Unergatives that 'become' unaccusatives in English locative inversion structures: a lexical-syntactic approach

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1. Introduction

In the generative grammar literature, locative inversion (LI) has been analysed with reference to the *syntactic* properties of the verb appearing in these structures as an **unaccusative** verb (Bresnan & Kanerva 1989, Coopmans 1989, Culicover & Levine 2001, Hoekstra & Mulder 1990, and L. Levin 1986, among others). This characterization has recently been challenged by Levin & Rappaport Hovav (1995), who have argued that the occurrence of intransitive verbs in these constructions which belong to the class of unergative verbs (such as *work, chatter, glitter*, and so on), precludes a syntactic characterization common to all instances of LI structures in favour of a pragmatic/ discourse analysis.[1]

Levin & Rapppaport Hovav (1995) (L&RH, henceforth) follow Birner (1994, 1995) in that LI is subject to a pragmatic constraint: the verb must not represent new information in the discourse, as it will be shown in section 3 below. As long as this requirement is satisfied any (unergative or unaccusative) verb is allowed to appear in the construction. The main point of this paper is that though LI structures have properties that operate at both the lexicon-syntax and syntax-discourse interface, a pragmatic characterization of these structures does not preclude a syntactic/semantic characterization of their properties, contrary to L&RH (for the discourse properties of LI see also Bolinger 1977; Bresnan & Kanerva 1989; Bresnan 1994; Rochemont 1986).

This syntactic/semantic characterization is possible under an analysis in which the unergative verbs that appear in LI constructions have 'become' verbs of existence and appearance and, like other verbs in this semantic class, are classified as syntactically unaccusative. The proposal that (some) unergative verbs exhibit properties associated with unaccusative verbs is not new and has received different implementations in the literature in relation to different facts, as it will be shown in section 4.1. This phenomenon is, therefore, not restricted to LI in English and must receive an explanation within a more general context. In this paper it will be argued, following Mateu´s (2002, chap 3) analysis of French impersonal constructions with unergative verbs, that unergatives that 'become' unaccusatives can be characterized as expressing an atelic existential situation: their state component is emphasized, while their activity component is secondary (though they can also express telic situations in the case of verbs of manner of motion with directional PPs). It will be shown that projectionist models of the lexicon-syntax interface, such as the one developed by Rappaport Hovav & Levin (1998) cannot adequately capture this process and that the proposal is more readily compatible with (lexical-)syntactic approaches to predicate decomposition as that developed in Mateu (2002), following work by Hale & Keyser (1993, 1997, 1998, 2000).

This paper is organized as follows. In section 2, the status of LI structures as an unaccusative diagnostic is examined. In section 3, we show how the presence of unergative verbs in the construction leads L&RH to reject a syntactic account in favour of a pragmatic/discourse account. Our proposal that a semantic/syntactic characterization of verbs in LI structures is possible if we assume that the unergative verbs that appear in LI constructions have become 'unaccusativized' is developed in section 4, making use of the model of the lexical-syntax interface developed by Mateu (2002). Section 5 contains some final remarks.

2. The Status of LI as an Unaccusative Diagnostic

LI constructions like that in (1a) show non-canonical order (PP V NP) and are descriptively analysed as variants of non inverted sentences like (1b), which shows canonical order (NP V PP): (1a) seems to be the result of switching positions of the NP and the PP in (1b).

(1)   a.   [PP Out of the house] came [NP a tiny old lady]
        b.   [NP A tiny old lady]   came [PP out of the house]

The structure in (1a) is descriptively characterized as follows: (i) the clause opens with a preverbal PP (often locative or directional); (ii) the notional subject occupies a postverbal position and (iii) the verb is intransitive or copular, with rare exceptions (see also passive verbs in note 7).[2] As L&RH (218) point out, it is this restriction on the syntactic class of verbs, as well as the observation that not all intransitive verbs are found in the construction, that has led to the analysis of LI as a possible unaccusative diagnostic.

As is well known, Perlmutter's (1978) *Unaccusative Hypothesis* distinguishes two classes of intransitive verbs: unergative and unaccusative verbs, which are associated with different base or underlying syntactic structures. In Government & Binding (GB) Theory (Chomsky 1981, Burzio 1981, 1986), unergative verbs are associated with an external argument, but no internal argument at the level of D-Structure, as in (2a), as opposed to unaccusative verbs, which are associated with an internal argument, but no external argument (2b).[3]

(2)   a.   [NP **Mary**] [VP [V sang]]   *Unergative*
        b.   __ [VP [V arrived] [NP **Mary**]]   *Unaccusative*

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[2] Some transitive verbs may appear in the construction, but, as pointed out by L&RH (chap 6, fn 2) these transitive verbs often form fixed phrases (e.g. *take place* in *In this room took place a meeting between several famous kings).*

[3] The distinction between external and internal arguments, roughly equivalent to 'notional' subject and object, is due to WILLIAMS (1981). Basically, external arguments are 'external' to the VP, while 'internal' arguments are generated within the VP. The distinction is central to the unaccusative-unergative dichotomy in the Principles & Parameters model, despite redefinitions of the concept of 'external' argument with the introduction of the VP-internal subject hypothesis (KOOPMAN & SPORTICHE 1991).

NP-movement 'raises' the internal argument *Mary* in (2b) to the external argument (<Spec, IP> = the specifier position in the IP) to generate the canonical NP V structure:[4]

(3) $[_{IP} [_{NP} \textbf{Mary}_i] [_{VP} [_V \text{arrived}] [_{NP} \textbf{\textit{t}}_i]] \ ]$
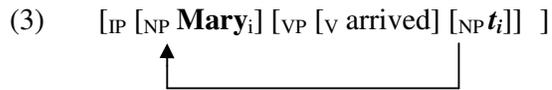
Assuming that a verb like *come* in (1) is a typical unaccusative, which appears in an underlying structures like that in (4), the sentence in (1b) with canonical NP V PP order, would be the result of movement of the NP to the external argument position in <Spec, IP> (5i), while the LI structures in (1a) would result from a movement rule which places the PP in preverbal position (5ii):[5]

(4) $[_{IP} \underline{\quad} [_{VP} \text{V NP PP}] \ ]$

(5)   i. $[_{IP} \textbf{NP}_i \qquad [_{VP} \text{V} \ [_{NP} \textbf{\textit{t}}_i] \ \text{PP}]]$

        ii. $[_{IP} \textbf{PP}_i \qquad [_{VP} \text{V} \ \text{NP} \qquad [_{PP} \textbf{\textit{t}}_i] \ ]]$

Under the unaccusative analysis, the postverbal NP in constructions like (1a) surfaces in its D-Structure position (5ii) in LI structures. This shows the inadequacy of the term 'inversion', though, but we will continue to use this label for the construction in (5ii), as is commonly used in both descriptive grammars and the theoretical linguistics literature.[6]

Together with the observation that prototypical unaccusative verbs like *come* and *appear* are commonly found in LI structures, it has often been pointed out that

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[4] NP-movement is the GB equivalent to Perlmutter's Relational Grammar rule 'Advancement-to-1'. Of course, the distinction between unaccusative and unergative verb involves the recognition of an underlying level of analysis where these verbs differ in the position of their only argument. This analysis is, obviously, not universally held (see, for instance, VAN VALIN 1990, against a syntactic distinction between these two classes of verbs).

