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'Downstream' effects on the predicate in Functional Grammar clause derivations[1]

FRANCIS CORNISH

CNRS, UMR 5610 & Université de Toulouse-Le Mirail

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The article deals with the dynamic, retroactive effects within a clause derivation of various 'downstream' specifications (that is, at subsequent levels in the derivation) on the semantic structure and aspectual character of the predicator at the 'nuclear', 'core' and 'extended' predication layers within standard Functional Grammar (Dik 1997a) – specifically, the insertion of given types of argument expressions within the predicate frame and the adjunction of certain semantically marked types of level 1 and level 2 satellites. A third type of retroactive effect is produced via the assignment or otherwise of the pragmatic function 'Focus' to the syntactic exponent of a predicate, which results in the singling out of a given part of the latter's semantic structure to act as a predicator.

All these dynamic, retroactive effects on a predicator and the structures it projects assume a semantically transparent underlying predicate structure on which to operate; yet in the standard FG model, no such structure is available via the predicate frame, which forms the initial structure for the derivation of a clause. The article demonstrates the drawbacks of the strict separation of meaning definitions (lexical semantics) and predicate frames (semantically-based syntax) within FG in terms, precisely, of the perspicuous mapping between syntax and semantics. It proposes a semantically transparent alternative to the standard predicate frame, based on Pustejovsky's (1995) 'Generative Lexicon' approach to lexico-semantic structure.

1. Introduction

Concentrating mainly on part 1 of the 1997 revised edition of Dik (1989), I will try to point out some of the drawbacks which stem from the fact that standard Functional Grammar (henceforth FG) is a unidirectional, 'bottom-up' model of clause structure. In such a model, in contrast to a model where there is a 'simultaneous' working out of different aspects of a clause's structure, and a bidirectional mapping or linking between them, once a

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particular layer of structure has been elaborated, it is no longer available to undergo the effects of later specifications and elaborations. Like a river, its values once specified are 'upstream', and the current only flows in one direction (cf. Heraclitus).

One of the factors preventing the necessary flexibility and interactivity of the various aspects of a clause's structure is the predicate frame, as presently constituted. I will suggest certain directions which might be taken to make it less rigid, so as to accommodate the context-determined changes in Aktionsart, in semantic value and in the concomitant semantic functions it makes available for its argument positions. In particular, a certain degree of semantic transparency in the structure of predicates and predications will make it easier to capture certain semantic and syntactic generalizations and to link these two sides of clause structure. I take FG as an example of the kinds of issues raised by the connections postulated in linguistic theory between lexical-semantic representations and the syntactic realization within the clause (see in particular section 2.2 and the latter part of section 3 for a detailed discussion of these issues generally).

I would like to raise three main types of problem posed for a unidirectional, bottom-up derivational model of clause structure such as FG:

(i) the way in which the choice of given semantic types of argument to fill the slots of a predicate frame may affect the Aktionsart of the NUCLEAR PREDICATION thereby created and, more generally, the type of SoA ('State of Affairs') it designates. This, of course, affects in turn the types of SEMANTIC FUNCTION (SF) which these arguments may express relative to the predicate (section 2);
(ii) the effect on the type of SoA produced by the choice of SATELLITES which are marked in terms of a given Aktionsart parameter, an effect which may again result in a change in the type of semantic function assigned to a given argument position within the original predicate frame. Satellites in the FG framework are lexically-headed expansions which optionally elaborate the semantic configuration existing at a given layer in the underlying clause structure (section 3); and
(iii) the effect on a predicate's meaning structure caused by the choice of focus assignment, or otherwise, to its syntactic exponent (section 4).

The first step in an FG clause derivation is to select or create, via the derivational rules within the FUND (the extended Lexicon), a predicate frame (PF). This is a kind of template with slots for a given number of arguments as well as (potentially) satellites of level 1 (level 1 satellites serve to expand the nuclear predication constituted by the bare predicate and its arguments). More specifically, it consists of a predicate, in the shape of an object-language lexeme, representing a single ('core') sense of that lexeme, the set of its argument slots symbolized by variables, annotations indicating the semantic function assigned by the predicate to each of its argument-types, as

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well as the semantic selectional constraint it imposes on the type of term (nominal expression) capable of filling each of the positions. An indication of the syntactic category of the lexeme in question also forms part of the predicate frame. (1) below provides an initial illustration of the formalism adopted in FG to represent predicate frames, exemplifying the verbal predicate *give* (Dik 1997a: 78, ex. (2)).

(1) $(f_i: give)\ [V]\ (x_1: \langle animate \rangle)_{Ag}\ (x_2)_{Go}\ (x_3: \langle animate \rangle)_{Rec}$

In this representation, we find the following types of information concerning the English verbal predicate *give*: the *predicate variable* 'f_i', which symbolizes (here) the relation which this predicate denotes; the *form* of the predicate (normally given in a standard phonological format, together with an indication of the set of its irregular forms, where these exist); the *type* represented by the predicate (here 'V' for 'Verb'); its *quantitative valency* (the number of arguments which the predicate involves): these argument positions are symbolized by the variables 'x_1', 'x_2', ... 'x_n', which mark the argument slots and are confined to the predicate's SYNTACTICALLY REALIZED valency; and finally its *qualitative valency* (the types of arguments which the predicate takes). These types are indicated by the semantic functions – here 'Ag' for AGENT, 'Go' for GOAL (the FG equivalent of 'Patient') and 'Rec' for RECIPIENT – specified on the argument positions, as well as by the selection restrictions imposed on any instantiation of these (here '⟨animate⟩', marking the first and third positions).

Once the predicate frame has been selected to form the core of a CLAUSE (sentence ready to be used by a speaker or writer as an utterance), the first step in the derivation of the latter consists in filling the argument positions made available by the predicate frame. However, the type of semantic function(s) as well as semantic selection restriction(s) imposed by the predicate forming the pivot of the predicate frame are already specified at this initial stage in a derivation, and there appears to be no way of altering these specifications once a given predicate frame has been chosen – other than by creating a new predicate frame by means of a regular PREDICATE FORMATION RULE (see Dik 1997b: chapter 1, on predicate formation rules in FG). In what follows, I shall be looking at some undesirable consequences of this state of affairs.

2. THE SEMANTIC EFFECTS ON THE PREDICATE/PREDICATION OF THE TYPES OF TERMS CHOSEN TO FILL THE ARGUMENT POSITIONS IN A PREDICATE FRAME

2.1 *Statement of the problem*

In chapter 5 of Dik (1997a), the author outlines a typology of SoAs in terms of a small number of Aktionsart parameters characterizing various

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types of predications.[2] The parameters in question are [+/−telic], [+/−control], [+/−mom(entaneous)] and [+/−dynamic], and in addition, [+/−experience], a parameter which applies to each of the six types of SoA which the four aspectual parameters yield.[3] Leaving aside the last (sub-)parameter as well as that of [mom], this gives us two types of **Situation** (*States* [−dyn, −con] and *Positions* [−dyn, +con]), two types of **Process** (*Dynamism* [+dyn, −con, −tel] and *Change* [+dyn, −con, +tel]), and two types of **Action** (*Activities* [+dyn, +con, −tel] and *Accomplishments* [+dyn, +con, +tel]). (2)–(4) give examples of each sub-type.

(2) **Situation**

(a) *State* [−dyn, −con] Paris is the capital of France.

(b) *Position* [−dyn, +con] Mary keeps her money in an old sock.

(3) **Process**

(a) *Dynamism* [+dyn, −con, −tel] The river flows under this rock.

(b) *Change* [+dyn, −con, +tel] The water which flooded the meadow has evaporated.

(4) **Action**

(a) *Activity* [+dyn, +con, −tel] The horse is galloping in the field.

(b) *Accomplishment* [+dyn, +con, +tel] The postman has found his watch.

Now, the FG array of semantic functions assigned to argument positions in predicate frames is specifically claimed to derive from this typology of SoA types, and to reflect them within the nuclear, CORE and EXTENDED PREDICATIONS which are generated. For Dik (1997a: 105), it is the SF of the first argument position within a predicate frame which indicates the Aktionsart of the predication it may represent: an Action (Ag), Process (FORCE or PROC), Position (POS), or State (ZERO). The SF Force represents the unintentional cause of an event, 'Proc' (Processed) the role of an entity which undergoes a process, Pos ('Positioner') the controlling, agentive cause of the existence of a state, and Zero corresponds to the neutral role of an entity which is simply involved in a state of some kind. See Siewierska (1993) for a detailed examination of the FG array of SFs, in comparison with Jackendoff's (1990) theta-roles.

[2] This typology is called into question fairly thoroughly by François (1997), who proposes to make the parameters relating to the participation of entities in the SoAs denoted by predications (for example, the parameter of [control]) depend on the aspectual parameters (transitionality, dynamism, change, telicity, and so forth).

[3] Dik retains the three basic parameters of control, telicity and dynamism, since 'momentaneousness' is a parameter enabling only low level distinctions (within [+telic] events) to be made. Moreover, the potential combinations of parameter values in the system are limited, in that Situations (which are inherently [−dyn]) can never be [+tel], and that Situations and atelic Events can never have the value [+mom] (Dik 1997a: 112). To all intents and purposes then, on the basis of three basic parameters, there are only six relevant SoA types made available.

