Argument Structure Binding and Event Nominal Polysemy

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Abstract

It is well known that Event nominals tend to have both an *event* and one or more *non-event* interpretations and that non-event interpretations may pick out various aspects of the event, such as the *resulting object* or *state*, the *place*, the *instrument* and so on (Apresjan 1974; Bierwisch 1990/1991, 2008; Pustejovsky 2005). However, the representation of their polysemy can still be improved, especially for that which concerns their non-event interpretations.

For example, it has been assumed that Result nominalizations introduce an argument place over and above those found in the corresponding verb (see among others Asher 1993: 151). Engl. *analysis* for instance introduces reference to an abstract object which apparently is not originally an argument of the verb *analyse*. Not all Result nominals seem to behave this way, however. Some Result nominals fill an argument place of the corresponding verb: for example, *building* introduces reference to an entity which can be identified with the grammatical object of the verb *build*.

Given these premises, the overall aim of this paper is to contribute to the representation of the lexical ambiguity exhibited by event nominals by looking in particular at what argument of the base verb is bound in the non-event interpretations[1]. More specifically, I will be concerned with clarifying under what conditions the argument introduction posited for Result nominalizations takes place and when instead it does not. I will argue that this phenomenon depends to a large extent on the meaning of the underlying verb and that the base verbs of nominals which introduce reference to this extra argument are verbs of *covert creation*.

My analysis is based on the theories of Argument structure and Event structure as developed within the Generative Lexicon model (henceforth GL) (Pustejovsky 1995), which I briefly outline in section 2. The language discussed is Italian but the proposed generalizations may easily expand on a broader perspective.

Keywords: event nominals, polysemy, argument structure, binding, result, creation verbs.

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[1] *Event* is used here as a cover term for all sorts of dynamic eventualities.

1. The Process – Result ambiguity

The ambiguity of event nominals has been widely discussed within the distinction posited by J. Grimshaw between *Process* and *Result nominals* (Grimshaw 1990). Following Grimshaw, event nominals tend to be systematically polysemous between a process reading (exhibiting argument structure) and a result reading (exhibiting absence of argument structure):

(1) a. It. la costruzione (del palazzo) è durata due anni   = process
          'the building (of the house) took two years'

     b. It. la costruzione (*del palazzo) è alta due piani   = result
          'the building (*of the house) is two floors high'

Although the Process-Result distinction captures an important generalization, for various reasons it is insufficient to account for all facets of event nominal polysemy.

First, Grimshaw classifies nominals on the basis of their syntactic properties rather than their semantic interpretation. Consequently, her classes are semantically very heterogeneous. For example, her Result class includes both nominals with temporal structure (*simple event nouns*) and nominals which lack temporal structure completely (*referential nominals*, cf. Borer 1999).

Second, it has been assumed that Result nominals are *argument transforming nominals* (Asher 1993: 151) i.e. that they introduce and fill an argument place over and above those found in the corresponding verb. Engl. *analysis* for instance introduces reference to an abstract object which apparently is not originally an argument of the verb *analyse*. Not all Result nominals seem to behave this way, however. Some Result nominals fill an argument place of the corresponding verb: for example, *building* introduces reference to an entity which can be identified with the grammatical object of the verb *build*.

Third, the Process-Result alternation does not exhaust all the possible semantic interpretations exhibited by event nominals. Non-event interpretations may pick out various aspects of the event besides the resulting state or the resulting object. For example, they can denote the place where the event occurs, the instrument which is used to accomplish the event, and so on (Apresjan 1974; Bierwisch 1990/1991, 2008;

Pustejovsky 2005).

Given these premises, the overall aim of this paper is to contribute to the representation of the lexical ambiguity exhibited by event nominals by looking in particular at what argument of the event expressed by the base verb is bound in the non-event interpretations. More specifically, I will be concerned with clarifying under what conditions the argument introduction posited for Result nominalizations takes place and when instead it does not. I will argue that this phenomenon depends to a large extent on the meaning of the underlying verb. In particular, I will argue that the base verbs of result nominals which introduce reference to this extra argument are verbs which licence a semantic hidden argument (i.e. a semantic participant which cannot appear in the surface as an argument to the verb) in verb-argument composition. This hidden argument denotes an incrementally created entity. For my present purposes, I will call *covert creation* the class of verbs expressing events in which an entity is put into existence which cannot surface in the syntax as an argument.

