Aspectual and quantificational properties of locative verbs

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Abstract

In this paper we claim that location and locatum verbs are grammatically different, contrary to Mateu's (2001, 2008) and Harley's (2005) analyses: while location verbs denote a preposition of locative semantics, locatum verbs involve a non-locative preposition. The analysis is based on the fact that location and locatum verbs respond differently to aspectual and quantification tests: while the former seem to be plain change-of-state verbs, the latter behave rather like degree achievements.

1 Introduction

This work deals with the analysis of denominal locative verbs, which involve the location of an entity with respect to another entity. Locative verbs are usually divided into two classes, location and locatum verbs, depending on their semantic interpretation: as shown in (1), while location verbs denote the location where the direct object has moved onto, locatum verbs denote the element that has been moved onto a location expressed by the direct object.

(1) *Location verb* embotellar *'bottle' and locatum verb* ensellar *'saddle' (Catalan)*

    a. En Jan ha   em-botellat   l'aigua.   (Cf. *botella* 'bottle')

        Jan   has   in-bottle.ed   the=water

    b. L'Elna ha   en-sellat   el   cavall. (Cf. *sella* 'saddle')

        Elna   has   in-saddle.ed the   horse

Location and locatum verbs have been treated either as two fundamentally different classes of verbs (Labelle 1992, Hale & Keyser 1997f) or as grammatically non-distinct (Mateu 2001, 2002, 2008, Harley 2005). In this work, we propose that they are

grammatically distinct classes, attending to their aspectual and quantificational properties.

With respect to the aspectual properties of locative verbs, we show that location verbs are always telic, irrespective of the root they embed, while locatum verbs are usually ambiguous between a telic and an atelic reading, depending on how the root they embed is construed. With respect to their quantificational properties, we show that locatum verbs admit a certain type of quantification called *inherent quantification*, while location verbs do not, despite apparent counterexamples. Finally, we show that some telic locative verbs are ambiguous between a location and a locatum reading, which we attribute to the possibility of associating the same root to two different structures. Basing on these considerations, we propose that location verbs involve a non-projective preposition of locative semantics, in the sense of Zwarts and Winter (2000), while locatum verbs involve a preposition of partitive nature.

The paper is organised as follows: in section 2 we revise previous accounts of locatum and location verbs. In sections 3 and 4 we focus on the aspectual and quantificational properties of these verbs, respectively. In section 5 we propose to analyse the predicates headed by these verbs as involving different prepositions. We draw conclusions in section 6.

2 Review of previous proposals

Locative denominal verbs have attracted the attention of researchers from Clark and Clark's (1979) seminal descriptive work on denominal verbs. In Pinker's (1989) and Jackendoff's (1990) approaches these verbs are related to different semantic representations, whereby the "incorporated" noun is a theme in the case of locatum verbs (see (2)a) and the ground of a locative relation in the case of location verbs (see (2)b):

(2)   *Semantic (theta) representations of locatum* butter *and location* pocket *in Jackendoff 1990:170)*
        a. CAUSE ([$_{\text{Thing}}$ α], [$_{\text{Event}}$ INCH [BE ([$_{\text{Thing}}$ *BUTTER*], [$_{\text{Place}}$ ([ON ([$_{\text{Thing}}$ β])])])])]

b. CAUSE ([$_{\text{Thing}}$ α], [$_{\text{Event}}$ GO ([([$_{\text{Thing}}$ β], [$_{\text{Path}}$ TO ([$_{\text{Place}}$ IN ([$_{\text{Thing}}$ *POCKET*])])])])])]

Labelle (1992) proposes to simplify these accounts by positing that both location and locatum verbs have the same basic argument structure: the affected argument is the overt direct object, while the one encoded by the verbal root represents the final state undergone by the entity referred by the object. The difference between locatum and location verbs is not structural, but resides in the type of preposition featured by either type of verb in their conceptual representation. Thus, while location verbs feature a locative, AT-type preposition (see the semantic representation in (3)b), locatum verbs feature a WITH-type preposition (see the semantic representation in (3)a):

(3) *Semantic representations of locatum* fleurir *'cover with flowers' and location* entreposer *'store' in Labelle 1992 (French)*
   a. CAUSE (x, [INCH (WITH *fleur(s)* (y))])
   b. CAUSE (x, [INCH (AT *entrepot* (y))])

Thus, the mapping between theta-roles and grammatical functions becomes homomorphic in her account. This analysis closely parallels the l(exical)-syntactic one proposed by Hale & Keyser (1997f.). For these authors, the l-syntactic configuration of both types of verbs is exactly the same: a prepositional projection which takes the surface direct object as its specifier and the nominal root as its complement; in turn, this prepositional projection is the complement of a verbal head which verbalises the whole structure:

