate is homogonous with the whole. For example, if it is true that the boxes contain the

papers at one moment in a specified interval, the predicate is true. Similarly with activities: any moment of singing makes singing true. By contrast, accomplishments can only be true at the final moment in the interval, at which the event is finished. During the interval of drawing a circle, you haven't "drawn a circle" until you're done, i.e., the last moment in the interval. Thus, any previous moment in the interval is not true, but the whole may be true.

Based on the similarities between Activities and States with respect to homogeneity of the interval with moments that it contains, it is expected that both may be construed as anaphoric to speech-time. It is in fact sometimes assumed that States entail present-moment truth. Howewer, if Vendler's claim is correct, the proposed account of Present Moment readings based on the availability of V-movement is problematic, since States such as (25a-c) which involve main verbs cannot be treated as anaphors, since main verbs in English do not move to INFL. I must therefore account for the generalization that States hold of the present moment without deriving this effect under Principle A. I will claim that States and Activities are differentiated as in (26):

(26) a. States hold for every moment in the interval of VP.
b. An activity holds for some moment(s) in the interval of VP.

At a descriptive level, the contrast in (26) is based on discussion of Gabbay and Moravcsik (1980), who observe the following properties particular to States, as opposed to non-states:

(27) a. States: Do not imply specific changes in the subject; do not have gaps or interruptions.
b. Non-states: May imply change in the subject; may be punctual rather than durative, may be repetitive; may imply subintervals of activity, may allow gaps between instances of activity.

The contrast with respect to gaps/interruptions is illustrated by comparing the following:

(28) a. Martha was a doctor. b. Martha walked.

In (28a), Martha's being a doctor is true for every moment in an arbitrary past interval. She didn't cease to be a doctor when she was sleeping. However, the interval of walking in (28b) can still be true if she wasn't walking during every moment of the interval. She may have paused then continued, and the interval is still described as walking. Exactly how these differences should be represented syntactically is beyond the scope of the present discussion. Howewer, the interpretation of States as universally quantified temporal arguments is consistent with the informal generalization noted above. If activities can be quantified, it is at least plausible to analyze them as taking existential quantification over individual moments within the interval linked to their VP.

The informal generalization outlined above may be translated to syntactic terms by analyzing the VP dominating a main verb State as intrinsically subject to QR.

Following Chomsky (1986b), let us assume that QR adjoins constituents either to VP or to IP:

(29) a. That box contains your papers.
b. $[_{CP}\ T_i\ [_{IP}\ VP_j\ [_{IP}$ that box INFL $e_j]]]$
c. $[_{CP}\ T_i\ [_{IP}$ that box INFL $[VP_j\ [e_j]]]]$

Furthermore, as in the case of generic/deontic readings discussed above, suppose that IP can be treated as an open sentence. In (29b), the variable bound by the temporal subject is the VP; in (29c) it is IP. Thus, as with Activity verbs which permit either Deontic or Generic readings, the same should, in principle, be possible for States. However, truth at the present moment derives not from anaphora satisfied under Principle A, but rather by the quantification structure.

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