My analysis is based on the theories of Argument structure and Event structure as developed within the GL model (Pustejovsky 1995), which I briefly outline in section 2. The language discussed is Italian but the proposed generalizations may easily expand on a broader perspective.
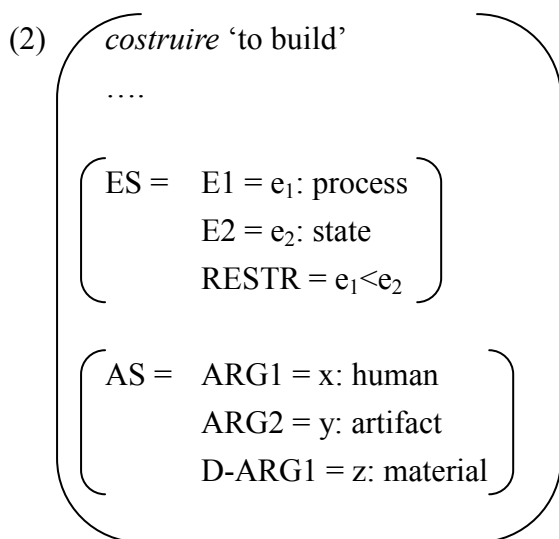

2. Theoretical framework

In this section, I briefly outline the components of the GL theory I adopt in my analysis, which are relevant for the present discussion. These are the levels of lexical representation of *Argument Structure* and *Event Structure*.

Argument Structure specifies the number and nature of the arguments to a predicate. Within GL, it is assumed that argument structure to a predicate may contain different types of argument, defined on the basis of the conditions which guide and constrain their realization in syntax. Those are: *True arguments*, *Default arguments* and *Shadow arguments* (Pustejovsky 1995: 62-67). A True argument is a semantic parameter which is obligatorily expressed syntactically, such as the internal argument in the expression "Mary rented *a car*". A Default argument is a parameter which participates in the logical expression but is not necessarily expressed syntactically, such as the goal location in "John left (*the room*)". A Shadow Argument is a parameter which is semantically incorporated in the verb semantics and can be expressed only by operations of subtyping, such as in "She phoned me *with her new phone*".

Event Structure defines the event type of the predicate and any subeventual structure it may have. Within GL, complex events are represented as tree structures in which subevents are ordered with respect to their temporal relations and to the prominence they play in the final interpretation (as well as in the mapping of the event arguments to syntax). Event Structures may be *States*, *Processes* or *Transitions* (Pustejovsky 1995: 67-75). States and Processes are durative non-bounded events, while Transitions are binary branching structures encoding change. Transitions may be *left-* or *right-headed*, depending on which one of the two subevents provides the focus of the interpretation. "Mary built a table" is a left-headed Transition and its head is the subevent Process; "The cup broke" is a right-headed Transition and its head is the resulting State.

In (2) I give a partial representation of the It. verb *costruire* ('built') using the type feature structure formalism and notation adopted in classic GL to represent lexical structures (ES stands for Event Structure, AS for Argument Structure and < indicates that the first subevent e_1 preceeds the second subevent e_2):

(2) *costruire* 'to build'

....

ES = E1 = e_1: process
E2 = e_2: state
RESTR = $e_1 < e_2$

AS = ARG1 = x: human
ARG2 = y: artifact
D-ARG1 = z: material

3. Polysemy of Italian event nominals

In this section, I present the result of the corpus investigation I carried out in order to verify what senses nominals take on in context and which participant of the event is bound in the non-event interpretations.[2] From a theoretical point of view, I start from

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[2] In the analysis, I consider both deverbal and simple nouns. I intentionally leave out stative nominals. Recent analyses on the polysemy of Italian event nominals include Gaeta 2004, Melloni 2007 (both from

the assumption that the potentially restricted senses exhibited by nominals are originally arguments to their corresponding verbs.[3] Also, I assume that binding options for non-event nominals are not limited to syntactic arguments of the base verb but include semantic participants as well. A semantic participant can be roughly defined as *a semantic parameter which participates in the logical expression but need not be discharged syntactically* (sometimes its syntactic projection is ruled out). Summarizing, I assume that event nominals may bind one of the following elements of the event:

(3)   Binding options for event nominals
        i) the event variable;
        ii) a subevent of the event structure of (i);
        iii) a true argument of the event;
        iv) a default argument of the event;
        v) a shadow argument;
        vi) the result argument introduced by the nominalization process;
        vii) an adjunct.