(4) *L-syntactic representations of locatum* saddle *and location* shelve *in Hale & Keyser 2002:18*
   a. [$_{\text{V}}$ V [$_{\text{P}}$ [$_{\text{DP}}$ *the horse*] [P *saddle*]]], where P encodes a central coincidence relation
   b. [$_{\text{V}}$ V [$_{\text{P}}$ [$_{\text{DP}}$ *the book*] [P *shelve*]]], where P encodes a terminal coincidence relation

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The semantic difference between locatum and location verbs is non-configurational: it emerges from the fact that they involve different prepositions: a preposition of *terminal coincidence* in the case of location verbs and a preposition of *central coincidence* in the case of locatum verbs. In a nutshell, a central coincidence is that between a Figure and a Ground whose centres coincide, while a terminal coincidence is that between a Figure and a Ground whose edges coincide (Hale 1986). Unlike in Labelle's (1992) semantic approach, a number of diagnostic tests like participation in the middle construction and unavailability of the causative alternation are derived from the configurational properties of the l-syntactic representations. Notably, neither Labelle's nor Hale & Keyser's analysis discusses the inner-aspectual and quantificational properties of these verbs.

Mateu (2001, 2002, 2008) does take the inner-aspectual properties of locative verbs into account. In particular, Mateu (2001, 2002) claims that both location and locatum verbs are telic and that they respond in the same way to grammatical diagnostics assumed to detect the lexical encoding of a telicity-inducing transition (a *terminus*), namely middle formation, adjectival passive formation and allowance of object-hosted depictive secondary predicates. Thus, in contrast with Hale & Keyser's (1997f) analysis, Mateu (2001, 2002) proposes that location and locatum verbs do not only share the same structure, but they also feature the same kind of abstract preposition, namely one of terminal coincidence, which is claimed to yield the telicity characteristic of these predicates. Thus, location and locatum verbs would be undistinguishable, the difference becoming strictly non-grammatical:

(5) *Identical l-syntactic representation of locatum* fleurir *'cover with flowers' and location* entrepoter *'store' in Mateu 2001:18 (French)*
[$_V$ V [$_X$ [$_{DP}$ *la tombe/la marchandise*] [X *fleur/entrepot*]]], where X is a birelational element encoding a terminal coincidence relation

Crucially, this author adopts a different position in Mateu (2008), where he proposes that telic location verbs and telic locatum verbs involve a preposition of terminal coincidence, while atelic locatum verbs involve a preposition of central coincidence.

(6)   *L-syntactic representations of location* shelve *and telic locatum* saddle*, and atelic locatum* water *in Mateu 2008*

   a. [$_V$ V [$_P$ [$_{DP}$ *the book/the horse*] [P *shelve/saddle*]]], where P encodes a terminal coincidence relation

   b. [$_V$ V [$_P$ [$_{DP}$ *the plants*] [P *water*]]], where P encodes a central coincidence relation

Mateu (2008) assumes therefore a grammatical, non-configurational difference which, however, does not coincide exactly with the location/locatum difference. This new position constitutes a partial return to Labelle's (1992) and Hale & Keyser's (1997f) types of analysis, although only with respect to atelic locatum verbs.

Finally, Harley (2005) adopts Mateu's (2001, 2002) proposal that locatum and location verbs are grammatically undistinguishable, since they involve exactly the same configuration with a semantically inert abstract preposition. She proposes that the differences in (a)telicity in locative verbs depend exclusively on the (un)boundedness of the nominal root the verb is built on, the abstract preposition making no contribution to the computation of inner aspect. Thus, a bounded root like √SHELF yields telic *shelve*, while an unbounded root like √BUTTER yields atelic *butter*.

(7)   *Identical syntactic representation of location* corral *and locatum* paint *in Harley 2005:58*

   [$_{vP}$ [$_{DP}$ Jill/Bill] [$_{v'}$ v [$_{SC}$ [$_{DP}$ the horse/the wall] [$_{PP}$ P [$_{√P}$ √CORRAL/√PAINT]]]]]

In this work we adopt an analysis where locatum and location verbs are grammatically distinct, in the spirit of Labelle 1992 and Hale & Keyser 1997f. We base our analysis on the aspectual and quantificational behaviour of these verbs.