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But Dik does recognize that the nature of the predications in which a given predicate may occur may not always be a simple projection from that predicate (in the form of its predicate frame); and that, where this is not the case, 'the semantic nature of the whole predication [is] codetermined by the nature of the arguments and satellites with which the predicate combines' (Dik 1997a: 106). The problem is, though, that he does not provide explicit machinery for determining how such a compositional character is achieved; that is, once a predicate frame has been selected from the Lexicon, the predicate is already marked for its basic Aktionsart type, and it is in terms of this type that the SFs are assigned to the open argument positions which that predicate specifies. No provision seems to be made for the dynamic, retroactive assignment of a given aspectual or other semantic characteristic at the level of the basic predicate at the apex of the clause structure; this can occur through the insertion of certain semantic types of argument in the predicate frame slots, or via the expansion of different predication layers by satellites of such and such a semantic type – where the semantic contribution these arguments and satellites make is not already specified by the predicate's semantic type or where it is not ruled out by it.[4]

Now, in illustrating the various SoA types defined via the four aspectual parameters selected, Dik (1997a) actually gives examples where alternative argument types inserted in a given argument position within a predicate frame have the effect of altering a predicate's Aktionsart character. This occurs in the case of the parameter [telic]. Consider examples (5a–c) below.

(5) (a) John was painting. [−tel]
(b) John was painting a portrait. [+tel]
(c) John was painting portraits. [−tel]
(Dik 1997a: 108, exs. (8a–c))

As Dik points out, it is the nature of the 'Goal' argument (the role of the entity 'affected or effected by the operation of some controller (Agent/Positioner or Force)' (1997a: 121)) which determines here the telicity of the predicate *paint*, and this can be shown on the basis of the relevant tests for telicity. (5a, c) are Activity predications since either the option of choosing a term to fill the A_2 (second argument) slot has not been taken ((5a)), or this slot has been filled by a non-referential, indefinite set-referring argument ((5c)). It is the degree of referentiality of the A_2 of bivalent action predicates which causes the predication as a whole to be construed as an Accomplishment (the action coming to a completion: where the referent of A_2 is individuated, and specific to a high degree, thus constituting a boundary

[4] See Hengeveld (1989) as well as Dik (1997a) for evidence in favour of the four layers recognized for underlying clause structure in FG. Dik et al. (1990) provide further detailed evidence cross-linguistically regarding the operation of various types of satellites at each of these four layers.

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for the action) or as a mere Activity (where the referent of this term has only a vague, general referential contour). It is the choice of determiner type, as well as of number and definiteness within the term, but also more broadly, the tense, aspect, mood and modality features of higher layers in a clause structure which, compositionally, may result in one or other aspectual value for the clause as a whole. (See in particular Pustejovsky 1992, Jackendoff 1996 for relevant analyses of telicity.)

But in examples like (5c), it's hard to see that the term *portraits* performs the same SF Goal with respect to the SoA denoted by the predication as its indefinite, singular, specific counterpart *a portrait* in (5b). (5c) would be better analysed as involving object incorporation, creating a derived predicate ('paint-portraits'). In any case, the FG conception of the SF Goal is something of a hybrid, conflating PATIENT, THEME, RESULTATIVE ('entity effected …') and the Gruber-Jackendoff sense of Goal. Siewierska (1993: 20, examples (59a–e)) points out that it is not always easy to distinguish between the SFs Goal and REFERENCE ('the second or third term of a relation with reference to which the relation is said to hold'). In the case of (5c), we are dealing with a kind of detransitivization process, analogous to the middle form realized by the reflexive pronominal construction in the Romance and Slavic languages, or to the detransitivizing reflexive construction in Dyirbal cited in Dixon (1972) and reproduced in Van Valin & LaPolla (1997: 394) as (7.112), presented in (6) below. ((6a, c) were originally presented in Dixon (1972: 90). The glosses and translations are those of Van Valin & LaPolla.)

(6) (a) Ba-la-m wuḍu-∅ ba-ŋgu-l yaɽa-ŋgu ḍaŋga-ɲu.
DEIC-ABS-III fruit-ABS DEIC-ERG-I man-ERG eat-TNS
'The man is eating the fruit.'

(b) Ba-yi yaɽa-∅ ḍaŋgay-mari-ɲu.
DEIC-ABS. I man-ABS eat-REFL-TNS
'The man is eating.'

(c) Ba-yi yaɽa-∅ ḍaŋgay-mari-ɲu ba-gu-m wuḍu-gu.
DEIC-ABS. I man-ABS eat-REFL-TNS DEIC-DAT-III fruit-DAT
'The man is eating fruit.'

The difference between (6a) and (6c) is of the same basic kind as that between English (5b) and (5c), where in the latter case, the A_2 is non-specific in reference and the predication as a whole is construed as an Activity. However, this difference is coded in Dyirbal in example (6c) via the reflexive suffix attached to the verb (see also (6b)), the absolutive rather than ergative case marking on the actor subject term (as in (6b)), and the dative case marking on the A_2. Note also that, whereas in (6a), *balam wuḍu* 'the fruit' is topic (occurring clause-initially), in (6b) and (6c), it is *bayi yaɽa* 'the man' which fulfils this pragmatic function. The reflexive form *mari*, suffixed to the verb here, is a 'false reflexive' in Dixon's words (1972: 90), that is, it is an intransitivizer, and does not involve a true reflexive interpretation. Dixon

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goes on to say (p. 91) that the false reflexive construction serves to convert an underlyingly ergative NP to nominative (unmarked) case, 'so that it can be incorporated into a topic chain' ('nominative' is coded as 'absolutive' by Van Valin & LaPolla 1997 in their glosses of these examples). Dixon further points out that a Dyirbal verb in reflexive form with an unmarked tense inflection (here, 'non-future', coded by the verb inflection *-ɲu*) refers not to an actual situation but to a potential one. In (6b), where the false reflexive marker is incorporated in the verb and where the verb's A_2 is not lexically instantiated, we can say that EXISTENTIAL CLOSURE (Pustejovsky 1995: 65, 82) has occurred, binding the variable associated with this argument position to the existential operator in the lexical-semantic representation. The interpretation is thus one of an atelic activity. In (6c), where the A_2 is lexically instantiated, but coded via an oblique (dative) rather than direct case-form (absolutive, as in (6a)), this fact, together with the presence of the false reflexive marker in the verb, has the effect of reducing its inherent transitivity, so that the predication as a whole is again interpreted as atelic.

But is this kind of alteration of a predicate's basic Aktionsart best captured in terms of a predicate formation rule, or in some compositional way, as a function of the types of argument inserted (or not, as the case may be) into a given predicate frame? Despite the fact that the reflexive predicate form of *ɖaŋgay* 'eat' in Dyirbal would seem to suggest a predicate formation rule, since the form of the predicate has changed – though this isn't the case in English – it would nonetheless seem preferable to choose the compositional method, since the choice of aspect, tense, mood and modality in a given underlying clause structure clearly has very similar effects to that of argument selection. And in such cases, it would be absurd to claim that we are dealing with a completely different predicate each time, furnished with a brand new predicate frame – however, it all depends on what one means by 'predicate': a lexical unit of some object language, or an abstract logical predicate serving to represent one of its possible senses?

Let's look now at some examples from French, some of which involve extended senses of a basically movement verb, presented in (7a–d).

(7) (a) Jean descend[5] l'escalier.
'Jean goes down the stairs.'
(b) Jean descend le malfaiteur (d'un coup de révolver).
'Jean shoots down the criminal (with one revolver shot).'

[5] Laure Sarda (p.c. and 2001) shows that *descendre* as illustrated in (7a–d) is a 'relational', orientational verb, in the sense that its locative directional landmark is encapsulated within its lexical-semantic structure. This is in contradistinction to 'referential' verbs like *quitter* 'to leave', which are aspectually achievement predicates and which require a direct object argument denoting a location. Thus members of the 'relational' class of verbs have a legitimate (and no doubt more basic) use as intransitives, while those of the 'referential' one do not.

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(c) Jean descend les livres (de sa bibliothèque).
'Jean takes the books down (from his bookcase).'
(d) Jean descend un litre de bière (en 30 secondes).
'Jean downs a litre of beer (in 30 seconds).'

The verb *descendre* is presented here in its transitive usage. In (7a), *descendre* has a spatial interpretation, denoting a telic action. This is due to the instantiation of its two argument positions by a human individual as A_1 and a place entity which is construed as the means of the A_1's downward movement. Jean is clearly using his own energy source to move down the stairs rather than using its inherent power to do so, and is instigating the action. Thus, to use Langacker's Cognitive Grammar notions, the entity 'Jean' moves (and is therefore a TRAJECTOR) in relation to the fixed LANDMARK (the stairs) which constitutes the baseline in terms of which some other profiled entity is situated. In FG terms, the latter could be notated as LOC, or LOC_{MEANS}, and the former as Agent operating upon it. However, standard FG would analyse the A_2 here as realizing the SF Goal. Sarda (2001) would analyse the referent Jean as simultaneously realizing the semantic roles Agent and Patient (in the sense 'Jean caused himself to go to the bottom of the stairs'), while 'the stairs' (or rather the target of Jean's downward movement, namely 'the bottom of the stairs') would be simply Locative.

Now, in (7b), we have an extended sense of *descendre*, due to the realization of the A_2 as a human entity (*le malfaiteur* 'the criminal'). The semantic structure of this sentence would be (informally) something like 'Jean caused the criminal to go (i.e. "fall") down (by shooting him)', so that 'Jean' would realize the role Agent, and the 'criminal' would be both Patient in regard to the action involved, and Trajector (in Langacker's terminology) in relation to the motion event (see Sarda 2001: 14).

Again, if we change the A_2 to something which is potentially manipulable, this induces another noticeable shift in the sense of *descendre*. In (7c), we have a telic, action predication: this is due to the choice of an A_2 which is not Locative nor conceivable as Landmark, but is a manipulable object ('the books'). Thus the A_1 in this case has the SF Agent, and the A_2 that of Goal in FG terms. The role 'Theme' as used by Gruber (1976) and Jackendoff (1990) would be more appropriate here, marking the fact that the entity moves in relation to another entity. But it could be argued that this term is ruled out in the context of FG, because of the existence of the pragmatic function term of the same name. A better term within the FG framework might be something like LOCATUM. In addition, as an anonymous *JL* referee points out, Jackendoff's role 'Theme' relates not to concrete lexical predicates within the object language, but to abstract predicates such as MOVE, GO, STAY and BE. In fact, it would be Trajector in Langacker's scheme in relation to the 'motion' event, as well as Patient, or Goal in FG terms, in relation to the action event.

