

STATIVE VERBS AND PAST TENSES IN ROMANIAN

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Abstract

In Romanian there is a systematic correlation between stative verbs, adverbs of quantification and the two main past tenses, the Imperfect and the Perfect. “Strong” adverbs, the equivalents of *always* and *mostly* require the Imperfect. “Weak” adverbs, the equivalents of *three times* or *several times* require the Perfect tense. This correlation is shown to follow from two factors. First, adverbs can be \pm quantificational, as recently proposed in the literature. This entails that “strong” adverbs contain a variable-binding operator, and “weak” ones do not. Second, the two past tenses are said to contain precisely the logical material required by “strong” and “weak” adverbs; this is supported by previous proposals regarding Romance tenses.

1 Introduction

1.1 Preliminaries

This paper discusses a clear-cut contrast in the quantificational possibilities available for two of the past tenses in Romanian,¹ the so-called *Imperfectul* and the *Perfectul Compus*. The discussion will focus on stative verbs, because of two salient properties of the tense-aspect system in Romanian (I take these properties to be shared by other Romance languages). (i) Stative verbs can combine with the Imperfect (unlike the English Progressive: **John was knowing the answer*). (ii) The Romanian Imperfect, like other Romance Imperfect tenses, is often associated with a bound or dependent reading. Apparently, these tenses contain a variable that needs to be bound either by a familiar temporal discourse referent, or by a generic or habitual operator. The Italian Imperfect has for instance been associated in the literature with universal quantification (as in Bonomi (1997)), or with anchoring to a preceding discourse referent (as in Giorgi–Pianesi (1998)). On all accounts, the Romanian Imperfect, like its Italian counterpart, also requires some kind of binding device in its representation.

Given the possibility of statives to combine with the Imperfect, and the prone-ness of the Imperfect to occur in bound-variable readings, it seems worthwhile to examine the interaction of these two tenses with quantification *and* with stative verbs. The conjecture is that this interaction is not trivial or irrelevant. The analysis will resort to Discourse Representation Theory (Kamp (1981), Kamp–Reyle (1993), Kamp–Rohrer (ms)), precisely because of the ease and naturalness that this theory accommodates both quantification and temporal phenomena.

(1a-b) below present the Romanian Imperfectul and the Perfectul Compus. On its episodic reading (1a) means that the sea was calm at some contextually given time. It is compatible with a scenario in which the described state holds at utterance time (and possibly beyond that). (1b) describes a

bounded state, meaning that the sea was calm at some past time but it is no longer so now.

- (1) a. Marea *era*(Imp) calmă
Sea-the(Fem) was-Imp calm-Fem
“The sea was calm (then)”
“The sea was usually calm”
b. Marea *a fost*(PC) calmă
Sea-the Aux-3Sg been(PC) calm-Fem
“The sea was calm (for some time)”

The sentences in (2) reinforce the \pm boundedness contrast between the two tenses. It is to be noted that although a stative in the Perfect Tense receives a bounded interpretation, it is by no means coerced to describe a transition. That is, (2b) cannot mean that John *became* an intern.

- (2) a. Atunci Ion *era*(Imp) medic rezident, ca și acum
Then was(Imp) doctor resident, as too now
“John was an intern then, just like now”
b. Atunci Ion *a fost*(PC) medic rezident (??ca și acum)
Then Ion was(PC) doctor resident (as too now)
“John was(\neq became!) an intern then, (just like now)”

This is worth pointing out, for the following reason: as in most Romance languages (with the exception of Portuguese), the Romanian Perfectul Compus has all but replaced the Perfectul Simplu tense. Statives in the Perfectul Simplu tense (as in the case of the French Passé Simple) can be said to describe a change of state, rather than a state.

- (3) Jean *fut*(PS) général
J be-PS3Sg general
“John became a general”

According to (Kamp–Rohrer (ms), de Swart (1998)), the Passé Simple stative in (3) has a very clear inchoative meaning. Similarly, in a narrative sequence Romanian Perfectul Simplu describes a reaction to, or an effect of, a preceding event:

- (4) Ion *făcu*(Imp) o prostie. Maria *fu*(Imp) tristă.
J make-PS3Sg a foolish-thing. M be-PS3Sg sad-Fem
“John did something foolish. Mary became sad”

The second sentence in (4) can only be understood as describing Mary’s reaction to John’s act. Now if the Romanian Perfectul Compus has all but replaced the Perfectul Simplu, one would expect it to coerce statives into eventives, just as the other tense used to do. Yet, as (2b) shows, this is not the case, at least not with the data I have examined so far. Accordingly, in this paper the Perfectul Compus will be defined as imposing a temporal bound on states, without involving a coercion operation from states to events.

1.2 Preview and Predictions

The Romanian Imperfect shares with other Romance Imperfectives the properties of a past-shifted present tense: it can readily have generic and habitual readings, and is usually dependent on other temporal elements for its interpretation. Also, it is felt to shift temporal perspective to some distinguished past time (the time at which something happens or is the case). The Perfectul Compus tense only has episodic readings; as with Perfect tenses in other languages, its perspective point is

the utterance time n .² The sentences in (5) serve to illustrate the habitual/episodic distinction:

- (5) a. Maria (de obicei) *știa* ce să facă
 M (as habit) know-Imp-3Sg what SĂ do-Subj3Sg
 “Mary would (usually) know what to do”
 b. Maria *a știut* (PC) ce să facă
 M Aux-3Sg known what SĂ do-Subj3Sg
 “Mary knew what to do”

(5a) above has a habitual–dispositional reading (without any implication concerning the subordinate clause). (5b) has an episodic reading, and implies that Mary did in fact carry out the action in question.

In this paper the Imperfect tense is said to presuppose a temporal variable that requires to be bound by an operator, a quantifier, or some previously introduced temporal discourse referent (see also Giorgi–Pianesi (1998)). In introducing presuppositions to discourse representations I rely on the well-known proposal in van der Sandt (1992): *binding* a discourse referent from a presupposition-DRS is like anaphora resolution for pronouns. The Perfectul Compus is said to involve existential quantification: it introduces its own temporal discourse referent, which prefers to remain free, so to speak. Applying the analogy of tenses and nominal expressions (Partee (1973), (1984)), the Imperfect tense resembles pronouns, and the Perfect tense resembles indefinite NPs.

As a consequence, simple sentences that contain the Imperfect and an adverb of quantification (as in (6a) below) are predicted to form a tripartite quantificational structure. This entails that the restrictor of this structure is to be recovered from previous context or from the information structure of the sentence itself (see e.g. de Swart (1991)).