[5] Whether that position is the same as that occupied by the fronted NP in (5i) (<Spec, IP>), or whether it is a position 'external' to the IP is not something that will be discussed here. See CULICOVER & LEVINE (2001) for a discussion of these matters

[6] There is, of course, a third possibility for the base structure in (4), which does not involve movement of either the NP or the PP, but rather, involves insertion of the expletive element *there* in subject position (i) and which gives us sentences like that in (ii):

(i)   *there* $[_{VP} \text{V NP PP}]$

(ii)   There $[_{VP} \text{came an old lady into the room}]$

Like locative inversion, constructions with *there* have often been taken to be an unaccusative diagnostic (see, for instance, BURZIO 1981, 1986). Locative inversion and *there*-insertion structures are also commonly analysed as having the same functional properties (but cf. BIRNER & WARD 1993). Though we will not be dealing with *there*-constructions here, what is interesting for our purposes is that, despite some differences between the two structures, the class of verbs which appear in *there*-insertion constructions is practically the same as that of verbs which appear in LI structures.

intransitive verbs belonging to the class of unergative verbs are incompatible with the construction. Indeed, the ungrammaticality of examples like those in (6) (from L&RH, 222) has led to the analysis of LI as an unaccusative diagnostic:

(6) a. *At the supermarket on Main St. SHOP local residents
     b. *In the cafés of Paris TALK many residents
     c. *In the nursery SMILE half a dozen newborn babies
     d. *In government offices COMPLAIN many disgruntled people

(from L&RH, 222)

Some unergative verbs are, however, found in the construction. L&RH's corpus-based study contains several instances of verbs of manner of motion with directional complements, such as *ride* and *walk* in (7). However, there is plenty of evidence suggesting that these verbs are unaccusative with directional complements, their unaccusativity being either a property of the construction (see Hoekstra & Mulder 1990 and Borer 1994) or the result of a process of meaning-shift in the lexicon (L&RH, chap 5) (see sec 4.2 here).[7] In particular, for L&RH, examples like those in (7) fall under a (lexical) meaning-shift rule which converts manner of motion verbs with directional PPs into unaccusative verbs, in which the change component is emphasized and the activity component is secondary; the sentence expresses primarily a change in the location.

(7) a. Down the dusty Chisholm Trail into Abilene RODE taciturn Spit
         Weaver…   [Green 1980, 590, (15c)]
     b. Into this scene WALKED Corky's sister, Vera, eight years old…
         [A. Beattie, *Picturing Will*, 137].

(from L&RH, 221, 222)

In sum, as pointed out by L&RH, LI shows the distributional properties expected of an unaccusative diagnostic: unaccusative (and passive (see note 7)) verbs pattern differently from unergative (and transitive) verbs.

3. Challenges for the Unaccusative Analysis: Unergative Verbs in LI Structures.

There are, however, two facts that may pose a challenge to the status of LI as an unaccusative diagnostic: (i) not all unaccusative verbs may appear in this construction, and (ii) some unergative verbs (other than those in (7), with directional PPs) are found in this construction. That is, in L&RH's (223) words, the class selected is both too large and too small.

The first observation is, in fact, unproblematic when we look at the behaviour of unaccusative verbs from a general perspective. It is commonly accepted that unaccusatives do not form a semantically homogeneous class. Since a lot of the diagnostics depend on certain semantic features, and, in particular, aspectual

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[7] Passive verbs are also commonly found in locative inversion constructions, as in (i) (from L&RH: 222):

(i) On the house roof HAS BEEN MOUNTED a copper lightning rod oxidized green and…. [J. Updike, *Rabbit is Rich*, 111]

Passives have structures similar to that in (5), with an internal argument and no external argument.
The link between unaccusatives and passives has often been pointed out in the literature (see BURZIO 1986; JAEGGLI 1986; ROBERTS 1987; MENDIKOETXEA 1992, 1999).

considerations (mostly to do with telicity), there is no reason to expect all unaccusative verbs to appear in all constructions that have unaccusativity properties. In fact, two main classes of unaccusative verbs have been postulated: (a) verbs of change of state and (b) verbs of existence and appearance (see L&RH, chap. 2; Mendikoetxea 1999, 2000). Only the latter appear to be compatible with the construction, as shown by the following ungrammatical examples with (externally caused) verbs of change of state:

(8) a. *On the top floor of the skyscrapers BROKE many windows
     b. *On the streets of Chicago MELTED a lot of snow
     c. *On the backyard clotheslines DRIED the weekly washing
                                                                   (from L&RH, 224)

Much more problematic is the occurrence of representatives of several major subclasses of unergative verb. Indeed, a variety of unergative verbs are found in LI structures: **agentive verbs of manner of motion** (like *swim* in (9a)), **internally caused verbs of emission** (like *glitter* in (9b)), **verbs of bodily internal motion** (like *flap* and *flutter* in (10)), and what L&RH (252) refer to as "a scattering of other activity verbs", such as *work* and *sleep* in (11):

(9) a. Inside SWAM fish from an iridescent spectrum of colours [J. Olshan, *the Waterline*, 177]
     b. On the folds of his spotless white clothing, above his left breast, GLITTERED an enormous jewel. [N. Lofts, *Silver Nutmeg*, 460]
                                                                   (from L&RH, 225)

(10) a. …. before the front there stretched a plateau whereon stood a flagstaff and spar, from the point of which FLUTTERED a red ensign [E. Phillpotts, *The Red Redmaynes,* 70]
     b. …. in this lacey leafage FLUTTERED a number of grey birds with black and white stripes and long tails. [Z. Grey, *Riders of the Purple Sage,* 62]
                                                                   (from L&RH, 255)

