

ADDITIVE AND ASPECTUAL ADVERBS: TOWARDS AN ANALYSIS OF ROMANIAN *MAI*

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Abstract. This paper is concerned with the semantics of the Romanian adverb *mai* in its occurrence as a VP-modifier. We propose that *mai* has the core meaning of an additive particle whose argument is a predicate of events. Following this monosemic analysis, we are able to explain the different interpretations of *mai* (its continuative, iterative and ‘experiential’ readings) by considering the aspectual information of the sentence and the structural properties of the predicate. Our claim is also supported by a comparison with additive and aspectual adverbs in Italian.

Keywords: additive and aspectual adverb, modifier, presupposition, repetition

1. INTRODUCTION

Romanian *mai* (‘more’) has been the subject of several syntactic analysis: due to its constrained distribution and clitic-like properties (e.g., it is stressless and must occur in strict preverbal position within the VP), traditional grammars generally label it a ‘semi-adverbial’ (Ciompec (1985)) or a ‘particle’ (Nica (1988)); more recent analyses also take it to be a clitic (see Dobrovie-Sorin (1999), *D\$L* (2001), *GALR* (2005), Mîrcea Vasile (2008, 2009)), an affix (see Barbu (2004)) or an ‘intensifier’ of the verb (Monachesi (2005)). However, little attention has been devoted to its semantic properties so far (but see Ieremia Arjoca (2005)).

In this paper, we will discuss the semantics of *mai*, focusing on its occurrence as a VP-modifier. We will propose that *mai* has the core meaning of an additive particle (Konig (1991)), contributing a presupposition to the asserted content of the sentence. The nature of the presupposition depends on the aspectual properties of the predicate: addition translates into repetition in the event domain, and surfaces as iteration / incrementality (1a) or continuation (1b) depending on aspectual constraints:

(1) a. Ion va mai citi *Război și Pace* / un roman. (iterative / incremental)
Ion will MAI read *War and Peace* / a novel
‘Ion will read once more *War and Peace* / a novel’
b. Ion mai e bolnav. (continuative)
Ion MAI is sick
‘Ion is still sick’

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The proposed analysis has two major advantages. On the one hand, we will show that this semantic analysis may be integrated in an independently motivated interface structure, thus accounting for the constrained and peculiar distribution of *mai* with respect to other VP adverbials in terms of VP-internal and VP-external aspectual projections.

Secondly, the semantic analysis of *mai* as an additive and aspectual adverb is corroborated by a comparison with other aspectual and iterative adverbs in Romanian and in other Romance languages. In this paper, we will provide in particular a comparison with additive and aspectual adverbs in Italian. The first to be considered will be the adverb *ancora*, which also displays a strong contextual sensitivity with respect to the aspectual properties of the predicate (cf. (2a / b); see also Tovena (1998), Tovena & Donazzan (2008)):

(2) a. Pietro leggerà ancora *Guerra e Pace*. (iterative / incremental)
 Pietro read-FUT ANCORA War and Peace
 'Pietro will read once more *War and Peace*'
 b. Pietro è ancora malato. (continuative)
 Pietro is ANCORA sick
 'Pietro is still sick'

Italian also displays a VP adverb spelled as *mai*, which has the same diachronic origin than Romanian *mai*, but contrary to the latter, is presently confined to polarity contexts (in (3), the scope of a negative word):

(3) a. Pietro non legge mai.
 Pietro NEG read MAI
 'Pietro does never read'
 b. Qui nessuno ha mai letto *Guerra e Pace*.
 Here nobody has MAI read War and Peace
 'Nobody here has ever read *War and Peace*'

Drawing data from standard as well as regional Italian, we will propose a unified analysis for Italian/Romanian *mai* in terms of presuppositional items. In this sense, our analysis suggests that the presently distinct semantic properties of Italian and Romanian *mai* may be the result of a distinct grammaticalization path of Latin additive *magis* ('more'); in both languages, *mai* can be considered as an aspectual adverb with presuppositional content, although in Italian, but not in Romanian, it has developed into an NPI.

The remainder of the paper is organized as follows. We start by examining the distribution of *mai* in Romanian by pairing it, at the descriptive level, with its different interpretations ('more / still / again') (section 2), and then offer a brief survey of the accounts provided by previous syntactic analyses. In section 3, we

will present the details of our analysis of *mai* as an additive particle in the event domain, and show how our interpretation may also account for its distribution in a principled way. Section 4 will then be dedicated to provide some evidence and suggestions based on cross-linguistic comparison. Conclusion and remaining issues will then be summarized in section 5.

2. THE DATA

In this section, we will examine the distribution of the Romanian *mai*. We will then take a closer look to its syntactic properties when appearing as a VP-adverb, and finally we will suggest a possible representation for the latter situation.

Romanian *mai* is a monosyllabic word, which may combine with different constituents, namely APs (4), certain bare NPs (5), adverbials (AdvPs (6), PPs (7)) and VPs (8):

- (4) Ion e mai ocupat / intelligent / bolnav decât Petre.
Ion is MAI busy / intelligent / sick than Petre
'ion is busier / more intelligent / sicker than Petre'
- (5) Ion e mai profesor decât Petre¹.
Ion is MAI professor than Petre
'Ion is more professor-like than Petre'
- (6) Ion citește mai repede / bine decât Petre.
Ion reads MAI quickly / well than Petre
'Ion reads quicker / better than Petre'
- (7) Ion a sosit mai pe înserate (decât Petre).
Ion has arrived MAI at dusk than Petre
'Ion has arrived later than Petre'
- (8) Ion mai merge la bibliotecă.
Ion MAI goes at library
'Ion still goes to the library'

However, as shown in (9) and (10) below, *mai* cannot combine with DPs and CPs:

- (9) *Ion e mai un profesor / artist / artistul decât Petre.
Ion is MAI a professor / artist / artist-the than Petre

¹ The constructions involving this type of B(are) N(ominal)s have been described as dimension-specifying predicates (Bartsch (1987)) or perspective shifters (Moltmann (1998)). The matter of the correct semantic characterization of these BNs would take us too far apart, but note that this behaviour of *mai* is expected under the proposed analysis, since BNs like *professor* in (5) may be considered, in a more general way, predicational heads.

