Argument Structures, Verb Patterns and Dictionaries

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Abstract
This paper addresses the following two questions: 1) how much can research on the interactions between the syntactic behaviour of verbs and their lexical semantic properties be relevant from a lexicographic point of view?; 2) how far can the integration of lexicological research and lexicographic practise go in this respect? After pointing out some of the main difficulties that theoretical studies still confront, I discuss concrete problems that arise when valency-based models are adopted in the presentation of specific verb classes in Italian monolingual dictionaries. With the help of the analysis of these specific cases, I intend to draw conclusions that are valid from a general perspective.

1 Introduction

This paper investigates the possible connections between models of verb representation and lexicographic practise. The structure of the paper is as follows. In section 2 I briefly comment on the research that has been done on the interactions between the syntactic behaviour of verbs and their semantic properties, in order to point out some of the problems that are still open (section 3). In section 4 I confront the question of how much of this work has been or can be relevant from a lexicographic point of view. In doing so I concentrate on the Italian lexicographic tradition in its more recent developments and products. My main goal is to explore and clarify how far the integration of lexicological research and lexicographic application can go in this domain. To pursue this aim, I point out concrete problems regarding the presentation of specific verb classes in Italian monolingual dictionaries (section 5). With the help of the analysis of specific cases, I draw conclusions (section 6) that are valid from a general perspective.

2 Verb classification: principles and models

Verb classification constitutes a major issue in lexicology due to the fact that next to semantic information verbs clearly codify grammatical information about the structure of the sentence in which they appear. These two properties are supposed to be strictly correlated, and much research has been carried out to identify the interactions between semantic properties of verbs (including aspectual ones) and syntax (for a collection of works, see Butt – Geuder 1998; for a recent overview, cf. Levin-Rappaport 2005).

Among the most fruitful models developed to account for the interaction between the meaning of verbs and their syntactic behaviour there are the models based on the concept of *valency*. Valency is used here as a general term to indicate the property of a verb to call for a definite *number, semantic type* and *syntactic type* of elements (=arguments). This property is supposed to be derived from its semantics. Arguments are considered *obligatory* both at semantic and syntactic level – they finalize the meaning of a verb, and allow unambiguous semantic interpretation in context of highly relational (and consequently highly polysemous) words, as verbs are.[1]

Although Lucien Tesnière is commonly recognized (at least in the European tradition, not so much in the American one) as the first scholar to have introduced the term *valency* in linguistic theory (typically a term of chemistry), it is important to recall that the concept expressed by this term was being debated under different terminologies by many other more or less contemporary scholars, and has been further developed within various theoretical traditions, growing to become a basic organizatorial principle of sentence structure, both from a syntactic point of view (see the distinction between *core* and *periphery*) and from a logical-semantic one (see the distinction between *predicate* and *argument*). In its broad interpretation the principle of valency can be considered to reside at the core of the notions of *determination* and *selection* discussed in Hjelmslev (1943, 25), of the rules of *subcategorization* and *selection* ascribed to predicates by Chomsky (1965, 94-95, 113) and of the *projection principle* formulated in Chomsky (1981).

As is well known, instead of distinguishing between *subject* on one hand and *all other complements* on the other (as traditional grammars do), valency theories draw a preliminary distinction between *obligatory* (=arguments) and *non obligatory* (=adjuncts) complements. As a consequence, they allow fine-grained phenomena to be captured that the traditional classification of verbs in transitive and intransitive does not, such as the existence of intransitive one-place and two-place verbs, of transitive two-place and three-place verbs and so on. This difference is schematized in Table 1.