Sentences with the Perfectul Compus (as in (6b)) are not expected to be part of quantificational structures. On the assumption that the Imperfect resembles mass terms and the Perfect count nouns this may be puzzling, because a verb in the Imperfect does not yield countable (=discrete) events that would form the domain or co-domain of a quantifier. Rather, one would expect the bounded events of the Perfectul Compus to be quantifiable. Yet the next two examples show that this is not the case. (6a), with the Imperfective, *has* to be understood as involving an implicit restrictor. For instance, a more complete paraphrase could be *Whenever Mary was asked a question she knew the answer (to that question)*. (6b) in turn does not involve quantification over events, and the adverb (meaning *all along* in this case) is felt to be almost pleonastic.

- (6) a. Maria întotdeauna *știa* (Imp) răspunsul
 Mary always knew (Imp) answer-the
 “Mary always knew/would know the answer (whenever...)”
 b. Maria întotdeauna *a știut* (PC) răspunsul
 M always Aux-3Sg known answer-the
 “Mary knew/had known the answer all along”

Indeed, in (6a) the NP *răspunsul* ‘the answer’ can have narrow scope relative to the adverb; in (6b) there is no such scope ambiguity. What makes sentence (6b) grammatical at all is the lexical ambiguity of *întotdeauna*: according to the Dictionary of the Romanian Language it can mean either *always* or *all this time, all along*.³ Another adverb that shows a similar effect is *niciodată* ‘never’. (7a) means that on every contextually relevant occasion Mary didn’t know the answer, and answers may vary with occasions. (7b) means that there is no time within some past interval at which Mary knew the (same) answer.

- (7) a. Maria niciodată nu *știa* (Imp) răspunsul
 M never not know-Impf-3Sg answer-the
 “Mary never knew/would never know the answer”
 b. Maria niciodată nu *a știut* (PC) răspunsul
 M never not Aux known-3Sg answer-the
 “Mary never knew the answer”

The following pair is meant to show that even subject NPs can have narrow scope relative to the quantifier (and, implicitly, relative to the Imperfect tense):

- (8) a. Cineva întotdeauna o *iubea*(Imp) pe Maria
 Someone always cl(Acc) love(Imp) PE M
 “There would always be someone to love Mary”, or
 “Someone always loved Mary, whatever happened”
 b. Cineva întotdeauna *a iubit*(Imp)-o pe Maria
 Someone always Aux3Sg loved-cl(Acc) PE M
 “There was someone who loved Mary all along”

On one reading, (8a) means that in every contextually relevant situation there was a (possibly different) person who would love Mary.⁴ The different readings of (6) and (8) are due to the lexical ambiguity of *întotdeauna*. Adverbs that lack such ambiguity are then expected not to admit both tenses, and indeed this is the case. What one actually finds is a clear-cut parallel: “strong” quantificational adverbs can only go with an Imperfect tense, whereas “weak adverbs go with the Perfect tense. In this paper the “strong”—“weak” distinction among adverbs does not correspond to the well-known classification of NPs. Rather, it corresponds to the frequency/iteration distinction known from the literature on French. (> references from de Swart.)

Adverbs with the Perfectul Compus (*întotdeauna* in (9) is taken to mean ‘always’ and not ‘all along’, ‘at all times’):

- (9) a. Profesorul *i-a pus*(PC) o serie de întrebări Mariei
 Teacher-the cl(Dat) Aux3Sg posed a series of questions Mary-Dat
 “The teacher asked Mary a series of questions”
 b. Maria *a știut*(PC) răspunsul ?întotdeauna/?de cele mai multe ori/?rareori
 M Aux-3Sg answer-the always/in most cases/seldom
 “Mary always/mostly/seldom knew the answer”
 c. Maria *a știut*(PC) răspunsul de trei ori/de mai multe ori/ de câteva ori
 M Aux-3Sg known answer-the DE three times/DE more many times/DE a-few times
 “Mary knew the answer three times/several times/a few times”

Adverbs with the Imperfectul:

- (10) a. Maria întotdeauna/de cele mai multe ori/ rareori/niciodată (nu) *știa*(Imp) răspunsul
 Mary always/most many times/seldom/never (not) know-Imp3Sg answer-the
 “Mary always/mostly/seldom/never knew the answer”
 b. Maria *știa* răspunsul ?de trei ori/?de mai multe ori/?de câteva ori
 M know-Imp3Sg answer-the DE three times/DE more many times/ DE a-few times
 “Mary knew the answer three times/several times/a few times”

A significant feature of the above pattern is \pm countability. Apparently only “weak”, nonquantificational adverbs require bounded and countable eventualities. In Romanian these are provided by the Perfectul Compus tense, but not by the Imperfect.

What we have in (9) and (10) is that adverbs of quantification form two natural classes with respect to the past tenses they combine with. These classes correspond to the division independently proposed in Rothstein (1995) for English bare NP adverbs, in Spejewski (1995) for English frequency adverbs, and in Doetjes (1998) for French adverbs of quantification. This division parallels the \pm quantificational division among NPs, first proposed in Dynamic Semantics (Heim (1982), Kamp (1981)). *Always, most of the time, every time* form a tripartite quantificational structure, like *every, each, or most*. *Three times, a few times* are not proper quantifiers, just as indefinite NPs are not genuine quantifiers in these theories.

Given these recent proposals, it is straightforward to formulate the hypothesis that the pattern in (9) and (10) is in fact a Romanian- or Romance-specific manifestation of the \pm quantificational

partition among adverbials. As a corollary the Imperfect and the Perfect tense are said to contribute the kind of logical material needed for such a match: the Imperfect contains a variable that needs to be bound, and the Perfect introduces a discourse referent that is to avoid binding. This in turn corresponds to independently made proposals from another subfield, the semantics of (Romance) tense (see e.g. Kamp–Rohrer (ms) and the references cited there). Thus, the pattern in (9) and (10) is seen to follow from the interaction of two, empirically distinct types of semantic objects (quantifiers and Romance tenses), that are nevertheless quite tightly matched in their logical structure.

2 Tenses and DRT

2.1 DRT

In this paper Romanian tenses and adverbs will be represented in Discourse Representation Theory (DRT). I will assume familiarity with this theory, yet here are one or two points that need to be emphasised.

DRT follows the Reichenbachian tradition (Reichenbach (1947)) of distinguishing between event time proper and the so-called reference time. It is argued however in Kamp–Rohrer (ms) and Kamp–Reyle (1993) that Reichenbach’s reference time has two, clearly distinguishable roles, and so two such constructs are postulated. One is the so-called temporal perspective point (Tppt). It is a distinguished temporal referent that corresponds to a vantage point of viewing, or presenting, events. Reference points (Rpts) in this system serve to establish temporal relations between events in discourse; they have nothing to do with temporal ‘viewpoints’. The need to distinguish between temporal perspective and reference time comes from so-called extended flashbacks:

- (11) a. Alan reached the summit at noon
 b. He had got up at half past five and
 c. he had prepared his lunch, and
 d. he had started off
 e. and had left base camp before seven

(Translated example from Kamp–Rohrer (ms))

The Past Perfect sentences (11b-e) are ordered before the event described in the first sentence, and they are ordered with respect to each other. According to Kamp et al. the time of the event in (11a) serves as temporal perspective point for the sequence (11b-e). Reference times serve to establish linear order within the sequence (11b-e).