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Finally, in the 'drink' sense induced by the choice of 'a litre of beer' as A_2 in (7d), the beer is also being manipulated, but it is moving INSIDE the A_1, Jean, who is both Agent and Locative simultaneously. 'The beer' would be Theme in Jackendoff's theory and Trajector in Langacker's, but presumably Processed in FG, in terms of the motion event, and Patient in terms of the action one.

Faber & Mairal Usón (1998: 17), similarly, point out that an inanimate Agent (that is, 'Force') selected as A_1 in FG terms for the predicate *conspire* has the effect of 'considerably attenuat[ing] the negativity implicit in *conspire* to the extent where it actually admits a positive goal'. Such a goal is clearly non-existent when the A_1 is human and hence construed as agentive (see also Holisky 1987 and Van Valin & Wilkins 1996 on this latter possibility). Faber & Mairal Usón give examples (37) and (38) (here (8a, b), respectively) to support this claim.

(8) (a) Events/circumstances conspired to make him rich.
(b) ?His neighbours conspired to make him rich.

Consider also the shifts in sense of the English verb *leave* (in its transitive usage), in *John left Paris at noon* ('departed from'), *John decided to leave his wife* ('live independently of/cut the conjugal ties with'), *John left a note in his neighbour's letterbox* ('deposited'). The last-mentioned use corresponds to the three-place predicate structure illustrated in (7c) with French *descendre*, which has a parallel in its upward motion counterpart *monter* 'to (cause to) go up', as in *Jean monte les livres de sa cave* 'Jean brings the books up from his cellar'.

Now, these differences in sense induced in the predicator by the choice of arguments to fill the slots its PF makes available mean that the predicate (in semantic and not formal, lexical terms) will be different in each case. As such, the selectional restrictions it imposes on its argument positions will inevitably be different. So the semantic content of the terms used to fill the argument positions of a predicate has an active role to play in the construction of a predication, as argued by Pustejovsky (1991) and others: 'just as a verb can select for an argument-type, we can imagine that an argument is itself able to select the predicates that govern it' (Pustejovsky 1991: 422).

2.2 *Possible treatments of these semantic effects*

One solution would be to treat each distinct sense of a given verb (for instance) as a different item (*descendre*$_1$, *descendre*$_2$, *leave*$_1$, *leave*$_2$, and so on), each with a distinct predicate frame. This is indeed the solution which Dik would favour, since he stipulates (1997a: 79) that 'the predicate frames themselves define the kinds of structures in which they can be used', and that 'when two predicate frames differ in any of the features described above [that is, the predicate variable, the lexical form of the predicate, its "type", quantitative and qualitative valency, and selection restriction(s)] they are, by

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definition, two different predicate frames'. In the earlier edition, he notes that '[i]n general, we shall say that if some modification of the predicate frame is involved, that modification is a matter of predicate formation' (Dik 1989: 184). But this would not always be economical and, in the present case, would not capture the fact that it is the semantic composition (what Pustejovsky 1995 calls CO-COMPOSITION) of the verb and its arguments which gives rise to these sense effects in each case. These sense effects assign a given character to the PREDICATION AS A WHOLE, and it is this global character which is reflected in the shift in sense in the predicator itself.

One theoretical factor preventing FG from satisfactorily capturing these relationships in terms of the predicate frame is the hybrid nature of its underlying structures. These are part semantic (the use of abstract operators, bracketing to indicate semantic scope relations, semantic role annotations on argument positions, as well as semantic selection restrictions marked in predicate frames) and part formal (the use of actual lexemes drawn from the object language to represent predicates, together with an indication of their syntactic category – all argument positions relative to a given predicate corresponding only to syntactically-realized constituents): for a standard example of a predicate frame, see (1) above. In standard predicate frames, predicates are represented in terms of their stem or root forms, and are indexed in case there are different lexical entries (MEANING DEFINITIONS) relating to the same form. But this would not enable the choice of given semantic argument or satellite types to affect the predicate frame as a whole.

It is clear that Dik conceives of predicates as lexical units of a given object language, and not in their logical sense as potential predicators representing a single sense of a lexeme. This means that there can be no explicit representation of the sense of a given lexeme, which is selected as being the predicate around which the predication is to be constructed, and that no internal semantic structure is available to mark the modification of certain internal semantic constituents by given modifiers, or indeed to show the logical predicate whose argument a given term is, and so to provide tangible evidence for its bearing a particular semantic function with respect to that predicate.[6] Thus, as Ravin (1990: chapter 2) points out in relation to Fillmore's (1968) similar approach regarding the formulation of CASE FRAMES for given predicates, since no prior lexical-semantic representation is available, it is impossible to distinguish between purely semantic argument variables which only occur in the semantic structure (see Pustejovsky's (1995) notions SHADOW and DEFAULT arguments) on the one hand, and purely

[6] Jackendoff (1990) and Van Valin & LaPolla (1997) give several arguments in favour of this move – that is, some degree of lexical decomposition of object-language predicates, in the interests of making explicit the mapping between semantic and syntactic structures in a clause representation. See also Velasco & Miguel (1998) for similar criticisms of the lack of semantic relevance of predicate frames within standard FG, and arguments in favour of the need to revise them in this direction.

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syntactic arguments with no counterpart in the semantic representation on the other (for example *by itself*, indicating the absence of external causation, as in *The window broke by itself*: Ravin's (1990: 127) example). Indeed, Dik specifically rules out any lexical decomposition within PFs, thereby seeking to separate lexical semantics from the syntactic realization. In the work which presents his system for the systematic definition of the lexemes of a given language (STEPWISE LEXICAL DECOMPOSITION), Dik (1978: 24) characterizes this position as follows:

> since meaning definitions are incorporated in the lexicon rather than appearing in the structures underlying sentences, the definiens of meaning definitions is not directly accessible to the operation of syntactic rules.

But as Velasco & Miguel (1998 : 253) suggest, this principle would seem to rule out the possibility of deriving specified information within the PF on the basis of its meaning definition, a definition which is provided independently of the predicate frame for each object-language lexeme. The authors recommend later on in their chapter (1998: 256) that FG adopt this approach, as is done in other comparable models of language. We have already seen that the SFs as well as selection restrictions within a PF must be derived from the semantic structure of a given predicate.

In fact, in Dik's original stepwise lexical decomposition format, the meaning definitions provided for given lexemes are presented using the very same format as predicate frames, with, as we have seen, actual object-language lexemes (and not abstract, supposedly language-independent predicates, as used for example by Jackendoff 1990 and the Generative Semanticists in the 1960s and the 1970s). The 'stepwise' principle regulating the framing of meaning definitions stipulates that no sub-configuration of predicates may occur in a given meaning definition (MD) which also occurs within the MD of some other object-language lexeme (see principle (A3*) in Dik 1978: 24). That is, as far as possible, MDs use defining predicates whose meaning is itself defined in OTHER entries in the Lexicon. This principle makes for greater economy and tractability of MDs generally. Some examples of stepwise meaning definitions are given in (9).

(9) (a) $\text{bachelor}(x_i) =_{\text{def}} \text{unmarried}(x_i\text{: man}(x_i))$
(b) $\text{man}(x_i) =_{\text{def}} \text{male}(x_i\text{: person}(x_i)\text{: adult}(x_i))$
(c) $\text{person}(x_i) =_{\text{def}} \text{human}(x_i\text{: being}(x_i))$

(Dik 1978: 24, exs. (46a–c))

One interesting feature of the stepwise MD format, structurally marked in the MDs illustrated in (9a–c) above, is the fact that it draws a distinction between the essential, distinguishing property of entities described via the lexeme defined (their 'differentia') and the general category of entity to which it may be applied (their 'genera'). This latter sortal category may be seen as equivalent to the selectional restrictions of PFs. Thus, in (9a) above, a 'bachelor' is said to be 'a man who is unmarried', a 'man' in (9b) to be

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'an adult person who is male', and 'a person' in (9c) to be 'a being who is human'. See also Vossen (1989) for a number of other meaning definitions exploiting this format, as well as critical discussion of the structure of dictionary entries in FG. So it seems evident that, if the format for MDs is of the very same type as that for predicate frames, the way is clear for the latter to be formulated in the semantically more perspicuous terms in which the former are framed.

But Dik's objection to this move (evident in the extended quotation given a moment ago) is that syntactic rules must not be allowed to have access to MDs (as was the case in the Generative Semanticists' analyses in the 1960s and the 1970s). Dik (1978: subsections 1.4.1–1.4.4) critically examines four of the Generative Semanticists' arguments in favour of syntactic rules' being permitted to have access to sub-lexical structure: first, Predicate Raising, a putative rule which groups together the predicates forming the semantic sub-structure specifying a given sense expressed by a lexical item, so that the latter can be inserted in its place; second, the 1970s rule 'Equi-NP Deletion', which was argued to be needed in order to relate underlying predications having identical subjects or initial arguments (as in the hypothetical TRY ($JOHN_i$) (FIND ($JOHN_i$) (A PEN)) claimed to underlie *John is* ***look****ing* ***for*** *a pen*). As in the case of the putative rule Predicate Raising, Dik points out that such rules do not need to be invoked, once variables are used for the relevant argument positions, as is done in both FG Predicate Frames and Meaning Definitions.