3 The aspectual interpretation of locative verbs

The empirical claim in this section is that locatum and location verbs are inner-aspectually different: while location verbs are specified as telic, locatum verbs are not specified as telic or atelic, their (a)telicity depending on how their root is construed with respect to boundedness. First, however, we make some considerations on the test involving durative adverbials like *for five minutes*. This test is probably the most widely used in detecting atelicity. However, we note that predicates licensing a durative adverbial can be claimed to be atelic only if they are interpreted as involving a single event, specifically, a process event temporally bounded by the durative adverbial, as shown in (8):

(8)   Sue drank beer for hours

Crucially, durative adverbials are licensed by telic predicates under three main interpretations. In the first interpretation, there is also a single event but the durative adverbial does not measure the span of any process, but that of a result state yielded by a telic eventuality.

(9)   *Result state interpretation (MacDonald 2008:6)*
       John caught a bear for ten minutes.

The sentence above is interpretable as "the bear remained caught for ten minutes". Accordingly, the adverbial *for ten minutes* can be claimed to be measuring the result state. The other two telic readings admitting a durative adverbial are what MacDonald (2008:41-46) calls *Sequence of Identical Events* (SIE) interpretation and *Sequence of Similar Events interpretation*. As for the former, it involves examples such as the following one, with a singular bounded internal argument:

(10)   *Sequence of Identical Events (SIE) interpretation (MacDonald 2008:41)*
       The farmer dragged a log into the barn for an hour.

In this example we understand that the farmer engaged in successive events of dragging the same log into the barn for an hour straight. As for the SSE reading, it emerges in telic predicates with a plural internal argument:

(11)   *Sequence of Similar Events (SSE) interpretation (MacDonald 2008:46)*
       The girl ate cookies for an hour.

Here we can interpret a sequence of events consisting in the eating of each of an unbounded number of cookies.

Having made clear these readings, let us deal with the aspectual properties of location verbs. Mateu (2001, 2002, 2008) claims that these verbs are telic, which we concur with. We note that this atelicity is independent of whether a bounded or unbounded root is involved, contrary to Harley's (2005) position. Thus, a verb such as *engabiar* 'cage', built on bounded *gàbia* 'cage' is fine with delimiting adverbials and does not admit a process interpretation when combined with a durative adverbial. With a bounded singular object it only allows a result state interpretation and a SIE interpretation:

(12)   *Telicity of location verbs (Catalan; Mateu 2001:8)*
       a. Ell en-gabià   el   seu   ocell preferit   en un   minut.
          he   in-cage.ed the   his   bird   favourite in one   minute
       b. Ell en-gabià   el   seu   ocell preferit   durant un   minut.
          he   in-cage.ed the   his   bird   favourite for   one   minute
          Process, single-event interpretation: ☒
          Result state interpretation: ☑
          SIE interpretation: ☑

Identical results are obtained for *encapsar* 'box', *enlleixar* 'shelve', *embotellar* 'bottle', *empresonar* 'imprison', *acorralar* 'corral', etc.

Crucially, and against Harley (2005), the situation is the same with location verbs involving a mass-denoting root, like *enterrar* 'bury', built on *terra* 'earth':

(13)   *Telicity of location verbs with an unbounded root (Catalan)*
        Els pirates en-terraren   el   tresor   durant tres dies.
        the pirates in-earth.ed   the   treasure for   three days
        Process, single-event interpretation: ☒
        Result state interpretation: ☑
        SIE interpretation: ☑

There are less location verbs based on mass roots than based on bounded roots, but the ones we find behave in the same way: *envinagrar* 'put in vinegar' (it also may also have a locatum reading 'put vinegar on') *emmarar-se* 'get into the sea', *emboscar-se* 'place in the woods' (it also may have a locatum reading 'get covered with wild vegetation').

By contrast, the aspectual behaviour of locatum verbs seems to depend on how the root is construed: if it is construed as bounded, then the locatum verb behaves as telic. If it is construed as unbounded, the locatum verb behaves as atelic. For instance, the verb *enfarinar* 'put flour on' licenses an atelic process interpretation in the following example:

(14)   *Atelicity of locatum verbs with roots construed as an unbounded entity (Catalan)*
        En Joan en-farinà   el   pastís durant deu   segons.
        Joan   in-flour.ed the   cake for   ten   seconds
        Process, single-event interpretation: ☑

However, the same predicate is compatible with a reading in which there is a definite amount of flour being put onto the cake. In that case, the SIE interpretation —a series of events of putting a bounded amount of flour into the cake— and the interpretation in which the durative adverbial measures the final state of being covered with flour are possible, if pragmatically quite odd. Other verbs such as *salar* 'put salt onto', *embetumar* 'put shoe polish onto' or *emmelar* 'put honey onto' behave the same.