(11) a. On the third floor WORKED two young women called Maryanne Thomson and Ava Brent…[L. Colwin, *Goodbye without Leaving,* 54]
     b. At one end, in crude bunks, SLEPT Jed and Henry… [L. Bromfield, *the Farm*, 18]
                                                                   (from L&RH, 224)

Examples like those above lead L&RH to abandon the syntactic approach to LI in favour of a discourse/functional approach, along the lines postulated by Birner (1994, 1995). On the basis of a large corpus of naturally-occurring tokens, Birner (1994, 1995) argues that LI is subject to a pragmatic constraint: the verb must not represent new information in the discourse. This is linked to the discourse function of all inversion constructions, including LI, which is that of "linking relatively unfamiliar information to the prior context through the clause-initial placement of information that is relatively familiar in the discourse" (Birner 1995, 238). That is, the felicity of an inversion depends on the relative discourse-familiarity between the preverbal and the postverbal constituents: the preverbal constituent may not present 'newer' information in the discourse than the postverbal constituent. The concept of relative discourse-familiarity

implies that the postverbal constituent need not always be discourse-new, as expected if its function was purely presentational and it received presentational focus (see Bresnan 1994).[8]

From this, it follows that the class of verbs which may appear in LI constructions is not necessarily restricted to verbs of existence and appearance. The only requirement is that the verb should not contribute new information in the discourse; it must be 'informationally-light' (Birner 1994, adopting a term from Hartvigson & Jakobsen 1974). Verbs of existence and appearance, the core class of verbs found in this construction, are inherently light, since they add no (or little) information to that provided to the preverbal NP which sets the scene, thus suggesting that some entity will exist in that scene. In fact, as L&RH point out, these verbs may often be replaced with the linking verb *be*, the most common verb in this construction (see Birner 1994, 1995). The requirement that the verb be informationally-light in discourse accounts also, according to L&RH, for the virtual absence of transitive verbs. In transitive sentences, it is unlikely that the notional subject may represent 'newer' information than the object, which together with the verb typically conveys new information about the subject.

The pragmatic constraint explains as well the ungrammaticality of the examples in (8). L&RH (233) claim that unaccusative **verbs of change of state** like *break, melt, dry* and *open* are not informationally light, since they predicate an (unpredictable) externally caused change of state, thus contributing discourse-new information. On the contrary, the unergative verbs in (9)-(11) can be analysed as informationally light in the context described. What L&RH suggest, following observations in Bolinger (1977), is that "the informational lightness requirement can be satisfied if the activity or process that the verb describes is characteristic of the entity the verb is predicated of" (L&RH, 253). Two properties of the verbs found in L&RH's corpus support this proposal.

First, many of the unergative verbs found in LI structures are among those that impose strict selectional restrictions on the arguments they are predicated of. This is the case of verbs of emission and verbs of body-internal motion, which, in L&RH's (255) words, "describe the characteristic activities of the NPs that meet their selectional restrictions", which means that the relationship between the NP and the verb is one of "mutual predictability". For instance, the verb *flutter* describes a motion typical of bird wings and flags: flags and bird wings are the typical things that flutter, and conversely, flutter is what flags and birds typically do. The occurrences of *flutter* in LI structures in L&RH's corpus have NPs referring to flags and birds as postverbal subjects, as in (10). Similarly, only certain things *glitter* or *sparkle* (jewels, glass, metals) (see (9b)) or *tick* (clocks) and *rumble* (trucks) (see the LI examples with these verbs in L&RH, 255), so there is a relationship of mutual predictability and the verb qualifies as informationally light.

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[8] As BIRNER (1995, 236) points out, the notion of discourse-familiarity is due to PRINCE (1992). It refers to whether the information in question has been mentioned or evoked in the prior discourse; if it has, it is 'discourse-old'; if it has not, it is 'discourse-new'. These two notions are to be distinguished from 'hearer-old' vs. 'hearer-new' (PRINCE 1992), which refers to whether the information is familiar or not to the hearer, according to his/her (assumed) knowledge store. Thus, some unit of information may be 'hearer-old', but 'discourse-new'.

Second, those verbs which do not impose strict selectional restrictions are found only with a restricted set of subjects. In LI structures, these verbs are "still found with arguments that are prototypically characterized by the activity or process described by the verb, although this constraint does not hold when these verbs are not used in the construction" (L&RH, 256). The examples given by L&RH (256) involve the verbs *chatter* and *doze,* which take NPs referring to 'girls' and 'bathers', respectively, as their subjects:

(12) a.   … and around them CHATTERED and SANG as many girls with the silver spadella stuck through their black tresses and a red handkerchief tied across their shoulders [A. Munthe, *the Story of Sant Micheles,* 1]

      b.   He thought of the free-form pool behind the bougainvillea hedge there, clogged with rafts of Styrofoam on which DOZED naked oily bathers on their backs wide open to that sun. [A. Marshall, *The Brass Bed*, 228]

                                                                    (from L&RH, 256)

In these examples, chattering and singing are seen as characteristic of girls, while dozing is what bathers prototypically do in the context described. As pointed out by L&RH, if the name of a particular person was given, the verb would be contributing information about the activity it denotes, and the requirement that it be informationally light in the context would not be met.[9]

As for verbs of manner of motion, we have seen how with directional PPs these verbs are 'unaccusativized' (see examples in (7)), but when the PP indicates location, the same requirement applies: the verb must describe an activity characteristic of the existence of the postverbal NP. In the example given in (9a), swimming is the type of motion that characterises the existence of fish, and therefore the sentence expresses little more than the fact that there were colourful fish in the tank: In contexts like this, strict selectional restrictions are imposed on the postverbal NP of which a motion is described, which is not the case with directional PPs, a fact which seems to be supported by L&RH corpus findings (see L&RH's (257-8) examples for *fly* and *hop*).

The conclusion is that, as long as the discourse function of the construction is preserved, there are no restrictions on the types of intransitive verbs found in the construction (apart from externally-caused verbs, which may never meet the discourse requirements).

4. LI at the Lexicon-Syntax Interface

One of the problems encountered by L&RH´s proposal is that of providing a syntactic analysis of LI structures with unergative verbs. Assuming that the subject of unergative verbs is generated in <Spec, VP>, following Koopman & Sportiche's VP-Internal Subject Hypothesis, L&RH claim that the derivation of sentences like those in (9)-(11) with unergative verbs involves movement of the PP to the 'surface' subject position <Spec, IP>, with the postverbal NP in its VP-internal subject position. Since <Spec,

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[9] According to this reasoning, the examples in (11) here, from L&RH (224), which contain proper nouns do not meet the discourse requirements of the construction, a fact that L&RH appear not to take into consideration. These should be analysed as instances of what CULICOVER & LEVINE (2001) refer to as 'Heavy Inversion' (see section 4 below) (but cf. MARANDIN 2003 for a different explanation which can make the occurrence of proper nouns consistent with the discourse requirements of the construction).