The remaining two arguments which Dik examines have to do with the scope of adverbials and with 'implicit antecedents' for anaphors. The basic problem Dik raises with the former analysis is that modifiers like *almost* and *temporarily* are able to target specific sub-structures within a given sub-lexical structure; yet these sub-structures may not correspond to anything in the latter's lexicalized expression. Thus it is difficult to know WHICH predicate sub-structure within the semantic representation is the one selected for modification by the adverbial. This problem is immediately resolved by invoking Pustejovsky's (1995: 72–75) notion EVENT-HEADEDNESS, whereby complex event structures are marked as foregrounding one or other, both, or neither of the component sub-events (see also Pustejovsky 1992: section 6 on the semantics of adverbial modification). For instance, Pustejovsky (1995: 75) gives examples ((his (31a, b)) where the manner adverbs *carelessly* and *quietly* modify the initial headed sub-event in the transition (accomplishment) predicates *build a house* and *draw a picture*, respectively: (31a) *John built the house carelessly*, (31b) *Mary quietly drew a picture*. As in the case of the first two areas considered by Dik, in my view this problem has wholly to do with the oversimplified, coarse-grained analysis of sub-lexical structure proposed by generative semanticists.

Finally, in the case of implicit antecedents, where pronouns and other anaphors may access semantic sub-structures which do not correspond to

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their syntactically represented lexical expression, the criticism is that, while certain pronouns in certain contexts may be able to sustain such an interpretation, this is a marked situation which is not generally possible. However, the fact that it IS possible (as is the case with adverbial modification discussed a moment ago) means that lexical-semantic representations must be sufficiently explicit to allow it to be accounted for. My own work on anaphora, indeed, shows that this phenomenon cannot be uniquely explained in terms of the explicit textual record of an utterance act, but must take central account of discourse-semantic factors (see in particular the critique of Dik's (1997b: chapter 10) account of anaphora in Cornish 2002a).

Thus, once a more sophisticated, better articulated account of sub-lexical semantic structure (such as that developed by Pustejovsky) is invoked, Dik's arguments against the accessibility of such structures to syntactic rules (or EXPRESSION rules generally) lose much if not all of their force. By keeping meaning definitions and predicate frames (where only the latter are subject to syntactic, semantic and pragmatic expansions and annotations in the course of a clause derivation) totally separate and watertight, it is impossible to effect any mapping between semantic sub-structures and morpho-syntactic form. Yet the vast majority of current grammatical theories attempt to specify such mappings between these two very fundamental dimensions of clause structure; and in any case, their exploitation may well simplify the formulation of the expression rule component within the grammar; see Faber & Mairal Usón (1998: 8) in reference to their semantically more perspicuous construct PREDICATE SCHEMA, an elaboration of the standard PF. For these authors (1998: 8), 'the syntactic behaviour of predicates is motivated by the semantic subdomain in which these predicates are subsumed'.

(10) below is an attempt to capture the basic meaning of transitive *descendre*, illustrated above in (7a–d), in terms of Pustejovsky's Generative Lexicon. (The symbols ARG1 and ARG2 are Pustejovsky's and correspond, respectively, to A_1 and A_2, used hitherto in this article.)

(10)
$$\left[\begin{array}{l} \textbf{descendre (vt.)} \\ \text{EVENTSTR} = \left[\begin{array}{l} E_1 = \textbf{e}_1\textbf{: process} \\ E_2 = \textbf{e}_2\textbf{: state} \\ \text{RESTR} = \textbf{e}_1 <_{\alpha} \textbf{e}_2 \\ \text{HEAD} = \textbf{e}_2 \end{array}\right] \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG1} = \textbf{x: phys_obj_with_autonomous_mobility} \\ \text{ARG2} = \textbf{y: place} \end{array}\right] \\ \text{QUALIA} = \left[\begin{array}{l} \text{FORMAL} = \textbf{be_downward_at (e}_2\textbf{, x, y)} \\ \text{AGENTIVE} = \textbf{move_to_act (e}_1\textbf{, x, y)} \end{array}\right] \end{array}\right]$$

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This representation shows that the predicate *descendre* has a Transition event structure (see the EVENTSTRUCTURE section in (10)), whereby (intuitively) it is the resulting 'state of being downward' which is the subeventual head of the configuration as a whole, and whereby the process of moving to a downwards position (inevitably) precedes the achievement of the latter state. This is notated under the RESTRICTION parameter in the EVENTSTRUCTURE section, as '$\mathbf{e}_1 <_\alpha \mathbf{e}_2$'. The symbol $<_\alpha$ denotes the strict partial order of $\mathbf{e}_1$ in relation to $\mathbf{e}_2$ (Pustejovsky 1995: 69), and the subscripted symbol '$_\alpha$' is a variable for the predicate involved (here instantiated by *descendre*). The QUALIA Structure is intended to specify the relational character of a lexical item and is composed of four essential aspects: CONSTITUTIVE (not represented here, since irrelevant), 'the relation between an object and its constituent parts' (Pustejovsky 1995: 76), FORMAL, 'that which distinguishes it within a larger domain', TELIC (not represented here), '[the] purpose and function [of an object]', and AGENTIVE, 'factors involved in [the] origin or "bringing […] about [of an object]"'. The Telic parameter is represented (in Pustejovsky 1995) in the lexical-semantic structure of nouns rather than of verbs. In the case of the noun *book*, it is represented as follows: *read* (**e**, **w**, **x.y**) (that is, 'books are for reading', where 'e' symbolizes the act of reading, 'w' is its first argument (the reader), and 'x.y' is a 'dot object', that is, it represents the double nature of books: being both a physical object (the 'y' argument) and containing information (the 'x' argument)). The TELIC specification within nouns becomes especially useful in determining the semantic effects on the verb in construction with a nominal whose head is the noun thus specified. The FORMAL specification in (10) indicates the resulting state achieved by the action of going down, and hence contains the $\mathbf{e}_2$ State variable, while the AGENTIVE specification indicates how that State came about. The suffixed verb **act** in this representation serves to indicate that the event involved is an 'act'. The predicate *sleep*, by contrast, would not have this verb appended, since sleeping does not correspond to an 'act' (see Pustejovsky's (1995: 80) representation (41) in chapter 3).

Note that no semantic functions or thematic roles are used in this kind of representation to mark the arguments of the predicate concerned. These are, in principle, derivable both from the Event Structure of the lexical entry and from the semantic constraints placed on the argument instantiations in the Argument Structure (see also Jackendoff 1990: 46–50, subsection 2.2; Ravin 1990; Van Valin & LaPolla 1997: 82–138, chapter 3). The Telic and Agentive specifications in the Qualia structure of the **x** and **y** arguments used to fill these slots in the Argument Structure of the predicate may have as effect a modification of the Event Structure of the predicate. So if we have a fixed locative object such as *la route* 'the road' as ARG1 (i.e. 'x') for *descendre*, the $\mathbf{e}_1$ process is no longer intact, and we get just a state predicate, but specifying a (downwards) orientation, as in *La route descend la montagne en zig-zaguant* 'The road zig-zags down the mountain'. Note also that

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Jackendoff (1990: 92–94) posits an operator EXT(ent) to capture the sense of otherwise movement verbs such as *reach* or *go by/along*, whose subject is a non-mobile entity: see his (22a), *The road reaches Kansas City*, (22b), *The track goes by the mountain* and (22c), *The fence goes along the river*. The reason for this is simply that **x** (ARG1) in these examples is not an 'autonomously mobile physical object' as specified in the ARGSTRUCTURE section, hence the process in $\mathbf{e_1}$ cannot literally exist – whence the static 'orientation' sense induced in the predication as a whole.

Now, an initial suggestion based on representations of the type illustrated in (10) for a more abstract predicate frame adapted to the FG format, which would be susceptible to modification via the choice of given types of arguments, as well as through the addition of certain argument types and satellites which modify semantic sub-structures within it, is given as (11).

(11) *descendre* (Vt)
{(e_1[7]: [$_{ACTION}$ *cause* {(x_1)}} (e_2: [$_{PROC}$ *move_to* (x_1: ⟨autonomous_mobile⟩)
(e_3^*: [$_{STATE}$ *be_down* R (x_1) (x_2: ⟨init_location⟩)])])]{()}

(11) reads as follows: 'x_1 causes a process whereby x_1 (an autonomously mobile entity) moves to a state in which x_1 is in a downwards position in relation to x_2 (an initial location)'. The predicates in italics in the sub-structures in (11) would be object-language predicates and not language-independent abstract predicates, in conformity with Dik's expressed concern that this be the case (his assumption (A1′) in Dik (1978: 4)). But it is intended that they be construed in terms of their core senses in such predicate frames, and not as formal lexical units. However, the semantic class of eventuality designated by these semantic predicates is annotated in subscript capitals beneath them, and the selection restrictions on the term values on each argument position are marked as before: but now they are properly part of a SEMANTIC, not part semantic, part lexical-syntactic, frame. (See also Jackendoff (1990: 53), for whom 'a selectional restriction should not be regarded as a contextual condition on the insertion of a verb. Rather it is part of a verb's meaning and should be fully integrated into the verb's argument structure'.) The asterisk marked on the (e_3) predication in (11) indicates that it is the head of this event-structural representation.

The function R symbolizes an abstract subordinate relational predicate, which indicates that the higher predicate in the containing sub-structure applies insofar as the first argument is related to the second, that is, '(x_1) is in a downward position IN RELATION TO (x_2), a(n initial) place'. This is needed in order to relate the respective final positions of (x_1) and (x_2). In the absence

[7] The $e_{1/2}$ variable introducing the argument whose restrictor is specified between the square brackets which follow it indicates that this argument is a 'second-order' one; in other words, it represents an eventuality of some kind (here, a process).