The situation is identical with roots referring to a bounded entity. So for instance *minar* 'lay mines on a field', built on bounded *mina* 'mine', admits an atelic, single-event interpretation if the amount of mines laid is unbounded:

(15)   *Atelicity of locatum verbs with roots construed as an unbounded entity (Catalan)*
         Els soldats minaren el   camp durant   un dia.
         the soldiers mine.ed the   field for   a   day
         Process, single-event interpretation: ☑

And, again, in case a bounded quantity of mines is understood to be laid, the predicate is telic. Identical behaviour to that of *minar* is shown by *abalisar* 'put buoys on' or *embanderar* 'put flags on'.

We note that the case of telic *enfarinar*, built on unbounded *farina* 'flour' and the case of atelic *minar*, built in bounded *mina* 'mine', are in contradiction with Harley's (2005) assumption that unbounded roots yield atelic predicates and bounded roots yield telic predicates. Although we agree with Harley (2005) that the telicity or atelicity of locatum verbs does not depend on their grammatical configuration, we disagree in her emphasising the role of boundedness and unboundedness in the computation of inner aspect. Rather, in the case of locatum verbs, the root is pretty free to be understood either as a bounded entity or an unbounded entity, within the limits imposed by world-knowledge.

Finally, we point out a problem with Mateu's (2008) perspective on the aspectual properties of locative verbs which has to do with the status of location and telic locatum verbs. Mateu (2008) proposes that the only division within the locative class concerns the telic/atelic division, so it comes as a surprise that locatum verbs may have an atelic interpretation and location verbs cannot. Thus, Harley (1999) observes that location verbs seem to be telic, since "locations are bounded". The idea could be entertained that it is precisely the fact that the predicate is lexically bounded (by the presence of a preposition of terminal coincidence, for instance) what provides the verb with the location flavour. From this perspective, so-called telic locatum verbs like *saddle* would receive their locatum interpretation by virtue of encyclopaedic knowledge, their grammatical

representation being exactly identical to telic verbs interpreted as location. However, this does not explain that some telic locative verbs such as *envinagrar* 'vinegar' are ambiguous between a location and a locatum reading:

(16)   *Telic predicates ambiguous between a locatum and a location reading (Catalan)*
    La Jana   en-vinagrà   els cogombres   en cinc minuts
    Jana   in-vinegar.ed the   cucumbers in five   minutes

This example has two telic readings: in the location reading, Jana has put the cucumbers into some container full of vinegar, and that has taken her five minutes. In the second reading Jana has seasoned the cucumbers with a definite amount of vinegar, and that has taken her five minutes. Importantly, the difference between the location and the locatum reading can be brought to surface with the addition of adjuncts further specifying the locatum and location: while *with*-PPs may specify locatums, PPs based on locative prepositions may only specify locations:

(17)   *Disambiguation of* envinagrar *(Catalan)*
    a. La Jana   en-vinagrà   els cogombres   <u>amb vinagre de poma</u>.
        Jana   in-vinegar.ed the   cucumbers with vinegar of apple
        locatum reading: ☑
        location reading: ☒
    b. La Jana   en-vinagrà   els   cogombres <u>en pots de vidre</u>.
        Jana   in-vinegar.ed the   cucumbers in jars   of glass
        location reading: ☑
        locatum reading: ☒

This means that being grammatically specified as a change of state does not determine the location reading, and that maybe the locatum/location division is, after all, worth considering, as had been proposed by Labelle (1992) and Hale & Keyser (1997f).

To sum up the results of this section, we have seen that while location verbs are uniformaly atelic, locatum verbs are telic or atelic depending on whether the root is construed as a bounded or an unbounded entity.

4 Quantificational properties of locative verbs

In this section we explore the quantificational properties of locative verbs after introducing the concept of *i*(*nherent*)-*quantification*. We start off from Bosque & Masullo's (1999) work on verbal quantification. These authors claim that there are five different types of verbal quantification, which are illustrated below with examples of Catalan and Spanish. The different types of verbal quantification are obtained by the different variable the quantifier can scope over: quantification over an event variable (*e-quantification*), over a variable of time (*d-quantification*), over a covert argument (*a-quantification*), over any element within the VP (*Unselective Binder quantification*) and over the internal verbal predicate (*inherent quantification*):

(18)   *Types of verbal quantification (Catalan (a, b, d, e) and Spanish (c))*

    a. En Jan ha   cantat   molt aquesta cançó.   E(ventive)-quantification
       Jan   has   sung   a_lot this   song
       'Jan has sung this song very often.'