The methodology I adopt to identify the sense alternations exhibited by nominals is basically distributional. In particular, following a methodology proposed in Pustejovsky et al. 2004 and Rumshisky et al. 2007, I automatically extract the typical verbal collocates of nominals organized per grammatical relation, and cluster them into types according to their selectional properties[4] (a key point being the distinction between verbs selecting for events on the one hand and verbs selecting for non temporal entities on the other hand).[5]

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a morphological perspective), Simone 2000 and Jezek 2008.

[3] It has been pointed out to me – Seb. Loebner, p.c. – that the non-event readings exhibited by event nominals may also be interpreted as metonymic displacements. Although I don't exclude that metonymy may be at play in event nominal polysemy, I will limit myself here to verify to what extent the non-event interpretations bind the arguments of the corresponding verbs.

[4] The data are taken from the ITWaC corpus (Baroni and Kilgarriff 2006). In order to speed up the analysis, I use the Sketch Engine (Kilgarriff et al. 2004), a corpus query tool which provides word sketches, i.e. one-page automatic corpus-based summaries of a word's collocational behavior organized per grammatical relation (object_of, subject_of etc.).

[5] Although the analysis is carried out using statistical tools, it is meant as a qualitative investigation. Also, the analysis is not meant to answer the question whether there are correlations between the morphological

3.1. Event

Some nominals apparently tend to exhibit exclusively or predominantly an event reading.[6]

(4)   *caduta* 'fall'[7]
        Direct Object:
        (a) event: *anticipare* 'anticipate', *rallentare* 'slow down', *arrestare* 'stop', *accellerare* 'speed up', *frenare* 'slow down', *affrettare* 'speed up', *ritardare* 'delay'
         Head Noun:
        (b) event: *brusco* 'abrupt', *improvviso* 'sudden', *repentino* 'sudden', *rapido* 'quick', *frequente* 'frequent', *precipitoso* 'rush', *progressivo* 'progressive', *lento* 'slow', *continuo* 'continuous', *imminente* 'imminent', *recente* 'recent'

    The event structure of these nominals may be a bounded Process (5a), a left-headed Transition (5b) or a right-headed Transition (5c). No aspectual constraint seems to be at stake here:

(5)   a. Ho fatto una *dormita* di sette ore
         'I had a seven-hour sleep'
      b. lo *svuotamento* della vasca fu lento
         lit. 'the emptying of the pool was slow'
      c. la *caduta* è avvenuta a un chilometro dall'arrivo
         'the fall occurred one kilometer before the arrival'

If these nominals denote a Transition, next to denoting the change of state, they may denote the effects that such a change typically brings about (see Asher 1993: 150, 157).

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properties of nominals and the polysemy patterns they fall into.

[6] We keep out of the present discussion the factive interpretations which, in principle, are available for all nominalizations but which are due to the coercive property of factive predicates rather than the inherent semantics of event nominals (Zucchi 1991, Asher 1993, Pustejovsky 1995). Similar observations hold for manner readings.

[7] The data below is presented following a layout proposed in Rumshisky et al. 2007.

Hence:

(6)   il *cambiamento* è sotto gli occhi di tutti
       'the change is there for all to see'

denotes the effects of the change.[8]

In all these cases, I assume that the event interpretation binds the event variable:

(7) *caduta* ($\underline{e}$, x)

Further examples are: *abolizione* 'abolition', *sparizione* 'disappearance'; *guarigione* 'healing' *uccisione* 'killing'; *cambiamento* 'change', *inseguimento* 'pursuing', *invecchiamento* 'aging', *spostamento* 'dispacement', *svolgimento* 'development', *svuotamento* 'emptying'; *dormita* 'sleep', *lavata* 'wash'; *bocciatura* 'rejection', *cottura* 'cooking'; *rottura* 'breaking'; *atterraggio* 'landing', *montaggio* 'assembling' *salvataggio* 'rescuing'; *dondolìo* 'swing', gocciolìo 'dropping'; *avvio* 'start', *crollo* 'collapse', *rilascio* 'discharge'.

3.2. Event / State (*Result*)

Nominals denoting an event encoding a change (that is, a Transition) may licence a result state reading (Bierwisch 1990/1991: 52; Osswald 2005).