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of such an abstract relational function, only one argument position would be motivated (*be_down* as a state predicate only requiring one argument). Pustejovsky (1995: 35, passim) also uses this symbol to denote an abstract relational operator connecting two argument variables, where the exact nature of the relation is fleshed out semantically, or even pragmatically. x_1's 'state-of-being-downward' in relation to x_2 is represented in (11) as an SoA argument of the higher predicate *move_to*. The process predication 'e_1' in (10) is retained in (11) (but symbolized here as 'e_2'), specified as a single structure incorporating the AGENTIVE specification in (10), with the selection restriction on ARG1 in the ARGSTR section characterizing the (x_1) argument. The stative FORMAL specification in (10) is then included as the second argument of the process predicate, together with the presence of the abstract 'R (x_1), (x_2)' function-argument configuration, as explained above. The 'place' specification on the ARG2 position in (10) is formulated as a selection restriction on (x_2) within the e_3 state argument in (11).

As in (10), no SFs are explicitly mentioned in the representation, since these can (in principle) be seen as deriving directly from the semantic configurations involved, as in Jackendoff's (1990) and Van Valin & LaPolla's (1997) accounts (that is, the fact that x_1 is the cause of its own movement, and that it is autonomously mobile, can result in the construal of this argument as Agent). Van Valin & Wilkins (1996), as well as Holisky (1987), give arguments in support of the view that the SF Agent, in particular, is not a primitive, lexically-determined semantic role, but is the result of a (defeasible) pragmatic inference drawn on the basis not only of lexical-semantic knowledge, but of knowledge of how the world is as well.

The outer [*cause* …] predication in (11) is enclosed in braces, symbolizing the fact that it is subject to removal according to the semantic properties of given terms inserted into the A_1 position. As McKoon & MacFarland (2000: 854) point out in the case of their lexical-semantic representations of externally-caused change-of-state verbs, the representation is still the same whether the verb is used transitively or intransitively – that is, the external cause sub-event is present in both cases, though unexpressed syntactically in the second. This is also the position adopted by Levin & Rappaport Hovav (1996: 84) regarding unaccusative (intransitive) verbs such as *break*, which also have a causative-transitive use.

In addition, (x_1) may be argued to correspond to the function Processed as recognized in FG, since it is the first argument of *move_to*, which specifically denotes a process (see the subscripted label annotating the restrictor to the (e_2) variable in (11)). As already noted, the choice of an inanimate, geographical argument like 'the road' as (x_1) in the *move_to* sub-structure would have the effect of deleting the outer causal predicate and of inducing an orientational sense of *move_to* (since roads are not autonomously mobile). This is identical to what Dik (1997a: subsection 4.4) suggests may occur when selectional restrictions are violated by the insertion of a term into an

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argument position to which its semantic features do not conform – that is, there is a creative sense adjustment either in the inserted term or in the receiving predicate. Here it is the receiving predicate whose sense is adjusted to that of its argument (a clear instance of Pustejovsky's co-composition; see Pustejovsky 1995: subsection 7.2).

Now, as example (7c) shows, *descendre* has a use in terms of the general class of 'transfer-of-object' predicates (*give*, *hand*, *bring*, *take*, *put* etc.) involving three arguments: a transferer, a transferee, and a destination where the transferee ends up. In Construction Grammar (Goldberg 1995, 1997; Zhang 1998), and also current RRG (Van Valin & LaPolla 1997), such general patterns within a language are conceived as independent constructions, templates having their own syntactic, semantic and pragmatic properties independent of those of given verbs. On being inserted in the predicate slot within these constructions, the sense, argument structure and syntax of the input predicate are adjusted to those of the receiving construction. This is what has happened in the case of *descendre* in (7c), where the 'transfer-of-object' construction has contributed an argument, namely the object transferred. The mover is still construed as an Agent, and the A_2 (now A_3) as a locative in relation to which an argument has moved to a downwards position. The new argument A_2 now replaces A_1 as first argument to [$_{PROC}$ *move to* …], and is construed (via a selection restriction marking its position) as a (manipulable) object. It also occurs as first argument of the lower predicate sub-structure [*be_down* …],[8] replacing (x_1) and inevitably causing the original (x_2) within this sub-structure to become (x_3). Unlike the other three realizations of transitive *descendre* illustrated in (7a, b) and (7d), this ditransitive use could be accounted for by a predicate formation rule in FG. Note also that because this event structure representation involves three arguments rather than two, as in (11), the initial and final sub-events contained within it would each be headed, since this is the representation which Pustejovsky (1995: 73) provides for the parallel ditransitive 'unilateral transition' predicate *give*.

(12) *descendre* (Vt_2)
(derived 'transfer-of object' sense): (e_1^*: [$_{ACTION}$ *cause* (x_1) (e_2: [$_{PROC}$ *move_to* (x_2: ⟨phys.obj⟩) (e_3^*: [$_{STATE}$ *be_down* R (x_2) (x_3: ⟨init_location⟩)])])])

The way in which this predicate frame may be derived from the more basic one for transitive *descendre* given in (11) is essentially that (x_1) is no longer conceived as causing itself to move to a downwards position in relation to some place-object, but is causing an independent object (x_2) to move to such

[8] Clearly, the first argument of the higher *move_to* predicate must be identical to the first argument of the embedded *be_down* predicate.

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a position. Thus (x_2), a physical object, is introduced as first argument to the (e_2) process predicate, thereby automatically serving as first argument to the headed (e_3) state predication (as was the case with (x_1) when it was first argument to the (e_2) predicate in (11): see fn. 8 on this point). The rule for this is proposed in (13).

(13) '*Transfer of object*' *derivational rule*
Input: (e_1: [$_{\text{ACTION}}$ *cause* (x_1) (e_2: [$_{\text{PROC}}$ *move_to* (x_1: ⟨autonomous_mobile⟩) (e_3^*: [$_{\text{STATE}}$ βR (x_1) (x_2: ⟨location⟩)])])])
Output: (e_1^*: [$_{\text{ACTION}}$ *cause* (x_1) (e_2: [$_{\text{PROC}}$ *move_to* (x_2: ⟨phys.obj⟩) (e_3^*: [$_{\text{STATE}}$ βR (x_2) (x_3: ⟨location⟩)])])])

The symbol 'β' represents an arbitrary state predicate variable. The rule is lexically determined and affects the class of transitively used movement verbs involving a destination as part of their meaning. English *leave* and a number of other locative movement verbs (for example, *pass*) may undergo this rule, though not *arrive*. French *monter* and *descendre* may come under it, as we have seen, as well as *approcher* 'to approach' and *passer* 'to pass', though not *arriver* or *quitter*. Rule (13) says the following: in the output predication, a new argument, (x_2) (characterized as a physical object), replaces (x_1) as first argument to the process *move_to* predicate, and automatically also occurs as first argument to the embedded state predicate. (x_2: ⟨location⟩) in the input embedded state predication automatically becomes (x_3). This is a valency-increasing derived predication rule.

3. The effects on a predication (and its core predicator) of various kinds of modification via satellites

The very same kind of adjustments to predicate frames which we have seen in connection with the choice of certain types of arguments occurs with the addition of satellites, particularly those of level 1. As already noted, level 1 satellites in particular, though optional, may nonetheless affect the basic nature of an SoA type designated by a given nuclear predication. The adjunction of such modifying phrases, since it may affect the nature of the SoA being designated by the predication as a whole, may also affect the specification of the semantic functions assigned to the argument positions in the predicate frame. Dik (1997a: 109, exs. (9a, b)) himself gives examples of level 1 satellites showing a parallel effect on the Aktionsart of a predicate to the ones we saw in the case of the different argument types in section 2:

(14) (a) John walked in the park.
(b) John walked to the station.

In (14a), the locative level 1 satellite *in the park* designates an area where the walking took place; hence it does not affect the basic activity sense of *walk* in this sentence. However, the directional *to the station* in (14b) designates an

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end-point of the activity, and so induces a change of Aktionsart from activity to accomplishment in the predication as a whole. This is an instance of what Pustejovsky (1995: subsection 7.2) calls co-composition, where the Formal specification within the Qualia structure of the phrase *to the station* contributes the telic value to that of the verb *walk*.[9] The SF associated with each satellite (Loc and Dir, respectively) does not have to be assigned via the predicate *walk*, since they are satellites and not arguments. But the same kind of effect as in the case of the choice of given types of term expressions makes itself felt here.

In Siewierska's (1991) example (53a, b), presented as (15a, b),

(15) (a) I tore the cover.
(b) I accidentally tore the cover.
(c) I deliberately tore the cover. [my addition – FC]

the verb *tear* is unspecified for the feature [control]. In terms of McKoon & MacFarland's (2000) distinction between 'externally-' and 'internally-caused' change-of-state verbs (see also Levin & Rappaport Hovav 1996: subsections 3.2.1–3.2.4), *tear* is clearly an 'externally-caused' change-of-state verb: the change of state which results from the act of tearing is not something which the object undergoing it does, but is caused by an external factor (an Agent or Force). Now, the addition of the adverbial manner satellite *accidentally* in (15b) renders the [ø control] nuclear predication 'tear (I) (the cover)' an unambiguously [−control] one;[10] while the adjunction of the level 1 satellite *deliberately* in (15c) has the effect of assigning the positive value to the control feature of the predication. The choice of one or the other type of adverbial modification clearly has ramifications (via the change in the predication feature specification it induces) on the SF types assumed by the

[9] Jacques François (p.c.) suggests that the PP *to the station* in (14b) is not, in fact, a satellite, but rather an argument, since its adjunction would have too significant an effect on the semantic structure of the predicate core for it to constitute a mere optional specification; moreover, its omission would result in the verb *walk* having its basic atelic value. He therefore proposes that *walk* would have two argument instantiations: *walk*[V] $(x_1)_{Ag}$ and *walk*[V] $(x_1)_{Ag}$, $(x_2)_{Dir}$. However, the same type of semantic modification exists in the case of a large number of other activity verbs (e.g. *run*, *amble*, *stroll*, *drive*, *fly*, and so on). Thus, rather than saying that there are two alternative basic realizations of the verbal predicate *walk*, it seems preferable to enter in the Lexicon the 'core' variant *walk*[V] $(x_1)_{Ag}$, and to allow the directional satellite *to* NP_{Dir} to act upon its Telic specification, in the manner proposed by Pustejovsky (1995) (that is, his 'co-composition', an operation which would have the effect of creating a new predicate bearing an extra argument). This is a compositional effect, and does not entail that there is any lexical ambiguity in the class of verbs concerned.