(10) a. *Ion zice mai că vine².
 Ion says MAI that comes
 b. Ion zice că mai vine.
 Ion says that MAI comes
 ‘Ion says that he will come again.’

The generalization seems then to be that *mai* can combine with a lexical category when the latter occupies a non-argumental position. In this paper, we will confine our analysis of *mai* to its occurrence as a VP-modifier (cf. (8)), although the proposed semantic analysis of additive aspectual adverb may turn out to be compatible for its occurrence as a modifier of gradable adjectives (as suggested by Donazzan (2008)).

2.1. Syntactic properties and distribution of *mai* as a VP-adverb

2.1.1. Word order

Mai exhibits a very rigid order with respect to the predicate phrase. More precisely, it is always adjacent to the verbal complex and can only precede it, although its position with respect to the functional heads within the VP reveals a more articulated picture.

As for the **verbal head**, *mai* immediately precedes the lexical V when there is no Aux (11):

(11) a. Ion mai merge la bibliotecă.
 Ion MAI goes at library
 ‘Ion still goes to the library’
 b. *Ion merge mai la bibliotecă.
 Ion goes MAI at library

With respect to **auxiliary heads**, on the other hand, it occupies distinct positions. It always follows tense Aux in the linear order of the clause (12):

² With respect to the agrammaticality of (10b), we must notice that there exists some cases in which *mai* appears to directly modify a CP constituent (cf. *DEX*, *DLR apud* Mîrcea Vasile (2008, 2009)):

(i) Mai să mă răstorni. (ii) Mai-mai să cadă. (iii) Mai (că) îmi vine a crede.
 MAI COMP me knock-over MAI-MAI COMP fall MAI COMP to-me come to believe
 ‘You almost knock me over’ ‘S/he was about to fall’ ‘I’m nearly disposed to believe’

However, as noticed by Mîrcea Vasile (2008, 2009), in these particular constructions *mai* displays certain specific syntactic properties, that is, (a) it is less deficient, i.e., despite its fixed position, it does not split the verbal complex; (b) it may be reduplicated (see (ii)), and the overt realization of the following complementizer appears to be an optional choice (see (iii)); (c) finally, as shown by the translation of the above examples, it also receives a distinct interpretation, defined by e.g. Ieremia Arjoca (2005) *imminence contrecarrée*. Since this occurrence of *mai* does not fall under its clitic-like status discussed in section 2.1, we will not include it in our present study.

(12) a. Ion a mai mers la bibliotecă.
 Ion has MAI gone at library
 'Ion has already been to the library'
 b. *Ion mai a mers la bibliotecă.
 Ion MAI has gone at library

In this respect, it behaves differently from frequency adverbs like *întotdeauna* 'always' or *adesea* 'often', and from iterative *iar* 'again', which cannot intervene between tense Aux and V (12'a), but may precede the V (12'b) or follow it (12'c):

(12') a. *Ion a întotdeauna / adesea / iar mers la bibliotecă.
 Ion has always / often / again gone at library
 b. Ion întotdeauna / adesea / iar a mers la bibliotecă.
 Ion always often has gone at library
 'Ion has always / often been to the library / again'
 c. Ion a mers întotdeauna / adesea / iar la bibliotecă.
 Ion has gone always / often / again at library
 'Ion has always / often been to the library / again'

On the contrary, *mai* must precede modal auxiliaries, such as *poate* 'may' in (13), and it scopes over them:

(13) a. Ion mai poate merge la bibliotecă.
 Ion MAI may go at library
 'Ion may still go to the library'
 b. *Ion poate mai merge la bibliotecă³.
 Ion may MAI go at library

Once again, its distribution differs with respect to frequency adverbs (14a) and iteratives (15), which are strongly dispreferred in pre-Modal position:⁴

(14) a. ??Ion întotdeauna poate merge la bibliotecă.
 Ion always MOD go at library
 'Ion may always go to the library'
 b. ?Ion poate întotdeauna merge la bibliotecă.
 Ion MOD always go at library
 'Ion may always go to the library'

³ This sentence is grammatical if *poate* is intended as a modal adverb (meaning 'probably, maybe'), rather than a verb. In this case, *mai* modifies the verb *merge*, yielding a habitual reading, as in (11a). The overall meaning of the sentence would then be 'Ion probably is still going/goes to the library'.

⁴ As an anonymous reviewer correctly pointed out, the acceptability of these sentences improves if the subject is not overtly realized. This difference in acceptability may be due to the co-occurrence of the two elements (i.e. the subject and the adverb) competing for the same position (arguably, the Focus position). Whatever the reason for this contrast may be, the issue goes beyond our present concern, and we must let it for future research.

