

Aspectual Constraints on Italian Absolute Phrases

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1 Introduction

In this paper¹ I am going to provide an integrated syntact semantic account of Italian Absolute Phrases (APs) from the point of view of a monostratal constraint based linguistic theory. While most of the paper focusses on APs headed by past participles, I will show in section 5 that the proposed principles of AP's formation naturally apply to other predicative categories, thus providing a complete theory of absolute constructions in Italian.

1.1 The phenomenon

Italian APs usually occur in a sentence initial position, playing the role of temporal modifiers². They are possible with transitive and unaccusative past participles, as shown in (1) and (2), respectively

- (1) Maltrattata Maria, Carla partì
 Mistreated-FEM.SING Maria-FEM.SING, Carla left
 After having mistreated Maria, Carla left
- (2) Partita Maria, la mia vita cambiò
 Left-FEM.SING Maria.FEM.SING, my life changed
 After Maria's departure, my life hanged

An NP is usually present, as in (1) and (2). However unaccusatives can lack of their subject, thus being involved in a control configuration:

- (3) PRO_i scesa dal taxi, Maria_i scoppiò a piangere
 Descended- FEM.SING from the taxi, Maria burst into tears

The same control relation holds for the subject of transitive APs, which is never expressed.

- (4) a. PRO_i bevuto un bicchiere di vino, Maria_i partì
 Drunk a glass of wine, Maria left
- b. * Bevuto Mario un bicchiere di vino, Maria partì
 Drunk Mario a glass of wine, Maria left

Unergative verbs can form, under certain semantic conditions, APs, but they are always ungrammatical when the subject NP is present:

- (5) Vendemmiato in fretta e furia, i contadini lasciarono la campagna
 Harvested in a great hurry, the farmers left the country
- (6) * Vendemmiato in fretta e furia i contadini, lasciarono la campagna
 Harvested in a great hurry the farmers, left the country

Passive forms are always grammatical in APs:

- (7) Abbandonata da tutti, Maria viveva in solitudine
 Abandoned-FEM.SING by everybody, Maria.FEM.SING was-living in loneliness

¹I am deeply indebted to P. M. Bertinetto and I. Sag, whose suggestions have been precious for the advancement of this research. I also benefited of comments and criticisms by R. Manzini, P. Monachesi, J. Pustejovsky and H. de Swart. All errors are mine.

²Other readings are in fact available, but they are always additional w.r.t. the temporal meaning, which is considered the basic one.

The past participle agrees with the NP contained within the AP, irrespective of its grammatical function. So in (1) the past participle of the verb *maltrattare* 'mistreat' agrees in gender and number with the object NP *Maria*. The same holds for (2), where the NP is the subject of *partire* 'leave'.

As for case, unaccusative verbs select nominative, transitive ones select accusative:

(8) Partito io, nessuno ha piú nutrito Fido

Left I.NOM, nobody has fed Fido

After my departure, nobody has fed Fido

(9) Vistala, se ne innamorò

Seen her.ACC.cl, he fell in love with her

After having seen her, he fell in love with her

1.2 The Challenge

Commenting on Belletti (1992) analysis of Italian absolute past participle phrases, Stowell (1992) claims:

This, I think, is the chief significance of Belletti's analysis for the dispute over passives, since it implies that "passivization" is a syntactic rather than a lexical process (apart from morphophonemic details). I submit that it is almost impossible to account for her facts in a principled manner in terms of a theory that rejects all movement rules and that treats passive and unaccusatives as lexical and syntactic intransitives in every respect. (p. 49)

In this paper I will provide an analysis of Italian APs completely based on lexical rules, trying to show that:

- a. Stowell's claim is false.
- b. Every approach solely based on movement rules cannot account for the complex interactions between syntax and semantics which are exhibited by APs.
- c. Since APs show the same syntactic and semantic behaviour when headed by adjectives, prepositions, nouns and adverbs, every approach heavily based on the use of functional projections, such as Belletti's one, has to commit itself to the assumption that each one of such categories can be the lexical head of CP, TP, AGRP projections.

1.3 The Framework

The theoretical framework which my analysis is based on, is Head-driven Phrase Structure Grammar (HPSG: see Pollard and Sag (1987) and Pollard and Sag (1994)). For a full comprehension of the content of this paper, the reader should keep in mind the following features of HPSG:

Monostratality.

In one important respect, HPSG differs from all the syntactic theories which have influenced its development, for it is not at heart a theory of syntax. Rather, it is concerned with the interaction among all the forms of information that bear upon the linguistic meaning relation, including (inter alia) both the syntactic information borne by signs (roughly, their syntactic category and constituent structure) as well as their semantic content. Pollard and Sag 1987, p. 16

This means that there is no separate level of representation (say LF) which works as an interface to the interpretative module. Rather, the logical form of utterances is build up on a pair with their syntactic structure: every sign, be it lexical or phrasal, has a **CONTENT** attribute where its (possibly partial) semantic representation is encoded.

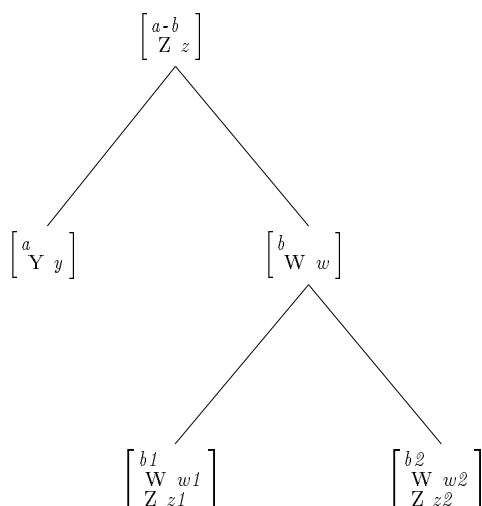
Lexicalism. In HPSG (as in other frameworks, such as GB or CG) the lexicalization of linguistic information makes it possible a drastic reduction of the number of phrase structure rules. Only a small set of language independent principles is assumed in order to build up the syntactic and semantic representations of utterances. As a side effect a heavy stress is put on the lexicon, which is seen as a set of linguistic signs which can be dynamically expanded by means of appropriate devices, i.e. *Lexical Rules*. A lexical rule is a device of the form $A \rightarrow B$: it means that every lexical sign satisfying the conditions in A has a correlative lexical sign which satisfies the conditions in B .

Type Theory

(...) language users have knowledge of a taxonomic system of lexical *types*. That is, lexical information is organized on the basis of relatively few word types arranged in cross-cutting hierarchies which serve to classify all words on the basis of shared syntactic, semantic and morphological properties. By factoring out information about words which can be predicted from their membership in types, the amount of idiosyncratic information that needs to be stipulated in individual lexical signs is dramatically reduced. Pollard and Sag 1987, p. 192

A couple of properties of type hierarchies are worth to be explored, as they will play a central role in the following sections. Assume the following fragment of a hierarchy (types are written in italics):

(10)



What (10) states is a set of well-formed conditions over objects of type $a-b$ (and its subtypes a , b , $b1$, $b2$). First of all, it says that an object of type $a-b$ is *appropriate* for an attribute Z with value z (z is in turn a type). Among the objects of type $a-b$ we can distinguish between objects of type a and objects of type b : objects of type a bear the additional attribute Y , whereas objects of type b bear the additional attribute W . Since the system is assumed to be *well typed*, if an object bears an attribute Y we are then able to infer that it is of type a . Moreover, since the system is *totally well typed*, if an object is of type a we are able to infer that it will have an attribute Y with value y . Also values can contribute to the creation of more specific types. For instance $b1$ and $b2$ bear exactly the same attributes, but they are distinct in that these attributes have different values (I am assuming that $z1$ $z2$ and $w1$ $w2$ are subtypes of z and w respectively). Again the totally well-typedness assumption allows us to infer that if an object has a feature $[W=w1]$ it has to have also a feature $[Z=z1]$ and must be of type $b1$.

A further assumption is made in Pollard and Sag (1994): the system has to be sort resolved. This means that every object has to be of a terminal (i.e. most specific) type. For instance (10) licenses only the following set of objects: $\{[Y=y, Z=z]^3, [W=w1, Z=z1], [W=w2, Z=z2]\}$. This doesn't affect the possibility of having *partial* descriptions: we can still describe an object as being of type b : however, the objects actually matching such a description will be either of type $b1$ or of type $b2$. This property plays a central role in modelling the morphology-syntax interface: morphological rules can be described as nodes in a type hierarchy constraining the relative values of phonological, syntactic and semantic attributes: full inflected forms are leaves in such a hierarchy.

2 The External Semantics of APs

I will argue that there are basically two kinds of APs, generated by distinct lexical rules: A(bsolute) A(spectual) P(hrases) and A(bsolute) P(redictive) P(hrases). This distinction mirrors the fact that we are able to find sentence initial participial phrases whose links with the matrix clause are rather loose and whose main semantic import is constituted by a relation of temporal precedence (AAPs), as well as analogous phrases which act mainly as predicates over one of the matrix clause participants (APPs). For the time being let's distinguish the two classes by the fact that AAPs are generally headed by a transitive (11) or unaccusative (12) past participle, while APPs are headed by a passive past participle (13).

- (11) Maltrattato Giovanni, Carla partì
Mistreated Giovanni, Carla left

³In fact, since z has two subtypes, this is not a sort resolved object, but a description for $\{[Y=y, Z=z1], [Y=y, Z=z2]\}$.

- (12) Partita Maria, la mia vita cambiò
Left Maria, my life changed
- (13) Ammirata da tutti, Carla pronunciò il discorso
Admired by everybody, Carla read the talk

In fact it will become evident that this gross grained distinction cannot hold: certain unaccusative verbs are able to originate APPs, while certain passives are ambiguous between APPs and AAPs.

2.1 The tempo-aspectual system

One of the key distinctions between APPs and AAPs can be found in the kind of aspectual relation they entertain with the matrix clause. To capture this distinction, I will introduce a treatment of tense and aspect into the HPSG machinery. I will also sketch out a method for building temporal representations of composed verbal forms out of the meaning of auxiliaries and past participles. Such an approach will rely on the assumption that passive past participles need to be distinguished from aspectual ones, an assumption which will prove crucial in accounting for the behaviour of APs.

As van Eynde (1990) shows, a treatment of tense and aspect entirely based on unification is possible, and, what it is more, it seems to be able to cover in a reasonable way most of the facts found at least in European languages. The treatment I will provide here can be seen as an extension of van Eynde's one (which was formulated in terms of untyped feature bundles rather than typed feature structures).

Following the time honored raichembachian tradition, I will assume three intervals on the temporal axis, namely the event time (E), the reference time (R) and the speech time (S). Three possible *temporal relations* order R and S: precedence (\prec), consequence (\succ) and equivalence (\equiv). Seven possible *aspectual relations* order E and R: some of them are shown in fig. 1.

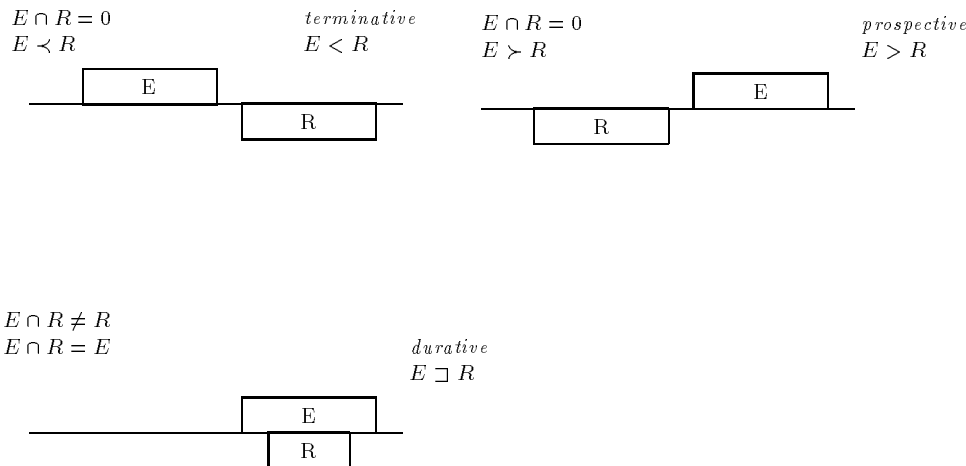


Figure 1: Some possible relations among intervals

Following Pollard and Sag (1987) and Fenstad et al. (1987), a.o., I assume that each verbal relation, besides the usual semantic roles, stems from the lexicon with an attribute LOC having an indeterminate as a value. Here LOC is simply identified with E. The other two intervals, R and S, are associated with contextually given indeterminates. Temporal and aspectual relations are encoded as values of TEMP-R and ASP-R attributes, which are in turn attributes of CONTENT: TEMP-R contains a predicate over an S-index and an R-index, while ASP-R contains a predicate over an E-index and an R-index. A full fledged located state of affairs for *Gianni é arrivato* ("Gianni has arrived") would therefore look like (14), whose graphical representation is given in fig. 2.