[10] Gerd Jendraschek (p.c.) points out that the use of the adverb *accidentally* presupposes that the entity to which it is applied is in principle capable of acting as an Agent (see the bizarreness of ! *The earthquake accidentally destroyed a school*). However, I would analyse this meaning constraint as a selection restriction inherent to the semantics of this adverb, as a potential predicate. Thus, the A_1 argument of verbs like *tear* is still Force when they are extended by satellites of this type, but the semantics of *accidentally* induces the understanding that the referent at issue is a potential Agent.

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arguments involved: in (15b) with *accidentally*, the A_1 is conceived of as bearing the SF Force (the SoA designated is specifically NOT indicated as being under its control); while in (15c) with *deliberately*, the A_1 is clearly an Agent, since the SoA is understood as being brought about willingly by this entity. Rather than have a Predicate Formation rule account for the difference in status of the two senses of *tear* here, it is preferable to formulate a more flexible type of predicate frame for this and the many other verbs which are unspecified for the feature [control] (e.g. *break*, *touch*, *hit*, *knock*, *kill*, etc., though not *caress*, *assassinate*, *murder*, *listen*, *watch*, and so on). I would suggest (16) for *tear*. This predicate frame exploits Dik's (1978) stepwise lexical decomposition principle, in that its final, 'predicating' predicate *be_torn* (Bakker 1994: 207) evidently requires further decomposition elsewhere in the Lexicon. The representation shows that *tear* is a 'Transition' predicate, specifically, an 'achievement' (which, according to Pustejovsky, would have its right-hand sub-event headed).

(16) *tear* (Vt):
(e_1: [$_{\text{ACTION}}$ *cause* (e_2: [$_{\text{EVENT [}\alpha\text{ control]}}$ *act* (x_1)]) (e_3^*: [$_{\text{STATE}}$ *be_torn* (x_2: ⟨thin flexible material⟩)])])

(16) reads as follows: '(x_1) acts to cause a state where (x_2) (made of thin, flexible material) comes to be torn'. This representation is parallel to Pustejovsky's (1995: 80) formulation of the lexical-semantic structure of the verb *break* (which, unlike *tear*, is unaccusative, and so is not headed, according to Pustejovsky). This representation is reproduced as (17) below (I have added the ARGSTR section, which Pustejovsky omits from this representation).

(17)
$$\left[\begin{array}{l} \textbf{break} \\ \text{EVENTSTR} = \left[\begin{array}{l} E_1 = \textbf{e}_1\textbf{: process} \\ E_2 = \textbf{e}_2\textbf{: state} \\ \text{RESTR} = \textbf{e}_1 <_\alpha \textbf{e}_2 \end{array}\right] \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG1} = \textbf{x: phys_obj} \\ \text{ARG2} = \textbf{y: rigid_phys_obj} \end{array}\right] \\ \text{QUALIA} = \left[\begin{array}{l} \text{FORMAL} = \textbf{broken (e}_2\textbf{, y)} \\ \text{AGENTIVE} = \textbf{break_act (e}_1\textbf{, x, y)} \end{array}\right] \end{array}\right]$$

To return to the verb *tear*, in both types of case (the controlled and non-controlled senses), the addition of a level 1 satellite which is positively or negatively marked for controlhood will have the dynamic effect of setting the variable value for control of the (e_2) argument predication in (16) to +

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or −. Where the value set is +, (x_1) is construed as Agent with respect to the SoA denoted by this predication, and where it is −, then this argument is conceived as Force. Where the satellite is itself unmarked for the given feature, then no value will be assigned to this parameter, correctly predicting that the SoA designated will be presented as indeterminate regarding the intentionality of the event at issue. The 'alpha' variable in front of the [control] feature in this predicate frame is intended to indicate that it is lexically underspecified for this feature, but that a modifier inherently positively or negatively specified for it will have the effect of setting its value as positive or negative, as the case may be. As already noted in connection with argument insertion in section 2, the operation of this mechanism is very similar to what Dik (1997a: 96) claims may characterize the operation of selection restrictions: namely, where the term inserted in a given argument slot in a predicate frame is intrinsically unmarked in relation to the selection restriction which the predicate imposes on that argument position. It then assumes the semantic feature corresponding to the selection restriction (for example, *The animal neighed*, where we understand *the animal* to denote a horse).

Note that it is not only satellites of level 1 which may induce modifications in the SoA type denoted by a given predicate: purpose clauses, level 2 satellites[11] (but still belonging to the representational level of the grammar) such as (*in order*) *to express my frustration*, may have the same kind of effect as level 1 satellites such as the manner adverbials in (15b, c):

(15) (d) I tore the cover (in order) to express my frustration.

At this point, a word on the mapping between the semantically transparent predicate frames, as presented so far in (11), (12) and (16), and their syntactic realization is in order. This essentially involves the assignment of the syntactic functions subject and (direct) object, which in standard FG clause derivations takes place at the level of the extended predication. Pustejovsky (1995: subsection 6.2.5) claims that it is the HEADED sub-eventual structure in a lexical-semantic representation whose arguments are assigned these grammatical functions – the other, non-headed structures seeing their arguments 'shadowed' (that is, non-realized syntactically or lexically, and hence backgrounded). Thus, term insertion within the semantically transparent predicate frames proposed in this article would only take place into the positions relating to the predicate forming a sub-eventual structure which is headed, these positions being later assigned the syntactic functions subject and object, as appropriate. The remaining parts of the lexical-semantic representation would not be deleted, but would remain intact in

[11] The function of 'level 2' satellites is to elaborate a core predication – that is, a predication marked for grammatical aspect as well as, optionally, for a manner, instrument, accompaniment (etc.) satellite.

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order to register the potential effects of subsequent specifications (for example, at the level of the clause, in the shape of Topic and Focus assignment – see section 4 below). Then, at the level of operation of the Expression rules (once the underlying clause structure has been completely specified), lexicalization will occur, replacing the decomposed predicate structure (minus its lexicalized arguments and any satellites adjoined at lower layers in the clause structure) by the relevant lexeme in its appropriate morpho-phonological form.

Let's consider representation (11) first of all, reproduced below for convenience.

(11) *descendre* (Vt)
{(e_1: [$_{ACTION}$ *cause* {(x_1)}} (e_2: [$_{PROC}$ *move_to* (x_1: ⟨autonomous_mobile⟩) (e_3^*: [$_{STATE}$ *be_down* R (x_1) (x_2: ⟨init_location⟩)])])]{)}

Here, it is the State predication (e_3) which is headed within this structure. In that case, once term insertion has taken place instantiating (for example) *Jean* in its (x_1) position and *l'escalier* 'the stairs' in its (x_2) position, (x_1) becomes subject and (x_2), object.[12] Once the various operators for aspect, tense, mood and so on have been selected, this would ultimately yield a sentence such as (7a) *Jean* $(x_1)_{Subj}$ *descend l'escalier* $(x_2)_{Obj}$. Since the instantiation of (x_1) is a human entity, the initial causal sub-event structure is retained; thus the entity 'Jean' is construed as Agent–Processed–Zero depending on whether the co-indexed variable is the first argument of the *cause*, *move_to* and *be_down* predications involved. In turn, (x_2) is instantiated as *l'escalier* 'the stairs', an entity which matches the ⟨init_location⟩ selection restriction imposed on this position as A_2 of the [$_{STATE}$ *be_down* R (x_1) (x_2: ⟨init_location⟩)] predication.

In the case of PF (12) (reproduced below),

[12] Strictly speaking, French would not have the object function according to FG theory (see Dik 1997a: 412, fn. 17), since there is no regular alternative assignment of the object function for ditransitive verbs in that language by means of the dative shift construction, as there is in English and other languages: for example, *Mary sent* ***the photo*** *to Jane* vs. *Mary sent* ***Jane*** *the photo* – this being the condition which FG imposes on recognition of the object function in a given language. However, it is arguable that this is too strict a criterion, and that a number of other coding and behavioural properties of candidate direct object terms in French indicate that such a function is available in that language. For example, the existence of an accusative case-form for clitic pronouns (*le*|*la*|*les* 'him/it/her/them'), the presence of an accusative interrogative and relative pronoun (*que* 'whom/which/what'), the fact that only direct object terms may be promoted to subject function via the passive, and the existence of an agreement rule which is limited to direct-object controllers (the agreement of a past participle with a preceding direct object term, as in *les fleurs que* [fem. pl] *j'ai cueillie**s*** [fem. pl] 'the flowers that I picked' vs. *les fleurs auxquelles j'ai pensé*(****-es***) 'the flowers that I thought of'). See Dik (1997a: chapters 10 and 11) on syntactic function assignment within FG.