In this paper more attention will be given to temporal perspective. In Part [ref] however some differences in binding between Perfectul Compus statives and eventives will be mentioned; these may well have to do with the aspectual differences in the use of reference points. This issue will be set aside for further research.

In Romanian the temporal discourse referent related to the Imperfect serves as the perspective point, as in the literature on Romance tenses. The novelty of the approach outlined here is that this discourse referent is said to be part of an anaphoric presupposition (van der Sandt (1992)), and the bound variable readings of the Imperfect are seen to follow from the requirement on binding the presupposition.

The temporal perspective point of the Imperfect is a proper part of the eventuality’s temporal location time. Obviously this is responsible for the lack of temporal bounds in Imperfect event descriptions. Indeed, these are standard assumptions of the field, but they can go some way towards explaining why the Imperfect does not combine with “weak” cardinality adverbs, as in (12) below:

- (12) Maria *știa*(Imp) răspunsul ???de trei ori
 M know-Imp3Sg answer-the DE three times
 “Mary knew the answer three times”

This paper has almost nothing to say about Romanian non-statives. It is conjectured however that they may differ from states significantly in their behaviour under quantification. This may be due to

systematic aspect shifts (de Swart (1998)) that accompany tense selection in Romance. According to de Swart, aspect shift and aspectual operators can apply at any level between the verb and the sentence. This, I think, is particularly clear with scope interactions as in in (8a), repeated as (13) here:

- (13) Cineva întotdeauna o *iubea* pe Maria
 Someone always cl(Acc) love(Imp) PE M
 “There would always be someone to love Mary”, or
 “Someone always loved Mary, whatever happened”

Habitual readings of the Imperfect can also be brought under the broadly conceived issue of scope. If an Italian or Romanian complex clause has all its verbs in the Imperfect (as in (14) below), then it is robustly associated with a habitual reading, or, as argued in Bonomi (1997), with universal quantification over (pairs of) eventualities:

- (14) Când *stătea*(Imp) în Constanța, Maria *ține*a(Imp) meduze
 When stay-*Imp*3Sg in Contantza, M keep-*Imp*3Sg jellyfish
 “When she lived in Constantza, Mary kept jellyfish” (main clause habitual)
 “Whenever she lived in Constantza, Mary would keep jellyfish” (entire sentence habitual)

According to Bonomi, on the habitual reading of (14) the Imperfect tense marker in the *when*-clause has scope over the entire complex clause, contributing a universal quantifier. The Imperfect in the main clause is more like an agreement marker, to indicate that the clause is to have a habitual reading. I will briefly return to this issue in Part 5.

2.2 Lexical Entries

This part presents representations of statives in the Romanian Imperfect and Perfectul Compus. Tense morphemes are said to apply locally to the verb; an additional mechanism is assumed to percolate tense information to sentence level, as in Kamp–Rohrer (ms).

The lexical entry for tenseless *iubi* ‘love’ can be seen in (15). The so-called referential argument *s* is a state discourse referent, and *x, y* correspond to the two arguments of this verb. They are schematic, or implicit discourse referents, that need to be identified with the referents introduced by argument NPs proper (Kamp–Roßdeutscher (1994)). (15) contains no information concerning the reference time. I take this to be a characteristic of Romanian and other languages with a similar tense system. The discourse properties of lexical states in English-type languages are quite clear without tense information; on the other hand in Romanian (as in other Romance languages) it is tense information that determines the verb’s temporal links in discourse.

- (15) *iubi* (love) \rightsquigarrow
- | | | | | | | |
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| s | x | y | | | | |
| s : | x love y | | | | | |

Imperfective *iubea* (‘love-*Imp*’) is shown in (16):

- (16) *iubea-* (love-*Imp*) \rightsquigarrow
- | | | | | | | | | | | | | | | | | | | | |
|--|--|-----|-----|-----|-----------------|---------------|--|--|-------|--------------|--|--|------------|--|--|--|-----|---------|---------------|
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| s | x | y | n | | | | | | | | | | | | | | | | |
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| $t < n$ | | | | | | | | | | | | | | | | | | | |
| $TP_{pt} = t$ | | | | | | | | | | | | | | | | | | | |

(16) contains a presupposition sub-DRS (marked with α , following the notation in van der Sandt (1992)): the Imperfect is said to presuppose a past time t such that the state s holds at least at t . The perspective point is re-set to t .

The Perfectul Compus on the other hand introduces two novel temporal discourse referents, t and t' ;

(17) *a- iubiti* (love-PC) \rightsquigarrow

$$\boxed{\begin{array}{l} s \ t \ t' \ x \ y \ n \\ s: x \ \text{love} \ y \\ t < n \\ s \subseteq t \\ t \leq t' = \text{l.u.b.}(s) < n \end{array}}$$

t stands for a new reference time, which can but need not be related to previously introduced referents. As with stative verbs in other languages, t is said (at least) to overlap the state s . The discourse referent t' stands for the least upper bound of s : this is the condition that guarantees boundedness with the Perfectul Compus. In discourse continuations either t or t' can be picked up as the reference time.

Aspectual coercion is assumed in (17), and precisely with the introduction of the least upper bound t' : event verbs do not require such an explicit move, as they obviously describe bounded events. The kind of coercion implied here is weaker than what is given in de Swart (1998) for French statives in the Passé Simple. As argued previously, French statives in the Passé Simple have a change-of-state reading that is not present with the Romanian Perfectul Compus. The Romanian Perfectul Simplu (seen in (4)) may well require the kind of coercion employed for French in de Swart (1998).

Alternatively, *a iubiti* ‘love-PC’ can be given the entry in (18):

(18) *a- iubiti* (love-PC) \rightsquigarrow

$$\boxed{\begin{array}{l} s \ t \ x \ y \\ t < n \\ s \subseteq t \\ s: x \ \text{love} \ y \\ \text{Max}(s, \text{love}) \end{array}}$$

(18) contains no explicit temporal bound for the state s . Instead, a maximality condition is imposed on s : it is to be maximal with respect to the love-relation. In (17) and (18) alike s is taken to be part of the reference interval t ; but this is the relation events usually bear to the reference time. With English statives (and, by the way, with the Romanian Imperfect as well, as it can be seen from (16)) this relation is reversed: the reference time is part of the time of the state (cf. Hinrichs (1986), Partee (1984)).