Traditional grammar	subject	complements	predicate
Valency theories	arguments	adjuncts	predicate

Table 1. Traditional grammar and valency theories

While the property to require arguments has been referred to as *valency* or *projection*, the set of arguments and their semantic and syntactic features have been referred to as *argument*

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[1] Valency models, traditionally based on a "projectionist" approach (which maintains that verb syntax is – to various extents – lexically determined) are challenged today by models based on a "constructionist" approach (Fillmore & Kay 1999), following which there exists a vast number of prefabricated constructions in language that are not lexically determined and have a meaning on their own. These constructions are assumed to be a level of linguistic representation between lexicon and syntax and to play a central role in language acquisition (Goldberg 1999). However interesting the debate, we do not discuss it further in this paper.

structure (Grimshaw 1990), *structure actantielle* (Lazard 1994), *predicate frame* (Dik 1989), *case frame* (Fillmore 1968) etc. In this last case (*case frame*), a single aspect of the phenomenon is considered, namely the role played by the referent of the arguments – active, passive, experiencer, etc. – in the event expressed by the predicate. The same is true for the notion and formalism of *selectional restrictions* proposed in Chomsky (1965), which refers exclusively to the constraints that the predicate imposes on the referent of its arguments – *abstract, animate, human, countable* and so on).[2] The term I am going to use is *Argument Structure* (henceforth AS).

3 Problems in valency theories

Valency theories and the models proposed within this framework still confront the following main problems:

i.   establish the number of argument that a certain verb has in a given context (problem of distinguishing between argument and adjuncts);

ii.   clarify which type of information AS contains, besides information on the number of arguments (thematic role of arguments, distinction between external vs. internal argument(s), selectional restrictions on arguments, optionality in the realization of arguments etc.);

iii.   account for the syntactic realization of arguments (subject, direct object, indirect object adverbial expression);

iv.   (from a lexical point of view), account for the fact that single verbs may allow multiple syntactic realizations of their arguments.

In the next section I will address point i) exclusively.

3.1 Number of arguments in AS

Normally, when talking about arguments, the distinction between *obligatory* and *non obligatory* elements in the sentence is introduced. Some authors also talk about *optional* arguments (for example Dik 1989 (1997) 86-90), i.e. obligatory elements that can be omitted under certain conditions (not all obligatory elements can be omitted – for example the object of the Italian transitive verb *compilare* (to fill in, to compile) can never be omitted, whereas the object of transitive verb *scrivere* (to write) can):

(1)   (a) 'Luca sta compilando un modulo'   (b) *Luca sta compilando
              Luca is filling in a form   Luca is filling in

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[2] It is important to recall that in most lexical models, argument information is considered to be only part of the lexical knowledge associated with verbs, next to denotational meaning (conceptual structure) and aspectual meaning (event structure). To sum up:

Verb lexical info: conceptual structure (denotational meaning)
                                  argument structure (relational-syntactic relevant meaning)
                                  event structure (aspectual meaning)

(2) (a) 'Luca sta scrivendo una lettera'   (b) 'Luca sta scrivendo'
     Luca is writing a letter   Luca is writing

The category of the optional argument is interesting but as a matter or fact it obscures the difference between argument and adjuncts. Let us take as an example a motion verb like *cadere* (to fall): is Destination in (3) an argument? Are Source and Destination both arguments or neither is? Notice that *cadere* semantically entails direction towards a place located in a lower dimension, and when no argument is realized except for the subject, the understood Destination is 'ground' (i.e. 'Luca è caduto' (Luca fell) – with no further specification – is interpreted as 'Luca è caduto per terra' (Luca fell to the ground)).

(3) *cadere* (to fall) 'Luca è caduto in acqua' $\begin{bmatrix} \text{arg.}_1 & \text{<individual>} \\ \text{?arg.}_2 & \text{<source>} \\ \text{?arg.}_3 & \text{<destination>} \end{bmatrix}$
     Luca fell into water

Whatever the case, the distinction between *obligatory, non obligatory* and *optional* is still not enough. Next to verbs that allow optional realization of their arguments, there are verbs that *regularly* do not express elements that they imply at logical-semantic level, unless these elements are further specified somehow (for example, by an adjective if they are nouns). The following examples clarify this point:

(4) *scolpire* (to carve)   'Luca ha scolpito una statua' $\begin{bmatrix} \text{arg.}_1 & \text{<individual>} \\ \text{arg.}_2 & \text{<manufact>} \\ \text{?arg.}_3 & \text{<pointed\_object>} \end{bmatrix}$
                            Luca carved the statue