(15) a. ??Ion iar poate merge la bibliotecă.
 Ion again MOD go at library
 ‘Ion may go to the library again’
 b. ?Ion poate iar merge la bibliotecă.
 Ion MOD again go at library
 ‘Ion may go to the library again’

This is to say that, contrary to *mai* (16), frequency and repetitive adverbs may clearly follow the VP complex (17):

(16) *Ion poate merge (mai) la bibliotecă (mai).
 Ion MOD go MAI at library MAI
 (17) Ion poate merge (iar / întotdeauna) la bibliotecă (iar / întotdeauna).
 Ion MOD go again / always at library again / always
 ‘Ion may always go to the library / may go again to the library’

With respect to **negation**, it is to be noted that *mai* can never overtly scope over sentential negation, and thus it can only occur between the negation *nu* ‘no’ and the lexical V (18):

(18) a. Ion nu mai merge la bibliotecă.
 Ion not MAI go at library
 ‘Ion does not go to the library anymore’
 b. *Ion mai nu merge la bibliotecă.
 Ion MAI not go at library

Finally, when combining with **pronominal clitics**, *mai* always follows preverbal clitics of direct (19) as well as oblique complements (19’):

(19) a. Îl mai invit la cinema.
 him MAI invite at cinema
 ‘I am inviting him again to see a movie’
 b. *Mai îl invit la cinema⁵.
 MAI him invite at cinema
 (19') a. Îi mai dau idei pentru prezentare.
 him MAI give ideas for presentation
 ‘I am giving him again ideas for his presentation’
 b. *Mai îi dau idei pentru prezentare.
 MAI him give ideas for presentation

⁵ Note however that the examples in (19b) and (19'b) may be acceptable in non standard Romanian.

2.2.2. Categorial status

Several properties lead researcher to analyse *mai* as a clitic-like element (a.o., Dobrovie-Sorin (1999), *D\$L* (2001), Barbu (2004), *GALR* (2005), Mîrzaea Vasile (2008, 2009)).

To start with, *mai* is stressless; the accent is generally carried by its support (i.e., the modal Aux or the verb, (20)). As a consequence, it cannot occur alone (21):

(20) a. *Ion **mai**⁶ vrea mere.
 Ion MAI wants apples

 b. Ion mai vrea mere.
 Ion MAI wants apples
 ‘Ion still wants apples / Ion wants (some) more apples’

(21) Q: Ion mai vrea mere ?
 Ion MAI wants apples
 ‘Does Ion still want apples ?’

A: a. *Mai.
 MAI

 b. Mai vrea.
 MAI wants
 ‘He still wants’

Moreover, *mai* cannot be coordinated, irrespective of the nature of the coordinated item, be it another (monosyllabic) adverb, as in (22):

(22) a. *Ion nu mai și / sau prea merge la bibliotecă.
 Ion not MAI and / or too-much goes at library

 b. *Ion mai dar rar merge la bibliotecă.
 Ion MAI but rarely goes at library

Correlatively, *mai* does not have (or hardly can have) wide scope over coordination (23):

(23) a. *Ion mai [stă sau pleacă] din oraș.
 Ion MAI stays or leaves from town

 b. ??Ion mai [cumpără și dăruiește] cadouri orfanilor.
 Ion MAI buys and offers gifts orphans-the-DAT
 ‘Ion still buys and offers gifts to orphans’

The affix-like properties of *mai* are also supported by the possibility for it to appear as a bound morpheme with certain uninflected verbs in the negated form. The gerund in (24) and the participle in (25) provide an example:

⁶ The bold characters symbolize here that *mai* is stressed.

(24) Nemaivăzându-și prietenii la petrecere, Ion se arătă surprins.
 NEG-MAI-seeing-his friends-the at party Ion himself showed surprised
 'Not seeing his friends at the party any longer, Ion appeared surprised'

(25) Ion se arătă suprins de astfel de lucruri nemaivăzute.
 Ion himself showed surprised by such of things NEG-MAI-seen
 'Ion appeared surprised by such unseen things'

A further empirical argument supporting the affix-like status of *mai* is the fact that it appears to be in complementary distribution with the (bound) morpheme *RE-*, when occurring in the same context (26):

(26) a. Ion mai vine la Paris la toamnă.
 Ion MAI comes at Paris at autumn
 'Ion will come again to Paris next autumn'

b. Ion revine la Paris la toamnă.
 Ion RE-comes at Paris at autumn
 'Ion will come again to Paris next autumn'

c. *Ion mai revine la Paris la toamnă.
 Ion MAI RE-comes at Paris at autumn

2.3. Discussion and representation

Summarizing the data so far, it clearly appears that *mai* has the distribution of a VP-internal element with affix-like properties, respecting the Precedence Order rule for Romanian (adapted from Barbu (2004: 68, 71)):

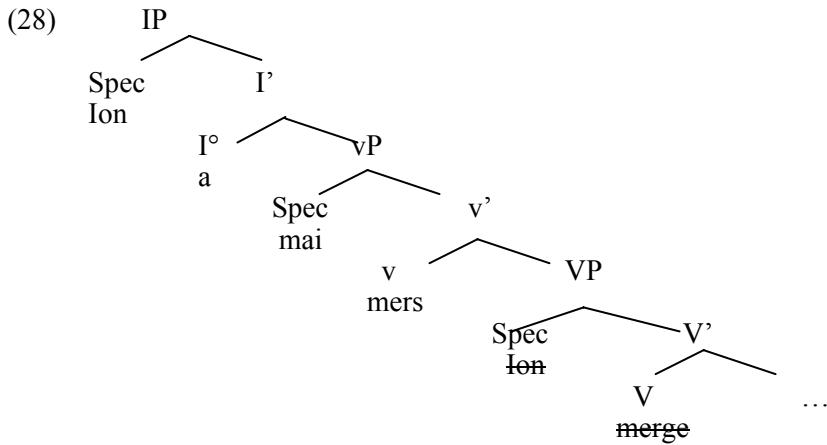
(27) {PRTSUBJ / INF} {NEG} {CL} {AUX} ADVMAI {AUX} V

The question to be answered now is: *how can this descriptive generalization be motivated at the semantic interface?*