(14)

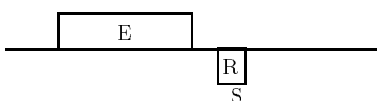
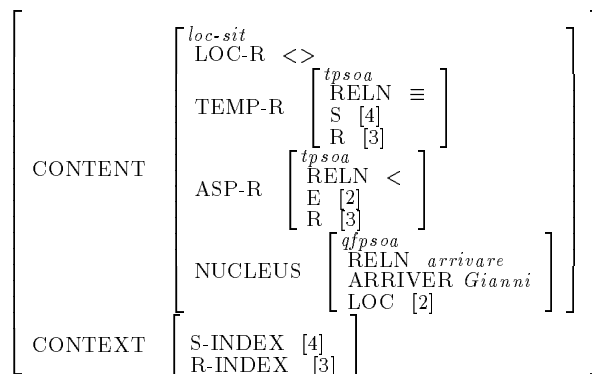


Figure 2: A graphical representation of *Gianni é arrivato*

Not every element of the verbal system needs to be typed for having both aspectual and temporal values. In particular, in order to achieve a compositional treatment of tense and aspect⁴ I will assume that:

1. Finite verbs (either auxiliaries or full verbs) are typed as bearing both aspectual and temporal relations⁵ (i.e. they are typed for both **TEMP-R** and **ASP-R**).
2. Full finite verbs are generated by morphological rules which instantiate both **TEMP-R** and **ASP-R**.
3. Finite aspectual auxiliaries introduce only a temporal relation, remaining unspecified as for their **ASP-R** value.
4. Aspectual past participles are typed as introducing *only* an aspectual relation.
5. The tempo-aspectual meaning of composed verbal forms is obtained merging the aspectual information of the past participle (**ASP-R**) with the temporal information of the auxiliary (**TEMP-R**). How this merging is achieved is a trivial technical matter which I will not deal with in any detail here.

Italian aspectual past participles, in particular, introduce a *terminative* relation which orders E as preceding non overlapping R, while passive past participles do not set their **ASP-R** relation to any specific value. This trivially reflects our intuition that in a passive sentence the whole burden of tempo-aspectual features is carried by the auxiliary. Less trivially, it reflects the different behaviour of passive and unaccusative past participles in nominal modification: while unaccusatives, (15), always set a terminative relation w.r.t. the matrix event time, passives, (16), show a wider range of possible interpretations:

(15) Giacomo ha parlato con un ragazzo vissuto a Roma
Giacomo has spoken with a boy lived in Rome

(16) Giacomo ha rubato il tesoro custodito dai Nibelunghi
Giacomo has stolen the treasure watched by the Nibelunghi

⁴It is a well known fact that a fully compositional treatment of composed forms is hard to achieve, in particular for a language like Italian: here I am describing an approach accounting only for compositionally derivable tempo-aspectual meanings. Exceptions should be handled by different strategies.

⁵The fact that auxiliaries may bear an aspectual relation is due to technical reasons, as their **CONTENT** has to satisfy the HPSG semantic principle, which states that the content of a semantic head is structure shared among all levels of projection.

In (16) the action of stealing the treasure can be interpreted as overlapping with the one of the Nibelunghi watching it, even if this is not the only possible reading. No similar interpretation is however available for (15), where the state of the boy living in Rome has to precede Giacomo's talk. This aspectual difference can be made clearer if we consider the behaviour of perception verbs with naked complements: it's a well known fact that the event expressed by the subordinate small clause has to be temporally included into (or anyway overlap with) the perception act. But then, we should expect passive past participles be acceptable as naked complements of perception verbs, while unaccusative past participle should be banned as unable to express this overlapping relation. This prediction is fully confirmed:

(17) Giacomo ha visto Roma abitata/devastata dai nemici
 Giacomo has seen Rome inhabited/devasted by the enemies

(18) *Giacomo ha visto Angela (vissuta a)/(partita per) Parigi
 Giacomo has seen Angela (lived in)/(left towards) Paris

This is not to say that passives can be only durative: passives forms can express any aspectual relation, as they are aspectually uninstantiated: the context can provide a disambiguation, but ambiguous sentences are perfectly possible, as in:

(19) Ho incontrato il ragazzo amato da Caterina
 I met the boy loved by Caterina

where is not clear whether I am referring to an ongoing love relationship or to a past one. For an example of a passive expressing a prospective relation, consider a sentence such as

(20) Parlai a lungo con un uomo ucciso dalla mafia di li' a pochi giorni
 (I) spoke a long time with a man killed by mafia after few days

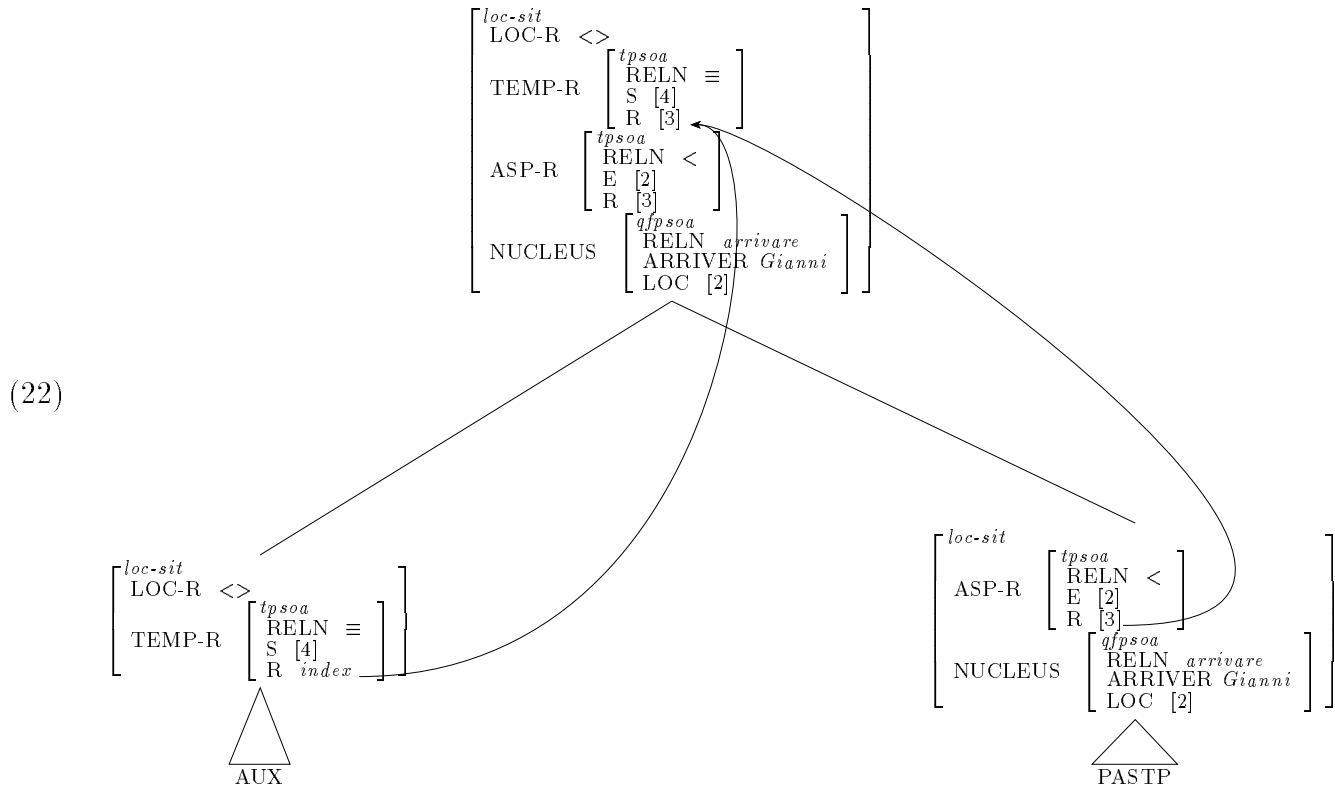
and contrast it with (21), where an almost synonymous unaccusative past participle has been substituted:

(21) ?? Parlai a lungo con un uomo morto di difterite di li' a pochi giorni
 (I) spoke a long time with a man dead for diphtheria after few days

A further evidence is provided by APs, as we will see in the next section.

2.2 The Semantics of APs

In the present approach the final tempo-aspectual representation of composed verbal forms is build up by identifying the R index introduced by the past participle with the one introduced by the finite auxiliary:



Here the R index introduced by the past participle is structure shared with the R index of the auxiliary and ordered with respect to the S interval via the **TEMP-R** attribute. An analogous identification has to be performed also when the past participle acts as a modifier, as its temporal location is dependent on the matrix clause location. Let's call E_a R_a and E_m R_m the indices associated with the AP and the matrix clause, respectively. The meaning of an AP will be an aspectual relation between E_a and E_m which is obtained anchoring R_a to E_m ⁶. In a formula, the abstract representation of AP modification should look like:

⁶This is not at all a trivial assumption. Indeed most influential works on the semantics of temporal connectives (Heinämäki (1978), Hinrichs (1981), Partee (1984) and de Swart (1993), a.o.) tend to consider the semantic import of connectives like *after* or *après que* as a relation between two reference times (for instance in de Swart (1993) *après que* sets a relation such as $E_a < R_a < R_m$) rather than two event times. In fact there is contrasting evidence. On one hand it is not clear how the traditional approach would account for the fact that in a sentence like

- (23) Finito il film, Giovanni era uscito a comprare una bottiglia di whisky
 Finished the film, Giovanni had-IMP gone out to buy a bottle of whisky

there is no possibility of interpreting the matrix event as preceding the subordinate one (this, however, is a logical possibility in the representation: $E_a < R_a < R_m \wedge E_m < R_m$).

On the other hand in a sentence like

- (24) Finito il film, stava male
 Finished the film, (he) was sick

the most plausible interpretation is the one such that the ending of the film occurs *within* the state of sickness, which is impossible in the present approach. A tentative explanation of this fact could stem from the consideration that this temporal overlapping is found when the verb in the subordinate clause is an aspectual one (*finire*, finish): in (25) there is no possibility of interpreting the state of being sick as contemporary to the event of getting the aspirine, in spite of its pragmatic plausibility:

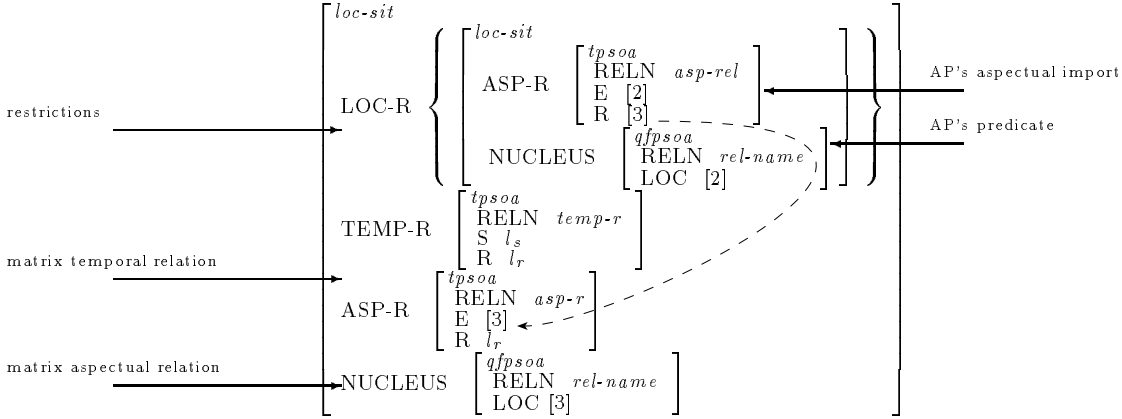
- (25) ?? Presa l'aspirina, stava male
 Got the aspirine, (he) was sick

So, it seems that the troublesome interpretation of (24) is connected with the peculiar aspectual configuration of a verb like *finire*, which, even if followed by a direct object, is able to trigger event coercion (in the sense of Pustejovsky (1991)), thus resulting into a much more complex predicate than a simple past participle (see Dini and Busa (1994) for an interpretation of type coercion in HPSG). Another possible solution (Bertinetto, p.c.) would consist in adopting a system, such as the one described in Bertinetto (1986), where a further point is assumed (*localizer* (L)), and performing anchoring operations always w.r.t. that point. Both solutions would deserve a lot of detailed explanations, so, in the following, I will simply assume the gross-grained identification $E_m \equiv R_a$.

$$(26) \exists e_m \exists e_a [at(e_m, E_m) \wedge ASP-R(E_m, R_m) \wedge TEMP-R(R_m, S) \wedge at(e_a, E_a) \wedge E_m \equiv R_a \wedge ASP-R_2(E_a, R_a)]$$

Where *TEMP-R* and *ASP-R* are variables over temporal and aspectual relations, respectively. The identification of the relevant indices is represented by the equation $E_m \equiv R_a$. The same formula can be represented as a feature structure, and the index identification is realized by the structure sharing marked by the dotted arrow:

(27)



In (27) l_s and l_r are two contextually anchored indeterminates for S and R respectively, while **LOC-R** is a set containing the tempo-aspectual restrictions over the main **LOC** index⁷.