(5) *tagliare* (to cut)   'Luca ha tagliato il pane' $\begin{bmatrix} \text{arg.}_1 & \text{<individual>} \\ \text{arg.}_2 & \text{<physical object>} \\ \text{?arg.}_3 & \text{<knife>} \end{bmatrix}$
                            Luca has cut the bread

(6) *tagliare* (to cut)   'Luca ha tagliato i capelli a Luisa' $\begin{bmatrix} \text{arg.}_1 & \text{<individual>} \\ \text{arg.}_2 & \text{<physical object>} \\ \text{?arg.}_3 & \text{<scissors>} \end{bmatrix}$
                            Luca cut Luisa's hair

(7) *spazzolare* (to brush) 'Luca ha spazzolato le scarpe' $\begin{bmatrix} \text{arg.}_1 & \text{<individual>} \\ \text{arg.}_2 & \text{<physical object>} \\ \text{?arg.}_3 & \text{<brush>} \end{bmatrix}$
                            Luca brushed his shoes

The examples show that verbs may entail participants that they typically do not mention (case of Instrument with *scolpire* (4) and *tagliare* (5, 6)), or incorporate arguments that they cannot express unless they are further specified (case of Instrument with *spazzolare* (7): we can only say 'Luca ha spazzolato le scarpe con la spazzola *nuova* (with the *new* brush)' and not just 'con la spazzola' "with the brush"). Moreover, verbs like *tagliare* entail different ar-

guments (Instruments) depending on the semantic type of the referent of the object (if *pane* (bread), then *coltello* (knife), if *capelli* (hair), then *forbici* (scissors), and so on).

All this boils down to show us that it is necessary to draw a clear-cut distinction between *syntactic valency* on one hand (property of predicates to require the implementation of a given number of syntactic slots) and *semantic valency* on the other (property of predicates to call for a set of participants at the level of event semantic representation), and to elaborate a far more refined grid of argument types, besides obligatory and optional (a step in this direction is taken in Pustejovsky 1995, 62-67 where *default* arguments and *shadow* arguments are postulated).

4 Argument structure and dictionaries

Valency is important in monolingual and bilingual dictionaries because it clarifies how verbs work in context (i.e. in syntactic environment) and thus enlightens the syntagmatic behaviour of lexical items. As is widely known, there is a long and well-established tradition of valency dictionaries in German lexicography since Helbig & Schenkel 1968 (this tradition includes monolingual as well as bilingual sources: see for the latter Blumenthal – Rovere 1998). Extensive works have recently been compiled also for other European languages (see for instance English monolingual Herfst et al. 2004).

However, it has to be noted that despite the growth in number, many valency dictionaries only capture the most superficial side of the phenomenon (i.e. they describe the superficial syntactic pattern), and do not confront the core problem of clarifying what the underlying AS really is (they are not concerned to link syntactic behaviour to the semantic dimension, and they often do not treat semantically related verbs homogeneously). With regard to the indication of AS in dictionaries, from an operative point of view, two main options are followed:

a) usage: indicates most frequent use;

b) logical maximal extension: indicates the larger possible extension of AS.

If we go back to the example of *cadere* in (3), we easily see that these two options give rise to radically different lexicographic treatments and that the second option (logical maximal extension) is somehow 'unnatural', since *cadere* is more frequently used with one or two arguments than with three:

a) ***cadere*** **v. intr.** (1 *arg.*) ... 'il libro è caduto' (the book fell)
b) ***cadere*** **v. intr.** (3 *arg.*) ... 'il libro è caduto dal tavolo sul tappeto'
(the book fell from the carpet to the ground)

As for the Italian lexicographic tradition, besides specific valency dictionaries, nowadays various general monolingual dictionaries contain valency information (see for instance Devoto Oli 2004-2005, Sabatini Coletti 2006, Zingarelli 2006), even though in most cases they do not go further than to specify the preposition that introduces the indirect object, which selection is often not predictable (Zingarelli 2006 only indicates prepositions when they are obligatory, as in the case of ***giovare*** **(+a)** (to be useful for), whereas Devoto-Oli 2004-2005 also indicates them when the argument they introduce is optional, as in the case of ***cadere***

(anche con la prep. *da, di* **indicando provenienza, o con** *a, in, su per*) (also with the prep. *da, di*, indicating source, or with *a, in, su, per*)).