IP> is no longer available for the external argument, this element must move to a right-adjoined position, which L&RH take to be the 'focus' position (Rochemont 1986), as in (13b):

(13) a.   [$_{IP}$ [$_{I'}$ I [$_{VP}$ NP$_{subj}$ [$_{V'}$ V <PP>]]]]

      b.   [$_{IP}$ PP$_i$ [$_{I'}$ V$_j$ + I   [$_{VP}$ t$_k$ [$_{V'}$ V$_j$ <t$_i$>]] NP$_{subj/k}$]]

The derivation in (13b) involves, thus, an operation akin to Culicover & Levine's (2001) Heavy-NP shift of the subject. These linguists claim that all instances of what looks like LI with unergative verbs are actually examples of what they refer to as 'Heavy Inversion', as opposed ´Light Inversion', which is found with unaccusative verbs and is *true* LI.

In Mendikoetxea (forthcoming), I discuss in length the problems of positing a right-adjunction rule of the type illustrated in (13b), as well as both the theoretical and empirical problems encountered by Culicover & Levine's (2001) proposal that all instances of what looks like LI with unergative verbs are actually examples of heavy inversion. There is only one more question to be mentioned here and which has to do with the model of the lexicon and the lexicon-syntax interface postulated in L&RH.

In a model in which lexical-syntactic representations (argument structure) are derived from lexical-semantic representations (predicate-decomposition), we would ideally expect verbs with the same semantic properties to have the same lexical-semantic representations. That is if those unergative verbs like *swim, glitter, flutter, work* and *sleep* in (9)-(11) are interpreted as verbs of existence and appearance, we would expect their lexical-syntactic representations to be identical to those of verbs belonging to this semantic class, which are unaccusative and thus lack an external argument in their argument structure. For this to be possible, L&RH would have to claim that these activity verbs have undergone a 'meaning-shift' in the lexicon to 'become' verbs of existence and appearance, a process parallel to that postulated for unergative verbs of manner of motion with directional PPs like *ride* and *walk* in (7) above.

A meaning-shift approach which may turn unergative verbs into unaccusative verbs with existential meanings is, however, rejected by L&RH. The main reason for this is precisely the wide variety of unergative verbs found in the construction. For L&RH (252), this means that either "any statement of meaning shift would have to contain an elaborate disjunction of verb classes" or "we are left with a very broad and potentially not very informative characterization of the class: the class of internally caused monadic predicates." In addition to this, the variation in distribution seems to depend on particular aspects of the meaning of individual verbs that allows them to occur in LI constructions, as well as on the relationship between the postverbal NP and the verb, which L&RH show is crucial in some cases to determine the possibility of LI. Meaning-shift affects classes of verbs and does not seem to be dependent on specific factors like these. Additionally, meaning-shift of the type discussed in L&RH (chapter 5) involves a change in telicity: the unergative verbs of manner of motion in (7) which undergo meaning-shift become telic predicates with the addition of the directional PP. Existential unaccusative verbs, however, are atelic, as the activity verbs in (9)-(11).

In Rappaport Hovav & Levin (1998) (RH&L, henceforth) a more explicit model of the lexicon and the lexicon-syntax interface is adopted which is specifically designed to deal with the phenomenon of verbal polysemy. We will show, however, that it cannot adequately deal with the type of verbal polysemy observed in the phenomenon under discussion, as well as with other phenomena which involve unergatives that 'become' unaccusatives.

4.1. Unergatives in unaccusative-like structures: the larger picture

The hypothesis to be developed here is that unergative verbs can be associated with an unaccusative structure when they express an atelic existential meaning, as required by the discourse function of LI constructions. As mentioned in the introduction to this paper, the proposal that (some) unergative verbs exhibit properties associated with unaccusative verbs is not new and has received different implementations in the literature in relation to different facts, such as auxiliary selection with (unergative) verbs of motion with directional PPs in Dutch and Italian (the Small Clause Analysis in Hoekstra & Mulder 1990), locative structures with bare NPs in Spanish, such as *Aquí han dormido animales* 'Here animals have slept' (Torrego 1989) and LI cases in Catalan (Rigau 1997). The different proposals have in common that they all emphasize the presence of a locative element as a crucial factor in the 'unaccusativization' of the structure. Thus, in Spanish, for instance, only (certain) unaccusative verbs allow bare plurals as their only argument, while unergative verbs do not (Torrego 1989, 257), as the contrast between (14a) and (14b) illustrates: [10]

(14) a. Vienen mujeres.
          come-3pl women
          'Women come.'/'There come women.'
      b. *Juegan niños
          play-3pl children
          'Children play.'

Unergative verbs, whose only arguments are in an external argument position, are incompatible with bare plurals, as in (14b), unless a locative element is found in preverbal position, as in the examples in (15) (cf. (14b) vs. (15a)):

(15) a.   En este parque JUEGAN niños
                In this park play-3pl children
                'Children play in this park.'
      b.   En este árbol ANIDAN cigüeñas.
                In this tree shelter-3pl storks
                'Storks shelter in this tree.'

<div align="right">(from Torrego 1989, 255)</div>

Torrego's explanation of the grammaticality in (15) is that, under certain conditions, unergative verbs in Spanish can 'become' unaccusative; i.e. they can have subjects

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[10] In fact, TORREGO'S (1989) generalization is only valid for some classes of unaccusative verbs. Externally-caused unaccusative verbs of change (with *se* in Spanish) do not allow their NPs to be bare plurals, for independent reasons. A sentence like *Se han roto ventanas* is ungrammatical in its inchoative meaning 'Windows have broken', though it can have a passive/impersonal meaning. See Mendikoetxea (1999, 2000) for an account of these facts.

which are base-generated in object position and they exhibit semantic and syntactic properties characteristic of unaccusative verbs.[11]

4.2. Syntactic vs. lexical-semantic (projectionist) approaches to the problem

There are, in principle, two alternative ways of accounting for this phenomenon within a formal grammar that recognizes the existence of unergative and unaccusative verbs as distinct grammatical classes: (a) a syntactic (constructionist) approach, and (b) a lexical-semantic (projectionist) approach. The syntactic approach is based on Hoekstra & Mulder's (1990) analysis, according to which certain verbs listed as unergative in the lexicon appear in constructions associated with unaccusative verbs in the syntax. Hoekstra & Mulder (1990) put forward an analysis in which unaccusative verbs expressing existence and appearance take a small clause (SC) as their complements, as shown in (16) for a sentence like *The train arrived at the station,* with the NP as the subject of the SC and the PP as the predicate of the SC:

(16) _____ arrive [$_{SC}$ [$_{NP}$ the train] [$_{PP}$ at the station]]

Unergatives that undergo an unaccusativization effect appear in the syntax in structures like (16), like the manner of motion verb *run* when it occurs with a directional PP, as in (17):

(17) _____ ran [$_{SC}$ [$_{NP}$ a horse] [$_{PP}$ out of the barn]]

In sum, *run* is an unergative verb which may appear in the syntax in a structure typically associated with unaccusative verbs.