Once we have performed a correct anchoring to the matrix clause E-index, we have still to determine which kind of aspectual relation is the one which relate the subordinate event time with the matrix one (i.e. to which kind of predicate we have to set the variable *ASP-R₂* in (26)). In normal cases of temporal subordination this relation is fulfilled by the content of the head of the modifying construction: for instance in *after*-clauses we can say that the word *after* sets a precedence relation between the subordinate clause and the matrix one. In APs there is no overtly realized temporal connective able to order the matrix and the subordinate event times; thus, either a phonetically null connective is hypothesized or the absolute verbal head is assumed to introduce directly such an ordering relation. Since the introduction of phonetically empty categories is rather extraneous to the HPSG spirit, I will pursue the latter hypothesis and assume that the aspectual meaning of the construction is already present on the verbal head: in other words the *ASP-R* value of the past participle is retained in absolute constructions and has to denote a relation between the E-index of the AP and the E-index of the matrix clause (via the identification of the latter with the R-INDEX of the AP). APs headed by aspectual past participles (i.e. active forms of either transitive, unergative or unaccusative verbs) should then be able to set only a terminative relation ($E_a < R_a$), while APs headed by passives, with no autonomous aspectual meaning, should be in principle available for any aspectual determination. The following examples confirm this prediction:

(28) Insultato da tutti i professori, il linguista si suicidò
Mistreated-MASC.SING by all the professors, the linguist.MASC.SING committed suicide

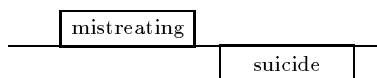
(29) Insultatolo , il linguista si suicidò
Mistreated-MASC.SING-him.MASC.SINL.cl, the linguist committed suicide

Sentence (28) belongs to the latter type (APP) and, not surprisingly, is neutral w.r.t. the aspectual interpretation. The mistreating event, causative nuances apart, can be interpreted either as being concluded at the moment of the linguist's suicide or contemporary to it, thus allowing (at least) for the following temporal orderings:

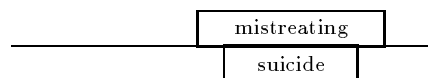
(30)

⁷I will not spend any word to show how this set is obtained. It is a trivial technical matter which would nevertheless imply a detailed explanation of the whole HPSG semantic machinery.

a) *terminative*
 $E_a < E_m$



b) *durative*
 $E_a \supset E_m$



On the contrary, the only available interpretation of (29) (an AAP, as signaled by the presence of an accusative clitic) is the one where the mistreating action has to precede, with no overlapping, the matrix event (i.e. (30.a)).

As a confirmation of these aspectual differences, consider also the behavior of Italian *imperfetto* with subordinate clauses:

(31) ?? Dopo averlo insultato, il linguista passeggiava nervosamente
 After having mistreated him, the linguist walked nervously

(32) Mentre veniva insultato il linguista passeggiava nervosamente
 While being mistreated, the linguist walked nervously

In these contexts the use of *imperfetto* in the matrix clause is accepted only if the main event is included into a larger one⁸. This inclusive relation is satisfied in (32), as this is exactly the kind of semantic contribution of *mentre* 'while' (i.e. (30.b)), but not in (31) where the subordinative conjunction *dopo* 'after' marks a terminative relation (i.e. (30.a)). As expected, only APPs, to which both meanings represented in (30) are available, are grammatical in such contexts:

(33) * Insultatolo, il linguista passeggiava nervosamente [AAP]
 Mistreated him, the linguist walked nervously

(34) Insultato da tutti, il linguista passeggiava nervosamente [APP]
 Mistreated by everybody, the linguist walked nervously

In stylistically marked contexts APPs can even be used to express a *prospective* ($E_m < E_a$) aspectual relation:

(35) In futuro acclamato dalle folle, Elvis trascorse l'infanzia chiuso nello sgabuzzino delle scope
 In future applauded by the crowd, Elvis spent his childhood closed in the lumber room of brooms

In the same contexts, AAPs, which do not share the same aspectual variability, are always ungrammatical:

(36) * In futuro raggiunto il successo, Elvis trascorse l'infanzia chiuso nello sgabuzzino delle scope
 In future reached the success, Elvis spent his childhood closed in the lumber room of brooms

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To sum up we have shown that AAPs and APPs are different constructions from the point of view of their semantic interpretation. Pursuing the initial assumption that heads of APs are generated by lexical rules, we could try to give a preliminary semantic characterization of them⁹:

(37) **AAP lexical rule** (external semantic)

$$\left[\begin{array}{c} \text{CONTENT} \left[\begin{array}{c} \text{loc-sit} \\ \text{ASP-R} \left[\begin{array}{c} \text{tpsoa} \\ \text{RELN} \text{ asp-rel} \\ \text{E} [1] \\ \text{R} [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\text{MOD nil} \right] \end{array} \right] \rightarrow \left[\begin{array}{c} \text{CONTENT} \left[\begin{array}{c} \text{loc-sit} \\ \text{ASP-R} \left[\begin{array}{c} \text{tpsoa} \\ \text{RELN} \text{ terminative} \\ \text{E} [1] \\ \text{R} [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\text{MOD S} \left[\begin{array}{c} \text{loc-sit} \\ \text{CONTENT | ASP-R} \left[\begin{array}{c} \text{tpsoa} \\ \text{E} [2] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

⁸In fact it is acceptable in stilistically marked texts as an *imperfetto narrativo* Bertinetto 1986, 381-389.

⁹From here on, I will omit irrelevant attributes from the representation of feature structures.

(38) **APP lexical rules** (external semantic)

$$\left[\begin{array}{c} \text{CONTENT} \left[\begin{array}{c} \textit{loc-sit} \\ \text{ASP-R} \left[\begin{array}{c} \textit{tpsoa} \\ \text{RELN} [3] \\ \text{E} [1] \\ \text{R} [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\text{MOD } \textit{nil} \right] \end{array} \right] \rightarrow \left[\begin{array}{c} \text{CONTENT} \left[\begin{array}{c} \textit{loc-sit} \\ \text{ASP-R} \left[\begin{array}{c} \textit{tpsoa} \\ \text{RELN} [3] \\ \text{E} [1] \\ \text{R} [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\text{MOD } \mathbf{S} \left[\begin{array}{c} \textit{loc-sit} \\ \text{CONTENT | ASP-R} \left[\begin{array}{c} \textit{tpsoa} \\ \text{E} [2] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

Both rules state that for each past participle in the lexicon, there is a related lexical entry able to act as a sentential modifier (this is expressed by the change [MOD *nil*] → [MOD **S**]). The visibility over the CONTENT of the matrix clause via the MOD attribute makes possible the identification of the matrix E-index with the absolute R-index, which is performed by the structure sharing marked by the dotted arrows. As for the aspectual differences we noted through this section between AAPs and APPs, they are accounted by the constraints put on the ASP-R attribute: (37) says that AAPs' heads (asp-rel is a supertype subsuming every possible aspectual relation), the output will always set a terminative relation; (38), on the other hand, states that APPs preserve the aspectual meaning of the input form (the tag [3] serves as a variable), thus accounting for the aspectual variability of passive APs. We will see in the next section that this distinction is perfectly mirrored by syntactic facts.

3 Argument structure and semantic constraints

In this section I am going to show that the semantic constraints stated in the previous section are linked to two different syntactic configurations. I will start briefly introducing the standard HPSG interpretation of the notions of argument structure and valence structure, showing in 3.2 how they can be modified in order to account for certain facts concerning ergativity in Italian. In section 3.3 I will show that this independently motivated approach to ergativity is able to explain the syntactic behaviour of both APPs and AAPs.

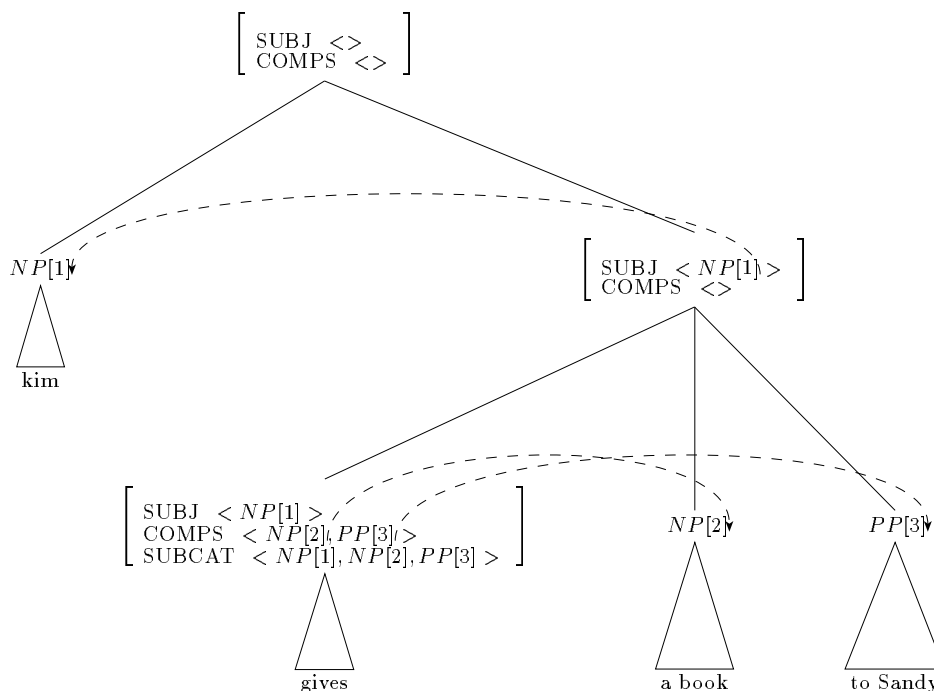
3.1 Preliminaries

Each word stems from the lexicon with three (possible empty) lists: SUBJ, COMPS and SUBCAT. SUBCAT contains a list of categories which form the *argument structure* of a lexical head, i.e. its selectional properties irrespective of the level of phrasal projection: in this sense it is much like the GB subcategorization frame. SUBJ and COMPS (which are grouped together under the label *valence structure*) can be seen as a snapshot of the selectional properties of a head *at a given level of projection*. For instance if a valence list of a lexical head H contains three element A, B and C and if H' (projection of H) dominates A and B, the same valence list on H' will contain only C. In particular SUBJ is assumed to contain the external argument, while COMPS is a list of (internal) complements. This structuring of the valence lists allows an elegant principle-based formulation of a version of the X-bar theory, according to which a sentence like

(39) Kim gives a book to Sandy

would result in the following representation:

(40)



As the dotted arrows in (40) signals the objects contained in the valence lists are categories which are matched (i.e. unified) against the sign(s) actually retrieved at the various levels of projection. If the matching fails the whole structure is rejected.

Under this perspective agreement phenomena can be accounted for as subcases of argument selection: a verb with a third singular inflection is a verb which subcategorizes for a third singular subject¹⁰.

Case assignment is performed in the same way: a verb assigning nominative to its subject and accusative to its object is simply a verb with the following valence structure:

(41)

$$\left[\begin{array}{l} \text{SUBJ} < NP[\textit{CASE nom}] > \\ \text{COMPS} < NP[\textit{CASE acc}] > \end{array} \right]$$

This does not mean that agreement and case properties need to be stated for each single lexical entry. Generalizations are possible either via the rules linking morphology to syntax (see Pollard and Sag (1987)) or by stating an appropriate type hierarchy constraining the possible values of the various features (see Kathol (1994) and Riehemann (1993)). In the following I will show how the latter strategy can be applied in order to give a satisfactory account of a fragment of the Italian verbal system.

3.2 The Italian Unaccusative System

3.2.1 The Main Hypothesis

Whether unaccusativity is tackled from a typological point of view Dixon (1979) or dealt with in frameworks such as Relational Grammar Perlmutter (1978) or GB Burzio (1986), it can be conceived as a sharing of properties between objects of transitive verbs and subjects of unaccusative/passive constructions. Assuming this intuition as basically correct, I will model the valence structure of Italian verbal signs along the following lines: the subject of a transitive or unergative verb is the unique member of the SUBJ list; the subject of a passive or unaccusative verb¹¹ is the first NP in the COMPS list:

¹⁰In fact a more sophisticated system will be exploited below.

¹¹It goes without saying that both unaccusatives and passives need not to be listed in the lexicon: in particular derived unaccusatives are generated by a *non morphological* operation changing both the argument/valence structure and the semantics of certain transitive stems; passives are generated by a *morphological* operation changing only the argument/valence structure.

(42) Types of valence structure:

$$\left[\begin{array}{l} \textit{unerg} \\ \text{SUBJ} \langle NP \rangle \\ \text{COMPS} \langle \dots \rangle \end{array} \right] \left[\begin{array}{l} \textit{trans} \\ \text{SUBJ} \langle NP \rangle \\ \text{COMPS} \langle NP, \dots \rangle \end{array} \right] \left[\begin{array}{l} \textit{unacc} \\ \text{SUBJ} \langle \rangle \\ \text{COMPS} \langle NP, \dots \rangle \end{array} \right]$$

This structuring allows a straightforward explanation of the following phenomena, traditionally associated with unaccusativity in Italian (see Dini (1993) for an explanation):

auxiliary selection: *essere* is able to select only VPs¹² with [SUBJ <> COMPS<NP>].

ne coindexation: the clitic *ne* 'of them' is always coindexed with the first NP in COMPS.

adnominal past participles: adnominal past participle clause formation is limited to heads of type: [SUBJ<> COMPS <NP, ...>].

past participle inflection: The rule for the inflection of past participles will apply only to items with valence structure [SUBJ<> COMPS <NP, ...>], inflecting the verbal form according to the agreement features (number and gender) of the first the first NP in COMPS (this point will be developed in the next section).