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(12) *descendre* (Vt_2)
(derived 'transfer-of object' sense): (e_1^*: [$_{ACTION}$ *cause* (x_1) (e_2: [$_{PROC}$ *move_to* (x_2: ⟨phys.obj⟩) (e_3^*: [$_{STATE}$ *be_down* R (x_2) (x_3: ⟨init_ location⟩)])])])

recall that the initial and final sub-events in this representation are each headed. This means that all three arguments involved are semantically foregrounded or profiled (in Langacker's Cognitive Grammar terminology). Thus, as in the case of the ditransitive verb *give*, adopted as a model for this structure by Pustejovsky, only the first two (in the case of FG) will be assigned a relevant syntactic function (though all three will be lexically represented) – FG recognizing only subject and direct object as valid syntactic functions cross-linguistically: (x_1), instantiated by *Jean*, will be assigned the function subject and this argument will be construed as Agent (since it is a human entity and acts as the initial argument of the *cause* predication in (12)); (x_2), instantiated by *les livres* 'the books', would be assigned the function direct object, and this argument would be construed as Processed (Trajector for Langacker) since it is first argument to the *move_to* predication, but also as Zero, from the fact that it is also first argument to the State *be_down* predication. Finally, the PP *de sa bibliothèque* 'from his bookcase' instantiates (x_3) as initial location. On the basis of the semantic configuration in which this argument occurs in (12), this location is understood as one in relation to which 'the books' are in a downward position, as a result of having been moved by the Agent, 'Jean'. Since FG does not recognize any syntactic function beyond those of subject and direct object, this third argument would not be assigned one, and would simply be accompanied by a preposition (here, *de* 'from'), corresponding to its relationship within the event structure represented in (12). The sentence finally produced would then be (7c) *Jean descend les livres de sa bibliothèque*.

Finally, in the case of predicate frame (16), reproduced below,

(16) *tear* (Vt)
(e_1: [$_{ACTION}$ *cause* (e_2: [$_{EVENT\ [\alpha\ control]}$ *act* (x_1)]) (e_3^*: [$_{STATE}$ *be_torn* (x_2: ⟨thin flexible material⟩)])])

the verb *tear* is aspectually an achievement predicate, so the right-hand sub-eventual structure is headed. This verb is transitive, and is not potentially unaccusative (in which case, none of its sub-events would be headed in underlying structure, according to Pustejovsky). Hence, both arguments in its lexical-semantic representation need to be realized syntactically. Thus (x_1), instantiated by *I*, would have the function subject, and (x_2), instantiated by *the cover*, that of direct object. The latter argument would be construed as bearing the SF Goal ('entity affected by the operation of an Agent, Positioner or Force') and, as we noted above, the former would be Agent, Force or Agent/Force (that is, 'Causer') depending on whether the nuclear

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predication organized around the predicate in question is elaborated by a [+control], [−control] or [ø control] satellite, respectively. The basic sentence yielded thereby would be (15a), *I tore the cover*.

4. Semantic effects on predicates caused by focus assignment

The final aspect of the 'downstream' effects on specifications made at earlier levels in an FG clause derivation that I want to touch on has to do with a specification made at a much later stage in a derivation than the initial stages of the nuclear or core predications which we have been examining so far. Here, it is the semantic effect of focus assignment or the lack of such assignment to a given predicate at the level of the clause which is at stake. In a standard FG clause derivation, the assignment of PRAGMATIC FUNCTIONS (Topic, Focus, and so on) takes place between levels 3 (the PROPOSITIONAL layer) and 4 (the 'clausal' layer, where the sentence is assigned an illocutionary force type via the specification for grammatical mood; see Dik (1997a: chapter 13) for details). The position is changing in this respect within the new Functional Discourse Grammar model put forward by Hengeveld (2002) (see Cornish 2002b: section 4 for suggestions as to how the Topic function in particular might be integrated within this new, more discourse-oriented framework).

Nølke (1995) argues that the assignment of focus in French (whether simple or specialized) always involves the establishment of a contextually relevant paradigm of entities which are potentially the object of focusing, and the marking of a contrast between one member of that paradigm and all the remaining ones. He suggests that, where the focus is assigned to a single lexical item (as opposed to a phrase), the element which is operated upon by the focus marking is the SPECIFIC semantic feature which distinguishes that item from other items in the same lexical or semantic field; the GENERIC feature(s), which establish(es) the sortal category of entity to which the predicate may be applied, on the other hand, is/are backgrounded via the highlighting of the specific semantic feature characterizing the sense of the lexeme concerned. (18a, b) illustrate (syllables in small capitals indicate pitch accent):

(18) (a) Dans l'armoire, les chaussures étaient rangÉES.
'In the wardrobe, the shoes were neatly arranged.' (Nølke 1995, ex. (33a), originally presented in Borillo (1990: 80, ex. (a)))
(b) Dans l'armoire étaient rangées les chaussURES.
(lit.) 'In the wardrobe were put away the shoes.' (Nølke 1995, ex. (33b))

The type of utterance illustrated by example (18b) is THETIC (where the entire proposition is in focus) rather than CATEGORICAL (a 'topic-comment'

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structure, as illustrated in (18a)); in fact, (18b) exemplifies a type of presentational focus, syntactically and prosodically marked via the subject-verb inversion. In (18a), the focus is assigned to the past participle *rangées*, whose specific semantic feature 'neatly arranged' is thereby highlighted. The lexeme thus has its full semantic value in this context. In (18b), by contrast, where the option open to French of postposing the subject NP for the purpose of rhematizing that term has been taken, it is *les chaussures* which is in focus (within the focus domain corresponding to the entire sentence), and *rangées* concomitantly de-focused. Now, since the latter lexeme is not in focus in (18b), its specific semantic feature 'neatly arranged' is not contrasted with its generic feature (here, simply 'be located'), and so it is not separated off from the latter, which dominates in this unaccented context immediately prior to the focused phrase *les chaussures*. As Nølke (1995: 98) points out, the context-induced sense of *étaient rangées* in (18b) is roughly the same as the basic sense of *se trouvaient* 'were to be found', a verb which might indeed replace *étaient rangées* in (18b) without grammatical or semantic consequences. To support his claim, Nølke gives example (19), which is unacceptable as a potential utterance:

(19) ?#[13]Dans l'armoire les chaussures se trouVAIENT.
'In the wardrobe, the shoes were to be found/located.' (N's (36), 1995)

(N.B. The crosshatch prefixing example (19) is intended to mark the pragmatic infelicity of this realization as a potential utterance.) As Nølke points out, this realization (as opposed to the much more frequent and unmarked version *Dans l'armoire se trouvaient les chauSSURES*, where stylistic inversion has operated to place the more semantically 'weighty' constituent of the sentence in neutral focus position clause-finally) is incoherent as a potential utterance precisely because *se trouver* has no specific semantic feature to be highlighted via focus assignment to it. See also Borillo (2000: 88), who points out that in the case of verbs such as *se trouver*, the fact that they require a locative PP complement means that syntactically, when the latter is preposed, subject-verb inversion is virtually obligatory.

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[13] Jacques François (p.c.) suggests the following pair as a complement to (19):

(i) Dans l'armoire les chaussures étaient bien/mal rangÉES.
'In the wardrobe, the shoes were tidily/untidily arranged.'
(ii) *Dans l'armoire étaient bien/mal rangées les chaussures.
'In the wardrobe, were tidily/untidily arranged the shoes.'

The adverbial modification of the focused element in (i) is completely acceptable, since in this function the adjectival predicate retains its full semantic value: the manner adverbs *bien/mal* (lit. 'well/badly') therefore modify its specific semantic feature 'arranged in order'. However, in (ii), this feature is no longer accessible, given that it is not contrasted with its generic feature in the de-focused position assumed by the past participle of the verb.

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Here are some further French examples of my own in support of Nølke's hypothesis (see also the French examples presented and analysed in Borillo 2000).

(20) (a) A l'horizon (il) couvait un ORAGE. 'On the horizon, (there) was brewing a storm.'
(b) A l'horizon, un orage couVAIT. 'On the horizon, a storm was brewing.'

(21) (a) Dans la vallée coule une riVIERE.
'In the valley flows a river.'
(b) ?Dans la vallée, une rivière COULE.
'In the valley, a river flows.'[14]

(22) (a) Dans la cave gisait le corps du prisonNIER.
'In the cellar lay the corpse of the prisoner.'
(b) #Dans la cave, le corps du prisonnier giSAIT.
'In the cellar, the corpse of the prisoner lay.'

In conformity with Nølke's predictions, (21b) is bizarre in relation to the quite normal version (21a), where the focus position highlights the specific semantic feature in *une rivière* (where, moreover, the indefinite nature of this term predisposes it to assume the rhematic function). *Coule* 'flows' in (21a) simply locates the river in the valley introduced as clausal topic. In (21b), it is the fact that it is expected that rivers 'flow' which makes it difficult to highlight the specific semantic feature of *couler* via the focus function: there is nothing 'newsworthy' (in this neutral sort of context) in the fact that a river 'flows'.

The difference between the pair of utterances in (20) and that in (21) stems from the fact that *couver* 'to brew' has a much more specific sense than *couler* (as applied to water courses): storms can do all sorts of things (brew, break, be violent, peter out, etc.), whereas rivers can do little else but flow (of course they can dry up and flood, as well, but these are marked phenomena in a river's life cycle). As in (21a), *couvait* in (20a) simply points out the existence of its subject referent.

In the examples in (22), there is no specific semantic feature at all in the purely locative verb *gésir* 'to lie', which is a more literary, archaic version of the presentative *il y a* 'there is/are'. Hence, focus assignment expressed by end-position in the clause results in an unacceptable utterance, no contrast being possible in (22b) in relation to the inverted variant in (22a) (unlike in the case of *couver* in (20b) in relation to its occurrence in (20a)).

[14] Note that in English, unlike in French, it is possible to shift the focus prosodically while leaving the morpho-syntax intact. Thus, in the English version of (21b), the pitch accent may shift from the verb *flows* to the subject *a river* (as in … *a* RIVER *flows*), thereby preserving coherence. This, however, is impossible in French without syntactic adjustment (for example, *Dans la vallée*, *il y a une* RIVIERE [foc] (*qui coule*) 'In the valley, there is a river (which flows)').