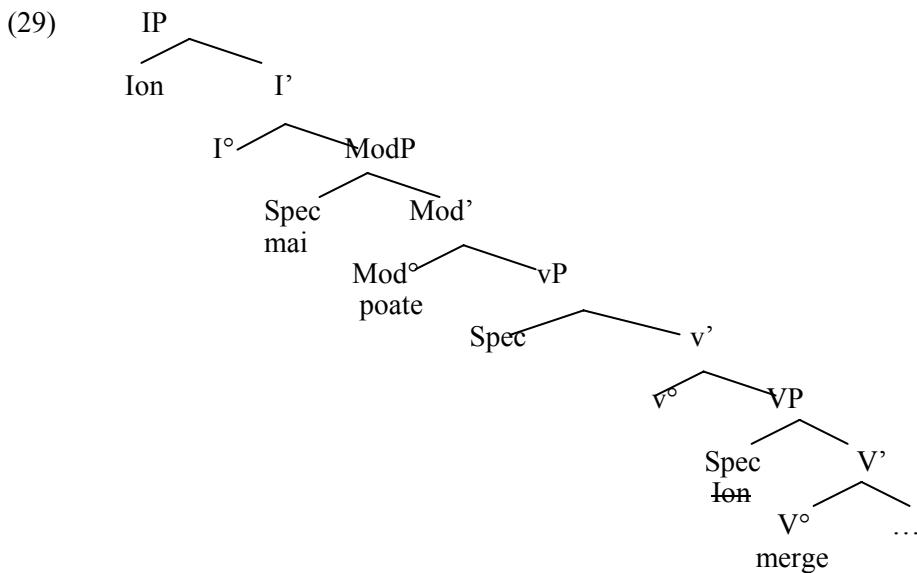
Previous analyses have hardly tackled the issue in an explicit way, but have rather been concerned with the categorical status of this adverb.⁷ In particular, because of its constrained distribution (i.e., low degree of selection, rigid order) and clitic-like properties (i.e., absence of stress, impossibility to scope over coordination), traditional grammars generally label *mai* a 'semi-adverbial' (Ciompec (1985)) or a 'particle' (Nica (1988)). Recent analyses refine the traditional intuition on syntactic grounds and take it to be a clitic (Dobrovie-Sorin (1999), *D\$L* (2001), *GALR* (2005), Mîrcea Vasile (2008, 2009)), an affix (see Legendre (2000), Barbu (1999, 2004)) or an 'intensifier' clitic of the verb (Monachesi (2005)).

⁷ An exception is the semantic analysis proposed by Tasmowski & Reinheimer (2003), to which we will come back in section 4 below.

We will not go into the details of these analyses. We will just intuitively assume that *mai*, as an adverbial element within the VP, occupies the Specifier position of two different categories (cf. also Cinque (1999)). More precisely, depending on the nature of the relevant Aux (i.e., tense Aux or modal Aux), *mai* may respectively be located in the [Spec, vP] position or in the [Spec, ModP] position (cf. also Hill (2009)). Put differently, the structural position of *mai* (when occurring in constructions as the one given in (12a) above) may be represented as follows:



On the contrary, when occurring in constructions such as (13a) above, *mai* may be represented as in (29):



3. TOWARDS A SEMANTIC ANALYSIS

Considering the semantics of *mai* as a VP-modifier, two properties of this adverb become particularly salient: (i) its aspectual sensitivity, which surfaces in two distinct interpretations, that we called iterative / incremental and continuative (see (1a / b) in section 1), and (ii) the fact that the iterative (30a) and incremental (30b) readings are mainly limited to aspectually bounded predicates:

(30) a. Ion a mai citit *Război și Pace* (iterative)
 Ion has MAI read *War and Peace*
 ‘Ion read again *War and Peace*’
 b. Ion a mai citit o carte / un roman. (incremental)
 John has MAI read a book/ a novel
 ‘John read one more book / novel’

As for the first point, it is true that *mai* can modify predicates belonging to different aspectual classes: statives (31) as well as telic / atelic dynamic activities (32) and (32’):

(31) Ion mai e bolnav.
 John MAI is sick
 ‘John is still sick’
 (32) Ion va mai citi un roman.
 John AUX MAI read a novel
 ‘John will read one more novel’
 (32') Ion va mai citi (puțin)
 John AUX MAI read (a little)
 ‘John will go on reading (a little bit more)’

That is to say that, contrary to iterative adverbs (33) or ‘pure’ aspectuals (34), *mai* does not impose aspectual selection; however, as the English translation of the above example shows, its interpretation is directly affected by the aspectual properties of the predicate:

(33) a. John is sick again. (iterative + stative)
 b. Ion e iar bolnav.
 John is again sick
 ‘John is sick again’
 (34) a. *John still arrived. (aspectual + achievement)
 b. *Ion încă a ajuns.
 John still has arrived

The correct descriptive generalization seems to be that *mai* can convey a continuative reading (cf. also Ieremia Arjoca (2005)) when the predicate is a totally homogeneous one⁸, and a non-continuative (iterative or incremental) interpretation when the VP denotes a discrete, atomic event, that is, one that is instantiated by an interval whose boundaries are defined whether by means of grammatical aspect or by compositional arguments.