This is, in essence, they idea underlying the (neo)constructionist approach to the lexicon-syntax interface (see Borer 1994, 2005). The problem with this approach, as has often been pointed out, is how to restrict the process by which unergative verbs may appear in an unaccusative-like structure, as clearly not all unergative verbs may appear in, for instance, LI structures, whereas for those verbs which do not express motion with directional complements certain restrictions apply.

Projectionist lexical-semantic models of the lexicon-syntax interface, such as that in L&RH, also face problems of their own. The idea in these models is that the different meanings receive different lexical-semantic representations in the lexicon and that the syntactic (unergative or unaccusative) structure is projected from the lexical representation. Notice that for L&RH examples like (17), involving *run* with a directional PP fall under the meaning-shift rule postulated for *ride* and *walk* in (7) above. The other instances of LI with unergative verbs, those that do not necessarily

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[11] Notice that in Spanish this possibility is also available for transitive verbs with deleted objects. Hence the grammaticality of (ia) vs. (ib):

(i)   a.   En este colegio estudian niñas.
             in this school study girls
       b.   *En este colegio estudian matemáticas niñas
             in this school study mathematics girls

The sentence in (ia) means little more than 'This is a girls' school', as opposed to the intended meaning in (ib).

appear with directional PPs and which express meanings related to the existence of the NP of which the VP is predicated ((9)-(11)), however, are not easily accounted for by a meaning shift rule, as shown in the previous discussion at the beginning of section 4, which forces L&RH to abandon the idea that LI structures are restricted to unaccusative verbs, as we have seen.

In RH&L, a more explicit model of the lexicon-syntax interface is developed, in which the representation of the meaning of the verb is done in terms of event structures (templates), like those in (18), which contain primitive predicates (ACT, BECOME, CAUSE) and constants *(STATE, MANNER)* (see RH&L, 108):

(18) a. [x ACT $_{<MANNER>}$]   *activity*
      b. [x *<STATE>*]   *state*
      c. [BECOME [x *<STATE>*]]   *achievement*
      d. [[x ACT $_{<MANNER>}$] CAUSE [BECOME [x *<STATE>*]]]   *accomplishment*

The basic meaning of a verb is determined by associating a constant with an event structure template by means of a number of canonical realization rules like those in (19) (see RH&L, 109):

(19) manner   → [x ACT $_{<MANNER>}$]
      place   → [x CAUSE [BECOME [y *<PLACE>*]]]
      internally caused state   → [x *<STATE>*]
      externally caused state   → [[x ACT] CAUSE [BECOME [y *<STATE>*]]]

The template in (18a) is the one associated with an activity (typically unergative) verb such as *jig, run, creak, whistle,* etc. and (18d) is the event structure template associated with verbs expressing realizations in the Vendler/Dowty classification: an externally caused state (typically transitive verbs expressing external cause and their unaccusative counterparts, e.g., *break, dry, harden, melt, open,* etc*..)*

The lexical rule of 'Template Augmentation' in (20) allows the addition of a component of meaning to an existing template so that, for instance, an activity associated with the template in (18a) may become a realization associated with the template in (18d), as illustrate for *wipe* in (21):

(20) **Template Augmentation:** Event structure templates may be freely augmented
      up to other possible templates in the basic inventory of event structure templates.
                                                                 (from RH&L 1998, 111)
(21) a. Terry wiped.
      b. Terry wiped the slate clean
                                                                 (from RH&L 1998, 99)

RH&L's approach is designed to account for a phenomenon known as the 'elasticity of verb meaning' (or verbal polysemy), which allows atelic manner activity verbs like *wipe* in (21a) to express telic meanings as in (21b). Given that this is the only lexical rule available, there is no way of accommodating within this model the type of meaning-shift that we have observed for unergative verbs that become unaccusative, as there is no possible template augmentation rule that may derive states from activities. A different lexical process would have to be stipulated by which the same 'name' (i.e.

phonological string) can be associated with constants of different ontological types, so that a constant like *swim*, for instance, can be associated with both an activity event structure or a state event structure in LI constructions (see (9a) above). Thus, different instances of 'elasticity of verb meaning' would be dealt with by different processes, with the additional problem of how to restrict the association of names with constants in event structure templates, a problem similar to that observed for Hoekstra & Mulder's (1990) syntactic approach.

4.3. A lexical-syntactic approach to unergatives that become unaccusatives

Mateu (2002), drawing heavily on Talmy's (1985, 1991, 2000) typological work, argues that the phenomenon of verbal polysemy can be better accounted for within a model in which lexical meaning is syntactically, rather than semantically, represented, along the lines suggested by Hale & Keyser (1993, 1997, 1998, 2000). Instead of providing a lexical semantic representation based on lexical templates like those in (18), Mateu (2002) argues that there are three basic argument structure types in the lexicon, as represented in (22) (where x is the head):

(22)   a.   x   b.   x   c.   x

         x   y   z   x

                                                    x   y
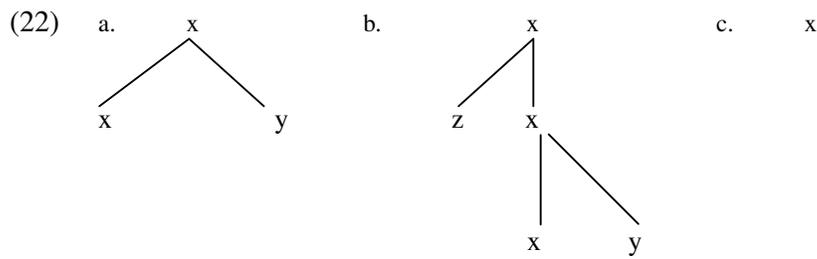
The relational syntax of argument structure in (22) is directly associated to its corresponding relational semantics in a uniform way, allowing homomorphism between the lexicon and the syntax, as in (23):