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Given that subject-verb inversion is virtually mandatory whenever the preposed locative phrase is subcategorized by the (intransitive or indirect transitive) verb, we may say that the topical locative expression is placed in P1 position in the FG universal constituent-order template. This is the initial position within the clause proper, which is reserved for expressions singled out for special treatment (often assuming a particular pragmatic value). This is the position where subject terms are placed, by default, because of the fact that they normally code the topic of the sentence concerned. (23) below presents the array of intra-clause positions, augmented by a P0 position clause-finally (as proposed for Bulgarian by Stanchev 1997, but which clearly is of more general relevance cross-linguistically). Parentheses indicate possible relative positions for the verb cross-linguistically.

(23) P2,[$_{\text{CLAUSE}}$ P1 (V) S (V) O (V) P0],P3

Now, given that P1 is occupied by the locative PP in its guise as topic, the subject term cannot also appear there (as a potential clausal topic). This would not be the case were the preposed PP to occupy the extra-clausal position P2, to the left of P1, as in (24).

(24) Dans une large cheminée, un grand feu flambait.
'In a broad hearth, a large fire was blazing.' (Borillo 2000: 88, ex. (10))

Here, since the locative PP *dans une large cheminée* 'in a broad hearth' is not subcategorized by the verb *flamber* 'to blaze',[15] it is placed in P2 position extra-clausally (a position immediately to the left of the clause proper, and prosodically marked off from it), thereby freeing P1 position to contain the subject term: indeed, as Borillo points out (2000: 87), there is no requirement in such cases for subject-verb inversion, as there is when the preposed locative is subcategorized by the verb in question. If we compare (24) with (19), (21b) or (22b), which are unnatural as utterances in the absence of subject-verb inversion, it is clear that, in FG terms, what is causing the problem in these examples is the necessary presence of the preposed locative phrase in clause-initial P1 position, and not in the more peripheral P2 one. Moreover, given that the discourse-pragmatic import of this construction as a whole is to present the subject referent, then its position in what Stanchev (1997) proposes as P0 position clause-finally is wholly motivated (this position being that of constituents expressing NEW or COMPLETIVE FOCUS, or NEW TOPIC, see Dik (1997a: chapter 13), Stanchev (1997: 133)).

Now, under the standard FG model as expounded in Dik (1997a, b), nothing can be done to accommodate this semantic-feature highlighting or

[15] One reflex of this looser relationship between verb and locative PP is the presence of a comma in the written form, and of a pause in the spoken, features which tend to be absent in the case of subcategorized preposed locatives; see Borillo (2000: 91).

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backgrounding via focus assignment or lack of assignment to given verbal predicates. The reason, basically, stems from the following fact: that, although the model generates the infinite set of expressions characterizable by a given language from what is in effect a lexico-semantic base, the predicate which is the basis both of predications and of terms is conceived (as already pointed out) in terms of the LEXICAL UNIT to which it (in its core or basic sense) corresponds within the object language. Hence, there is no internal semantic structure available within a verbal predicate for the focus function to operate upon, and to achieve the kind of effect which, following Nølke (1995), I illustrated earlier. Strictly speaking, though, if we take the notion *predicate* to correspond to a single sense of a lexeme capable of functioning as a predicator, then the effect of the assignment of focus (in this type of case, via syntactic positioning at the end of a clause) can be seen as one of distinguishing between senses associated with a given lexeme, and hence of establishing one among those senses as the predicator of the clause in question.

Using the classic Davidsonian format for representing lexical meanings, we might represent the semantic content of *rangé* as in (25).

(25) *Lexical semantics for* rangé

$\lambda x \lambda e^{s}$ [*rangé* (e^{s}) & *artefact* (e^{s}, x) & *set of possessions* (x) [$_{GEN}$ *placed in* (x, e^{s})] & [$_{SPEC}$ *ordered set* (x)]]

The square brackets enclosing the GEN open predication indicate the predicate's *generic* semantic feature, and those containing the SPEC one mark its *specific* or core semantic feature. The variable symbol e^{s} indicates the Event Type represented by *rangé*, namely a State. The general type features precede the specific, or core one(s), and the selection restrictions imposed on potential argument expressions are given by the former: in this case, that something that can be said to be 'rangé' is a set of artefacts belonging to someone. As in the case of the dynamic retroactive effect induced in an input predicate frame by the adjunction of a satellite of a semantic type not directly matched by the core predicate, we can say that the effect of focus assignment to a predicate is to operate upon its lexical-semantic structure, as provisionally exemplified by (25), and to select as predicator for the clause in which it occurs the specific semantic feature contained in the lexical-semantic structure. Where a predicate is de-accented (because of the shift in pitch accent or other focus-marking to another major clause constituent), then it is the generic semantic feature(s) which is/are selected as predicator in a given clause.

If we translate (25) into an augmented FG representation along the lines of the semantic predicate frames (11) and (16) for *descendre* and *tear*, respectively, the result will be something like (26).

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(26) *rangé*[A]:
(e_1: [$_{STATE}$ *be_located_in* (x_1: ⟨set of domestic possessions⟩) (x_2: ⟨container⟩)]): (e_2^*: [$_{STATE}$ *be_in_order* (x_1)])

This reads as follows: '(x_1) (a set of domestic possessions) is located in (x_2) (a container), such that (x_1) is in order'. Note, finally, that the adoption of Pustejovsky's (1995) device of marking the head sub-event within event structures (as specified in (26)) is perfectly suited to indicate the predicate which will serve as predicator in a sentence when the syntactic exponent of the lexeme involved is assigned the pragmatic function focus; recall that this sub-structure serves to characterize its *specific* semantic feature, in Nølke's (1995) terms.

5. Conclusions

All the phenomena discussed in the course of this article highlight the same basic feature: that language, whether in or out of use, is a dynamic, flexible device, underpinned by the pragmatic circumstances and purposes in terms of which it operates. Every part of an utterance is in some way interconnected with the others (that is, 'no utterance constituent is an island, entire unto itself', to parody the English metaphysical poet John Donne): it is convenient for the linguist to separate them out in order to describe their essential properties and structure. But it is not so easy to put them back together again once dissected, and to reconstitute the interactions amongst them which occur so prevalently in natural language use.

These interactions, as we have seen, often result in the creation of both meanings and structures which were not apparent (either nonexistent or simply latent) in one or the other of the elements which have combined to form a higher level of structure within the clause. A clause model such as standard FG, which is unidirectional rather than involving simultaneous linking between the semantic-pragmatic structure underlying a clause and its morpho-syntactic coding, as in current Role and Reference Grammar (Van Valin & LaPolla 1997), cannot easily reconstruct these interactive, and often retroactive, connections between elements of different layers in a clause derivation. However, it seems to me that it is essential to attempt to do so if the FG model is to be genuinely functional in the sense that it generates well-formed expressions capable of being used by speakers and addressees to create discourse in real-life communicative settings.

The advantages of the type of predicate frame argued for in the present article include the following. It is now homogeneous (all-semantic, rather than part-semantic, part morpho-syntactic as standardly, but with clear syntactic relevance) and more theoretically parsimonious than the standard predicate frame format; indeed, there is no need for semantic functions within the proposed format (apart from their usefulness as convenient

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mnemonics – see Jackendoff's 1990 and Ravin's 1990 view), since these may be derived from the embedded predicate structure in terms of the relation of given arguments to particular underlying predicates (as is the case in Role and Reference Grammar, see Van Valin & LaPolla 1997). In any case, there is clear evidence, presented in sections 2 and 3 above in particular, that the semantic functions which may be associated with given argument positions in the predicate frame may be altered as a function of the insertion of specific semantic types of term within these positions, and also as a result of the adjunction of satellites at the 'representational' level in FG underlying clause structure (that comprising the two layers corresponding to core and extended predications). Moreover, the semantic selection restrictions now form an integral part of the predicate frame, and are not simply 'stipulated' as such, as is standardly the case. Thus, the particular selectional constraint upon each of the variable argument positions is a motivated part of the semantic sub-structure in which the latter occur.

Furthermore, having a more semantically transparent underlying clause structure available at the initial stage in clause derivations via this more explicitly semantically structured type of predicate frame means that the important semantic effects of shifts in focus assignment to the syntactic exponents may be captured in underlying clause structure. These information-structure induced semantic modifications may thus be made explicit within the grammar. The way is now clear to eliminate the meaning definitions postulated in Dik (1978) as needing to be placed alongside the predicate frames associated with the lexemes of the object language within the Lexicon, since all the semantically and syntactically relevant information relating to given lexemes would be made explicit in predicate frames. Thus the mapping between the syntactic and the semantic dimensions of underlying clause structure can be made more apparent – as is currently the case in the comparable functionalist model, Role and Reference Grammar (Van Valin & LaPolla 1997).

Finally, the new Functional Discourse Grammar model, which is currently being elaborated within the FG paradigm (Hengeveld 2002), will ultimately enable all of the dynamic, retroactive effects on the matrix predicate presented in this article to be incorporated naturally within the model. This model makes available a tripartite structure for clause analysis, whereby the highest level, 'Interpersonal', controls and feeds an intermediate one, 'Representation', which in turn controls and feeds the lower level, 'Expression'. In parallel with these three levels, a 'Cognition' and a 'Communicative Context' component both feed and are fed by each of them (no real content has yet been assigned to the latter two components, however). Pragmatic function assignment (for example, 'Topic' and 'Focus') must clearly be part of the Interpersonal Level specified in this model, a level which subsumes and 'controls' the specifications made at the two lower levels in the system (those of 'Representation' and 'Expression'). Thus,

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Focus assignment or its absence may be shown to have an effect on the semantic nature of the predicator specified at the lower Representation level.

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Author's address: Département des Sciences du Langage, Université de Toulouse-Le Mirail, 5, Allées Antonio Machado, 31058 Toulouse Cedex, France.
E-mail: cornish@univ-tlse2.fr

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