The atomicity constraint of non-continuative reading can be appreciated also if we look at the predicates of future-oriented sentences. Prospective predicates (i.e., predicates whose time of occurrence follows the Reference Time of the sentence) allow only an incremental or iterative reading of *mai*; once more, this is due to their structural properties, since prospective predicates necessarily describe discrete events (see Condoravdi (2001)). If the predicate is not explicitly marked as prospective by means of a tense auxiliary such as the one in (35), the default interpretation of the present tense is that of a habitual sentence (36), where *mai* has a continuative reading. A prospective interpretation can be obtained, however, for scheduled events (cf. (37) vs. (38)), and the result is, in this case again, an iterative reading:

- (35) Ion va mai citi puțin.
Ion AUX MAI read little
'Ion will read a little bit more'
- (36) Ion mai merge la bibliotecă.
Ion MAI goes at library
'Ion still goes to the library'
- (37) Ion mai vine la Paris la toamnă.
Ion MAI comes at Paris at autumn
'Ion will come again to Paris next autumn'
- (38) *Ion mai este bolnav la toamnă⁹.
Ion MAI is sick at autumn

Finally, we must notice that aspect plays a role in licensing a third reading. When the predicate is perfective, *mai* conveys an interpretation similar to that of a phase aspectual like 'already' (39) or, in the scope of negation, of a quantifier over times ('never', (40)):

⁸ Following Rothstein (2004), we define homogeneity as downward monotonicity (cf. (i)): a predicate *x* is strictly homogeneous when the property *X* that is true of the predicate is also true of each one its sub-parts:

(i) $\forall x[X(x) \rightarrow \forall y[(y \subseteq x \ \& \ \neg y = x) \rightarrow X(y)]]$.

⁹ The contrast between the acceptability of (35) – (37), on the one hand, and the inacceptability of (38), on the other, holds independently of the presence / absence of *mai*. What (38) is meant to show is rather that the incremental interpretation of *mai* in (37) is due to the forward-shifting interpretation of the sentence in the latter case, a interpretation that seems impossible for (38).

(39) Ion spune că a mai mâncaț papaya.
 Ion says that AUX MAI eaten papaya
 'Ion says that he has already tried / eaten papaya'

(40) Ion nu a mai văzut Parisul.
 Ion not AUX MAI seen Paris-the
 'Ion has never seen Paris before'

In the next paragraph we will account for the aspectual sensitivity of *mai* by describing its semantics as an additive item. We will come back to the conditions licensing its particular reading in (39)-(40) (which we will call, for convenience, 'experiential' reading) in sections 3.3 and 4.

3.1. *Mai* as an additive adverb

Starting from the proposal by Davidson (1967), it is a widely accepted theoretical assumption that verbal predicates, besides being relational properties that require a number of arguments depending on their thematic grid, also come with an event argument. This seems uncontroversial for dynamic verbal predicates, as in the original proposal by Davidson, but less so in the case of statives. However, as Kratzer (1995) has subsequently showed, the hypothesis of an event argument seems the best way to account for the semantic distinction that we must acknowledge, within the class of stative predicates, between so-called individual-level and stage-level predicates.

To sum up shortly a complex matter, we may say that a s-level predicate, such as *be sick* in (41a), is predicated of an individual within a specific spatio-temporal frame. On the contrary, an i-level predicate such as *be intelligent* in (41b), behaves like a defining property of the individual it is predicated of, and as such the truth of the sentence is not constrained to a (specific) stretch of time¹⁰:

(41) a. John was sick.
 b. John is intelligent.

If one subscribes to the neo-davidsonian view, and considers events as derived ontological entities defined by the spatio-temporal trace of the relational properties denoted by the verb, the difference between the two classes of predicates may thus be accounted for by means of an explicit event argument in the former case.

¹⁰ The individual / stage level distinction is a matter of predication, and not a lexical primitive (although some properties are best conceived as applying to individuals or stages of individuals by default), and, in this sense, event arguments are logical devices that help pin down the distinction in the relevant cases. We won't take up the discussion here.

As we will see in the following sections, the hypothesis that a class of stative predicates are also located in time *via* a temporal trace will help us to account for the different interpretations that *mai* is subject to. For the moment, we will represent this temporal trace (that defines an interval on the time axis) as an event argument (ε) as a shorthand in logical notation; however, in order to account for the aspectual sensitivity of *mai*, the properties of the interval of instantiation of the predicate will need to be defined more precisely, in terms of interval structure, in the subsequent discussion.

The analysis in terms of event-modification has also another important consequence, which deserves a brief mention. To say that when modifying a stative verbal predicate *mai* modifies the event argument of the predicate implies that the occurrence of *mai* with stative verbs must be kept distinct from AP / AdvP modification, where *mai* behaves like a comparative morpheme, with no aspectual or temporal implications at all. Evidence for this assumption comes also from its distribution. When combining with VPs denoting stative predicates, *mai* presents a different position in the linear order of the clause:

(42) a. Ion e mai bolnav (decât Petre).
 Ion is MAI sick than Petre
 ‘Ion is sicker (than Petre).’
 b. *Ion mai e bolnav (decât Petre).
 Ion MAI is sick than Petre

On the semantic side, there may be a way to explain the occurrence of the adverb as an adjectival modifier without postulating a true polysemy. The common property is, in fact, that in both cases the adverb may be considered the presuppositional item introducing the existence of (at least) a second element situated along the relevant dimension: the comparison standard in (42), or a preceding occurrence in time when modifying verbal predicates.

This is precisely the intuition that we follow in our analysis of *mai* as an additive adverb. In our definition (43), we will subscribe to a standard view (Kartunnen & Peters (1979), König (1991)) and define additivity as a presupposition. Thus, *mai* is characterized by the property of contributing to the hosting proposition a presuppositional content:

When applied to the event domain, a presuppositional analysis such as the one in (43) has two important consequences, the first and most important being the existence of a strict ordering between the presupposed and asserted event. In fact,

since the asserted and the presupposed argument both belong to the event domain, given the pseudo-reductionist ontology of events we are assuming we must consider them to be instantiated in time; as a consequence of the conceptual structure of time as an oriented linear order, the two distinct (i.e., non overlapping) events ($\varepsilon' \neq \varepsilon$) must then be ordered by a precedence relation ($\varepsilon' < \varepsilon$) with respect to each other.¹¹

The ordering constraint between the two events has a second, important consequence: the relation between the asserted and presupposed event can be understood as an anaphoric relation, holding between two (extended or punctual) intervals in time that are identified by a common property.