In this paper s is said to overlap t , as in (17); this implies that states in the Perfectul Compus do not contribute background information to discourse. This is another way of saying that stative verbs in this tense are almost like eventive verbs: they are bounded, and their reference time can interact with the time of the narration. The only missing ingredient for an eventive reading is the inchoative change of state that accompanies the French Passé Simple and the Romanian Perfectul Simplu, and which is lacked by the Perfectul Compus (as seen in (2b) and (4)).

After this excursus on the discourse status of the Perfectul Compus, a comparison of the two tenses (as defined in (16) and (17)–(18)) is in order.

With the Imperfect the temporal perspective point is shifted to the presupposed discourse referent t ; this corresponds to the past-shifted present properties of this tense. For the Perfectul Compus, the perspective point is the utterance time n , both in (17) and (18).

For the Perfectul Compus, the event time (the so-called temporal location time), as given by t , is in the past. The upper bound on s introduces the consequent state of a state, so to speak: there is an interval with t' as initial segment, corresponding to the state of s not being the case.

With the Imperfect, the relevant temporal discourse referent in (16) is to be supplied by a suitable antecedent. Also, this antecedent, even if found, does not provide information about the temporal location time of s . All (16) says is that some state s holds at some contextually given time, and provides no clues about the beginning or endpoint of that state.

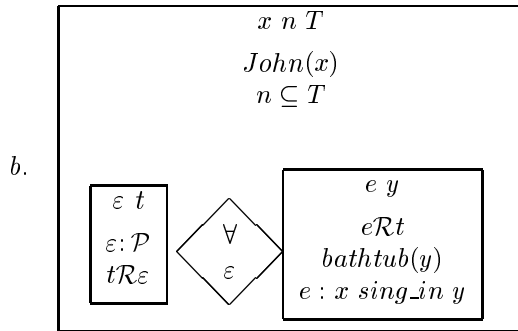
To summarize, the Imperfect requires an anchor or binder from previous discourse; this anchor however does not provide information on the temporal location or \pm boundedness of the eventuality. Instead, it provides a past-shifted perspective point. The Perfectul Compus on the other hand is “self-anchoring”, providing its own temporal discourse referent. This referent is not perspectival, as the temporal perspective point is the utterance time n . In addition, an upper bound is imposed on the duration of the relevant state.

3 Weak and Strong Adverbs

In this part, adverbs of quantification are represented in DRT in a way that closely mirrors the \pm quantificational distinction among Noun Phrases.

All and only “strong” adverbs like *always*, *mostly*, *most of the time* are said to form a quantificational structure complete with operator, restrictor and nuclear scope. For the sake of simplicity, an English example is presented in (19):

- (19) a. John always sings in the bathtub \rightsquigarrow



(19) says that all contextually relevant eventualities ε of a certain type are related to events of John singing in the bathtub. The link between the two eventuality types is provided by the “local” reference time t , which is like a bound variable, and effectively holds restrictor and nuclear scope together. (T is a “global” reference interval contributed by the adverb, presumably interacting with tense information in a way that is left unspecified. By introducing it I follow a suggestion attributed to G. Chierchia in Partee (1984).) Relations between eventualities and times are left unspecified: in the example at hand they are to be reconstructed either from context. In other cases the restrictor can be recovered from the information structure of the sentence (as proposed in Rooth (19885) and de Swart (1991)). In (20b) below the constituent with the Focus feature (marked with capitals, as usual) contributes to the nuclear scope of the adverb, and the rest of the sentence, the Background, contributes the restrictor.

- (20) a. John always sings in the bathtub (when he is in a good mood)
 b. John always sings in the BATHTUB
 (All events of John singing are events of John singing in the bathtub)

“Weak” adverbs such as *three times*, *several times* are like the indefinites of DRT in that they do not come with a restrictor. Instead, they are modifiers of groups of events. In (21) below there is a

group of singing events by John.

(21) a. *John sang in the bathtub three times* \rightsquigarrow

$$b. \begin{array}{l} \epsilon \ x \ y \ n \ t \\ \epsilon \subseteq t < n \\ |\epsilon| \geq 3 \\ John(x) \\ bathtub(y) \\ \epsilon: x \ sing_in^* \ y \end{array}$$

A precondition of the applicability of *three times* is the existence of a suitable collective eventuality discourse referent.⁵ In (21) the condition imposed by the adverb is met by the introduction of a so-called *neutral* discourse referent ϵ ,⁶ which can either be atomic, or plural. The verb is accordingly lifted by means of the plurality operator $*$ (Link (1983), Kamp–Reyle (1993)). The adverbial then adds the information that ϵ has cardinality three.

Alternatively, (21a) can be represented by means of DRT’s abstraction operation Σ :

$$(22) \begin{array}{l} E \ x \ y \ n \ t \\ E \subseteq t < n \\ |E| \geq 3 \\ John(x) \\ bathtub(y) \\ E = \Sigma e. \begin{array}{l} e \\ e: x \ sing_in \ y \end{array} \end{array}$$

(22) is to be preferred to (21), for several reasons: (i) both the verb and the adverb introduce a discourse referent (e and E , respectively); these are related by means of the abstractor Σ . (ii) (22) correctly allows the object NP to have either narrow or wide scope. (iii) it is suitable for handling a number of almost-quantificational adverbs, like *many/several times* that pattern with the weak ones. In their case it is awkward to stipulate *no* structure, yet it is not entirely appropriate to represent them by means of *complete* tripartite structures like (19b). The operation of abstraction provides a solution to this dilemma (see e.g. Kamp–Reyle (1993:457–462) on determiners like *at least one*, or *many*). (iv) (22) allows the members of E to have their own reference times and temporal bounds. This is relevant for the Romanian data, where (it seems to me) precisely these weak adverbs impose a ‘countability’ or discreteness condition on their operands. Even in English, there are certain drawbacks with the strategy embodied in (21b), in that the *lexical* verb introducing a group event, without any access to subevents and the way these may be related to each other.

In the case of a sentence like *John was in love three times*, let the expression *was in love* introduce one neutral state discourse referent σ , and let this correspond to a single, uninterrupted state. Then the divisive, or downward-entailing property of states guarantees at least three substates $s_{1,2,3}$ of σ to hold within t :

$$(23) \begin{array}{l} \sigma \ n \ t \ x \\ t \circ \sigma \\ t < n \\ John(x) \\ \sigma: in_love^*(x) \end{array}$$

(23) obviously does not correspond to the meaning of the sentence, which requires three *discrete* states of being in love. Accordingly, it is preferable to have atomic eventualities from the lexical entry of the verb, and *then* to form their sum, as it is done in (22). (▷ Hans: maximality!)