3.2.2 Agreement and Past Participles

For the purpose of the discussion on APs it is worth spending some more words on the agreement properties of Italian past participles. In section 3.1 I mentioned that agreement can be seen as a constraint on head-complement selection. In Pollard and Sag (1988) and Pollard and Sag (1994) syntactic agreement is seen as an instance of semantic-pragmatic agreement: agreement features of nominals (PERS, NUM and GENDER) are grouped together under a single attribute INDEX whose value serves as a variable which can be predicated in various way (note the analogy with *reference markers* in DRT). For instance *walks* would have the following representation:

(43)

$$\left[\begin{array}{l} \text{SUBJ} \left\langle NP \left[\begin{array}{l} \text{INDEX} [1] \left[\begin{array}{l} \text{PERS} \textit{third} \\ \text{NUM} \textit{sing} \end{array} \right] \right] \right\rangle \right\rangle \\ \text{CONTENT} \left[\begin{array}{l} \text{RELN} \textit{walk} \\ \text{AGENT} [1] \end{array} \right] \end{array} \right]$$

In the case of Italian past participles this tight correspondence between syntax and semantics needs to be loosened: indeed, while unaccusative and passive past participles agree with their subject, past participles of transitive and unergative composed forms have always a masculine singular inflection, irrespective of the index of the subject:

(44) a. Le pizze sono arrivate
The pizzas-FEM.PLU are arrived-FEM.PLU

b. La relazione fu apprezzata
The talk-FEM.SING was appreciated-FEM.SING

(45) a. I bambini hanno mangiato
The children-MASC.PLU have-PLU eaten-MASC.SING

b. * I bambini hanno mangiati
The children-MASC.PLU have-PLU eaten-MASC.PLU

¹²The approach is compatible with a treatment of composed verbal forms based on function composition, such as the one described in Abeillé and Godard (1993) for French and Monachesi (1993b) for Italian

One could suppose that in fact the *-o* morpheme in transitive and unergative past participles has nothing to do with inflection: it is just a kind of default ending. This would mean that two past participle endings *-o* exist in Italian, one setting an agreement value (masculine singular), the other simply providing an unmarked ending for certain past participles. However, as far as I know, the existence of such a *vacuous* ending is not independently motivated, i.e. there is no area in the morphology-syntax interface where this morpheme is active. For this reason I will assume no *vacuous default* morpheme, and I will account for the facts in (44) and (45) stating that while unaccusative and passive past participles trigger the semantic INDEX sharing shown in (43), transitive and unergative past participles do not. Moreover the only possible inflection for the latter class of past participles (at least in standard Italian, in absence of clitics¹³) is masculine singular. Technically, I will assume a framework such as the one described in Kathol (1994): the phonological form of a word is a function of its phonological base form (contained in STEM|PHON) and its INFL attribute:

(46)

$$\left[\begin{array}{l} \text{PHON } \textit{infl}([1][2]) \\ \text{STEM } \left[\begin{array}{l} \text{PHON } [1] \end{array} \right] \\ \text{INFL } [2] \end{array} \right]$$

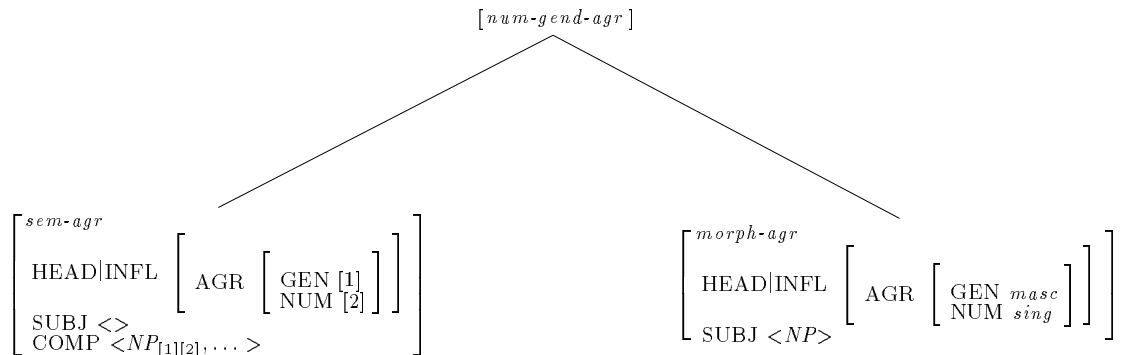
Within past participles, INFL will have a feature AGR, in turn containing NUM and GEND. The four past participle endings (*o*, *a*, *i* and *e*) will always instantiate AGR, irrespective of the verb type. However while passives and unaccusatives trigger semantic agreement (i.e. a structure sharing between AGR and the semantic index of the first NP in COMPS) unergative and transitive do not, thus explaining the well formedness of (45a):

(47)

$$\left[\begin{array}{l} \textit{sem-agr} \\ \text{INFL|AGR } [1] \\ \text{COMPS } \langle \textit{NP}_{[1]} \rangle \\ \text{CONTENT } \left[\begin{array}{l} \text{RELN } \textit{salire} \\ \text{AGENT } [1] \end{array} \right] \end{array} \right] \quad \left[\begin{array}{l} \textit{morph-agr} \\ \text{INFL|AGR } \left[\begin{array}{l} \text{NUM } \textit{sing} \\ \text{GEND } \textit{masc} \end{array} \right] \\ \text{SUBJ } \langle \textit{NP}_{[1]} \rangle \\ \text{COMPS } \langle \textit{NP}_{[2]} \rangle \\ \text{CONTENT } \left[\begin{array}{l} \text{RELN } \textit{mangiare} \\ \text{AGENT } [1] \\ \text{PATIENT } [2] \end{array} \right] \end{array} \right]$$

This two different strategies are encoded in the type hierarchy as constraints on the well formedness of past participles and are made dependent on the valence structure:

(48)



(48) state a global constraint on the items which in Italian can undergo gender and number inflection (basically adjectives and past participles): they are described in the lexicon (or in the general type hierarchy for Italian) as being of type **num-gend-agr**; since this is not a maximally specific type, type inference (see 1.3) will then apply, trying to deduce, for every stem, either *sem-agr* or *morph-agr*. Note that these subtypes are associated with

¹³See Monachesi (1993a) and Monachesi (1993b) for a treatment of the relation between clitics and agreement in Italian HPSG grammar.

constraints on the valence lists, which cannot be overridden by type inference: therefore (48) will guarantee that passives or unaccusatives ([SUBJ <>]) are always of type *sem-agr*, while transitive or unergative ([SUBJ<NP>]) are always of type *morph-agr*.

To sum up, I have shown how Italian data concerning past participle inflection can be accounted for i) without hypothesizing any syntactically vacuous default morpheme; ii) without making any reference to a specific class of verbs but just assuming certain constraints on the valence structure. This completes the presentation of the ingredients we needed to introduce in order to tackle APs from a syntactic point of view.

3.3 Syntactic Operations on Absolute Phrases

In section 2.2, two lexical rules for generating absolute heads have been assumed, on the basis of semantic evidence. However, if semantics is the only reason for such a differentiation, one could argue whether it would not be more elegant to derive these differences from interpretive parameters, thus maintaining a single rule in order to derive lexical heads for absolute phrases. In fact, the reason for assuming two distinct lexical rules becomes evident when considering that in a sentence such as

- (49) Letto il discorso dal presidente, scoppiarono gli applausi
 Read the talk by the president, exploded the applause

the presence of a subject (*il discorso*) within the AP seems to be aspectually relevant, in that it forces a terminative reading, excluding the wider range of possibilities usually admitted in passive absolute phrases. For instance, it cannot be interpreted duratively, in spite of the fact this is the preferred reading if the subject is left unexpressed, as in:

- (50) Letto dal presidente, il discorso causó grosse risate
 Read by the President, the talk cause big laughs

By the same token, while (51) is ambiguous between a durative and a terminative reading, (52) is not, as a subject is expressed:

- (51) Interrogato dal Pubblico Ministero, Silvio scoppió a piangere
 Questioned by the State Prosecutor, Silvio burst into fears
- (52) Interrogato il presidente dal Pubblico Ministero, i telespettatori scoppiarono a piangere
 Questioned the president by the State Prosecutor, the television viewers burst into fears

The only way to account for this fact is to assume that, in spite of their similarity, AAPs and APPs are two syntactically different constructions. More in details, it seems that (a) the deep subject (the NP in SUBJ) is always unrealized in any kind of absolute phrase; (b) the deep object (the NP in COMPS) cannot be realized in APPs (thus (49) and (52) would necessarily be AAPs). Technically, this amounts to enrich rules (37) and (38) in the following way:

- (53) **AAP lexical rule (AAPLR)** (external semantic + syntax)

$$\left[\begin{array}{l} \text{CONTENT} \left[\begin{array}{l} \text{ASP-R} \left[\begin{array}{l} \text{RELN } \textit{asp-rel} \\ \text{E } [1] \\ \text{R } [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\begin{array}{l} \text{VALENCE} \left[\begin{array}{l} \text{SUBJ } \textit{list} \\ \text{COMPS } [4] \end{array} \right] \\ \text{MOD } \textit{nil} \end{array} \right] \end{array} \right] \rightarrow \left[\begin{array}{l} \text{CONTENT} \left[\begin{array}{l} \text{ASP-R} \left[\begin{array}{l} \text{RELN } \textit{terminative} \\ \text{E } [1] \\ \text{R } [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\begin{array}{l} \text{VALENCE} \left[\begin{array}{l} \text{SUBJ } \langle \rangle \\ \text{COMPS } [4] \end{array} \right] \\ \text{MOD } \mathbf{S} \left[\begin{array}{l} \text{CONTENT } \left[\begin{array}{l} \text{ASP-R} \left[\begin{array}{l} \text{RELN } \textit{tpsoa} \\ \text{E } [2] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

(54) **APP lexical rules (APPLR)** (external semantic + syntax)

$$\left[\begin{array}{l} \text{CONTENT} \left[\begin{array}{l} \textit{loc-sit} \\ \text{ASP-R} \left[\begin{array}{l} \textit{tpsoa} \\ \text{RELN} [3] \\ \text{E} [1] \\ \text{R} [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\begin{array}{l} \text{VALENCE} \left[\begin{array}{l} \text{SUBJ} \langle \rangle \\ \text{COMPS} \langle \textit{NP} | \textit{REST} \rangle \end{array} \right] \\ \text{MOD} \textit{nil} \end{array} \right] \end{array} \right] \rightarrow \left[\begin{array}{l} \text{CONTENT} \left[\begin{array}{l} \textit{loc-sit} \\ \text{ASP-R} \left[\begin{array}{l} \textit{tpsoa} \\ \text{RELN} [3] \\ \text{E} [1] \\ \text{R} [2] \end{array} \right] \end{array} \right] \\ \text{CAT} \left[\begin{array}{l} \text{VALENCE} \left[\begin{array}{l} \text{SUBJ} \langle \rangle \\ \text{COMPS} \textit{REST} \end{array} \right] \\ \text{MOD} \mathbf{S} \left[\begin{array}{l} \textit{loc-sit} \\ \text{CONTENT} | \text{ASP-R} \left[\begin{array}{l} \textit{tpsoa} \\ \text{E} [2] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

Constraints:

anchor-index([1], [2])

The crucial difference between (53) and (54) (for the time being let's ignore the constraint *anchor-index*([1], [2]) in (54)) is the value of the **COMPS** list: in (53) all the complements of the input verb (including direct objects and ergative subjects) are passed to the output, while in (54) the least oblique NP is discharged (the variable **REST** stands for the **cdr**, i.e. the list minus its first element): this guarantees that only AAPs can retain all their complements (thus the subject of passive heads), while APPs must occur without any NP, thus explaining the data in (49)- (52)

Moreover, since both rules impose the presence of an empty **SUBJ** list on the output item, the following phenomena are explained:

Inflection Remember that in section 3.2.2 it was claimed that the only precondition for agreement inflection on past participles is a [**SUBJ**<>] list. Thus *all* the output objects of our lexical rules, matching, by definition, that condition, will undergo agreement inflection. Moreover, since the element agreeing with the past participle is always the first NP in **COMPS** (see (48)), we correctly predicts that transitive past participles are inflected w.r.t. the object, while unaccusative ones are inflected w.r.t. the subject:

(55) Maltrattata Maria, Carla partì
Mistreated-FEM.SING Maria.FEM. SING, Carla left
After having mistreated Maria, Carla left

(56) Partita Maria, la mia vita cambiò
Left-FEM.SING Maria-FEM. SING, my life changed
After Maria's departure, my life changed

As for unergatives, they have only one NP in **SUBJ**, which is discharged after the application of AAPLR (AAPLR cannot apply on them as the constraint on **SUBJ** is not fulfilled by the valence structure of unergative erbs). Therefore they will get a valence structure very close to the one of impersonal verbs such as *piovere* 'to rain', which are never inflected. In other words, as there is no NP able to introduce an index, semantic agreement cannot be triggered: and we have already seen that non-semantic agreement is always associated with the standard masculine singular ending *-o*¹⁴:

(57) a. * Vendemmiati, i contadini lasciarono il paese
Harvested-MASC.PLU, the farmers-MASC.PLU left the country
b. Vendemmiato, i contadini lasciarono il paese
Harvested-MASC.SING, the farmers.MASC.PLU left the country

¹⁴It may be objected that also in the output of AAPLR **COMPS** has no NP to be inflected. I will assume that in these cases inflectional features of the input word, which is necessarily of an unaccusative type, are simply retained; this amounts to assert that certain operations on valence structure are visible to the morphology (e.g. the one performed by AAPLR), while others are not (e.g. the one performed by APPLR). This is a parameter varying across languages which provides a justification for certain otherwise surprising phenomena. For instance past participle agreement morphology is sensitive to wh-extraction of the object in French Sag and Godard (1993) and colloquial Italian Rizzi (1982), while it is not in standard Italian.