    b. L'Elna   ha   dormit   una   mica.   D(urative)-quantification
       Elna   has   slept   a   little

    c. Juan   ha   bebido   mucho.   A(rgumental)-quantification
       Juan   has   drunk   a_lot

    d. La gent ha   vist   molt aquesta pel·lícula U(nslective)B(inder)-quant.
       People   have seen a_lot this   picture
       'Many people have seen this picture.'

    e. L'Elna   s'estima molt el seu   gat   I(nherent)-quantification
       Elna   loves   a_lot her   cat

In this paper we only focus on the type of reading that Bosque & Masullo (1999) call i-quantification, which is defined as follows: the quantificational reading of a modifier which "quantify over a component of the sub-lexical structure of the predicate, more specifically, the lowest predicate available in a lexical relational structure, in the sense of Hale & Keyser (1991, 1993, 1994a, 1994b)" (Bosque & Masullo:19-20). This type of reading can be illustrated by the examples below.

(19)   *I-quantification with Cat.* sagnar *'bleed*

      a. La   ferida   <u>sagn</u>ava   molt.

          The   wound   bled a_lot

      b. La   ferida   treia   molta   sang.

          The   wound   produced   lots_of   blood

          'The wound was bleeding a lot.'

(20)   *I-quantification with Cat.* tardar *'be late'*

      a. En Jan ha   <u>tard</u>at   molt.

          Jan   has   delayed a_lot

      b. En Jan ha   fet   molt tard.

          Jan   has   made very late

          'Jan has been very late'

As can be seen in the examples (20)(19) and (20), inherent quantification is the reading licensed by a degree quantifier which corresponds to the quantification over the nominal cognate with the verbal root in the paraphrases. In a more theoretical fashion, i-quantification is the reading obtained by the adverbial modifier taken scope over the embedded root (underlined in the examples).

Locative verbs differ as to their behaviour regarding i-quantification. Locatum verbs are i-quantifiable depending when the embedded root is understood as an unbounded entity, either an unbounded mass or an unbounded plurality of objects. Thus, verbs such as *encaputxar* 'hood', *ensellar* 'saddle', *emmanillar* 'handcuff', do not allow i-quantification, since the roots they embed denote things which are usually used in a

bounded fashion: it is usually one hood, one saddle and two handcuffs which are involved.

(21) *Non i-quantifiability in locatum verbs*

    a. #L'Elna   ha   en-caputxat massa   la   nena.

       Elna   has   in-hood.ed   too_much the   girl

    b. #L'Elna   ha   en-sellat   massa   el   cavall.

       Elna   has   in-saddle.ed too_much the   horse

    c. #L'Elna   ha   em-manillat   massa   en Jan.

       Elna   has   in-handcuff.ed too_much Jan

On the contrary, locatum verbs that contain a root that denotes an entity interpretable as an unbounded allow i-quantification. This is the case with both verbs denoting a mass entity, such as *enfarinar* 'flour' or *salar* 'salt', and verbs which denote a bounded entity usually used in an unbounded plurality, like *minar* 'lay mines onto'

(22) *I-quantifiability in locatum verbs*

    a. L'Elna   ha   en-farinat massa   les   mandonguilles.

      Elna   has   in-flour.ed too_much the   meatballs

    b. L'Elna   ha   salat   poc el   rostit.

      Elna   has   salt.ed little the   roast

    c. Els soldats minaren el   camp massa.

      the soldiers mine.ed the   field too_much

The reading obtained in these examples is that of the adverb modifying the quantity of mass (of flour, salt and mines, respectively) being employed in the course of the event.

    Location verbs show a different pattern with respect to i-quantification. They do not allow i-quantification when the root denotes a bounded entity, as can be observed in the examples below, which contain the roots *botella* 'bottle' and *capsa* 'box'.

(23)   *Non i-quantifiability in location verbs*

    a. #En Jan ha   em-botellat   massa   l'aigua.

       Jan   has   in-bottle.ed   too_much the=water

    b. #En Jan ha   en-capsat   massa   els   llibres.

       Jan   has   in-box.ed too_much the   books

With respect to location verbs embedding an unbounded root, there are some that disallow the i-quantification reading of the degree quantifier.

(24)   #En Jan ha   envinagrat   massa   els   cogombres.

      'Jan   has   in-vinegar.ed too_much the   cucumbers

In this example, the root *vinagre* 'vinegar' can be said to denote a mass. The verb *envinagrar* in the location sense does not allow an i-quantification reading. One possible explanation is that here the root *vinagre* 'vinegar' is understood as a location, and by our world knowledge we understand that the cucumbers are placed into a bounded location full of vinegar. Intuitively, we can say that even if the root denotes an unbounded entity, the adverbial is modifying the root understood as a location, not a quantity of mass.