4 Adverbs and Past Tenses

In this part the analysis the Imperfect and the Perfectul Compus is matched with that of adverbs of quantification. The task is to derive the quantificational properties of the two tenses from the kind of discourse entities they contribute: the Imperfect needs binding, or anchoring, and the Perfectul Compus avoids just that.

The following table summarizes the findings from Part ▷, and anticipates the discussion of “at all times” readings:

	‘Three times’	Always	At all times
Imp	—	yes	yes
PC	yes	—	yes

4.1 The Imperfect

As shown in Part ▷, the Imperfect in (6a), repeated as (24a) here, has a quantificational reading, which is unavailable for the Perfectul Compus tense:

- (24) a. Maria întotdeauna *știa*(Imp) răspunsul
 Mary always knew(Imp) answer-the
 “Mary always knew/would know the answer (whenever...)”
 b. Maria întotdeauna a *știut*(PC) răspunsul
 M always Aux-3Sg known answer-the
 “Mary knew/had known the answer all along”

(24a), containing the Imperfect tense, is said to involve quantification over eventualities. The sentence with the Perfect tense, (24b), involves quantification over times.

In fact, sentences with the Imperfect can also have the “all times” reading. This reading is not readily available for (6a) as well, but the choice of an synonymous adverb (such as *tot acest timp* ‘all this time’) improves matters. By the way, in (25) the presupposed discourse referent of the Imperfect is bound to the (already familiar) time supplied by *tot acest timp*:

- (25) Tot acest timp Maria *știa*(Imp) răspunsul
 All this time M know-Imp3Sg answer-the
 “All this time, Mary was aware of the answer”

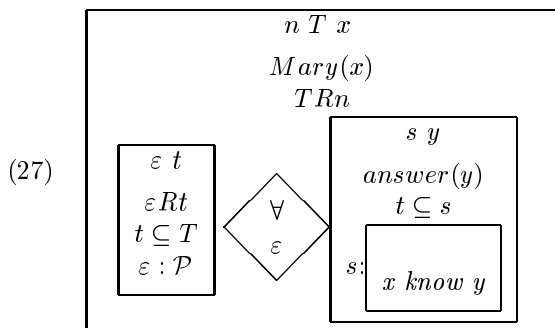
This reading is not favoured with *întotdeauna* in (24a); an additional reason for this may be the possibility to have several distinct states (because of the scope possibilities of the definite object NP). The following sentence, where no scope ambiguity may arise, does have the “all the time” reading:

- (26) Când *era*(Imp) studentă, Maria *era*(Imp) întotdeauna stresată
 When was(Imp) student, M was(Imp) always stressed
 “When she was a student, Mary was constantly under stress”

In this sentence the time of the subordinate clause has to be familiar (or at least it must be known that Mary has been a student).

This excursus on “all the time” readings of the Imperfect is followed by the analysis of the quantificational reading. This analysis is nothing but the “merger” of the entry for the Imperfect (as in (16) from Part ▷) and a quantificational structure (as shown for English in (19b)).

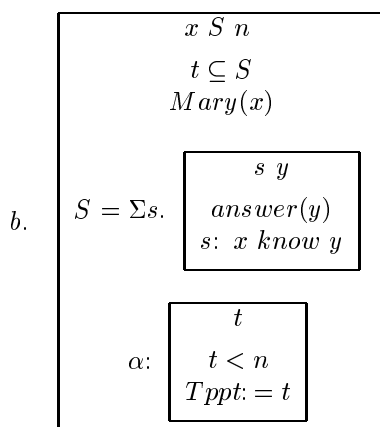
The quantificational reading of (24a) is represented in (27):



(27) says that for every contextually specified eventuality ε there is a time t that is part of the ‘global’ reference interval T , and stands in some relation with ε ; this relation in turns depends on the aspectual sort of ε . The temporal discourse referent t introduced in the restrictor is taken to be the perspective point for the Imperfect state description in the nuclear scope. The nuclear scope-DRS reads as follows: for every t there is a state s and a question y , such that t is part of s , and s is the state of Mary knowing the answer to some question. y in turn is bridged to the eventuality description $\varepsilon : \mathcal{P}$ in the restrictor (assuming a bridging mechanism as in Bos et al. (1995), or Asher–Lascares (1996)).

The impossibility of weak adverbials to combine with the Imperfect follows from the properties of the relevant semantic objects (the representations in (16) and (22), respectively): weak adverbials cannot bind the presupposition contained in the entry for the Imperfect.

- (28) a. *???Maria știa răspunsul de trei ori*
 (“Mary knew the answer three times”)



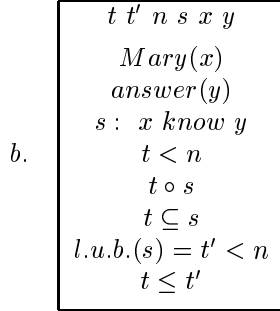
(28c) is not appropriate because the adverbial cannot bind the discourse referent in the presupposition part.⁷ (28) poses an additional problem: the Imperfect is compatible with a state holding at the utterance time, but the adverbial *de trei ori* is not. Yet this is not the main reason for the unacceptability of (28a). The binding approach proposed here predicts that the Imperfect should be compatible with “weak” adverbs that do provide a binder. With definite adverbials, that is. Indeed, (29) is perfectly appropriate:

- (29) *Maria știa(Imp) răspunsul acele trei ori/în acele trei ocazii*
 M know-3Sg answer-the those three times/in those three occasions
 “Mary knew the answer on those three occasions”

4.1.1 The Perfect

Statives in the Perfect have been said to “resist” quantifying adverbs. Accordingly, (24b) can only have the “at all times” reading, represented here as (30b).

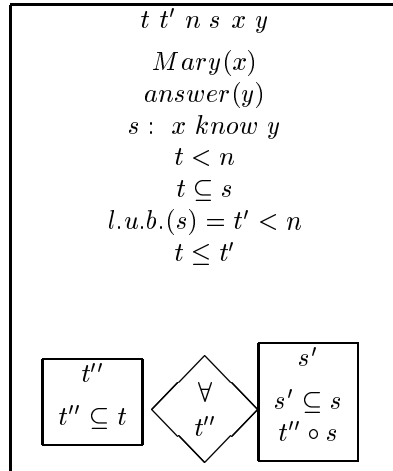
- (30) a. Maria *întotdeauna a știut* răspunsul \rightsquigarrow
 (Mary knew/had known the answer all along)



(30b) does not involve universal quantification over times. Rather, it provides only a past reference interval t , such that the relevant state holds at t . The divisive property of s (Bach (1986)) guarantees that for every subinterval t'' of t there is a substate s' of s such that s' holds at t'' .