Subject and Case The emptying of the SUBJ list has no effect on the valence structure of unaccusatives, which can therefore retain all their complements, including the subject. Moreover since no change of case is performed, the subject has to be nominative:

- (58) a. Arrivato io, le cose cambiarono
 Arrived I, the things changed
 b. * Arrivato me, le cose cambiarono
 Arrived me, the things changed

As for transitives and unergatives, the subject is deleted by AAPLR: this explains the ungrammaticality of (59) and (60) :

- (59) * Salutata io Maria, scoppiai a piangere
 Cheered I Maria, (I) burst into fears
 (60) * Vendemmiato il contadino, il tempo cambiò
 Harvested the farmer, the weather changed

Linear Order Italian is a lexical head initial language, i.e. a language where the following linear precedence constraint holds:

$$(61) \forall XP [XP \in \text{COMPS} \rightarrow H[+\text{LEX}] \prec XP]$$

Since under the present approach the maximal projection of an absolute phrase is a VP, the linear order found in these clauses (with the verb preceding all the complements) is explained:

- (62) * Maria arrivata, le cose cambiarono
 Maria arrived, the things changed

Binding Since, according to the most recent development of HPSG (cf. Sag and Pollard (1992)), binding is performed on the SUBCAT list and since no change in that list is performed by our rules, the binding of reflexive object anaphora in APs is fully accounted:

- (63) Elogiatosi, Gianni stappò una bottiglia di Champagne
 Prised-himself, Gianni uncorked a bottle of Champagne

The (lexical) valence/argument structure of the head of the AAP in (63) is the following:

(64)

$$\left[\begin{array}{l} \text{SUBJ} \langle \rangle \\ \text{COMPS} \langle NP_{[2]_{refl}} \rangle \\ \text{SUBCAT} \langle NP_{[2]}, NP_{[2]_{refl}} \rangle \end{array} \right]$$

with the index [2] controlled by *Gianni*.

3.3.1 Control Properties

The subject of unaccusatives needs not to be always realized in AAPs:

- (65) Entrato in cucina, mi accorsi subito che i ladri avevano rubato la Nutella
 Entered in the kitchen, I suddenly realized that the thieves had stolen the Nutella

The subject of transitives is *never* realized (see (59)). In both cases we could wonder how can the referent playing the role of subject be determined, or, in more technical words, to which syntactic/semantic constraints is sensitive the NP controlling the unexpressed subject of the AP. AAPLR makes no claim about these constraints. Thus, since AAPs occur in a position which is not subject to obligatory control (see (Manzini (1983) and Sag and Pollard (1991))), we predict that the unexpressed subject can corefer freely. This seems to be correct, as cases of logophoric control (see Sells (1987) and Williams (1992)) are easily found in AAPs:

- (66) Maria si diresse all'appuntamento senza ombrello. Purtroppo, scesa dal taxi, cominció a piovere
 Maria went to the date without umbrella. Unfortunately, got-out-of the taxi, (it) started raining
- (67) ¹⁵ Gianni riuscí finalmente a ripare l'ombrello, e fu una fortuna perché, aggiustatolo, cominció a piovere
 Giovanni at the end succeeded in fixing his umbrella, and (that) was a luck because, fixed-it, (it) started raining

With passive past participles (APPLR) the situation is different as an explicit controller has to be always present in the matrix clause and no kind of contextual control is allowed:

- (70) * Salutato da tutti, cominció a piovere
 Cheered by everybody, it started raining
- (71) * Solitamente apprezzato dal capufficio, il licenziamento fu inaspettato
 Usually praised by the head clerck, the firing was unexpected
- (72) * Odiato dai figli, la casa era un inferno
 Hated by the children, the house was a hell

However, classifying APPs as cases of obligatory syntactic control would not be completely correct, as the controller is not determined by its syntactic position in the matrix clause:

- (73) Salutato da tutti, Leo notó che stava cominciando a piovere
 Chered by everybody, Leo noticed that (it) was starting to rain
- (74) Solitamente apprezzato dal capufficio, quell'improvviso licenziamento lo stupí moltissimo
 Usually praised by the head clerk, that sudden firing struck him very much
- (75) Odiato dai figli, la casa era per lui un inferno
 Hated by the children, the house was for him a hell

In (73) the matrix subject serves as the controller of the APP and the sentence is obviously grammatical. What is more peculiar is the grammaticality of (74) and (75). Indeed in (74) the clitic direct object controls the unexpressed subject of the APP, while in (75) the same role is played by an adjunct (*per lui* 'for him'). So, it seems, the only common feature shared by the controlling elements in (73-75) is a semantic one, for instance the property of being an experiencer or an agent in a certain situation. The point, here, is not that a *certain* thematic relation or semantic feature has to be used to account for control in APPs. The point is that *some* semantic condition on index anchoring (for instance prominence in a hierachy of semantic roles) has to be taken into consideration. This is what the constraint *anchor-index* in (54), whose conditions, due to space limits, will not be spelled out in this paper, is meant to do.

¹⁵ Belletti's approach would rule out (67), as a case of uncontrolled PRO in [Spec, AGRP]; however, most of the native speakers I consulted judged it as perfectly grammatical. Also Rosen (1988) accepts cases of uncontrolled transitive subjects and provides the following examples:

- (68) Assolto l'imputato, scoppiarono gli applausi
 Acquitted the defendant, exploded the appluase
 'The defendant having been acquitted, applause broke out'
- (69) Tagliati gli olmi, il paese pareva un deserto
 cut the elms, the town seemed a desert
 'With the elms cut down, the town looked like a desert'

3.3.2 Where Syntax is not enough

The syntactic and aspectual constraints stated so far are still too weak, in that they give no reason for the ungrammaticality of sentences such as the following:

- (76) * Nuotato, Giovanni si stese sulla riva
Swum, Giovanni lied down on the shore
- (77) * Posseduta quella villa, Giovanni si trasferí
Owned that villa, Giovanni moved
- (78) * Spolverato, Giovanni uscí
Brushed, Giovanni went out

In (76) the unergative verb *nuotare* 'to swim' is not grammatical in an absolute context (remember that *vendemmia* was perfect in the same context, in spite of its unergativity); in (77) the same ungrammaticality is detected w.r.t. to the transitive verb *possedere* 'to own'; finally, (78) shows that the transitive *spolverare* 'to brush' cannot be used in absolute constructions without the direct object. In the next section I will provide an explanation of these data, proving that certain constraints on *aktionsart* need to be satisfied by the rules governing the formation of absolute heads.

4 Semantic constraints on APs

In this section I will show how the formation of APs is influenced by aktionsarten¹⁶ constraints on verbal predication. I will adopt a feature based system which share some analogy with Verkuyl's theory of aktionsart, but this choice is just for notational convenience: as far as APs are concerned it would not make any difference adopting, for instance, a lattice based theory of events such as the one developed in Krifka (1989) or Hinrichs (1985). I will start briefly introducing the main features of Verkuyl's system.

4.1 Aktionsarten and APs

4.1.1 Additivity

Verkuyl (1987), Verkuyl (1993) and Verkuyl (1989) distinguish between *additive* ([ADD-TO +]) and *non-additive* ([ADD-TO -]) events: intuitively an additive event is such that, if it takes place at an interval I_j , and it takes place at an interval I_i , adjacent to I_j , the same event holds for I_{j+i} , too¹⁷. For instance:

- (79) I ate from four to five
I ate from five to six
|= I ate from four to six

but

- (80) I ate a sandwich from four to five
I ate a sandwich from five to six
|≠ I ate a sandwich from four to six

Several factors can influence the additivity of an event (I will use the classical test of *for/in*-adverbial compatibility to detect additivity: additive verbs are ungrammatical with *in*-adverbials, while non additive verbs are ungrammatical with *for*-adverbials):

Lexical features. Certain verbs are intrinsically additive (typically: statives), while others are intrinsically non additive (typically: achievements):

¹⁶Here I am using the word in the same sense as in Hinrichs (1985), mainly referring to the traditional distinction between *telic* and *atelic* events. However, I will not be committed to the assumption that this distinction is just a lexical matter.

¹⁷This distinction cross classifies the traditional Vendlerian classes: states and processes= [ADD-TO +]; achievements and accomplishments= [ADD-TO -].

- (81) a. * Ha posseduto quella villa in tre anni
 (he) owned that villa in three years
 b. * E' arrivato per tre minuti
 (he) has arrived for three minutes

Quantification. The quantificational properties of complements which are able to trigger an object to event homomorphism in terms of Krifka (1992) (or which are *incremental themes* in terms of Dowty (1991)) can affect verbal additivity. In particular bare plurals and mass nouns characterize additive events:

- (82) a. * Ha mangiato pane in tre minuti
 (He) has eaten bread in three minutes
 b. * Ha letto articoli in tre minuti
 (He) has read papers in three minutes

Object Deletion. The omission of a complement belonging to the above class, as proved by Fillmore (1986), triggers additivity (unless the verb is re-interpreted in some contextually salient way):

- (83) * Ha mangiato in tre minuti
 He has eaten in three minutes

(grammatical if re-interpreted as *he had his dinner*)

Negation. As widely attested in the literature, negation turns whichever predicate into a state:

- (84) * Non ha mangiato due panini in tre minuti
 He has not eaten two sandwiches in three minutes

(in the relevant sense)

Unfortunately there is no space here for exploring neither the subtleties of Verkuyl's model theoretic approach to *aspect composition* nor the strategies by which a theory of aktionsart could be implemented in HPSG. Here it is enough to say that the basic idea which the whole framework relies on, is that there exist a function from quantificational properties of NPs and verbal lexical fetures to [ADD-TO] values. Such a function is expressed by a particular thematic role associated with aspectually relevant NPs and it is made sensitive to the presence of negation, which, according to Herweg (1991) can be conceived as an operator changing any predicate into a state. The fact that the absence of certain complements is associated with atelicity can be accounted for either stipuating the presence of an unrealized quantifier with the same properties of bare plurals or assuming that the lexical rule for the derivation of verbal heads with a reduced valence can, under certain conditions, perform a change from [ADD-TO -] to [ADD-TO +] (cf. Sanfilippo (1991)). See also Sanfilippo (1990) for an account of aktionarten within a unification-based framework and Bolioli and Dini () for an HPSG approach completely based on Verkuyl's theory.

4.1.2 APs and constraints on additivity

Departing from the consideration that the troublesome APs in (76)-(78) share the features of (i) being AAPs; (ii) being additive, I will assume that the following additional constraints are imposed on the rules generating absolute heads¹⁸:

- (85) **AAP lexical rule (AAPLR)** (constraint on additivity)

$$\left[\text{CONTENT} \left[\begin{array}{l} \text{loc-sit} \\ \text{ADD-TO } \textit{boolean} \end{array} \right] \right] \rightarrow \left[\text{CONTENT} \left[\begin{array}{l} \text{loc-sit} \\ \text{ADD-TO } - \end{array} \right] \right]$$

¹⁸Stating the constraint either on the output or on the input of the lexical rules depends only on the kind of device assumed for the computation of the [ADD-TO] feature. Here I am assuming that it is determined by a general type imposed on the CONTENT of predicative heads.

(86) **APP lexical rule (APPLR)** (constraint on additivity)

$$\left[\text{CONTENT} \begin{array}{l} \textit{loc-sit} \\ \text{ADD-TO } \textit{boolean} \end{array} \right] \rightarrow \left[\text{CONTENT} \begin{array}{l} \textit{loc-sit} \\ \text{ADD-TO } + \end{array} \right]$$

In the following two sections I will show why AAPs' heads *have* to be non additive (telic) and why APPs heads *can* be additive (atelic). I will not show why the latter *have* to be additive¹⁹. The positive value of additivity in (86) is a technical consequence of the necessity of avoiding spurious ambiguities, which would be otherwise generated by the system.

4.2 AAPs and additivity

If the ban against additive AAPs is correct, we should expect an ungrammatical result every time one of the factors mentioned in 4.1.1 occurs in an AAP setting a [ADD-TO +] feature on the verbal head. The examples (87)-(90), which are necessarily AAPs, as they derive from unergative stems, confirm this prediction:

- (87) * Posseduta la villa di D'Annunzio, Gianni si trasferí [**stative verb**]
Owned the villa of D'Annunzio, Gianni moved
- (88) * Mangiato salame, Gianni riprese il cammino [**mass noun**]
Eaten salami, Gianni set off again
- (89) * Spolverato, Gianni riprese il cammino [**object deletion**]
Brushed, Gianni set off again
- (90) * Non mangiato il panino, Gianni riprese il cammino [**negation**]
Not eaten the sandwich, Gianni set off again

In addition, since the subject of unaccusative verbs is usually considered aspectually relevant (cf. Tenny (1992) and Verkuyl (1993)), the impossibility of unaccusative AAPs with bare plural subjects is explained:

- (91) * Cadute pietre, la strada risultó bloccata
fallen rocks, the road was blocked

This ungrammaticality is assumed in Belletti (1990), Chapter 2, footnote 18, as a proof of the fact that NPs in unaccusative APs behave like subjects rather than objects, on the basis of examples such as

- (92) a. Qui cadono pietre
Here fall rocks
- b. * Qui pietre cadono
Here rocks fall

Thus, both (91) and (92b) would be ungrammatical because of the prohibition for subject bare plurals to occur in [Spec,AGRP]. The same reason would account for the impossibility of object bare plurals: objects of absolute transitive heads should move to [Spec,AGRP] at LF, "possibly, because incorporation is involved". I guess that she would hypothesize an analogous incorporation for mass nouns in order to account for (88). What is not clear, however, is how she would treat a sentence like (87) where a definite NP is present and still the sentence, being additive, is ungrammatical. Moreover consider the following examples:

¹⁹It is not possible to find a reliable test to understand whether APPs have to be additive. Indeed the class of lexical items which are outputs of APPLR is, from a syntactic point of view, a subclass of the possible outputs of AAPLR: APPs *cannot* have an expressed NP and *cannot* be contextually controlled, but this does not imply that AAPs *have* to appear with an NP or *have* to be contextually controlled. Thus, in the presence of a syntactically controlled non additive AP without an overt NP, we have no syntactic criteria to decide whether it is an AAP or an APP. As a consequence we have no way to decide whether APPs are compatible with non additivity or not.