    By contrast, other location verbs embedding an unbounded root allow, at least apparently, i-quantification readings. Verbs such as *enterrar* 'bury', *emboscar-se* 'go into the forest' or *emmarar-se* 'go into the sea', which contain roots that denote mass entities such as *terra* 'earth', *bosc* 'forest' or *mar* 'sea', do allow i-quantification readings of the degree quantifier:

(25)   *I-quantifiability in location verbs*

    a. En Jan   va   en-terrar   molt el   tresor.

       Jan   PST.3SG in-earth.INF   a_lot the   treasure'

       'Jan buried the treasure deep.'

b. En Jan va em-boscar-se molt.

   Jan   PST.3SG in-wood.INF-REFL   a_lot

   'Jan went deep into the forest.'

c. La nau es va em-marar molt.

   the ship REFL PST.3SG in-sea.INF   a_lot

   'The ship went far into the sea.'

However, even if these roots denote unbounded entities, the generalization that one may draw is that they can be quantified not because they are mass, but because they denote *unbounded locations*.

Quantification of location verbs works similarly to quantification of prepositions *in* or *inside*. These prepositions are normally said not to allow quantification by degree modifiers. However, there are two counterexamples to this claim: adverbial modification such as in *deep in the forest* and measure phrase modification of *inside* when the ground denotes an unbounded location. Thus, when *inside* combines with grounds that are understood as not having limits, i.e., unbounded grounds, the preposition can be understood as quantifiable. More precisely, according to Zwarts and Winter (2000:191), the possibility of modification of the preposition *inside* depends on whether the reference object itself is upward vector monotonic or not, in other words, if the reference object (the ground in our terms) has an unbounded denotation. (Un)boundedness in this case does not refer to the mass/count distinction but to the (non-)existence of limits in the conception of the object as a location:

(26)   *Measure phrase with* inside

     a. *10 cm inside the house

     b. 10 cm inside the wall

With respect to location verbs, quantification is only possible if the root can denote an unbounded ground. As in the case of *inside*, the adverb quantifies over the location, not directly over the root. For example, the interpretation of i-quantification in (27) is that Jan buried the treasure too deep, too much inside the earth. Thus, in (27) the adverb is not

quantifying over the quantity of earth that has been used to bury the treasure. Direct quantification of the root understood as a mass is not obtained:

(27)   En Jan   va   en-terrar   molt el   tresor.
       Jan   PST.3SG   in-earth.INF   a_lot the   treasure'
       'Jan buried the treasure deep.'

In conclusion, we can observe that i-quantification in locatum and location verbs shows different scope properties. While the quantifier scopes over the root in locatum verbs, it scopes over the internal preposition in location verbs. The boundedness of the root affects i-quantification in both cases, but for different reasons.

Moreover, the relationship between i-quantification and aspectual interpretationis crucially different between location and locatum verbs. Thus, i-quantifiable locatum verbs can receive a telic or an atelic reading, while non-i-quantifiable locatum verbs can only be interpreted as telic. This fact is just a consequence of Harley's (2005) generalization that the boundedness of the root affects the boundedness of the event:

(28)   *(A)telicity of i-quantifiable locatum verbs*
         a. L'Elna   ha   en-farinat   les   mandonguilles en/durant   uns   minuts.
            Elna   has   in-flour.ed the   meatballs   in/for   some minutes
         b. L'Elna   ha   en-sellat   el   cavall   en/$^{\#}$durant uns   minuts.
            Elna   has   in-saddle.ed the   horse   in/for   some minutes

On the contrary, in the case of location verbs, (a)telicity does not depend on the root type. Both i-quantifiable and non-i-quantifiable location verbs induce a telic interpretation of the event. The boundedness of the root therefore does not affect the boundedness of the event:

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(29)   *Telicity of location verbs*

    a. En Jan ha   en-terrat   el   tresor   en/$^{\#}$durant cinc minuts.

       Jan   has   in-earth.ed the   treasure in/for   five minutes

    b. En Jan ha   en-vinagrat els   cogombres en/$^{\#}$durant cinc minuts.

       Jan   has   in-vinegar.ed the   cucumbers in/for   five minutes

    c. En Jan ha   em-paquetat el   material in/*durant cinc minuts.

       Jan   has   in-pack.ed   the   material in/for   five minutes

The telic interpretation of location verbs can also be shown by the entailments obtained in the progressive test (Vendler 1967): the present perfect of a location verb is not entailed by a progressive form of that verb.

(30)   *Progressive test on location verbs*

    a. En Jan està embotellant l'aigua. ¬→ En Jan   ha   embotellat l'aigua.