In our analysis, we will build on the definition in (43) and on its empirical and theoretical consequences in order to explain the distinct interpretations of *mai*; the structural properties of its event argument will account for the continuative vs. iterative / incremental readings, whereas the anaphoric relation between the assertion and the presupposition will be held to be responsible of the ‘experiential’ reading of *mai*.

We will address the two topics in turn in the following sections.

3.3. Additivity on intervals in time

In section 2, while subscribing to the assumption that all predicates (including stative ones) may be represented as having an event argument in their thematic grid, we also underlined the need to refine this definition on aspectual grounds. In other words, the question is: if events are defined by the temporal trace of the predicate that instantiates them, how many structural types of events can we ontologically define?

One possible answer, and one that seems to be implicit also in recent semantic analysis of iterative adverbs (von Stechow (1996), Beck (2001)), is the following: events are logical individuals, and as such they are identified by maximal traces, that is, bounded intervals that have no internal structure.

Following this line of analysis, it seems hard to describe the complexity of the data. On the one hand, the assumption of individual events opens to the implausible existence of negative individuals in negated contexts (44). On the other hand, the aspectual sensitivity of additive aspectual adverbs such as *mai* or French *encore* (45) cannot be accounted for without resorting to polysemy.

(44) Last night, again John didn’t show up.

¹¹ The relevance of an ordering relation between the two event arguments was first noticed by Kripke (cited in Heim (1992)) with respect to the presupposition of the iterative adverb *again*. See also Kamp & Rossdeutcher (1994) and Beck (2007) for further discussion about the anaphoric presupposition of *again*.

(45) a. Il est encore malade. (one continuous event)
 b. Il a encore été malade. (two non overlapping events)
 c. Il a été encore malade. (one continuous event)

(46) a. Ion mai e bolnav.
 John MAI is sick
 'John is still sick'
 b. Ion a mai fost bolnav.
 John AUX MAI been sick
 'John has already been sick'

In what follows, we will then adopt a different perspective, and we will set our discussion in the framework of interval logic, by considering events as defined by intervals of time.¹² More specifically, we will stick to a definition of events as relational properties instantiated by their running time: as such, they can be considered as atomic individuals (if their running time is comprised within a bounded interval), but they can also be defined by unbounded intervals, if the predicate is an imperfective one.

We also assume, as stated in (43), that additivity is the output of presuppositional content in the lexical entry of the adverb: the presupposition of *mai* is characterized as the existence of (at least) another event which is identical to the asserted one except for its running time. The presupposed argument is then construed starting from the information provided by the assertion, that is, by the material that is in the scope of *mai* in the sentence (see von Stechow (1996), Bale (2008)).

With these assumptions, we will show that aspectual information is then the parameter that can explain the different readings of *mai*.

Let's start with the continuative reading of *mai* in (31). The predicate of (31) is stative and imperfective, and thus denotes a totally homogeneous property that is instantiated by an unbounded interval at RT. The input of *mai*, that is, the information entering its presupposition, is then an unbounded interval, and so it is the event in its presupposition. When the boundary of the two intervals is not specified by linguistic information, it cannot be guaranteed that they instantiate two distinct events, that is, two events instantiated by two non-overlapping running times. As a consequence, since the presupposed and the asserted event differ minimally by their running time (see (43)), homogeneous predicates allow the

¹² An interval logic may be construed from an event structure E and an ordering relation (say, the precedence relation, symbolized by \prec). Starting from these two primitives, it is possible to develop a system in which the relation between the members of E are defined in terms of (proper) inclusion and overlap, allowing for a principled account of mereological and topological relations between events in an ordered structure. Although we are by no means going into formal details here (but see, for instance, von Benthem (1983)), we will adopt intervals in our event ontology, and define relations between events on the basis of a precedence relation.

inference that the presupposed and the asserted event belong to the same event, being sub-intervals of a larger interval, hence the continuative reading of *mai* in this case.

The situation is different if the imput of *mai* is a bounded interval, in particularly one whose right boundary appears to be instantiated by grammatical and lexical information or by complementation by quantized arguments (such as in the case of telic activities). Contrary to what happens in the case of events instantiated by unbounded intervals, when the presupposed event is also instantiated by a bounded interval, it ends up being distinguished also ontologically from the asserted one. The result is a reading by which the asserted event is a distinct instantiation of the same property, that is, an iterated event (30a) or, in case of incremental readings (30b), a new occurrence of an event added to an extended sequence.

3.4. The presupposition of *mai*

In (43), we have defined *mai* as an additive particle in the event domain, which contributes a presupposed element to the assertion (cf. also Ieremia Arjoca (2005)). In fact, the presuppositional nature of *mai* is confirmed in most cases by its interpretation in the scope of negation; as expected, the presupposition is preserved (47), differentiating *mai* from aspectual adverbs like English *still* / *yet* (48) or French *encore* (49), in this respect:

- (47) Ion nu mai e bolnav.
John NEG MAI is sick
'John isn't sick anymore'
- (48) a. John is still tired.
b. John isn't tired yet.
- (49) a. Jean est encore fatigué.
'Jean is still tired'
b. Jean n'est pas encore fatigué.
'Jean isn't tired yet'

However, as we mentioned briefly at the end of the preceding paragraph, this is not the case in all contexts. In the scope of negation, the presuppositional content of *mai* seems to 'vanish' in some cases:

- (50) Ion nu a mai mâncat papaia.
(i) 'Ion has never eaten papaya'
(ii) 'Ion hasn't eaten papaya anymore.'
- (51) Ion nu a mai văzut Parisul.
(i) 'Ion has never seen Paris'
(ii) 'Ion hasn't seen Paris anymore.'