(93) Mangiate ciliegie a sazieta', Giovanni si coricó sotto l'albero
Eaten cherries to satiety, Giovanni laid down under the tree

(94) Ascoltati dischi di musica classica per tre ore, uscí di casa completamente stordito
Listened records of classic music for three hours, (he) get out completely confused

These two sentences contain a bare plural and yet they are grammatical (even though certain speakers consider them slightly colloquial): indeed the resultative adverb *a sazieta'* ('one's fill') in (93) and the *for*-adverbial *per tre ore* ('for three hours') in (94) are both able to circumscribe the described process, changing it into a non additive event (cf. Pustejovsky (1988), Krifka (1989), Herweg (1991), a.o., for an explanation of the delimiting capacity of *for*-adverbials). This definitely proves that the ban against bare NPs to occur in [Spec,AGRP] cannot possibly be the reason of the ungrammaticality of APs with bare plurals: it seems completely implausible to assume that the presence of a modifier of a certain semantic type is able to make [Spec,AGRP] accessible by constituents which are usually not allowed in that position.

The same semantic constraint against additivity is active in ruling out habitual AAPs:

(95) *Solitamente arrivato Gianni in ritardo, stava cambiando abitudini
Usually arrived Gianni late, (he/she) was changing his habits

(96) *Arrivato Gianni ogni giorno in ritardo, rischió di essere licenziato
Arrived Gianni each day late, (he/she) risked to be fired

In the above sentences an adverbial (*solitamente* 'usually', *ogni giorno* 'every day') forces the AAPs to express an habit of Gianni. However habituality is standardly associated with stativity (see Vlach (1993), a.o.) and therefore with additivity: hence the ungrammaticality of (95-96).

Finally, the ban against additive predicates in AAPs explains why most unergative are ungrammatical in these contexts: it is a well know fact (see Sanfilippo (1991), a.o.) that Italian unergatives are *generally* associated with processes, therefore with additivity:

(97) a. * Ha nuotato in tre ore
(he) has swummed in three hours

b. * Nuotato, Giovanni si stese sulla riva
Swummed, Giovanni lied down on the shore

However there are exceptions to this tendendency, i.e. there is in Italian a handful of unergative verbs which are intrinsically telic ([ADD-TO -]): these verbs, as we predict, are exactly the only unergatives which can appear also in AAPs:

(98) a. I contadini vendemmiarono in tre ore
The farmers harvested in three hours

b. Vendemmiato, i contadini lasciarono il paese
Harvested, the farmers left the country

4.3 APPs and Additivity

There are two classes of verbs which cannot be telic by definition: passives used duratively and stative unaccusatives. Indeed if I am being mistreated (durative form) at I_i and I am being mistreated at the immediately adicent instant I_j , then I am being mistreated at I_{i+j} ; and if I lived in Paris from march to April and I lived in Paris from April to may, I lived in Parish from march to may. We have already seen that durative passives always head APP (section 2.2); if we could show that APs headed by stative unaccusatives behaves in every syntactic respect like APPs, we would have a definitive proof that the constraints on the application of the rules for AP formation are semantic in nature (terminativity vs. durativity and telicity vs. atelicity): indeed there is no syntactic class able to group together passives and stative unaccusatives. This is what I am going to show in the next two sections.

4.3.1 APPs are always non additive

A first confirmation of the link between syntactic configurations and constraints on aktionsart comes from the ungrammaticality of an absolute phrase such as (99), no matter how it is continued:

- (99) * Posseduta da D'Annunzio quella villa, ...
Owned by D'Annunzio that villa,...

Here a stative (additive) verb heads the absolute phrase, which has therefore to be considered an APP. However, an NP is present, which is not admitted by the syntactic part of the lexical rule generating APPs' heads. Thus the ungrammaticality of (99) is due to the fact that the AP is syntactically an AAP, but semantically an APP. Predictably, once the subject is left unexpressed, (99) becomes perfect:

- (100) Posseduta da D'Annunzio, quella villa divenne famosa
Owned by D'Annunzio, the villa became famous

More in general APPs are in complementary distribution with respect to the range of phenomena listed in the preceding section. See for instance their behaviour with habituality and negation:

Habituality

- (101) a. * Solitamente apprezzato l'impiegato, il capoufficio lo licenzió
Usually praised the employee, the head clerk fired him
- b. Solitamente apprezzato dal capoufficio, Giovanni non poteva sopportare di essere maltrattato
Usually praised by the head clerk, Giovanni couldn't stand to be mistreated
- c. * Solitamente apprezzato l'impiegato dal capoufficio, fu costretto a licenziarlo
Usually praised the employee by the head clerk, (he) was forced to fire him
- d. * Solitamente apprezzato dal capoufficio, il licenziamento fu inaspettato
Usually praised by the head clerk, the firing was unexpected

Negation

- (102) a. * Non visto Angelo, ce ne andammo
Not seen Angelo, we went away
- b. Non vista dai genitori, Marina strozzó il gatto
Not seen by her parents, Marina choked the cat
- c. * Non vista Marina dai genitori, il gatto fu strozzato
Not seen Marina by her parents, the cat was choked
- d. * Non vista dai genitori, una disgrazia si abbatté sul gatto
Not seen by her parents, a disgrace struck the cat

Sentences **a** show the typical ungrammaticality of AAPs in additive contexts, while sentences **b** show how a passive APP is correctly admitted under the same conditions. The occurrence of a subject in **c** sentences confirms the assumption that APPLR always delete a complement; and the absence of a proper controller in **d** sentences confirms that APPs always require obligatory control: indeed if **c** and **d** examples could be generated by APPLR, their ungrammaticality would be unexplained.

4.3.2 Absolute Stative Unaccusatives are APPs

The opposition [ADD-TO +/-] cross classifies Italian unaccusative verbs. Thus we should expect different kinds of unaccusatives behave differently in APs both from a semantic and a syntactic point of view. In particular:

- Stative unaccusatives should be possible in negative and habitual absolute phrases, whereas telic ones are not.

- Stative unaccusative absolute heads, being generated by the same lexical rule responsible for APPs' formation, should not occur with an overt NP in absolute contexts and should always need a controller in the matrix clause.

Both predictions are indeed confirmed. Consider first semantic factors:

- (103) a. * Non arrivata Maria, la festa cominció
Not arrived Maria, the party began
- b. Non preoccupatosi in gioventú della sua salute, Giovanni passava ora molte ore in ospedale
Not worried when young by his health, Giovanni spent now many hours in the hospital
- (104) a. * Solitamente arrivata in ritardo, fu licenziata
Usually arrived late, (she) was fired
- b. Solitamente vissuto in miseria, non era abituato a mangiare troppo spesso
Usually lived in poverty, (he) was not used to eat too often

The absolute phrases in **a** are headed by telic unaccusatives and are, not surprisingly, ungrammatical, as the negation in (103) creates an additive context sharply contrasting with the semantic requirements of AAPs, while the adverbial *solitamente* 'usually' in (104) is compatible only with habitual (thus additive) predicates. Crucially, sentences in **b** are grammatical under the same conditions, the explanation being that stative unaccusatives give raise to APPs, which are perfect in additive contexts.

As for the syntactic conditions we should expect stative unaccusative APPs with an expressed subject to be ungrammatical, on a par with the impossibility of having passive durative APPs with an overt NP. This is indeed the case, as can be seen contrasting (105a), where the absolute phrase is headed by an unaccusative stative verb, with the perfectly acceptable (105b), where a telic unaccusative is used²⁰:

- (105) a. * Vissuto Giovanni male, era pieno di rimorsi
Lived Giovanni badly, (he) was full of remorse
- b. Giunta Maria al rifugio, partimmo per la passeggiata
Arrived Maria to the shelter, (we) left for the walk

They also behave as expected (i.e. as APPs) as far as control is concerned: absolute stative unaccusatives always need to be controlled by some overt constituent in the matrix clause:

- (106) * Vissuto in mezzo agli indiani, la caccia era un'attività facile.
Lived among the indians, the hunting was an easy activity

4.4 First Conclusions

Up to now we have seen that the formation of past participle absolute phrase is sensitive to a bundle of syntact and semantic constraints whose interaction is captured by two lexical rules generating absolute heads. This constraints are in no way a prerogative of verbal heads: notions such as valence structure, control properties, aspect and aktionsarten can be in principle applied to every predicative lexical head. Thus our theory of absolute phrases qualifies for being a *general* theory of absolute phrases in Italian, irrespective of the syntactic category of the involved items. To see that, in the following section I will study the case of adjectives and prepositions in absolute contexts, showing that their behaviour is, as expected, completely analogous to the one of past participles.

²⁰Note that an approach entirely based on movement has now way to explain this difference: all members of the unaccusative class should be equally acceptable with or without subject.

5 Extending the Treatment

In this section I will try to extend the treatment of APs to items other than verbal past participles. In fact the rules as they stand need not to be *expanded*: so far no *categorial* restriction has been imposed on their left hand side, so they naturally apply to heads belonging to different categories. Moreover, no *morphological* restriction has been set to force their application just to past participle forms. Some tighter constraint has, however, to be set, as neither every category nor every morphological form can head an AP. For instance the following examples are clearly ungrammatical:

(107) * Ogni gatto, Silvestro aggredí Titti
Each cat, Silvestro attacked Titti

(108) * Arrivó Maria, cominciammo a lavorare
Arrived-FIN.PAST Maria, (we) began to work

(107) is ungrammatical as a non predicative NP heads an AP, while in (108) the inflectional form of the verbs is not appropriate.

To understand which is the most well suited constraint to restrict the application of AP formation rules, their *aspectual* character has to be taken into account. Both AAPLR and APPLR performs an anchoring operation of the R index within the ASP-R attribute to the E index of the matrix clause. Therefore input items to AP rules have to be *aspectually relevant*. This immediately rules out (107), as there is no way in which a quantified NP can be aspectually relevant. To forbid (108) it's enough to add the constraint that APs' heads have to be *only* aspectually relevant. Assuming the treatment of the Italian aspectual system sketched in 2.1, (108) is then ruled out as finite forms are declared as being both temporally and aspectually relevant. The reason of the ban against temporally relevant heads in APs is trivial: they would introduce an S-index, which would not be anchored to anything in the matrix clause: therefore we would end up with two logically distinct (and unrelated) speech times, which is, of course, impossible²¹: again we need not to state this prohibition in our rules, as it follows from independently motivated principles of semantic interpretation.

In the following sections I will show that adjectives and predicative prepositions behave exactly like aspectually relevant verbal forms. However I will omit the technical HPSG details, as they cannot be properly set until an exhaustive treatment of Italian adjectives and prepositions is provided.

5.1 Adjectives

I will assume, with Parsons (1990) and Chierchia (1994), that adjectives introduce an event (or situation) variable, i.e., in our terms, a LOC index²². The fact that they also introduce an aspectual relation, can be easily checked considering the following example:

(109) Il medico ha visitato un uomo ubriaco da tre giorni
The doctor has seen a man drunk since three days

In (109) a *da*-adverb is present whose main function is measuring the interval between the beginning of the event of being drunk and the reference time. Fig 3 provides a graphical representation of what is going on in (109). Since the adverbial is syntactically adjoined to the ADJP, it seems that there is no intuitive way of dealing with (109), other than assuming the presence of a Reference time index over the adjective (R_s in fig. 3): in addition since *da*-adverbs measure the distance between R and the beginning of E, the adjective has to be aspectually relevant (remember: we defined an aspectual relation as ordering E and R). As for the condition of being *only* aspectually relevant I simply

²¹It may be questioned whether other non finite verbal forms can appear in AP: present participles of course can, as they behave like adjectives; infinite forms cannot, and indeed they are correctly assumed by both Stowell (1982) and Belletti (1990) to be temporally relevant. As for gerundives, they can clearly appear in absolute contexts: however it's not completely clear to me if they belong to the class of APs. In this work I will simply not consider them.

²²See also Dini (1994) for a proof that an event variable on adjectives is absolutely relevant to give a proper interpretation to comparative constructions.

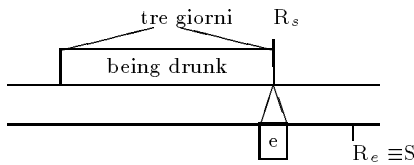


Figure 3: A graphical representation of *Il medico ha visitato un uomo ubriaco da tre giorni*
 R_s =adjective reference time; e =visiting event; R_m = matrix reference time

couldn't find any single example where an S index was required for an adjective²³. Being both aspectually relevant and only aspectually relevant, adjectives can thus be used in absolute contexts. The fact that they can be used in APPs is rather obvious, as adjectives denote states. What sounds a bit odd is their possibility to appear in AAPs, which always impose a constraint of telicity to their head. In the next section we will try to clarify how this is possible.