Alternatively, the contribution of temporal *întotdeauna* can be defined as a universal quantifier over subintervals of t . Then (24b) can be represented as follows:

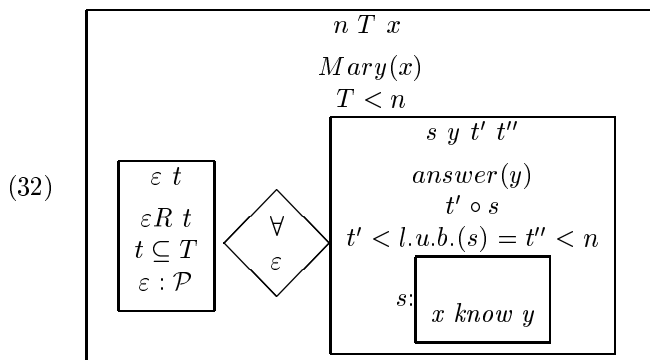
- (31) Maria *întotdeauna a știut* răspunsul \rightsquigarrow
 (Mary knew/had known the answer all along)



The difference between (30b) and (31b) is that the latter involves quantification over times, thus making the contribution of the adverb explicit. A precondition on the applicability of the adverb is the divisive property of states. A sentence like *Mary întotdeauna a făcut(PC) cafea bună* (“Mary always made good coffee”) cannot mean that Mary was involved in coffee-making throughout a past interval. It is to be noted that in (31b) only substates of the main state s are bound, which conforms to the no-binding status of the Perfectul Compus.

The main task concerning the Perfectul Compus tense is to exclude quantificational readings. The main argument emphasises the new, unbound status of the discourse referent introduced by the tense; it is argued that quantificational readings are ruled out because of vacuous quantification. To see that, one needs to take a closer look at such excluded, or vacuous readings.

(32) shows the quantificational reading of (24b), which should be unavailable:



(32) has the following temporal components: a ‘global’ reference interval T that provides something like a temporal context set for the universal quantifier. The eventualities ε in the domain of the quantifier come with their “local” reference times t . In effect it is by means of t that the restrictor and nuclear scope are to be held together. It is understood, then, that t acts in effect like a bound variable. The nuclear scope contains two new discourse referents, t' and t'' , contributed by the Perfectul Compus. Although DRT as such does not operate with this notion (but see van Eijck–Kamp (1997) for a rigorous logical treatment), it is useful to note that these discourse referents are *existentially closed*, in the terminology of Heim (1982). Sentence (24b) in this view cannot have a quantificational reading for the same reason why the indefinite *a cat* does not get a bound reading in the sentence *Every cat is proud of a cat*.

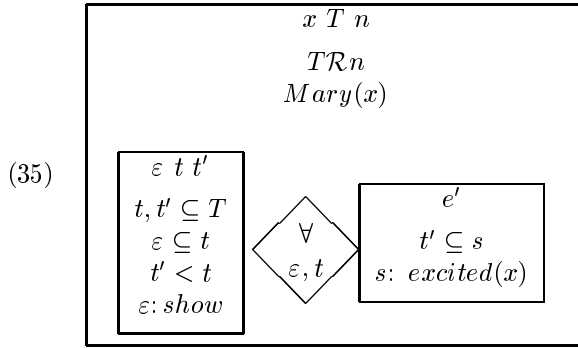
This is an attractive analogy, but it has to be tested on more cases. As noted in Partee (1984), anaphoric times need not always be identical to their antecedents. In many cases it is sufficient to have some kind of relation between antecedent and anaphor. In this case a condition of the form tRt' may occur in the nuclear scope of (32), relating t' from the nuclear scope to t from the restrictor. This formula wouldn’t change the novelty/familiarity properties of t' , yet it would establish some kind of dependency. \triangleright this is too abrupt! (24b) does not improve if the dependency is mediated:

- (33) ???Maria întotdeauna *a știut*(PC) răspunsul după zece minute
 M always Aux-3Sg answer-the after ten minutes
 “Mary always knew the answer ten minutes later”

A closer look at the structure of (33) reveals that the temporal adjunct *după zece minute* ‘ten minutes later’ is not introduced at a site where it could indirectly bind the tense discourse referent: it is not the case that we would indeed have the condition tRt' in the nuclear scope. The reason for this is that temporal modifiers and the conditions introduced by them are necessarily part of the *restrictor*.⁸ To see that this is indeed the case let us consider (34), which contains the Imperfect and is therefore perfectly acceptable:

- (34) Maria întotdeauna *avea*(Imp) emoții înaintea spectacolelor
 M always have-3Sg excitement before show-Pl-Gen
 “Mary was always excited before the shows”

(34) means all shows (relevant in the given context) were preceded by interval when Mary was in a state of excitement:



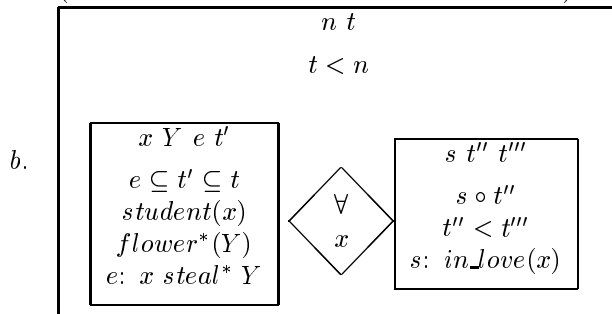
In (34), as well as in (33), temporal information from the adjunct forms part of the restrictor. Accordingly, if a new discourse referent is introduced in the nuclear scope, as in the case of (33), it can be related neither to t , nor to t' from the restrictor.

To see to what extent a stative verb in the Perfectul Compus can resist binding one can consider *implicit* temporal discourse referents embedded under quantification over individuals. (36) below is the adaptation of a well-known example from Partee (1984):

- (36) a. Fiecare student care a furat (PC) flori # a fost (PC) îndrăgostit (cîndva)
 Each student which Aux-3Sg stolen flowers Aux-3Sg was in-love (at-some-time)
 “Each student who stole flowers was in love (previously)”
 Possible, but not necessary: stealing overlaps being in love
 Strongly preferred: stealing does not overlap being in love
- b. Fiecare student care a furat flori era (Imp) îndrăgostit (??cîndva)
 Each student which Aux-3Sg stolen flowers be-Imp3Sg in-love (at-some-time)
 “Each student who stole flowers was in love (?at some other time?)”
 Only possibility: stealing overlaps being in love

The point I wish to make with (36) is that in such sentences only the discourse referents of Imperfect main clauses are bound obligatorily. If the main clause contains the Perfect tense, it describes a state that need not be simultaneous with the subordinate clause event.^{9,10}

- (37) a. Fiecare student care a furat (PC) flori a fost (PC) îndrăgostit \rightsquigarrow
 (Each student who stole flowers was in love)