Sabatini Coletti 2006 on the contrary indicates the global argument structure, selecting the relevant one out of a list of 11 possible structures, which are summarized in Table 2 (sogg = subject; v = verb; arg = argument; prep=preposition; compl.pred. = predicative complement; non sogg = absence of subject (impersonal verb)):

Valency formula	Verb	Example
1. sogg-v	*sbadigliare*	'Marco sbadiglia'
2. sogg-v-arg	*indossare*	'Luca indossa una cravatta blu'
3. sogg-v-arg+compl.pred.	*eleggere*	'gli studenti hanno eletto Luigi rappresentante'
4. sogg-v-arg-prep.arg	*dedicare*	'Luca ha dedicato il libro alla madre'
5. sogg-v-arg-prep.arg-prep.arg	*trasferire*	'l'agenzia ha trasferito la sede da Roma a Pisa'
6. sogg-v-compl.pred	*diventare*	'Il cielo è diventato grigio'
7. sogg-v-compl.pred-prep.arg	*parere*	'la proposta pare un affare a tutti'
8. sogg-v-prep.arg	*giovare*	'lo sport giova alla salute'
9. sogg-v-prep.arg-prep.arg	*raccontare*	'Mario ha raccontato a tutti del suo viaggio'
10. non sogg-v	*nevicare*	'Sta nevicando'
11. non sogg-v-prep.arg	*piovere*	'Piove dal soffitto'

Table 2. Valency formulae in Sabatini Coletti 2006

Given the fact that most verbs allow more than a single realization of their arguments, the profile of a verb entry in this last dictionary is highly articulated and frequently contains up to five or six different formulae, strictly correlated to the semantic dimension (i.e. to meaning definitions). See below the entry proposed for *cadere*, where three formulae are employed: [sogg-v], [sogg-v-prep.arg], [sogg-v-prep.arg-prep.arg] (for sake of brevity, we leave out phraseology, etymology, morphological and phonetic information):

from Sabatini Coletti (2006):

cadere v.intr. (aus. *essere*)
♦ **[sogg-v]**
    1 Finire a terra: *ho inciampato e sono caduto*; *spostando il tavolo sono caduti due libri*; riferito a eventi naturali, indica a seconda dei casi il movimento, la traiettoria, il distacco: *cade la neve, la pioggia*; *cadono le foglie*; *cadono i capelli, i denti*; *cadono le stelle*
    2 Di cosa, precipitare, crollare: *la vecchia casa è caduta*; *durante il temporale è caduto un albero*
    3 Disporsi in verticale, pendere, scendere: *cadendo, la tenda forma delle grandi pieghe*
    4 fig. Detto di un potere, una carica, una funzione, finire, essere rovesciato, spesso con soggetto posposto: *è caduto il governo*
    5 fig. Venir meno, cessare del tutto: *mentre le telefonavo cadde la linea*; *è caduta la speranza di ritrovarlo ancora in vita*
    6 fig. Scendere, diminuire bruscamente: *i prezzi delle materie prime caddero di colpo*

7 fig. Detto dell'ombra e del buio, calare, scendere: *cade la notte, la sera*; detto del sole o della luna, tramontare

8 fig. Rimanere ucciso in guerra o nel compiere il proprio dovere, spec. sul lavoro **S** morire: *in Russia sono caduti migliaia di italiani*

9 fig. Introd. dal verbo *lasciare* e riferito a parola o frase, dire, pronunciare con finta noncuranza: *lasciar c. una parola*

◊ **[sogg-v-prep.arg]**

1 Muoversi non intenzionalmente, spesso rapidamente, verso il basso, per mancanza di sostegno o equilibrio **S** cascare: *c. nel vuoto*; *c. a, per terra*; *la borsa è caduta in acqua*; finire a terra da un luogo o da una posizione: *c. dalla bicicletta*; *c. dal letto*; *c. dal quinto piano*; *mi sono cadute le chiavi dalla tasca*