5.1.1 Telic Adjectives

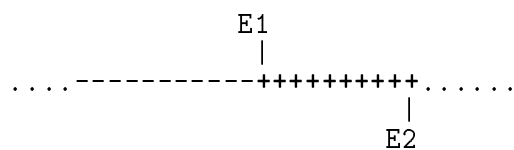
Consider the following pair:

(110) Una volta ubriaco, gli parlarono di LF
 Once drunk, (they) to.him.CL spoke about LF

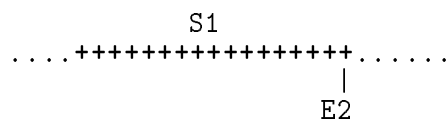
(111) Ubriaco, Giovanni si mise a parlare di LF
 Drunk, Giovanni started speaking about LF

(110) is necessarily an AAP,, as the terminative adverb *una volta*²⁴ signals, while (111) is more easily interpreted as an APP, even if the other reading cannot be excluded. In both sentences the main event goes on when Giovanni is drunk, so they could be both considered durative. However they are not synonymous. Indeed (110) focusses on the very moment of change: what it says is "after Giovanni's change of state from soberness to drunkenness, they..." On the contrary (111) has nothing to say about Giovanni's change of state: what is relevant is his being drunk at the main event time. In a graphic:

(110') E1=change of state expressed by the AP; E2=matrix event



(111') S1=state expressed by the AP; E2=matrix event



²³At first glance the aspectual relevance of adjective contrasts with Enç (1986) thesis according to which only NPs and verbs are temporally relevant, i.e. can appear in the scope of a tense operator. In fact, as far as he focusses on operators such as **P** and **T** and as far these operators are interpreted as ordering an interval w.r.t. some contextually determined index (our S), we can fully agree with his conclusions: in our terms this amount to saying that adjectives are not temporally relevant. On the contrary, if these operators are meant to capture aspectual relations, we can just consider that absolute phrases, as well as sentences like (109), provide a strong counterexample to Enç's hypothesis.

²⁴In the following I am mainly using this adverb to mark the telic interpretation of adjectives: the reader should keep in mind that this is just an expedient to make unambiguous the meaning of adjectival APs.

Since changes are not additive by definition we have an explanation why adjectives can appear in AAPs²⁵. In addition we are able to predict that whenever, for pragmatic reasons, there is no possible change, AAPs always results into an ungrammatical sentence, while APPs are perfect:

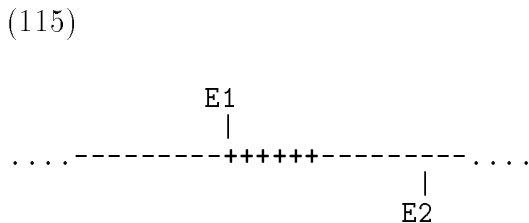
- (113) a. * Una volta cruda, la carne é piú saporita [AAP]
 Once raw, the meat is more tasty
- b. Cruda, la carne é piú saporita [APP]
 Raw, the meat is more tasty

There is no state in (113a) which can possibly precede rawness, therefore there is no possible change. Compare it with

- (114) Una volta cotta, la carne é piú saporita
 Once cooked, the meat is more tasty

where a change is possible, obviously from being raw to being cooked.

A possible objection to our hypothesis of adjectival AAPs focussing on change stems from the consideration that a sentence like (110) sounds odd if Giovanni is no more drunk at the moment of the matrix event. This oddity is not predicted by our treatment as nothing rules out the possibility that Giovanni has undergone two changes of state, i.e.:



In this course of events Giovanni would be no more drunk at E2. I think that the reasons why such an interpretation is not possible are pragmatic in nature, and can be naturally inferred from the Gricean maxim *be informative*: there is no reason to locate the matrix event after a change in the past if we know that a further change could better localize the same event: it would be extremely uninformative²⁶. Note that this fact is not exclusive of adjectival AAPs. Indeed also in verbal AAPs there is always some kind of pragmatic constraint according to which the event described by the past participle is interpreted more readily as *immediately* preceding. A sentence like

- (116) Arrivata Maria, la festa cominció
 Arrived Maria, the party began

would be extremely odd if the party in fact began two hours after Maria's arrival. In an appropriate context, however, this pragmatic implicature can be overwritten, both with adjectival and verbal AAPs:

- (117) Una volta passato l'esame di guida, ti compreremo la macchina
 Once passed the driving test, (we) to.you.CL will-buy the car
- (118) Una volta maggiorenne, ti comprerai la moto
 Once aged, (you) will-buy the motorbike

²⁵An analogous shift from a stative to an eventive interpretation is noted by Kamp and Rohrer (1983) w.r.t. certain French constructions such as:

- (112) Il fut preident.
 He was (became) president

²⁶Actually Krifka (1989) makes a similar use of pragmatic rules. In particular the restriction on AAPs can be easily inferred by its *Pragmatic Rule I*: "If two expressions α , β are (i) both applicable, (ii) α is more specific than β , (iii) α is not more complex than β , then choose α ".

In both (117) and (118) there is no reason to assume that the matrix event takes place immediately after the AAP event. Also in these cases, however, there is the implicature that some consequence has to persist at the moment of the matrix event. With change-denoting adjectives the only possible consequence is the persistence of the new state²⁷.

In APPs, as expected, adjectives retain their [ADD-T0 +] feature and behave as real statives:

(119) Stanca e disperata, Maria entró in città
Tired and desperate, Maria got in the town

(119) means something like *when Maria entered the town she was in a state of tiredness and desperation*. Note that no trivial relationship can be found between additivity ([ADD-T0 +/-]) and aspect in a proper sense ([ASP-R]): under certain conditions an adjective can enter into a *terminative* AP and still retain its stative features²⁸:

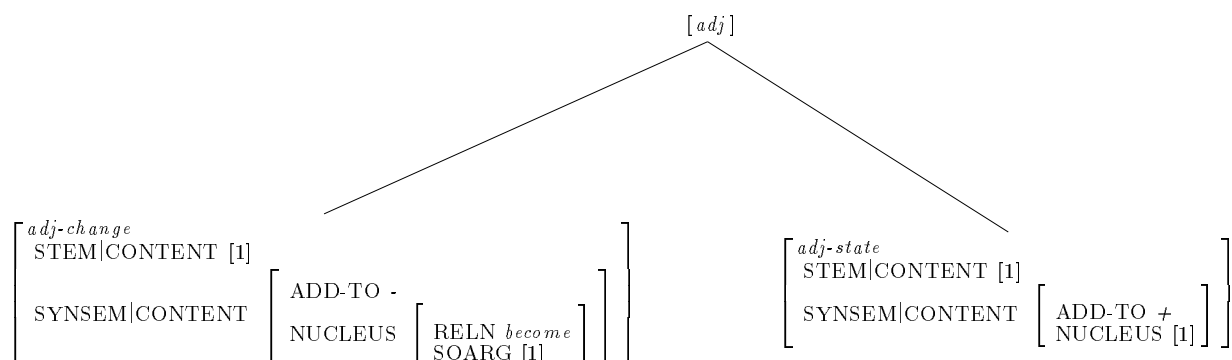
(120) Un tempo sicuro di se, Giovanni ora si copriva la faccia ogni volta che parlava.
Once upon a time self-confident, Giovanni now covered his face each time he spoke

The adverbial *un tempo* 'once upon a time' is compatible only with additive events, thus the AP in (120) has to be generated by APPLR. The same adverbial is opposed to the matrix adverbial *ora* (now) so that the APP is interpreted as preceding the matrix event. Crucially we predict that the APP in (120) means: *there was a state preceding the matrix one such that Giovanni was self-confident* and not *there was an event such that Giovanni changed from being self-confident to being self-confident*: that is, a terminative reading is possible, in spite of the additivity of the sentence.

5.1.2 No ambiguity in the lexicon

We have seen in the preceding section that adjectives in absolute contexts can denote either a state (in which case they form APPs), or an event of change (in which case they form AAPs). Should we assume that adjectives are ambiguously classified in the lexicon as denoting either a state or a change of state? The answer is no, as it would be highly implausible to postulate a lexical ambiguity to account for a case of full productivity of a class of words in certain contexts of use. What we need is some mechanism which makes the adjective appear as the argument of an operator BECOME (in the sense of Dowty (1979)) whenever it occurs in contexts which are not compatible with a stative interpretation (note the analogy with the mechanism of Type Coercion explored within the framework of the Generative Lexicon Pustejovsky (1991)). Moreover we would like to link this kind of polymorphism to aktionsart features, stating that an adjective is interpreted as focussing on a change if and only if it bears the [ADD-T0 -] feature. This result can be easily achieved assuming the following hierarchy for adjectival entries:

(121)



The STEM|CONTENT attribute encodes the *basic* semantic relation denoted by the adjective, which is simply "copied" as the content of the word when the adjective is used in an additive context (*adj-state*), or which becomes the argument of a *become* operator when the adjective is used in a non additive context (*adj-change*).

²⁷An alternative (equivalent) approach would consist in assuming the notion of contextually relevant 'just after' described in Partee (1984) (cf. also Dowty (1986)).

²⁸This is as predicted, as adjectives, just as passive forms, are aspectually undetermined, thus allowing a wide range of contextually forced aspectual interpretations.

5.1.3 Syntactic consequences

If we are on the right track in assuming that rules for AP formation establish a link between valence structure, control and additivity properties, we should now expect to find a different syntactic behavior associated with differences in adjectival AP interpretation. This is indeed the case:

- AAPs admit an overt subject, while APPs can never occur with an NP:

- (122) a. Una volta piene le botti, andremo a mangiare [AAP]
 Once full the barrels, (we) will go and eat
- b. * Sola e disperata Maria, tutti se ne infischiarono [APP]
 Alone and desperate Maria, nobody did care

- AAPs are grammatical even with a contextually determined controller, while the unexpressed subject of APPs must always be controlled by some nominal in the matrix clause:

- (123) a. Michele aveva fissato quella bottiglia di vino per tutta la sera. Una volta vuota, scoppió a piangere [AAP]
 Michele stared that bottle of wine for the whole evening. Once empty, (he) burst into fears
- b. Maria era stata abbandonata da tutti i suoi amici. * Sola e disperata, Giovanni non si faceva piú sentire. [APP]
 Maria.FEM has been abandoned by all friends of hers. Alone-FEM.SING and desperate-FEM.SING, Giovanni didn't call her anymore

Facts about control in APPs raise the interesting issue of their relationship with depictive predicates. Indeed Rothstein (1983) attributes to the sentence:

- (124) Drunk, it's hard to drive

the following representation:

- (125) [[Drunk]_{ADJP₁} [it's hard [PRO [to drive]_{VP} [t]_{ADJP₁}]]]

That is, in her theory our APPs would be considered as dislocated depictive predicates. This idea naturally stems from the consideration that depictive predicates and APPs have a rather similar function: they are both used to predicate something of one of the matrix event participants. There are, however, differences which urge towards a separation of the two constructions (in the following set of examples I will systematically compare the behavior of an APP (sentence initial position) with a truly depictive predicate (sentence final position)):

1. They are not, in fact, semantically identical: while APPs can have various aspectual meanings, only a durative interpretation is available for depictive predication:

- (126) a. Un tempo sicuro di se, Giovanni ora si copriva la faccia ogni volta che parlava [APP]
 Once upon a time self-confident, Giovanni now covered his face each time he spoke
- b. * Giovanni ora si copriva la faccia ogni volta che parlava un tempo sicuro di se [Depictive]
 Giovanni now covered his face each time he spoke once upon a time self-confident

2. The NP which plays the role of the subject of predication is syntactically constrained in various ways in depictive predicates (see Rothstein (1983) Napoli (1989) Rapoport (1991), a.o.). In any case it cannot be an adjunct. This restriction does not hold with APPs:

- (127) a. Ossessionato dall'idea di avere un dente cariato, quella caccia era stata per Michele un incubo [APP]
 Obsessed by the idea of having a caved tooth, that hunting has been for Michele a nightmare

- b. *Quella caccia era stata per Michele un incubo ossessionato dall'idea di avere un dente cariato [Depictive]
That hunting has been for Michele a nightmare, obsessed by the idea of having a caved tooth
3. According to Rapoport (1991) depictive predication is incompatible with individual level predicates. APPs do not share the same constraint²⁹:
- (130) a. Sensibile al profumo delle spezie, Maria si accorse subito che stavano cucinando riso al curry [APP]
Sensitive to the flavour of spices, Maria suddenly realized that (they) were cooking rice with curry
- b. *Maria si accorse subito che stavano cucinando riso al curry sensibile al profumo delle spezie [Depictive]
Maria suddenly realized that (they) were cooking rice with curry sensitive to the flavour of spices

A final caveat concerns sentence (130a), which could be taken as a counterexample to our analysis of APPs as aspectual modifiers. Indeed its meaning seems to be better paraphrasable as *Because Maria was sensitive to the flavour of spices, she suddenly realized that they were cooking rice with curry*, i.e. as a causal rather than an aspectual modifier. I think that this interpretation is however derivable from pragmatic reasons, again from the gricean maxim *be informative*. Consider that an individual level predicate is used in (130a). Since these kinds of predicates are tendentially stable there is no informativeness in saying that a certain action of Maria is contemporary to a certain state of hers: indeed the latter is by default an atemporal *property* of Maria. Therefore some additional relation has to be resorted, namely a causal one³⁰. In other contexts other relations can be inferred, such as the adversative one in:

- (131) E' incredibile: fradicio di sudore sotto la pioggia, non si é preso neanche un raffreddore!
It's incredible: soaked with sweat under the rain, (he) didn't catch even a cold

This does not mean that no aspectual relation is set: it is simply scarcely informative, and therefore not prominent.