      Jan is   bottling   the=water   Jan   has   in-bottled the=water

    b. En Jan està en-capsant el(s) llibre(s). ¬→ En Jan   ha   en-capsat.

      Jan   is   in-boxing the   books'   Jan   has   in-box.ed

      el(s)   llibre(s).

      the   books'

    c. En Jan   està envinagrant el(s) cogombre(s). ¬→ En Jan ha

      Jan   is   in-vinegar.ing the cucumbers   Jan   has

      envinagrat   el(s) cogombre(s).

      in-vinegar.ed   the   cucumbers

    In conclusion, locatum verbs can raise telic or atelic interpretations, while location verbs can only raise telic interpretations. While in location verbs this ambiguity is orthogonal to i-quantification, in locatum verbs it is intimately related to it. The question that remains is then: why in location verbs does the root not affect the aspectual interpretation of the predicate?

5   An analysis of locative verbs

In this section we propose an analysis of locatum and location verbs which aims at accounting for their aspectual and quantificational properties. We propose that location and locatum verbs are grammatically different: although they share the same configurational properties (they embed a prepositional-like structure), they differ in the type of preposition they embed.

Let us first deal with the analysis of location verbs. As has been shown in section 4, location verbs are telic irrespectively of the kind of root they contain (contra Harley 2005):

(31)   *Telicity of location verbs embedding bounded and unbounded roots*

    a. L'Elna   ha   em-botellat   l'aigua   en un minut.
       Elna   has   in-bottle.ed   the=water   in a   minut

    b. L'Elna   ha   en-terrat   els   bulbs   en cinc   minuts.
       Elna   has   in-earth.ed   the   bulbs   in five   minut

Moreover, mass-denoting location verbs admit a variety of i-quantification, namely, the quantification over the set of vectors conveyed by the abstract preposition they embed.

(32)   *I-quantification in location verbs*

    a. L' Elna   ha   en-terrat   massa   els   bulbs.
       Elna   has   in-earth.ed   too_much   the   bulbs

    b. *L' Elna   ha   en-capsat   massa   els   llibres.
        Elna   has   in-box.ed   too_much   the   books

Crucially, the degree quantifier *massa* does not quantify over the amount of earth involved in the predicate, but over the type of ground-location denoted by it. Therefore, we propose that location verbs involve a type of locative preposition akin to INSIDE, which also precludes atelicity but which allows for measure phrases when combined with certain DPs. We find a parallelism between the expressions containing an *inside*

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preposition and location verbs. Thus, the preposition *inside* in the example below cannot be modified by a durative adverbial under the single event reading, only the result state interpretation is possible. The interpretation of (33) is a telic event interpretation irrespective of the semantic properties of the reference object, the ground.

(33)   *Sue put the nail inside the wall/box for three minutes.

Crucially, measure-phrase modification of *inside* is only possible when the reference object denotes an unbounded location, as in the locative case:

(34)   Sue put the nail ten centimetres inside the wall/*box.

Our claim therefore endorses a localist view of aspect whereby events are modelled on the basis of spatial relations. By our assumptions a predicate of change of location contains a preposition associated with a biphasic scale. Two-point scales denote transitions of bounded change of location. Following standard assumptions about paths, we assume that paths (Jackendoff 1990, Svenonius 2010, among others) are complex and are formed by the combination of a dynamic preposition (Path) and a locative one (Place). We propose that the locative preposition establishes the end-point of the scale, rendering the scale associated with the path bounded. A temptative analysis is sketched in (35).

(35)   Enterrar els bulbs.
        'To bury the bulbs.'
        [$_{vP}$ v [$_{PathP}$ Path [$_{PlaceP}$ [$_{DP}$ els bulbs][$_{Place'}$ Place √TERRA]]]]

Crucially, the preposition in location verbs is similar to English *inside*, which, as said, is a non-projective preposition which only allows modification if the reference object is not bounded. This explains why location verbs allow a certain type of i-quantification when they embed an unbounded root, namely a quantification over the set of vectors that the PP defines (Zwarts and Winter 2000).

As for locatum verbs, we claim that they behave in a way similar to degree achievements (DAs) (*darken*, *lengthen*, *cool*, etc.). Hay, Kennedy & Levin (1999) propose an analysis of DAs as lexically unambiguous: their erratic telic/atelic character being derived from how the degree of change implicit in the semantics of the verb is construed: as either atelic or telic. These verbs simply provide an unbounded scale whose end-point must be determined by contextual reasons. The end-point of the scale can also be provided by the conceptual content of the adjective.