(8)   a. l'*abbandono* delle campagne   = event
          lit. 'the leaving of the countryside'

       b. una casa in *abbandono*   = state
          'a house in state of neglect'

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[8] The ontological status of *effects* is controversial: Vendler 1967 considers them temporal object: "effects are not facts or physical objects, but events or processes which are due to other events or processes in the world" (p. 155), "results are not effects, because […] they are not events or processes at all" (p. 155), "results are facts and they are due to other facts (p. 159)". To sum up, for Vendler effects last in time, while results don't.

I assume that the result state reading binds the right sub-event of the event structure:

(9) *abbandono* (e {e1, <u>e2</u>}, x, y)

By definition, nominals denoting Processes or States cannot license this reading, since their event structures do not include a resulting state to which reference can be made. Apparently, only a subset of verbs denoting Transitions, i.e. those defining Target States,[9] are good candidates for result state nominalizations (but see the discussion in Osswald 2005: 259).

Further examples are: *agitazione* 'distress', *disoccupazione* 'unemployment', *intossicazione* 'intoxication'; *affaticamento* 'tiredness', *inquinamento* 'pollution', *arresto* 'state of arrest', *assedio* 'siege', *degrado* 'degrade'.

3.3. Event / Interval (*Time period*)

Although in principle all nominals expressing an event involving duration may potentially denote the time span this event covers, some nominals more clearly than others denote an event and the overall period of time over which such event generally occurs:

(10)   il *ricevimento* degli ospiti inizia alle 18   = event
        'the reception of the guests will start at 6 pm'

        durante il *ricevimento* si è sentita male   = interval

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[9] Following Parsons 1990, it is important to distinguish between the *Resultant state* and the *Target state* of a culminating event. "For every event e that culminates, there is a corresponding state that holds forever after. This is "the state of e's having culminated', which I call the "Resultant state of e" or "e's R-state". If Mary eats lunch, then there is a state that holds forever after: the state of Mary's having eaten lunch. [...] It is important not to identify the Resultant state of an event with its "target state". If I throw a ball onto the roof, the target state of this event is the ball's being on the roof, a state that may or may not last in time (pp. 234-235). "For a large number of verbs, there is a "typical" independently identifiable state that its object is in after the verb is true of it. If the state is transitory, then we come to use the adjective form of the part participle to stand for the transitory state instead of for the permanent resultant state (p. 252)".

'during the reception she felt bad'

I assume that the interval interpretation binds a time expression (in particular, a time adjunct) (see Melloni 2007: 116). Further examples are: *inaugurazione* 'inauguration', *premiazione* 'prize-giving', *rivoluzione* 'revolution'; *allattamento* 'breastfeeding', *fidanzamento* 'engagement'; *fioritura* 'blooming, blossoming'; *raccolta* 'harvest', *cerimonia* 'ceremony', *festa* 'party'.

3.4. Event / Abstract Object (*Result*)

Let us now move to domain-shifting alternations, namely those where one reading introduces reference to a temporal entity and another reading introduces reference to a non-temporal entity, like in the case of *analisi* 'analysis', which may denote an event and the abstract object resulting from the mental operation expressed by the verb *analizzare* 'analyse':

(11)   *analisi* 'analysis'
        Direct Object:
        (a) event: *effettuare* 'perform', *eseguire* 'carry out', *fare* 'do, make', *compiere* 'make', *condurre* 'conduct', *completare* 'complete', *svolgere* 'carry out', *concludere* 'conclude', *avviare* 'to start', proseguire 'go on with', ultimare 'complete', terminare 'finish', *cominciare* 'begin', *iniziare* 'start', *realizzare* 'accomplish', *rinviare* 'postpone'
        (b) abstract object: *condividere* 'share', *confermare* 'confirm', *pubblicare* 'publish', *contestare* 'contest', *smentire* 'deny', *citare* 'quote', *illustrare* 'illustrate', *apprezzare* 'appreciate', *commentare* 'comment', *diffondere* 'spread', *presentare* 'present'

        il ricercatore ha completato l'*analisi*   = event
        'the researcher has completed his analysis'

        condivido la sua *analisi* e la principale conclusione   = abstract object (R)
        'I agree with his analysis and the overall conclusion'

Apparently, the abstract object *analisi* does not bind any of the arguments (true, default or shadow) of the corresponding verb. As we mentioned above, Asher 1993: 151

proposes that the nominalization process in this case introduces an extra argument place which is filled by the output of the event:

(12) *analisi* (e, x, y, R: z̲)

Further examples are: *autorizzazione* 'authorization', *classificazione* 'classification', *combinazione* 'combination', *descrizione* 'description'; *spiegazione* 'explanation'; *avvertimento* 'warning', *esperimento* 'experiment', *regolamento* 'regulation'; *accordo* 'agreement', *richiesta* 'request'.