5.2 Prepositional Phrases

In this section I will show that our treatment of APs can be extended to prepositional phrases. I will focus my attention on locative PPs, as they have certain interesting aktionsarten properties, but the treatment applies to every kind of PP.

To show that prepositions can enter into APs, we have to show that they are aspectually relevant (in fact, we should show that they are *only* aspectually relevant, but, as in the case of adjectives, there is simply no reason to assume that prepositions introduce a new speech time as a contextual index). This can be done trivially repeating the test of *da*-adverbial compatibility already adopted for adjectives:

- (132) Il medico ha visitato un uomo sopra un albero da tre giorni
The doctor has seen a man on a tree since three days

Since the result is perfectly acceptable, we conclude that locative PPs has to be aspectually relevant, thus matching the main condition for entering in our rules generating APs. Now, we should expect to find PPs able to express a telic meaning in absolute contexts, thus qualifying as AAPs. This is indeed the case:

²⁹The fact that certain individual level predicates are ungrammatical in APPs is easily explained resorting pragmatic reasons (see below). For instance the ungrammaticality of

- (128) *Alto, lo picchiammo
High, (we) him beated

is due to the fact that there is no possible pragmatic relation between the matrix event and the subordinate state. If such a relation is found, for instance enriching the semantics of the APP, (128) turns into a perfect sentence:

- (129) Troppo alto per i nostri gusti, lo picchiammo
Too high for our taste, (we) him beated him

³⁰This fact is widely discussed in Stump (1985), Chapter VI, where an analogous pragmatic explanation is resorted to account for the variability of interpretation of certain English absolute constructions.

- (133) a. Un volta sotto le lenzuola, Giovanni cominció a pensare a LF
 Once under the sheets, Giovanni started thinking about LF
- b. Una volta a casa, Giovanni si fece una doccia
 Once at home, Giovanni got a shower

Predictably, in both examples the moment of change is focussed: for instance (133b) means something like *After having undergone the change from not being at home to being at home, Giovanni...*³¹. The same prepositions heading the AAPs in (133) can be used to express a state in other absolute contexts (i.e. when they head APPs):

- (136) a. Sotto le lenzuola, Giovanni pensava a LF
 Under the sheets, Giovanni was thinking about LF
- b. A casa, Giovanni ripensava al passato
 At home, Giovanni was thinking about his past

This fact is not peculiar to APs. It is a well known fact that Italian spatial preposition are usually able to express either the goal of a movement or the place where a certain participant is located, depending on the syntactic context:

- (137) Marina corse a casa
 Marina run (at) home
- (138) Marina era a casa
 Marina was at home

In the former case they are [ADD-TO -], in the latter [ADD-TO +]: this explains why Italian spatial prepositions can be used both in AAPs and APPs. Then, it could be questioned whether we need to stipulate the existence of ambiguous prepositions in the lexicon (remember that the same problem arose with adjectives). In fact, this is not the case. Such a distinction would indeed miss the generalization that in a language like Italian prepositions expressing motions and prepositions expressing states happen to be the same. In our view, there is not, say, a directional *su* ("on") and a locative *su* in the lexicon: there is simply a static spatial relation SU, with an underspecified [ADD-TO] value. When the preposition enters into syntax such a value get instantiated by the context, thus forcing either a directional or a stative semantic relation. Technically, this is done simply extending the hierachy in (121) to spatial prepositions. The following feature structures show the CONTENT value of *su* in two different contexts of additivity:

$$(139) \left[\begin{array}{c} \text{adj-state} \\ \text{ADD-TO } + \\ \text{NUCLEUS} \left[\begin{array}{c} \text{RELN } su \\ \text{PLACE } index \\ \text{PLACED } index \\ \text{LOC } index \end{array} \right] \end{array} \right] \left[\begin{array}{c} \text{adj-change} \\ \text{ADD-TO } - \\ \text{NUCLEUS} \left[\begin{array}{c} \text{RELN } become \\ \text{SOARG} \left[\begin{array}{c} \text{RELN } su \\ \text{PLACE } index \\ \text{PLACED } index \end{array} \right] \\ \text{LOC } index \end{array} \right] \end{array} \right] \right]$$

Note, incidentally, that an analogous device relating additivity properties and semantic content is independently required to account for the following pair:

- (140) a. Saró a casa per tre ore
 (I) will be at home for three hours
- b. Saró a casa in tre ore
 (I) will be at home in three hours

³¹Note that the time in which that change takes place is not necessarily a single instant, therefore the presence of *in*-adverbials is fully justified:

- (134) A casa in pochi minuti, Giovanni si fece una doccia
 At home in few minutes, Giovanni got a shower

By the same token, since a change is always bounded ([ADD-TO -]), no *for*-adverbial can appear, unless the absolute phrase is reinterpreted as an APP:

- (135) * A casa per pochi minuti, Giovanni si fece una doccia
 At home for few minutes, Giovanni got a shower

In (140a) a *for*-adverbial is used, which sets an additive context: therefore the sentence is interpreted as expressing a state. Conversely in (140b) the presence of an *in*-adverbial forces a bounded interpretation ([ADD-TO -]), which, in our theory, is associated with a change: this explains why that sentence means something like *my change from being here to being at home will last three hours*³².

It is a well known fact (cf. Jackendoff (1992) and Verkuyl and Zwarts (1992)) that prepositions, in particular spatial prepositions, can have an aspectual meaning (in a broad sense), i.e. they are sensitive to the opposition [+/- bounded]. For a spatial preposition to be (un)bounded means that it conceptualizes a (un)delimited portion of space. More in details, in Verkuyl and Zwarts (1992) spatial prepositional phrases originate a set *path* containing a sequence of spatial indices ($\langle p_1, p_2 \dots p_n \rangle$). This sequence of spatial indices is finite in the case of bounded prepositions (e.g. *to*) and infinite in the case of unbounded prepositions (e.g. *along*). The verb associates a point in time to each member of *path*, thus resulting in a sequence of spatiotemporal pairs ($\langle (p_1, t_1), (p_2, t_2) \dots (p_n, t_n) \rangle$): if the resulting sequence is bounded also the event which is going on will be bounded (i.e. [ADD-TO -]), while if the resulting sequence is non finite an unbounded event will be generated (i.e. [ADD-TO +]). This explains why (142) is correct, while (143) is not:

(142) John walked to the store in ten minutes

(143) *John walked along the river in ten minutes

Now, if there are prepositions which are inherently unbounded³³, PPs headed by these prepositions should never enter into AAPs:

(144) * Una volta lungo il sentiero, Giovanni si sentí male
Once along the path, Gianni felt sick

As predicted, however, they are perfect in APPs:

(145) Lungo il sentiero, Giovanni si sentí male
Along the path, Gianni felt sick

This definitely proves that the additivity feature is relevant for every kind of expression used in an absolute context.

I will conclude this section showing that the usual syntactic differences between AAPs and APPs are found also when the head is a preposition:

Presence of an NP

(146) a. Una volta a letto i bambini, andremo al cinema [AAP with NP]
Once at bed the children, (we) will go to the movies

b. A letto, i bambini guardavano le ombre sul soffitto [APP without NP]
At bed, the children were looking at the shadows on the ceiling

c. *A letto i bambini, guardavano le ombre sul soffitto [APP with NP]
At bed the children, (they) were looking at the shadows on the ceiling

³²It might be objected that the same facts could be accounted for by assuming a dummy verbal head able to give the preposition the right sense. For instance in (133b) one could say that a phonetically unrealized motion verb is present. Such an approach would be either false or equivalent to the one sketched here, both much more expensive. The former case would be realized if one assumes that a *particular* motion verb, say *go*, is missing: it is trivial to show that this cannot be the case by considering examples such as

(141) Una volta in cassaforte, i soldi saranno al sicuro
Once in the safe, the money will be safe

In this case it is clear that the money cannot have *gone* to the safe. Moreover it is clear that no particular dummy verb can be really guessed: (141) focusses only on a change of state, no matter how it is reached. Therefore one should hypothesize a maximally generic verb, a kind of verb which is never lexically realized and which simply expresses a change: this would amount to say that our **become** relation is expressed in the syntax by a dummy verb, and, as far as I know, there is no motivation for assuming the existence of such a dummy verb.

³³I couldn't find any unambiguously inherently bounded preposition in Italian: it seems that they are always ambiguous between a GOAL and a STATE interpretation

Control

- (147) a. I nostri eroi erano ansiosi di andarsi a sedere. Una volta al loro tavolo, però, scoppió una rissa. [Contextually controlled AAP]
Our heroes were anxious to sit. Once at their table, however, a brawl burst
- b. Al suo tavolo, Gianni passava le serate a scrivere poesie [Syntactically controlled APP]
At his table, Gianni spent his evenings writing poems
- c. Giovanni passava le serate in quel posto. * Al suo tavolo, scoppió una rissa. [Contextually controlled APP]
Giovanni spent his evenings in that place. At his table, burst a blow.

5.2.1 Differences between APPs and modifiers

A final caveat concerns the possible ambiguity between locative APPs and truly locative modifiers. Since Davidson (1967) it is almost standard representing locative modifiers as predicates over an ϵ variable. Now, it comes out that certain locatives (the ones occurring in APPs), while not directly modifying any NP, are nevertheless predicates over individuals rather than events. This is, I think, a positive and important result. It is noted in Cooper (1986) that stative verbs are not in any way dependent on the space:

Independence of space (statives)
if h is a realized history and
 $h_l(r, a_1, \dots, a_n) = 1(0)$
then
 $h_{l^+}(r, a_1, \dots, a_n) = 1(0)$
where l^+ is the spatial extension of l to include all space.

This seems reasonable, as there is very little meaning in saying that a predicate such as *feel* is spatially delimited. However sentences like

- (148) In montagna, Giovanni sentiva di amare lo sci
In mountain, Giovanni felt to love skying

are perfect, thus contradicting the *independence of space*: indeed if statives have always a location including all space, there is little informativness in saying they hold in a particular space: it's simply redundant information. The explanation of this fact comes from the consideration that (148) contains in fact an APP, not a pure space adverbial: the locative is thus a predicate over *Giovanni* rather than over the described state. Here is a possible paraphrasis of (148):

- (149) Quando era in montagna, Giovanni sentiva di amare lo sci
When (he) was in mountain, Giovanni felt to love skying

Sometimes, different control configurations give raise to different possible interpretations for APPs:

- (150) Sul balcone, Giovanni vide il ladro
On the balcony, Giovanni saw the thief
- (151) Sul balcone, il ladro fu visto da Giovanni
On the balcony, the thief was seen by Giovanni

In (150) the controller of the absolute locative is Giovanni, thus the sentence is compatible with a situation in which Giovanni, standing on the balcony, saw the thief. Conversely in (151) the controller of the APP is the thief: the sentence is thus interpreted as if the thief was seen while being on the balcony. If the locatives in (150)-(151) were considered predicates over the ϵ variable in both cases, this difference in truth conditions would be completely unexplained. Finally consider that true locative adverbials and absolute phrases are phonologically marked in a different way: locatives are part of the intonational pattern of the matrix clause, while absolute phrases are separated by an intonational pause (this difference is conventionally represented in written texts by using a comma). Thus, if

the phrase *sul balcone* in (150) is uttered without any intonational pause at the end, it turns to be a truly locative adverbial, and, as we expect, it predicates something of the location of the whole event: in this case the interpretation where both Giovanni and the thief are on the balcony would be preferred. As a confirmation consider the difference of acceptability between (153) and (152):

(152) * A Milano, piove spesso
In Milan, (it) rains often

(153) A Milano piove spesso
In Milan, (it) rains often

In (152) we have the typical intonational pattern of APPs, but since a proper controller is absent, the sentence is not correct. Conversely in (153) a standard predication over the *e* variable is found, and the sentence is perfect.

6 Conclusions

I have shown how the syntax and semantics of Italian absolute phrases can be fully accounted for in a lexicalist framework. Crucial to the whole treatment is the assumption that certain semantic constraints are able to *drive* the application of the rules for AP formation, influencing both their distribution and their interpretation. In particular I have proved (a) that a number of syntactic properties of APs are tightly linked to certain constraints on aktionsart ; (b) that the pattern of absolute phrase formation cannot be limited to past participle forms, but is applicable to the whole range of aspectually (and only aspectually) relevant heads. Coming back to Stowell's claim, it seems that absolute constructions are in fact problematic for a framework which professes a radical autonomy of syntax. Indeed, assuming that (b) can be accounted for by introducing functional projections like CP, TP and AGRP as extended projections (in the sense of Grimshaw (1991)) of ADJPs and PPs, there is no straightforward explanation of (a): the ban against additive transitive and unergative verbs in certain absolute contexts cannot be a matter of semantic interpretation, as the meaning of AAPs is just a precedence relation between two intervals, which is not sensitive to the additive/non-additive opposition (indeed *after*-clauses with stative verbs are perfectly grammatical); it cannot as well be a pure syntactic matter, as even in the most sophisticated approaches to "aspectual" influences in the syntax (such as Tenny's AIH) there is no way to capture the semantic import due to adjuncts able to shift additive properties of events. To conclude, I submit that it is almost impossible to account for the data concerning Italian absolute phrases in a principled manner in a framework which rejects all interactions between syntax and semantics, professing a radical autonomy of syntax.

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