(23)   a. The lexical head x in [(22a)] is to be associated to an *eventive relation*.
        b. The lexical head x in [(22b)] is to be associated to a *non-eventive relation*
        c. The lexical head x in [(22c)] is to be associated to a *non-relational element*
                                                                          (Mateu 2002, 29)

While the structures in (22) encode grammatically relevant aspects of meaning that can be read off directly of the argument structure configurations, non configurational semantic properties of relational heads are encoded as binary features of heads, as specified in (24):

(24)   [+R]   positive semantic value associated to the source relation
        [-R]   negative semantic value associated to the source relation
        [+T]   positive semantic value associated to the transition relation
        [-T]   negative semantic value associated to the transition relation
        [+r]   positive semantic value associated to the non-eventive relation
        [-r]   negative semantic value associated to the non-eventive relation
                                                                          (Mateu 2002, 33)

That is, **[± R]** indicates if the eventive relation has an Originator or Source or not (*build* = [+R] (dynamic), *fear* = [-R] (stative)); **[±T]** indicates the semantic values of transitions, which lack an originator or source (*go* = [+T], *stay*= [-T]); and **[±r]** indicates whether the non-eventive relation is associated with Hale & Keyser's (1993) terminal coincidence relation (*path* in Jackendoff 1990) ([+r]) or whether it is associated with central coincidence relation (*place* in Jackendoff 1990) ([-r]).[12] The minimal pairs in (25), then, have the representation in (26), where F stands for the functional category that introduces the external argument (absent in the lexical representations in (22)) in the syntax (from Mateu 2002, 33):

(25)　a.　　John sent Peter to prison.　　　　　　　　*telic causative*
　　　b.　　John kept Peter in prison.　　　　　　　*atelic transitive state*
　　　c.　　Peter went to prison.　　　　　　　　　*telic unaccusative*
　　　d.　　Peter was in prison　　　　　　　*atelic unaccusative state*

(26)　a.　$[_F$ John　$[_{X1}$ [+R]　$[_{X2}$ Peter　$[_{X2}$ [+r] prison]]]]
　　　b.　$[_F$ John　$[_{X1}$ [-R]　$[_{X2}$ Peter　$[_{X2}$ [-r] prison]]]]
　　　c.　　　　　　$[_{X1}$ [+T]　$[_{X2}$ Peter　$[_{X2}$ [+r] prison]]]
　　　d.　　　　　　$[_{X1}$ [-T]　$[_{X2}$ Peter　$[_{X2}$ [-r] prison]]]]
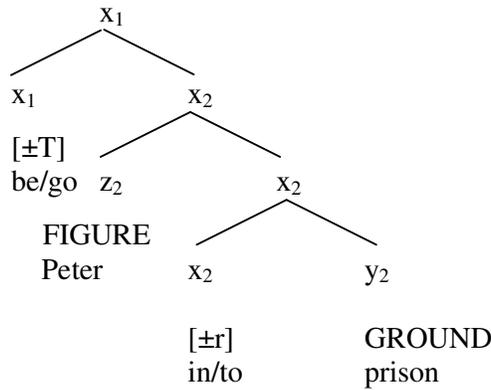
Notice that (26a, b), on the one hand and (26c, d), on the other have identical configurational properties; they differ in the non-configurational properties associated with the features [± R], [± T] and [±r]. For instance, the source relation in (25a) is dynamic [+R], but it is stative in (25b) [-R], but these two sentences have the same syntactically transparent argument structure, with *John* as 'Originator' or 'Source', *Peter* as 'Figure' and *prison* as 'Ground'. Figure and Ground, inspired in Talmy (1985), are the two semantic roles associated, respectively, with the specifier and complement of a non-eventive relation (z and y in (22b), respectively).

This brief summary of Mateu's lexical-syntactic model, though simplified for our purposes, will be enough to see how this approach to the lexical representation of predicates can account for the problem under discussion. Unaccusative verbs, like those in (26b) and (26c) have, in Mateu (2002), the representation given in (27), where x_1 expresses a transitional eventive relation ([+T] = change; [-T] = state) and x_2 a non-eventive relation ([+r] = terminal coincidence = telic; [-r] central coincidence = atelic):

---

[12] For JACKENDOFF (1990: chap 2), Place and Path are major conceptual categories, along with, for instance, Thing, State and Event. Both categories can be elaboration into a function-argument structure. That is, a conceptual constituent belonging to the category Place can be elaborated into a Place-function plus an argument belonging to the category Theme (as in *under the table).* A Path-function (TO, FROM, FORWARD, AWAY-FROM, VIA) may take a Thing or a Place as an argument, as in *to the house* and *from under the table,* respectively.
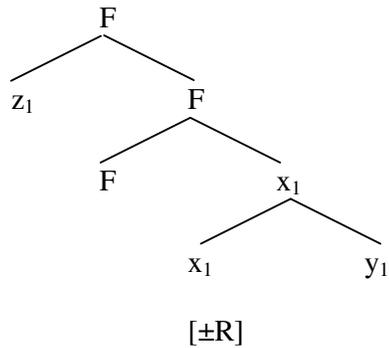
(27) x_1 *UNACCUSATIVE*

            x_1 x_2
          [±T]
          be/go z_2 x_2

                  FIGURE
                  Peter x_2 y_2

                            [±r]   GROUND
                            in/to   prison

Unergatives, on the other hand, are represented as expressing a source eventive relation, which can be dynamic [+R] or stative [-R], with an external argument (z_1) introduced in the syntax by a Functional Head (F), as in (28):

(28)   F   *UNERGATIVE*

            z_1 F

                      F x_1

                              x_1 y_1

                            [±R]

The question of how unergatives become unaccusatives is equivalent in this model to the question of how a verb associated with a lexical relational representation such as that in (28) comes to be associated with a representation like that in (27).