2 Pendere, venire giù più o meno in verticale fino a toccare qlco., detto perlopiù di tessuti, fili, capelli: *i capelli le cadono sulle spalle*

3 fig. Andare a finire in un certo luogo **S** posarsi: *lo sguardo cadde sulla parete di fronte*; *l'accento cade sull'ultima sillaba*

4 fig. Capitare in un certo momento: *il tuo discorso cade in un momento delicato*; detto di anniversari, aver luogo in una certa data **S** ricorrere: *quest'anno Natale cade di domenica*

◊ **[sogg-v-prep.arg-prep.arg]** Passare involontariamente da un luogo più alto a uno più basso: *c. dall'argine nel fiume*; *c. dal tetto sul terrazzo*

Notice that the organization of the entry is based primarily on its AS pattern.

5 Problems in lexicographic treatment of argument information

The opportunity to adopt valency models in dictionaries is evident especially in the frame of grammaticalized dictionaries (i.e. dictionaries that contain information about word grammatical behaviour). However, even within this frame this opportunity is challenged by various facts.[3] I believe one of these facts is represented by the class of Italian pronominal verbs. I use the label *pronominal verb* to refer to a heterogeneous class of verbs which share the formal (= superficial) future of being constructed with the pronominal marker *si* (conjugated in person: *mi* (first person singular) *ti* (second person singular) etc.). In this view, verbs like *arrabbiarsi* (to get angry), *chiudersi* (to close) *commuoversi* (to be moved), *lavarsi* (to wash (oneself)), *pettinarsi* (to *comb one's hair*), *sciogliersi* (to melt) *sgonfiarsi* (to deflate) are all to be considered pronominal. Not many verbs are used exclusively in the pronominal form in Italian, i.e. are lemmatized with *si* (probably less than a hundred: one of these is *arrabbiarsi* (to get angry) for which no non-pronominal form **arrabbiare* is available), while the vast majority of Italian verbs *can* be used both in a pronominal and a non pronominal form (for instance *chiudere/chiudersi* (to close)). Therefore, pronominal use regards a fairly large section of the Italian verbal lexicon and is central to the presentation of Italian verbs in dictionaries.

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[3] I do not discuss pragmatic facts here such as the requirements of user-friendliness, but concentrate on linguistic representational issues

Pronominal verbs constitute a problem both from a lexicological and a lexicographic perspective. The reason why these verbs are problematic is that it is not clear what semantic contribution the pronoun *si* brings to the interpretation of the sentence in its various uses. Besides its primary reflexive function, as in *lavare* (to wash) *lavarsi* (to wash (oneself)), in contemporary standard Italian the *si* also discloses non reflexive functions. This is easily shown by the so-called substitution test, where the pronominal marker *si* is replaced by its tonic form *sé*, together with the intensifier *stesso* (self) (thus with *se stesso*). This operation is only possible with reflexive uses:

(8)   verb + se stesso
        lavarsi   (to wash (oneself))   lavare <u>se stesso</u>   REFL
        ammalarsi   (to get ill)   *ammalare <u>se stesso</u>   NON REFL

A list of examples of pronominal uses follows:

(9)   *guardarsi allo specchio* (to look at oneself in the mirror), *munirsi di biglietto* (to provide one-
        self with a ticket); *togliersi le scarpe* (to take one's shoes off); *prepararsi la cena* (to prepare
        one's dinner); *vedersi la partita* (to see the match); *portarsi un libro* (to bring a book with one-
        self); *ammalarsi* (to get ill); *spaventarsi* (to be frightened), *sgonfiarsi* (to deflate); *rompersi una
        gamba* (to break one's leg); *salutarsi* (to say hello to each other); *stringersi la mano* (to shake
        each other's hand).

With respect to pronominal verbs much research has been done to clarify a) the nature of the pronoun *si* argument or morphological marker, b) its semantic structure and c) the parameters that are at play its semantic/syntactic interpretation. Here I would like to approach the problem from the perspective of argument structure in order to show how the adoption of a strict valency model in the case of Italian pronominal verbs can raise difficulties in integrating lexicological research and lexicographic treatment. The point I am going to raise regards the nature of the *si* with respect to valency theories.