3.5. Event / Physical Object (*Result*)

A situation similar to that of *analisi* seems to hold when the result (i.e. the output of the event) has a physical manifestation, as in *disegno* 'drawing':

(13)   *disegno* 'drawing'
     Direct Object:
     (a) event: *eseguire* 'make', *fare* 'make', *completare* 'complete'
     (b) physobj: *colorare* 'colour', *mostrare* 'show', *guardare* 'look at', *incorniciare* 'frame', *appendere* 'hang'

     fare il *disegno* di una tigre   = event
     lit. 'to make the drawing of a tiger'

     colorare il *disegno* in modo intuitivo   = physobj (R)
     'colour the drawing in an intuitive way'

Similarly to *analisi*, the result interpretation of *disegno* seems to bind a participant which is not included in the argument structure of the corresponding verb and introduce reference to the output of the event:

(14) *disegno* (e, x, y, R: z̲)

Not all nominals introducing reference to the physical object brought about by the event seem to behave this way, however. Consider *costruzione* ('construction, building'):

(15)   *costruzione* 'building'
         Direct Object
         (a) event : *iniziare* 'start', *prevedere* 'foresee', *finanziare* 'fund', *avviare* 'start', *permettere* 'allow', *ultimare* 'finish', *accellerare* 'speed up', *impedire* 'ostacolate', *autorizzare* 'authorize', *vietare* 'forbid', *dirigere* 'direct'
         (b) physical object : *demolire* '', *abbattere* '', *ampliare* '', *vedere* 'see', *distruggere* 'destroy', *notare* 'notice', *circondare* 'surround'

         Hanno terminato la *costruzione* della nuova stazione   = event
         lit. 'they completed the building of the new station'

         Presto saranno demolite molte *costruzioni* illegali   = physobj (R)
         'many illegal buildings will be demolished soon'

Similarly to *disegno*, *costruzione* introduces reference to the physical output of the event. In this case, however, the output can be identified with the internal argument of the corresponding verb *costruire*.

3.6. Event / Information

Nominals may denote an event and the information which is transmitted during the event (Pustejovsky 2005: 5). This alternation is a specialization of the Event / Abstract Object alternation:

(16)   *discorso* 'speech'
        Direct Object
        (a) event: *riprendere* 'start again', *riavviare* 'again', *tenere* 'hold', *intavolare* 'start', *fare* 'do, make', *avviare* 'start', *troncare* 'cut', *interrompere* 'interrupt', *rimandare* 'postpone', *imbastire* 'put together', *concludere* 'conclude', *proseguire* 'go on with', *aprire* 'start', *rinviare* 'postpone', *terminare* 'finish', *iniziare* 'start', *continuare* 'continue', *finire* 'finish', *completare* 'complete'
        (b) info: *apprezzare* 'appreciate', *commentare* 'comment', *capire* 'understand', *semplificare* 'simplify', citare 'quote', *condividere* 'share', *giudicare* 'judge', *accettare* 'accept', *rivedere* 'go through again', *criticare* 'criticize', *interpretare* 'interpret'

interrompo il *discorso* per darvi una buona notizia   = event
'I interrupt the speech to give you good news'

Clinton ha criticato il *discorso* di Arafat   = information
'Clinton critized Arafat's speech'

The 'info' reading is not to be interpreted as Result, since no output of the event is at stake here. I assume that this reading binds a shadow argument of the event *discorrere* ('talk'), corresponding to the information which is transmitted during the event:

(17) *discorso* (e, x, Sarg: $\underline{y}$)

Further examples are: *dichiarazione* 'declaration', *discorso* 'speech', *esame* 'examination, exam', *intervista* 'interview', *lezione* 'lecture', *seminario* 'seminar', *storia* 'story'.