Returning to the parallel between indefinite NPs and the Perfectul Compus, the attentive reader may have noticed that there is still one combinatorial possibility left. This is the case when the *restrictor* of the adverb contains a Perfectul Compus tense. Indefinites in the restrictor of a quantifier can be bound—this is in fact what the well-known donkey-sentences are about (Geach (), Heim (1982), Kamp (1981)):

- (38) a. Every farmer who owns a donkey beats it
 b. If a farmer owns a donkey he beats it

According to the indefinite NP—Perfectul Compus tense analogy, the Perfectul Compus should get a bound reading in a structure like (38). But this contradicts the observation in Bonomi (1997): Perfect–Imperfect patterns are episodic:

- (39) Cînd a fost studentă, Maria era stresată
 When Aux been student-Fem, M be-Imp3Sg stressed-Fem
 “When she was a student, Mary was under stress”

The question is whether an explicit adverb of quantification may be superimposed upon this pattern, as in (40):

- (40) a. ??Cînd a dormit, Ion întotdeauna visa frumos
 When Aux slept, I always dream-Imp3sg beautifully
 “When he slept, John always had nice dreams”
 b. După ce a dormit (PC)/??dormea (Imp)/dormise (MMP),
 After what Aux slept (PC)/sleep-Imp/sleep-MMP3Sg,
 c. Maria întotdeauna avea (Imp) nevoie de cafea
 M always have-Imp3Sg need of coffee
 b–c: “After she had slept, Mary always needed coffee”

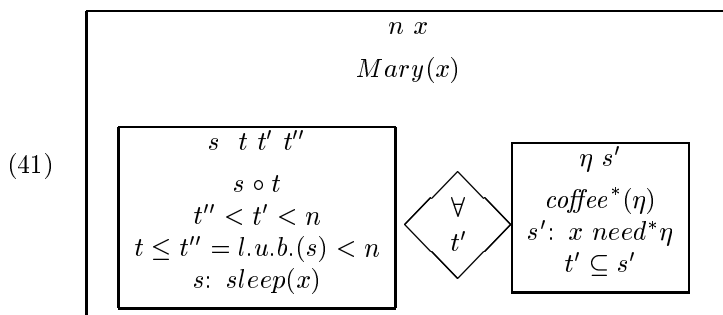
(40a) is awkward, but presumably not because of the Perfect tense in the subordinate clause. Here the Perfect has a Pluperfect construal, which is incompatible with the Imperfect in the main clause. The subordinate clause tense introduces a time *after* the state of sleeping, so the only reading available for this sentence is that John always had nice dreams *after* he had slept. This is clearly not what the sentence is intended to mean. Indeed, the appropriate connective (*după* ‘after’) improves things, and (40b-c) *is* appropriate.¹¹

The observation from (40) is that a Perfect tense can occur in the restrictor of an adverb of quantification if it has a Pluperfect reading and there is no overlap between the main clause and the subordinate clause state.

Now the question is what in fact is bound by the adverb in (40b-c). Intuitively, the sentence says that all past states of Mary sleeping are followed by a state in which she needed coffee. Apparently, the adverb binds only the state discourse referent in the restrictor, yielding the effect of dyadic quantification known in the literature since Partee (1984), and discussed in de Swart (1991) and Nelken–Francez (1997).

The curious thing is that the neither the state discourse referent, nor its reference time proper can bind into the nuclear scope. The presupposition of the Imperfect from the nuclear scope is to be bound to the perspective time discourse referent related to the Pluperfect construal. Apparently, the Perfectul Compus can have this construal because its boundedness: any time between its least upper bound and utterance time can serve as a perspective point.

However, given the condition of non-overlap, sentences like (40b-c) may be viewed differently. Instead of quantifying over states of sleeping, one can quantify over times that *follow* these states. Then (40b) says that for all times such that there is a preceding state of Mary sleeping, there is a state of Mary needing coffee:



In (41) the link between restrictor and nuclear scope is provided by the discourse referent t' . This way, the state discourse referent and its reference time do not get bound, and this is consonant

with Bonomi’s original observation, and conforms to earlier representations in this paper, where the link between restrictor and nuclear scope has been provided by the reference time. In this case in fact it is the perspective time that corresponds to the Pluperfect construal of the Perfect. It can be checked that this is made possible by the boundedness of the Perfect state: $g(t')$ can be chosen from the interval $(g(t''), n)$.

5 Comparisons; Conclusions

5.1 The Imperfective as Quantifier

The focus of this paper has been on simple sentences, because this way the interaction of adverbs and tense could be studied more conveniently. This approach however raises several questions for further work on the Imperfect. As the Imperfect has been defined as a dependent, pronoun-like tense, its occurrence in the main clause of a temporal structure should not be surprising:

- (42) Cînd Maria *a fost*(PC) la mare, se *simțea*(Imp) leneșă
 When M Aux been at sea, SE feel-Imp3Sg lazy-Fem
 “When Mary was at the seaside, she felt lazy”

What about sentences when the Imperfect is in the (temporal) subordinate clause, such as (14), repeated here as (43)?

- (43) Cînd *stătea*(Imp) în Constanța, Maria *ține*(Imp) meduze
 When stay-Imp3Sg in Constantza, M keep-Imp3Sg jellyfish
 “When she lived in Constantza, Mary kept jellyfish” (main clause habitual)

The all-habitual reading of this example could be handled by simply positing a covert habituality operator. The episodic reading is more problematic at first sight, but a local resolution process can be argued for (by matching the presupposition of the tense with the presupposition of the connective).

Returning to the issue of the all-habitual reading, it should be noted that the stipulation of a habitual operator does not yield an obvious and immediate solution. The reason for this is that in Romanian (as in Italian, cf. Bonomi (1997)) past habitual readings in complex sentences emerge *only* if both clauses are in the Imperfect:

- (44) Cînd portarul mă *vedea*(Imp), (îmi) *deschidea*(Imp) ușa
 When janitor-the me(cl) saw(Imp), (to-me(cl)) opened(Imp) door-the
 “Whenever the janitor saw me, he would open the door (for me)”

A Perfect–Imperfect pattern can only yield an episodic reading, and an Imperfect–Perfect pattern is decidedly odd.

- (45) a. ?Cînd portarul m-*a văzut*(PC), (îmi) *deschidea* ușa
 When janitor-the me(cl) Aux seen(PC), (to-me(cl)) opened(Imp) door-the
 “When the janitor saw me, he was opening the door (for me)”
 b. ???Cînd portarul mă *vedea*(Imp), (mi-) *a deschis*(PC) ușa
 When janitor-the me(cl) Aux seen(PC), (to-me(cl)) opened(Imp) door-the
 “When the janitor would see me, he opened the door (for me)”

(45a) is awkward, because of the aspectual class of the verbs involved, and also because opening the door for someone usually takes place after seeing that person. Nevertheless with other verbs the Perfect–Imperfect pattern is acceptable.