As should be clear from the discussion above, any model of the lexicon has to deal with the general issue of how verbs may be associated with different meanings and syntactic representations. In a lexical-syntactic model of this type, the question is how verbs become associated with more than one lexical relational structure. Mateu (2002) draws on the facts observed by Talmy (1985) regarding the difference between 'satellite-framed' and 'verb-framed' languages in complex telic path of motion constructions. In a satellite-framed language like English, sentences like that in (29a) involve 'conflation' of motion with manner in the verb, as in (30a); by contrast in a verb-framed language like Catalan, in sentences like (29b) there is conflation of motion with path and the manner component is expressed as an adjunct, as in (30b):

(29)   a.   The boy **danced into** the room.
        b.   El noi **entrà** a l'habitació **ballant**.
                the boy went-into loc-prep room dancing
                                                        (from Mateu 2002, 159)
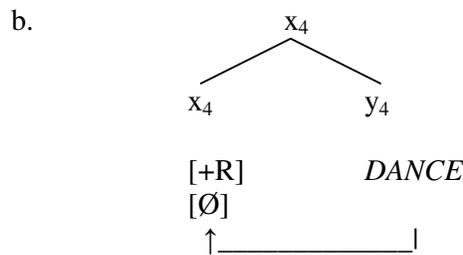
(30)   a.   danced   into…   b.   entrà …   ballant

V+manner   path   V+path   manner

In the lexicon, the English sentence in (29a) is created by 'conflating' the two lexical structures in (31a) and (31b): the unergative structure in (31b) conflates with the eventive head of the unaccusative argument structure in (31a). This is possible whenever the head of the unaccusative structure (x_1) is non-saturated; i.e. when it lacks phonological content (as opposed to *The boy {went/got} into the room)* (from Mateu 2002, 161):

(31)   a. x_1 *UNACCUSATIVE*

```
              x₁
           ┌──┴──────┐
          x₁         x₂
        [+T]      ┌──┴──────┐
        [Ø]   z₂          x₂
           (the) boy   ┌───┴────────┐
                      x₂            x₃
                    [+r]        ┌───┴────┐
                    [Ø]-to x₃          y₃
                          [-r]
                           in        (the) room
```

b.

```
                x₄
             ┌──┴──────┐
            x₄         y₄
          [+R]       DANCE
          [Ø]
           ↑_____|
```
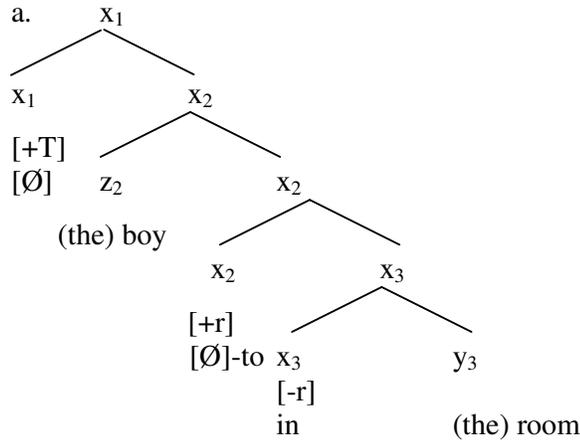
(from Mateu 2002, 161)

Conflation is, for Mateu (2002), a syntactic operation which takes two different lexical structures and fuses them into one (like Hale & Keyser's 1997 'Generalized transformation'). In particular, the structure in (31b) adjoins to x_1 in (31a). In semantic terms, the activity component of the (subordinate) unergative verb *dance* is being backgrounded, while the change (transitional) component associated with the (main) unaccusative eventive head is foregrounded. In sum, Mateu's use of the notion of conflation accounts for both the syntactic facts ((31a) is an unaccusative structure), as well as for the semantic facts, without having to resort to a rule such as RH&L's *Template Augmentation* in (20), which is not designed to deal with facts like these.[13]
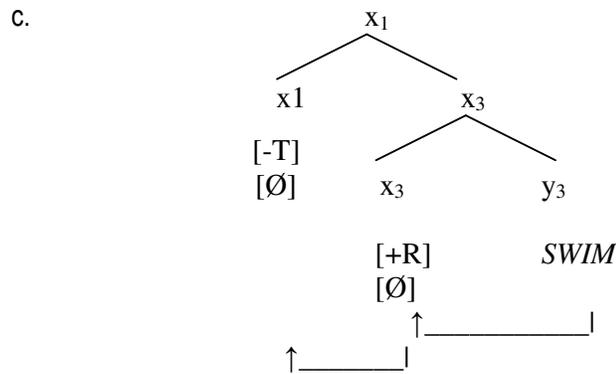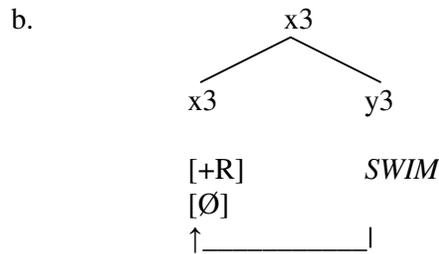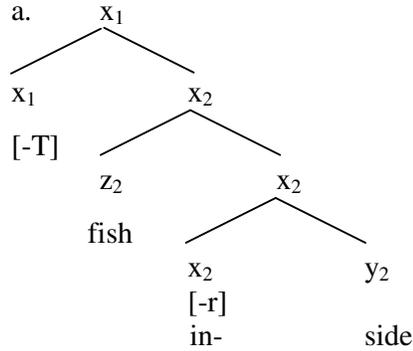
The example given accounts for how an unergative verb like *dance* can appear in a complex telic path of motion unaccusative structure like that in (29a). We are now in a position to outline a solution for our unergative verbs which appear in (unaccusative) LI structures. LI structures with unergatives that 'become' unaccusatives have an atelic existential meaning in which the state component of the atelic existential structure is foregrounded and the activity component is secondary or subordinate. Let us take a typical example like that in (9a), repeated as (32), in which the verb contributes little more than an existential meaning.

(32)   Inside SWAM fish from an iridescent spectrum of colours [J. Olshan, *the Waterline*, 177]

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[13] See MATEU (2002: 3.1.3) for details concerning the operation of conflation and how it fits in within CHOMSKY'S (1995) Minimalist Program, as well as for why such an operation is not allowed in Romance-type languages in structures like those equivalent to (29a) in English.