It has been highly debated whether the *si* should be considered an argument or not. By far the most shared interpretation today is that in reflexive constructions the pronominal marker *si* should be considered an argument of the verb, since it is in complementary distribution with a direct object (*lavare il bambino* (to wash the child) ~ *lavarsi* (to wash (oneself)), and if the *si* is left out, an argument is missing (**Luca lava* (Luca washes)). This is true not only for direct reflexive uses, as the one reported above, but also for indirect ones (where the argument is introduced by a preposition: *togliere le scarpe <u>al</u> bambino* (to take off the child's shoes) ~ *togliersi le scarpe* (to take off one's shoes) and for reciprocal uses (*aiutare l'amico* (to help the friend) ~ *aiutarsi* (to help each other)). On the contrary, in its non-reflexive use the *si* is generally considered *not* to be an argument, since it is assumed that it does not refer to an entity in the outside world. The question is then: if not an argument, what is it? In its non reflexive uses, the *si* has been interpreted in different ways by various scholars:

a)   syntactic marker of derivation of an intransitive (ergative) use from a transitive one
        (marker of th-role deletion – cf. Burzio 1986) – no specific semantic value is assigned
        to the *si* in this case;

b) anticausative marker, i.e. marker of cause deletion (cf. Cennamo 2003, Centineo 1995);

c) middle voice marker, i.e. marker that underlines the affectedness of the argument (cf. Wehr 1995).

Recent studies (among others Lo Cascio-Jezek 1999) also have to emphasized the aspectual (resultative) value of *si*, evident if we consider pairs such as 'fa buio' (it is dark: stative) '*si* fa buio' (it gets dark: resultative), 'il piatto è rotto' (the dish is broken: stative) 'il piatto *si* è rotto' (the dish broke: resultative).

This interpretation of pronominal uses raises at least two problems, one theoretical and one applied:

1) Which feature(s) allow us to differentiate reflexive (=argumental) from non-reflexive (non argumental) uses, and how do we operatively distinguish among the two?

2) If *si* is an argument in reflexive uses, and a morphological marker in non reflexive ones, from a lexicographic point of view reflexive uses should be treated differently from non reflexive ones as far as valency is concerned, even though both show the same surface structure. For example *lavarsi* (reflexive two-place verb) should be treated differently from *ammalarsi* (non reflexive one-place verb), *togliersi le scarpe* (reflexive three-place verb: 'togliere le scarpe a se stesso') should be treated differently from *bagnarsi le scarpe* (to get one'shoes wet) (non reflexive two-place verb: *bagnare le scarpe a se stesso) and so on.

Regarding point 1, it is important to notice that theoretical uncertainty about the features is mirrored in lexicographic practise. The treatment of pronominal verbs in Italian monolingual dictionaries is not systematic and in some cases it is even contradictory. Whereas some dictionaries prefer to classify all pronominal uses under the same category *pronominal verbs* (for example GRADIT, De Mauro 2000) or *reflexive verbs* (for example Sabatini Coletti 2006), other dictionaries draw a distinction between *reflexive* on one hand and non reflexive on the other (in the latter case the label *intransitive pronominal* is commonly adopted), but then assign the same verbal entries to different categories (for example, Zingarelli 2006 considers *ribellarsi* (to rebel) as *intransitive pronominal* (thus non reflexive), while Devoto Oli 2004-2005 classifies it as *reflexive*).

In order to answer the question raised in point 1, I would like here to promote the view that the most effective criterion to distinguish between reflexive and non reflexive uses is the presence or absence of voluntariness of the subject argument in performing the action. In this perspective, if the subject controls the action (=Agent) the construction is reflexive (case of *lavarsi*), if not, it is not reflexive (case of *ammalarsi*). Notice that this parameter also allows one to distinguish reflexive and non reflexive uses of the same verb, as in the following examples:

(10) *bagnarsi*   a. 'Paolo <u>si è bagnato</u> per rinfrescarsi'   [+control]   REFL
                Paolo wet himself to cool down

                b. 'Ha cominciato a piovere e Paolo <u>si è bagnato</u>' [-control]   NON REFL
                It started raining and Paolo got wet

In proper reflexive uses, the subject controls (and causes) the event expressed by the verb. Reflexive use usually answers the question:

(11)   WHAT DOES/CAUSES *X* TO HIMSELF?