Locatum verbs have a semantics similar to that of degree achievements. As DAs, they have two interpretations, a telic one and an atelic one. The availability of the telic reading depends on the fact whether the root may be construed as a bounded entity, as happens with degree achievements (Kennedy and McNally 2005). Both types of verbs involve a preposition which do not codify telicity or are associated to a bounded scale. In the case of locatum verbs we propose, in particular, that this preposition is of partitive nature, akin to *of*:

(36)   Envinagrar l'amanida.
        'To put vinegar in the salad.'
        $[_{vP}$ v $[_{OFP}$ $[_{DP}$ l'amanida]$[_{OF'}$ OF √VINAGRE]]]

The preposition in locatum verbs is crucially not a locative preposition. This explains why only locatum verbs allow the type of i-quantification which is attested with unergative verbs (Harley 2005). The abstract partitive preposition allows the degree quantifier to scope directly over the root, as happens in the nominal domain:

(37)   *Quantificational effects with partitive and locative prepositions*
        a. molt   de vinagre: *Quantification over quantity*
           a_lot   of vinegar
        b. molt   endins   de la   paret: *Quantification over the location*
           a_lot   inside   of the   wall

With respect to the aspectual properties of locatum verbs, we claim that the partitive preposition involved in these predicates is atelic, that is, *non-telic*. Degree achievements also involve a structure which is non-telic by itself. This explains why both types of predicate are telic or atelic depending on contextual factors. Thus, a locatum verb like *minar* can be compatible with both readings, a telic one by which we interpret that the field has ended up being completely mined, or an atelic one where no concrete amount of mines are implied and the scale associated with the change is unbounded:

(38) Els soldats minaren el   camp en/durant una hora.
      The soldiers mine.ed the   field in/for   one   hour

Importantly, in this work we are not making any claim about the relationship between the preposition that locative verbs contain and the prefix that these verbs so often show in Romance. Thus, we don't find a correspondence between prefixed verbs and the location/locatum distinction, and there are many unprefixed locative verbs (*cf.* Fr. *fleurir* 'to cover with flowers', Cat. *salar* 'to salt', Sp. *minar* 'to mine'). Moreover, the distribution of *a-* and *en-* prefixes is orthogonal to the locatum/locative distinction. Both location and locatum verbs can feature the prefix *a-* (*cf.* Cat. locatum *abalisar* 'to put buoys on', Sp. locative *acorralar* 'to put on a corral'), and the prefix *en-* (*cf.* Cat. locatum *emmantegar* 'to put butter on', Sp. location *enmarcar* 'to frame'). [1]

An important consequence can be drawn from the preceding discussion. Telicity may arise from different sources. There is a structural/configurational type of telicity and a non-configurational semantic type of telicity. The conceptual semantics of the root affects the aspectual properties of the predicate if and only if the predicate is not structurally telic. Under this approach we can predict which groups of verbs will be (a)telic according to the semantics of the root they embed and which ones will be always telic irrespective of the root content. In the latter case, coercion will not be possible, in accordance with Borer's (2005) insight that structural meaning cannot be coerced, but the semantic interpretation of non-structural items, roots in our proposal, can be adapted/coerced to fit into the semantics of the structure they combine with.

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[1] For more discussion see Di Sciullo (1997), Gràcia *et al*. (2000) or Acedo-Matellán (2006).

6 Conclusions

This work has provided arguments in favour of a non-uniform analysis of locative verbs. Thus, we have claim that under the label of locative verbs we find two verbal classes, location and locatum verbs, that have different syntactic and semantic properties.

Location verbs are always telic predicates irrespectively of the (un)boundedness of the embedded root. On the contrary, the aspectual interpretation of locatum verbs depends on whether the embedded root is construed as a bounded or an unbounded entity. This empirical finding has provided arguments to distinguish (at least) two different sources for telicity: one configurational and one that arises from conceptual semantics considerations. Our claim thus weakens Harley's (2005) generalization that aspect in denominal verbs is affected by the (un)boundedness of the root. In our approach this is true only if telicity is not structural, supporting the distinction endorsed by Borer (2005) or Mateu (2002), among many others, between configurational semantics and encyclopaedic/conceptual semantics.

We have also shown that location and locatum verbs behave differently with respect to i-quantification. While locatum verbs admit i-quantification taking scope over the root, location verbs only allow a type of i-quantification which is understood as modifying an embedded location.

The class of locative verbs is not a homogenous syntactic (or semantic, under a structural sense) class of predicates. Instead, we propose that there are two types of predicates, location verbs that are punctual change of location predicates and locatum verbs that involve a non-telic preposition of partitive semantics. As with degree achievements, the aspectual interpretation of locatum predicates depends on contextual factors, since the structure of these predicates is not specified for telicity.

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