The sentences in (50) – (51) have two possible readings. The most prominent one is the one in which Ion has never tried papaya or he has never been in Paris before the relevant reference time. The second interpretation, which is the ‘regular’ presuppositional reading of *mai*, is the one by which Ion has eaten papaya in the past, and he has not eaten it again at the relevant reference time; to get this interpretation, however, a more explicit context of utterance must be provided.

Several factors contribute to the ‘experiential’ reading of *mai* in (51) and (52); indeed, if the object is a quantified DP (52) rather than a bare noun (50), the second, ‘presuppositional’ interpretation is strongly preferred:

(52) De data aceasta, Ion nu a mai mâncat un pepene.
 On time this Ion NEG has MAI eaten an watermelon
 ‘This time, Ion didn’t eat again a (whole) watermelon’

A key to understand the ‘experiential’ reading of *mai* in negative sentences is to look at their affirmative counterparts. Here again, *mai* can convey an experiential interpretation, meaning that the relevant situation of Ion eating papaya or being in Paris has occurred also in the past:

(53) a. Ion a mai mâncat papaia.
 (i) ‘Ion has already eaten papaya.’
 (ii) ‘Ion has eaten papaya again’
 b. Ion a mai văzut Parisul
 (i) ‘Ion has already seen Paris’
 (ii) ‘Ion has seen Paris again’

We suggest that the experiential reading of *mai* is due to the way in which its presupposed argument is accommodated, and that in both cases *mai* should be considered as a presuppositional item, that establishes an anaphoric relation between two distinct elements. To strengthen our claim, we will present, in the next section, some elements of comparison with other Romance languages.

4. CROSSLINGUISTIC DATA

Introducing their discussion of the aspectual semantics of Romanian adverbs, Tasmowski & Reinheimer (2003) consider the diachronic development of aspectual adverbs in five major Romance languages, and show that they have all derived from a few Latin additive particles and deictic expressions (such as *hanc horam* ‘up to this moment’, which developed into Italian *ancora* ‘still, more’

discussed in section 4 (Rohlfs (1969)), or ‘*ad id* ‘up to now’, cf. the Portuguese *ainda*, with the same reading than *ancora*), following in certain cases distinct paths of grammaticalization.¹³

Comparison within Romance languages can thus shed light on the semantics of aspectual adverbs that, at the present day, display different semantic properties; for the interest of the present inquiry, we will draw a tentative comparative analysis between Romanian and Italian, considering in particular Italian adverb *mai*, which developed from the same Latin additive adverbial *magis*, meaning ‘more’. We will also consider the differences and similarities between Romanian *mai* and the additive aspectual adverb *ancora* ‘still, more’ (Tovena (1998), Tovena & Donazzan (2008)), both in standard Italian and in Northern Italian varieties.

4.1. Italian and Romanian *mai*

Both Italian and Romanian *mai* can be shown to have derived from Latin additive particle *magis* (‘more’) (REW (1911)). However, while its positive origin seems uncontroversial, *mai* is presently restricted to polarized contexts in Italian: it must occur in the scope of a negative word ((54a) vs. (54a')), or it is licensed in irrealis contexts, such as questions (54b) or the protasis of conditionals (54c):

- (54) a. Non ho mai visto Pietro.
NEG have mai seen Pietro
'I have never seen Pietro'
- a'. *Ho mai visto Pietro.
Have mai seen Pietro
- b. Hai mai visto Pietro?
Have mai seen Pietro
'Have you ever seen Pietro?'
- c. Se mai vedessi Pietro, digli di venire.
If mai see.SBJ Pietro, tell-him to come
'If you ever happen to see Pietro, tell him to come.'

The difference is not only restricted to distribution, though. Contrary to Romanian *mai*, when in the scope of negation Italian *mai* always quantifies universally over time, meaning ‘not even once’ (54a). In other contexts, however, the difference between the two adverbs seems neutralized (see (54b) and (55)):

¹³ More specifically, Tasmowski & Reinheimer (2003) place *mai* among ‘terminative aspect’ adverbs, considering its interaction with predicate negation (*nu... mai*). The authors, however, do not discuss the repetitive or incremental reading of *mai* in affirmative sentences.

(55) L-ai mai văzut pe Petre?
 him-AUX MAI seen ACC Peter
 (i) 'Have you ever seen Petre ?'
 (ii) 'Have you seen Petre again?'

The question in (55) is an instance of what we called, in section 3.4 above, the 'experiential' reading of *mai*: in its first interpretation (i), with (55) the speaker asks to the addressee if s/he has seen Petre at least once in the past, without necessarily implying that it should have seen Petre at least for the second time (ii). Before trying to find an explanation for the behaviour of the two adverbs in this context, we turn to the description of the Italian adverb *ancora*, which in standard Italian covers some of the aspectual readings of Romanian *mai*.

4.2. Italian *ancora*

(Standard) Italian *ancora* displays a number of important differences, in distribution and semantic content, with respect to Romanian *mai*¹⁴.

Concerning its categorical status, *ancora* is not a clitic-like word; as such, it enjoys a freer distribution than *mai* with respect to other elements within the clause. This in turn correlates with a wider range of possible interpretations (see for instance Tovena (1996), Cinque (1999), Donazzan & Tovena (2008)).

As for its semantics, then, when combining with stative predicates *ancora* behaves like a genuine phase adverbial (55a/b): while Romanian *mai* preserves its presupposition under the scope of a negative operator (see (47)), *ancora* gives rise to phase reversal (56b).¹⁵ With telic / atelic activities, on the contrary, it displays the same interpretations as Romanian *mai* in positive contexts, see (57) and (32) and (32') in section 3:

(56) a. Piero è ancora stanco.
 Piero is ANCORA tired
 'Piero is still tired'

¹⁴ Italian adverb *ancora* shares many semantic properties with Romanian *încă* (also meaning 'still'). A throughout comparison between *ancora* and *încă* would be, of course, interesting in its own respect; however, the issue goes beyond our present concern on the semantics of *mai*, and we must leave this topic for future research.