In a decompositional framework,[4] the underlying semantic representation of a reflexive event can be represented as follows:

(12)   [[DO xi] CAUSE [BECOME [*pred* yi]]]

where *pred* is the predicate of State correlated to the verb (*bagnato* 'wet'), *x* and *y* are the participants, i indicates co-referentiality, DO, CAUSE, BECOME are the semantic primitives in the lexical meaning of the verb. If we apply (12) to the expression in (10a), it corresponds to:

(13)   'Paolo *si è bagnato* per rinfrescarsi'   [[DO *x*i] CAUSE [BECOME [*bagnato* *y*i]]]

On the other hand, in non reflexive uses, the subject does neither control nor cause the event. The event is presented as something happening to the subject and therefore answers the question:

(14)   WHAT HAPPENS (UNCONSCIOUSLY) TO X?

The underlying semantic representation of a non reflexive event is the following:

(15)   . [BECOME[*pred x*]]

If we apply (15) to the expression in (10b) it corresponds to:

(16)   'Ha cominciato a piovere e Paolo *si è bagnato'*   [BECOME [*bagnato x*]]

Let us now turn to point 2. The option to distinguish between reflexive uses and non reflexive ones in terms of valency, although justified from a theoretical point of view, is not convenient from a lexicographic perspective. This option is highly counterintuitive to the user, who apparently never analyses pronominal forms as being formed by verb + pronominal argument, but rather considers them as lexicalized forms, even in their reflexive uses. How, then, can the two perspectives be reconciled? I believe a way to reconcile the two perspectives is to exclude the *si* in valency calculus (thus never treating the *si* as argument), on the basis of the assumption that even in its reflexive uses the pronominal marker is never referentially autonomous (while 'regular' arguments always are) but shares the referent with the

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[4] The formalism in (12) recalls the *logical structures* proposed in Dowty 1979.

first argument (it is co-referential with the first argument). Although in reflexive uses the verb assigns two roles (Agent and Patient), contrary to 'regular' assignments both roles refer to the same entity and the distinction among arguments is, as a result, weakened: the *si* can therefore be considered as a *weak* or *reduced* argument and on this basis be excluded from the valency calculus. The reasons for interpreting *si* as a weak argument in reflexive uses are schematized in Fig. 1, where reflexive events are interpreted as intermediate between two-participant and one-participant events:

semantics	2 participant event	reflexive event	1 participant event
TR ◄───────────────────────────────────────► INTR			
syntax	$[NP_1 \text{ V } NP_2]$	$[NP_{1j} \text{ } si_{2j} \text{ V}]$	$[NP_1 \text{ V}]$
	'Luca lava la macchina'	'Luca si lava'	'Luca scrive'
	Luca washes the car	Luca washes (himself)	Luca writes

Figure 1.

If the solution is adopted not to include *si* in valency calculus, the indication of the reflexive use can still be mantained at the level of meaning definition, when appropriate.

6 Conclusions

Valency information is important in lexicographic sources because it clarifies how verbs work in context and therefore acts as a *trait d'union* between lexical semantics and combinatorial properties of lexical items. However, various aspects of argument structure still need to be investigated from a theoretical point of view, in order to constantly improve the understanding of the correlations between the meaning of verbs and their syntactic behaviour. For example, it is necessary to develop a refined grid of argument types in order to account for various kinds of phenomena (incorporated arguments, different kinds of implicit arguments and so on). As for the use of valency models in dictionaries, it is necessary to avoid a strict description of superficial structure, and to promote a representation of valency properties that is closer to the semantic dimension. A strict application of valency-based models is in some cases counterintuitive (as in the case of Italian pronominal verbs) and balanced solutions between theory and practice have to be elaborated case by case.

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