3.7. Event / Food

The Event/Physical Object alternation introduced in 3.5 has various specializations, one of which is the Event/Food alternation (Pustejovsky 2005: 6):

(18)   *pranzo* 'lunch'
        Direct Object
        (a) event: *finire* 'finish', *terminare* 'finish', *fare* 'do, make', *concludere* 'conclude', *interrompere* 'interrupt', *chiudere* 'finish', *cominciare* 'start', *proseguire* 'go on with', *continuare* 'continue'
        (b) food: *consumare* 'consume', *gustare* 'try', *cucinare* 'cook', *portare* 'bring', *vomitare* 'throw up', *digerire* 'digest', *comprare* 'buy', *assaggiare* 'taste', *distribuire* 'distribute', *cuocere* 'cook', *buttare giù* 'gobble'

hanno interrotto il *pranzo* e sono corsi a casa = event
'they interrupted their lunch and ran home'

fare una passeggiata per digerire il *pranzo*   = food
'go for a walk to digest lunch'

As in 3.6, the 'food' reading is not to be interpreted as a Result, since no output of the event is at stake here. I assume that this reading binds a shadow argument of the event *pranzare*, corresponding to what is consumed during the event:

(19) *pranzo* (e, x, Sarg: y̲)

Further examples are: *pasto* 'meal', *cena* 'dinner', *colazione* 'breakfast', *picnic*, *spuntino* 'light meal, snack'.

3.8. Event / Mean

Let us now move to a set of readings where the argument which is bound is the external argument. As noted in Bierwisch 1990-1991, nominals may denote an event and the mean used to accomplish the event. As in 3.7, this is again a specialization of the Event / Physical Object alternation:

(20)   *riscaldamento* 'heating'
        Direct Object
        (a) event: *provocare* 'cause', *constrastare* 'constrast, oppose', *ridurre* 'reduce', *rallentare* 'slow down', *evitare* 'avoid', *consentire* 'allow', *causare* 'cause', *produrre* 'produce', *frenare* 'slow down', *limitare* 'limit'
        (b) mean: *accendere* 'turn on', *spegnere* 'turn off', *azionare* 'activate', *attivare* 'activate', *staccare* 'turn off', *utilizzare* 'use', *sistemare* 'fix'

        un guasto non ha consentito il *riscaldamento*   = event
        'a breakdown prevented the heating'

        la notte spengono il *riscaldamento*   = mean
        'at night they turn off the heating'

I assume that the 'mean' reading of *riscaldamento* binds the external argument and can be paraphrased as "the mean that Vs" or "the mean by which *y* is Ved":

(21) *riscaldamento* (e, x̲, y)[10]

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[10] Note that in addition to binding the external argument and denoting "the mean that Vs", *riscaldamento*

Further examples are: *illuminazione* 'lighting, lamp', *isolamento* 'isolation', *imballaggio* 'packaging', *imbottitura* 'filling'.

3.9 Event / Human

Less frequently, nominals may denote an event and its agent. This is again specialization of the Event / Physical Object alternation.

(22)   apettare sempre l'*aiuto* di qualcuno   = event
         'always wait for the help of somebody'

         il nostro nuovo *aiuto* e' portoghese   = human
         lit. 'our new help is Portuguese'

I assume that in this reading ('person who Vs') *aiuto* binds the external argument of the verb *aiutare*:

(23) *aiuto* (e, $\underline{x}$, y)

3.10 Event / Human Group

The agent of the event may be a single person, as in (22) above, or a human group (institution, organization, company) as in (24) below:

(24)   assumere la *direzione* dell'azienda   = event
         'take on the direction of the company'

         parlare con la *direzione*   = human group
         'talk to the board of directors'

As with (22), I assume that the 'human group' reading binds the external argument of the activity expressed by the verb:

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may take on a Result reading ("the output of V") and bind a default argument: *riscaldamento* (e, x, y, R-Darg: $\underline{z}$).