The main question related to (44) and (45) is why only the Imperfect–Imperfect pattern should have the all-habitual reading. For Romanian stative verbs I take this to follow from the binding properties of the Imperfect/Perfectul Compus pair. For other aspectual classes this is set aside for further research, as a viable solution requires a better understanding of aspectual coercion.

5.2 Topic–Focus articulation?

An attentive reader may have noticed that weak and strong adverbs have appeared in different word order patterns, as in parts of (9–10), repeated here as (46):

- (46) a. Maria *a știut*(PC) răspunsul de trei ori/de mai multe ori/ de câteva ori
 M Aux-3Sg known answer-the DE three times/DE more many times/DE a-few times
 “Mary knew the answer three times/several times/a few times”
 b. Maria *întotdeauna/de cele mai multe ori/ rareori/niciodată* (nu) *știa*(Imp) răspunsul
 Mary always/most many times/seldom/never (not) know-Imp3Sg answer-the
 “Mary always/mostly/seldom/never knew the answer”

Weak adverbs tend to appear in sentence-final position, and strong adverbs appear preverbally. Presumably this has to do with Topic–Focus articulation: postverbally, the weak adverbial is (part of) presentational Focus (on Focus in Romanian see for example Gierling (1997) and Göbbel (1995)). With an unmarked stress pattern preverbal strong quantifiers mark the material following them as familiar or background information, although presumably these structures allow for more variation in information structure than weak adverbs.

5.3 Conclusion

The Imperfect/Perfect contrast in Romanian reinforces the analogy between tense and nominal anaphora known to the field since Partee (1973). The peculiarity about Romanian (and presumably Romance in general) is that these tenses are so narrowly specialised. As demonstrated in Partee (1973), the tenses—pronouns analogy implies that one and the same tense has various semantic roles, ranging from the deictic to that of the bound variable. By contrast, the Imperfect and the Perfect have precisely defined contributions. In fact, these two tenses conform to a finer-grained classification of discourse referents by van Eijck–Kamp (1997), building on previous work by Kees Vermeulen and Albert Visser. Van Eijck and Kamp draw a formal distinction between locally introduced free discourse referents (their *intro* sort) and those that are in effect the bound variables of predicate logic (their *fix*). In earlier versions of DRT the same discourse referent can in principle be free, bound, or introduced at top level. In this later system however discourse referents are pre-partitioned into these three groups, with different rules applying to them. Apparently, the Romanian Imperfect and Perfect correspond quite closely to the *intro–fix* dichotomy.

Notes

after ¹Romanian has four past tenses, an Imperfect Past, a “Simple” Perfect, a Perfective and a Pluperfect. The table below shows some verb forms in the third person Singular:

	Imperfect	Perfectul Simplu	Perfectul Compus	Mai mult ca Perfectul
a fi (be)	era	fu	a fost	fusese
a iubi (love)	iubea	iubi	a iubit	iubise
a ține (keep)	ținea	ținu	a ținut	ținuse

In colloquial and standard spoken Romanian the Perfectul Simplu tense has been all but replaced by the Perfectul Compus.

In glosses, the Imperfect will be abbreviated as *Imp*, and the Perfectul Compus as *PC*. Aux (if no other information is given) stands for the Perfectul Compus auxiliary in the third person singular. Participle forms are glossed with the corresponding English participle form, as in *fost*: ‘been’ (and not ‘be-Part’). The Pluperfect (Mai mult ca perfectul) is glossed as MMP. Clitic pronouns will be glossed as *cl*.

²In substandard Romanian, where the Perfectul Compus is replacing the Plusquamperfect, Mai-mult-ca Perfectul, the perspective point may be a time that follows the temporal location time precedes *n*. But this is still different from the shift involved by the Imperfect, where the perspective point is part of the eventuality’s temporal location time.

³This has been brought to my attention by Carl Vikner (p.c.).

⁴The curious thing about (8a) is that the subject cannot be part of the restrictor: it is either to have wide scope over the adverb, or be part of the nuclear scope.

⁵In (21) the event discourse referent ϵ is introduced by the verb. Accordingly, the adverb does not introduce any discourse referent, it merely modifies the one introduced by the verb. Determiners of nouns on the other hand are responsible for the introduction of the relevant discourse referent. This divergence ought to be explained if one were to accept (21).

⁶I follow the DRT convention of using Latin capitals for collective discourse referents and Greek lowercase letters for discourse referents that are unspecified for collectivity.

⁷The presupposed discourse referent in (28) *can* be bound to a quantifier or a habitual operator:

(i) *Cînd Maria primea zece întrebări, (de obicei) știa răspunsul de trei ori*

When M receive-Imp3Sg ten questions, (as habit) know-Imp3Sg answer-the DE three times

“When(ever) Mary received ten questions, she would know the answer three times (out of ten)”

In this case the weak adverbial is **within** the scope of the Imperfect.

⁸Assuming that Focus on the temporal adjunct does not reverse the order of restrictor and nuclear scope, as in the English sentences *Mary always has a SHOWER before she goes to bed*, vs *Mary always has a shower before she goes to BED* (cf. de Swart (1991)). The second sentence means that all events of Mary having a shower occur before an event of her going to bed. The relevant generalisation to cover both type of case is that the relevant temporal discourse referent and the temporal relation expressed by the adjunct do not occur in the same part (sub-DRS or subformula) of quantifier structure.

⁹According to my informant temporal order also depends on whether the quantifier *fiecare* selects a familiar group (and a restricted temporal frame) or whether it quantifies over *any* student who has ever stolen flowers. On the contextually restricted reading the main clause state can precede or overlap the relative clause event. If the sentence is about all students who have ever stolen flowers then it is possible for the main clause state to *follow* the stealing event. The scenario given by the informant is that each student steals some flowers and after that he falls in love with the florist.

¹⁰Oddly enough, event verbs do not show this effect, as in the Romanian counterpart of Partee’s original sentence:

(ii) *Fiecare care a furat(PC) o mașină a abandonat(PC)-o după o oră*

Each which Aux-3Sg stolen a car Aux-3Sg abandoned-Fem3Sg after an hour

“Everyone who stole a car abandoned it an hour later”

Apparently, tense and aspectual coercion works differently with events and with states.

¹¹Sentence 40a) improves also if the main clause predicate does not require overlap with the state of sleeping:

(iii) *Cînd nu a dormit noaptea, Maria era întotdeauna nervoasă a doua zi*

When not Aux slept night-the, M be-Imp-3Sg always nervous-Fem the second day

“When she did not sleep during the night, Mary was always nervous the day after”

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