¹⁵ When additive *ancora* is stressed, another reading is possible: in (A), it is only the presupposition carried by *ancora* which is negated, whereas the main predicate event is asserted to occur:

(A) a. Piero non è **ancora** stanco.
 Piero NEG is ANCORA tired
 'Piero is not tired again' (... it is the first time that he gets tired)

This reading in fact parallels the interpretation of genuine iterative adverbs like English *again* in sentence final position (Bale (2007)), thus supporting the analysis of *ancora* as a presuppositional item:

b. John didn't come **again** (he came only for the first time).

b. Piero non è ancora stanco.
 Piero NEG is ANCORA tired
 'Piero isn't tired yet'

(57) a. Piero leggerà ancora (un po').
 Piero read.FUT ANCORA (a little)
 'Piero will go on reading (a little more)'

b. Piero leggerà ancora un romanzo.
 Piero read.FUT ANCORA a novel
 'Piero will read one more novel'

If we consider *ancora* to be an additive aspectual particle, as suggested by Tovena (1998) and, more recently, Tovena & Donazzan (2008), the comparison of *mai* with *ancora* in some Northern Italian varieties (here, the Paduan data in (58)) may shed some light on the semantics of the two adverbs.

In (58a), Paduan *ancora* conveys the same 'experiential' reading that we noticed for Romanian *mai* (see § 3.4 above, and also (59a) below):

(58) a. Piero el dize ch'el ga sercà ancora a papaya.
 Piero CL says that-CL has tried ANCORA the papaya
 'Piero says that he has already tried papaya (once in the past)'

(59) a. Ion spune că a mai mâncat papaia.
 Ion says that has MAI eaten papaya
 'Ion says that he has already tried papaya (once in the past)'

However, it should be noted that (58a) can be uttered with this interpretation only if the speaker is facing an occurrence of the same event. That is, the argument of *ancora* needs to be anchored to the time of utterance in this case: this is what gives to the presupposition of *ancora* in this context an experiential flavour, and it is a reading that Standard Italian *ancora* seems to have lost.¹⁶

If we look now at the negated counterpart of (58a), it appears that to deny the occurrence of a similar event in the past, (standard and regional) Italian recurs to *mai* (58b). Once again, in the Romanian counterpart (59b) the same meaning can be expressed by *mai*. The presupposition of *mai* is not preserved under negation in this context:

(58) b. Piero el dize che no'l ga mai sercà a papaya.
 Piero CL says that NEG-CL has MAI tried the papaya
 'Piero says that he has never tried papaya'

(59) b. Ion spune că nu a mai mâncat papaia.
 Ion says that NEG has MAI eaten papaya
 'Ion says that he has never tried papaya'

¹⁶ Standard Italian expresses the same meaning with the aspectual adverb *già* ('already') in this case.

We suggest that the experiential reading of *ancora* and *mai* in (58) and (59) derives from the fact that, in the relevant examples, the event is asserted or negated to occur at a certain Reference Time (which, in the examples at hand, coincides with the Utterance Time). If we analyze the two adverbs in (58) and (59) as additive particles whose presupposition is recovered anaphorically, in this particular situation a standard additive analysis predicts the desired result in affirmative sentences: the asserted event is indexed with UT, and the presupposed event is interpreted as (at least) once in the past.

As for its negative counterpart, the fact that the occurrence of the (asserted) event is negated at UT leads to the loss of its anaphoric content as well. The result looks like universal quantification up to UT (i.e., ‘not (even) once in the past’).

5. CONCLUSIONS AND REMANING ISSUES

We have proposed an analysis of Romanian *mai* as an additive particle on events, showing that this analysis can account for its distinct interpretations as an aspectual and an iterative adverb by appealing to its sensitivity to the aspectual properties of the predicate that it modifies.

Our analysis has been further supported by a comparison with aspectual adverbs in other varieties of Romance languages. We considered, in particular, Italian NPI *mai* (which has the same diachronic origin than Romanian *mai*) and Italian additive aspectual adverb *ancora*, and we have shown that the different interpretations of Romanian *mai* can be covered partially by these two adverbs. In particular, in Northern Italian dialects we find an occurrence of *ancora* which seems to be co-indexed with the Reference Time of the sentence, and which has, in this context, the same ‘experiential’ interpretation of Romanian *mai*. In the scope of negation, both Romanian *mai* and Northern Italian *ancora* convey then a reading akin to universal quantification, which is expressed in the two cases by the same lexical item. Pursuing this line of analysis can maybe provide some new evidence about the development of ‘aspectual’ NPIs such as ‘never’ in Romance languages.

The proposed analysis of *mai* as a monosemic additive adverb, whose interpretation depends on the aspectual properties of the verbal predicate, if tenable, can be taken as a start for motivating the different readings of *mai* with respect to its structural position at the syntactic interface, and as such it should be tested within independent theories of aspect at the interface.

In section 2.3, we sketched a hypothesis about the position of *mai* with respect to the verbal predicate, without considering its scopal relation with tense and aspectual heads. However, the claim that VP-adverbs may occupy distinct positions with respect to aspectual projections is not new. In the framework of his cartographic project, Cinque (1999) gives an accurate description of the distribution of aspectual adverbs, as a clue to the distribution of aspectual heads in the VP. Lexicalist approaches, such as Tenny (2000), also consider the

interpretation of VP-adverbs with respect to wider semantic zones defined by the scope of distinct aspectual operators. The discussion of our proposal within the existing syntactic frameworks is a task that goes far beyond our modest goal; however, our contribution can mark a starting point for further research.

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