(25) *direzione* (e, x̲, y)

Further examples are: *organizzazione* 'organization', *redazione* 'editorial staff'; *schieramento* 'line-up'; *equipaggio* 'crew'; *accusa* 'accusation, prosecution', *balletto* 'ballet', *difesa* 'defence', *governo* 'government'.[11]

3.11 Event / Location

Nominals whose base verbs express a change of location may denote an event and the location where the event takes place or where the action is carried out (Apresjan 1974):

(26) *partenza* 'departure'
  Direct Object
  (a) event: *ritardare* 'delay', *rinviare* 'postpone', *impedire* 'prevent', *anticipare* 'anticipate', *rimandare* 'postpone', *posticipare* 'postpone', *scaglionare* 'stagger', *bloccare* 'block', *differire* 'postpone', *programmare* 'schedule', *spostare* 'move', *organizzare* 'organize', *aspettare* 'wait for', *attendere* 'wait for', *annullare* 'cancel', *cancellare* 'cancel'
  (b) location: *situare* 'locate', *presentarsi* (*a*) 'show up at', *schierarsi* (*a*) 'line up at'

  hanno ritardato la *partenza*   = event
  'they delayed their departure'

  presentarsi alla *partenza*   = location
  'to show up at the departure'

I assume that the location reading of *partenza* ('place where one V') binds the default argument of the base verb *partire* 'leave':[12]

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[11] As noted in Levin 1993, nominals derived from verbs of ruling typically exhibit this reading.

[12] Note that locative readings may bind an element of the event which status with respect to the argument structure of the base verb is not clear. For example, Engl. *exit* in "she was blocking the exit" introduces reference to the place where the motion event takes place and not to the place expressed by the internal argument of the corresponding verb ("exit the *room* through the back door, please").

(27) *partenza* (e, x, Darg: y̱)

Further examples are: *coltivazione* 'cultivation, plantation'; *accampamento* 'campsite'; *passaggio* 'passage'; *entrata* 'entrance', *fermata* 'stop', *discesa* 'slope', *uscita* 'exit'; *arrivo* 'arrival', *bagno* 'bath, bathroom', *deposito* 'deposit', *doccia* 'shower', *parcheggio* 'parking, parking lot', *studio* 'study, office'. In some cases, the location is a route or path: *passeggiata* 'walk', *cammino* 'walk', *percorso* 'route', *ritorno* 'return', *viaggio* 'trip', etc.

To sum up what I have discussed to far, we can conclude that 1) non-event nominals do not correspond to a fixed argument position within the verb argument structure; 2) all semantic arguments, including those whose syntactic projection is generally ruled out (shadows) or those which are projected but can be left unexpressed (defaults) might be bound in the derivation process; 3) apparently, in some cases, Result nominals cannot be associated with a syntactic argument or a semantic participant of the event expressed by the corresponding verb (*analisi*).

4. Base verbs for Result Nominals

In the previous section, I have examined the range of interpretations exhibited by event nominals and I have attempted to characterize them with respect to the arguments of their base verb. I have observed that while some Result nominals introduce reference to an entity which apparently does not correspond to a position in the argument structure of the base verb (*analisi*, *disegno*), other Result nominals introduce reference to an entity which does correspond to such a position (*costruzione*). This apparent inconsistent behaviour raises the following theoretical question: why would the nominalization process license an extra argument in some cases but not in others? In this final section, I briefly turn back to Result Nominals with the aim of contributing to clarify this phenomenon, which I assume is conditioned by the lexical semantic properties of the base verbs.

4.1. Overt and covert creation

Two semantic classes of verbs seem to be particularly relevant with respect to the Result interpretations of nominals and to the issue of the extra argument raised above. I shall call these classes *overt creation* and *covert creation* verbs.[13]

The base verbs of Result Nominals which bind their internal argument are commonly *overt creation verbs* (Osswald 2005, Melloni, 2007). These verbs express events which put into existence the entity filling the direct object position. The created entity is both an *effected object* and an *incremental theme* (Dowty 1991: 568). *Costruire una casa* leads to the existence of the house, *scrivere un libro* leads to the existence of the book, and so on.

The base verbs of Result Nominals which introduce reference to an argument which is apparently not included in the verb argument structure are different. *Disegnare una casa* does not lead to the existence of the house. Rather, it leads to the existence of a representional object (the drawing). As observed in Badia and Saurí 1991, these verbs share the syntactic property that the entity created by the process described by the verb cannot appear in the surface as an argument, although its identification is relevant to the interpretation of the expressions in which the verb appears.[14] In this case, the *effected object* and the *incremental theme* is represented by this unexpressed entity, not by the entity occupying the object position (see Dowty 1991: 569 for further discussion).

For the present purposes, I shall call these verbs *covert creation* verbs;[15] it should be noted, however, that they are not properly speaking verbs of creation. Although the putting into existence of a new entity plays a role in the interpretation, this is not what the event expressed by these verbs is about: rather, the creation act represents a by-product of the event.