The lexical relation structure underlying (32) would be the result of conflating the locative (unaccusative) structure in (33a), with the activity (unergative) structure in (33b), a process which adjoins x_3 to x_1:

(33)   a. x_1 *UNACCUSATIVE*

```
              x1
            /    \
          x1      x2
         [-T]    /   \
               z2     x2
              fish   /   \
                   x2     y2
                  [-r]
                  in-    side
```

b.
```
              x3
            /    \
          x3      y3
        [+R]     SWIM
        [Ø]
        ↑_____|
```

c.
```
              x1
            /    \
          x1      x3
        [-T]    /    \
        [Ø]   x3      y3
            [+R]     SWIM
            [Ø]
            ↑_____|
      ↑_____|
```

This analysis can account not only for the syntactic facts (i.e. that (32) involves an unaccusative structure), but also for the semantic facts: i.e. that the state component is emphasized and the activity component is subsidiary.[14]

We will assume here, as Mateu (2002, 123) does for French impersonal constructions with unergative verbs, that the existential character of the unaccusative construction is related to the presence of a central coincidence preposition *in* ([-r]), which serves the purpose of relating Figure to Ground in a presentational context. As for the restrictions on the NP observed by L&RH, they are also related to the existential character of the

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[14] As Mateu (p.c.) points out the conflation process in (33) can also 'convert' an unergative verb into a telic predicate, as it is the case for unergative verbs of manner of motion with directional PPs: in which we would have [+T] and a terminal coincidence preposition (cf. *to*).

structure. Sentences like (32), with complex argument structures, describe a situation in which the (subordinate) activity is taken to characterize the existence of the postverbal NP.

The notion of conflation can account therefore for unaccusativization in LI contexts and it can easily account, as well, for the facts that RH&L account for with reference to *Template Augmentation*, which makes this approach preferable (see Mateu´s 2002, 3.1.3. criticism of L&RH´s account of the elasticity of verb meaning). Notice that Mateu's approach has aspects in common with Hoekstra & Mulder's (1990) S(mall) C(lause) analysis in (17), in the sense that we insert a basically unergative verb into an unaccusative structure. The difference is that the process described, following Mateu (2002), is a lexical-syntactic process, in the area of the grammar that deals with the syntax of lexical categories, while on the basis of Hoekstra & Mulder's syntactic analysis is the idea that the verb is inserted into a structure in the syntax. In fact, Mateu (2002, 179) refers to Hoekstra & Mulder's SC analysis as "the final "surface" result of the relevant conflation process." In more recent syntactic analyses, single argument verbs are not differentiated as unaccusative or unergative in the lexicon. Rather, unaccusativity (or unergativity) is a property of the construction in the syntax and verbs are freely inserted into either one or the other (see Borer 1994, 2005). The system is unrestricted, apart from some vague reference to some 'compatibility' between the verb's meaning and the structure meaning.

In the analysis presented here, however, the meaning of the structure can be read off directly of the syntactic argument structure in the lexicon, in which certain components of meaning are emphasized and others are deemphasized. The fact that verbs are primarily associated with unergative or unaccusative structures accounts for many facts regarding their syntactic behaviour. The issue, however, of why some unergative verbs may conflate with unaccusative structures, while others apparently not, is something which requires further research. It also remains to be explained why fronting of the PP in the syntax is necessary for the existential meaning to obtain – an issue which is probably related with the syntax-semantics of existence at the level of Logical Form, as well as with properties operating at the syntax-discourse interface.

Thus, the present analysis captures the generalization that LI structures are basically unaccusative, avoiding thus the problems observed in relation to L&RH's syntactic account (see 4.1) by maintaining that unergative verbs in LI structures have 'become' unaccusative as a result of an operation over lexical relational structures (= conflation). It can also characterize the verbs in these constructions as atelic verbs of existence with locative arguments, which, in turn, is related to the discourse properties of the construction, as described in section 2 and, in particular, to the requirement that the verb be informationally light in context.

5. Concluding Remarks

We have argued that the proper characterization of phenomena that have usually been classified as involving LI involves references to the syntactic, semantic and pragmatic properties of the construction. Some of the discourse properties of these structures, such as the requirement that the verb be informationally light, follow from the fact that the verbs in LI structures can be characterized as existential. Thus, the analysis provided can account in a principled way for the syntax, semantics and pragmatics of LI

structures in English. What remains to be done to gain a proper understanding of the construction is to clarify how the discourse properties of the structure relate to its syntactic properties. In particular, it remains to be specified what forces movement of the PP to a clause-initial position, leaving the NP argument in postverbal position. Given that constructions that involve a similar conflation process (e.g. French impersonal constructions and constructions involving *ne*-cliticization in Italian in Mateu (2002, 2.2.3)) do not require fronting of the PP, these appear to be questions that are directly related to the discourse properties of the construction and are best addressed at the syntax-discourse interface.

What this shows, in sum, is that we need not abandon the idea of providing a unified account of the syntactic properties of LI in favour of a discourse approach to the construction. Both syntactic and discourse properties can be accounted for under an approach in which unergative verbs that appear in LI structures express existential meanings associated with an unaccusative structure in the lexicon. More research is needed to see if a similar analysis can be extended to *there*-constructions, which have properties in common with LI structures.

Abstract
This paper looks at the properties of locative inversion (LI) in English at the lexicon-syntax and syntax-discourse interface. The attested presence of unergative verbs in these constructions has recently led to the rejection of a syntactic analysis of the construction as involving unaccusative verbs, in favour of a pragmatic/discourse approach (see, for instance, Levin & Rappaport Hovav 1995) It is argued that a pragmatic characterization does not preclude a syntactic and/or semantic characterization of LI structures. The main point of this paper is to show that it is possible to characterize the verbs appearing in LI structures as unaccusative under the assumption that unergative verbs appearing in LI structures 'become' unaccusative verbs expressing existence and appearance. Following Mateu (2002), an analysis is given by which a verb expressing an activity (i.e. an unergative verb) is mapped into a lexical-syntactic structure with a state predicate (i.e. an unaccusative verb) under a process of 'conflation', thus conforming to the pragmatic requirements on verbs appearing in LI structures.

Abstract in French
Dans cet article sont considérés les propriétés de l'inversion locative (IL) en anglais, par rapport aux interfaces lexique-syntaxe et discours-syntaxe. La présence attestée de verbes inergatifs en IL a remis en question l'analyse syntaxique de l'IL en tant que structure inaccusative, au profit d'une explication discursive/pragmatique. L'argument développé ici, c'est qu'une caractérisation pragmatiques des structures d'IL n'exclut pas une caractérisation syntaxique et/ou sémantique. Plus précisément, il est possible de qualifier les verbes en IL d'inaccusatifs sin on postule par ailleurs que les verbes inergatifs attestés dans cette structure 'deviennent' des inaccusatifs, exprimant l'existence et l'apparition. Reprenant l'analyse de Mateu(2002), on montrera que par un procédé de 'conflation' un verbe exprimant une activité peut être projeté sur une structure lexicale-syntaxique comprenant un prédicat statif (vb inaccusatif) et par là même se conformer aux contraintes pragmatiques des verbes en IL.

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