It is still somewhat unclear what the status of the created entity is with respect to the argument structure of the verb. With performance verbs like *disegnare* 'draw', which lexically denote an unbounded Process, it seems plausible to interpret this entity

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[13] It is important to note that not all verbs of creation have corresponding Result Nominalizations and that not all Result Nominalizations are derived from verbs of creation. However, the generalization that there is a strict correlation between Result interpretations and verbs of creation seems to hold on a large scale.

[14] Badia and Saurí 2001 also note that reference to this created entity can be introduced via the deverbal nominal or via the adjectival use of the past participle of the verb.

[15] Other labels proposed in the literature for this verb class are *implicit creation verbs* (Osswald 2005), *redescription predicates* (Badia and Saurí 2001), *resultative verbs of creation or modification* (Bisetto and Melloni 2008), *verbs of creation by representation or modification* (Melloni 2007).

(*disegno* 'drawing') as a *semantic hidden argument* arising in verb-argument composition. Following this interpretation, while *A Luca piace disegnare* ('Luca likes to draw') expresses an activity, *Luca ha disegnato l'albero* ('Luca drew the tree') expresses a Transition where a new entity (namely, a representational object) is created (although it is not expressed).

With transition verbs like *ritrarre* ('portray') or *fotografare* ('photograph'), however, which lexically encode the attainment of a result, the situation is less clear. One could assume that in one of its possible senses *ritrarre* means 'make a portrait', i.e. that *ritratto* 'portrait' is a shadow argument of *ritrarre*. This created entity, however, exhibits properties which contrast with the definitorial properties of shadow arguments. Typically, a shadow argument is not created during the event (rather, it is already present in the semantic representation) and its syntactic projection is not completely ruled out, since as we said in 2. it can be expressed by operations of subtyping.

It is possible to identify various subclasses of covert creation verbs. For example, according to Melloni (2007: 162 ff.), cover creation verbs may either leave the entity denoted by the verbal object unmodified or they may tangibly affect this entity. A partial classification based on this distinction would be the following:

(28)   Classes of *covert creation verbs*:
        a. verbs which leave the verbal object unmodified:
            i.verbs of representation: *disegnare* 'draw', *dipingere* 'paint', *ritrarre* 'portray'
            ii. verbs of mental operation: *analizzare, descrivere, progettare* etc.
            […]
        b. verbs which produce a concrete modification of the verbal object (affected object): *decorare, riparare* etc.
            […]

It has been noted by several scholars (among others, Ramchand 2008: 68 ff.) that verbs may exhibit polysemy between an *over creation* and a *covert creation* reading. Apparently, this variation in meaning is induced by the differences in semantic type of the entity occupying the object position. Consider *dipingere* ('paint'):

(29) Who paints *what*?

    a. dipingere {un quadro 'a painting', un affresco 'a fresco', un murales 'a mural', un capolavoro 'a masterpiece' …}

– *Overt creation verb*

b. dipingere {un paesaggio 'a landscape', un volto 'a face', il cielo 'the sky', un fiore 'a flower', il tramonto 'the sunset', un albero 'a tree'…}

  – *Covert creation verb*

c. dipingere {un muro 'a wall', il soffitto 'the ceiling' …}

  – *Modification verb*

In a. the entities in direct object position denote a representational object; accordingly, the verb expresses the event of creating that object. In b., the entities in direct object position denote existing objects, natural kinds, locations and so on, and the verb expresses the event of depicting them. In c., the entities in direct object position denote a physical object and the verb expressed the event of covering its surface with paint.

5. Concluding observations and future research

In this contribution I have attempted to characterize event nominal polysemy with respect the arguments of the corresponding verbs. In particular, I have attempted to identify which argument is bound in the non-event readings that event nominals may exhibit. The research confirms that non-event nominals do not correspond to a fixed argument position within the verb argument structure; all semantic arguments, including those whose syntactic projection is constrained (shadows) or those which are projected but can be left expressed (defaults) might be bound in the derivation process. Apparently, in some cases, R nominals cannot be associated with a syntactic argument or a semantic participant of the base verb (*analisi*). Result nominals which do not seem to bind any of the arguments of their base verbs tend to be associated with verbs expressing a *covert creation*. The following step is to develop a formal semantic representation that takes these insights into account.

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