



French Locatum verbs and incorporation

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Received 31 July 2006; received in revised form 15 April 2007; accepted 10 October 2007

Abstract

This paper examines various aspects of the French Oblique Locatum Construction in the perspective of incorporation accounts of the verbal root on one side and of the Locatum on the other. We first argue that, while the verbal root may restrict the oblique Locatum, a fact compatible with an incorporation analysis of that root into V from an argument-like position, it also often describes the mode of occupation of the Location, in which case such an analysis doesn't seem to be appropriate. Second, we argue against a semantic incorporation analysis of the oblique Locatum in its nonspecific reading. Among other things, we show that a strongly quantified DP realizing the oblique Locatum always has narrowest scope (the frozen scope effect), just like the parallel weakly quantified oblique complement, a fact which indicates that the generalized narrow scope of the oblique Locatum is independent of possible incorporation.

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Keywords: Denominal verb; Locatum; Bare NP; Semantic incorporation; Closure; Weak indefinite; Narrow scope; Frozen scope

1. Introduction: two candidates for incorporation

The following example contains two candidates for an incorporation analysis:

- (1) Jean a [**chargé**_N]_V le camion de **briques**.
'Jean loaded the truck with bricks.'

The first candidate is the nominal root *charge* 'load' of the denominal verb, analysed by Hale and Keyser (1993) in terms of movement of an N from a complement position which it saturates.

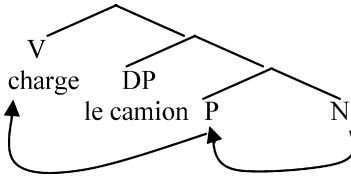
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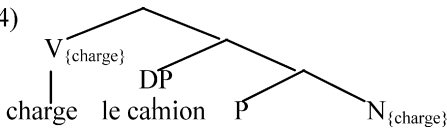


While Haugen (this volume) argues that an incorporation approach can be maintained, Hale and Keyser (2002), in part due to the doubling of the incorporated root by an overt hyponymous complement, as in (3), revert to a more traditional view appealing to selectional restriction features: the verb is inserted directly in the V position and “bears a selectional relation to the nominal object of its prepositional complement” (Hale and Keyser, 2002:96), a relation expressed by means of braced indices.

- (3) a. He **shelved** the books **on the windowsill**.
 b. He **saddled** old Gotch **with his new Schowalter**.

Thus, example (1) would have the representation in (4) (details omitted):

(4)



With the addition of a little ‘v’ and a DP subject, the structure in (4) translates into the complex event structure in (5) where an Agent *x* causes an affected argument *z* to come to be occupied by a Locatum *y*, the verbal root restricting the third argument (Kiparsky, 1997; Labelle, 1992, 2000):

- (5) $[[X \text{ CAUSE } [Z \text{ BE-WITH } y]] \ \& \ \text{LOAD}(y)]^1$

This view may be schematized as in (6), a representation similar in some respects to the result of the Restrict mode of composition of Chung and Ladusaw (2004:5) for incorporated nouns and some weak indefinites, with the difference that in (6) *V* is not a lexical item but a variable over a complex event.

- (6) $\lambda y \lambda z \lambda x [V(x,z,y) \ \& \ \text{LOAD}(y)]^2$

If the nominal root is incorporated in this sense, the incorporation must take place in I-syntax (Hale and Keyser, 1993) or in the lexicon proper (Carlson, 2005), as it results in a unitary concept.

The second candidate for incorporation is the oblique Locatum complement in *de* ‘with’, analysed by Martin (2005, 2006) as semantically incorporated by the verb when it is a bare NP, following Van Geenhoven’s (1998) analysis of noun incorporation. In this perspective, after incorporating the *de*-complement, the semantic representation of the verbal predicate would be as in (7):

- (7) $\lambda z \lambda x \exists y [\text{LOAD}(x,z,y) \ \& \ \text{BRICKS}(y)]$

¹ By convention, we use the variable *z* for the Location and *y* for the Locatum everywhere.

² Event variables are omitted throughout.

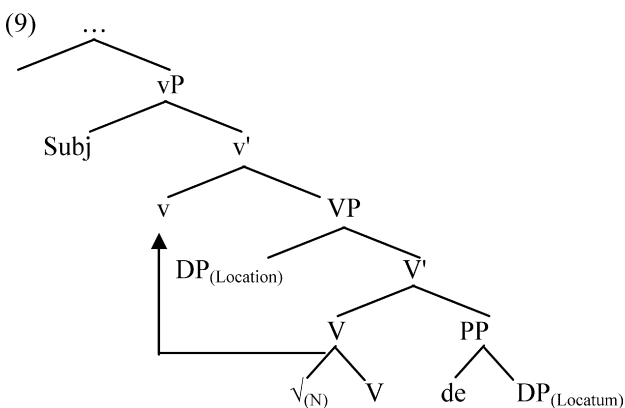
This approach is very attractive, as it brings out the semantic parallelism between expressions like the French *couvert de neige* ‘covered with snow’, and complex predicates like *Schneebedeckt* in German or *snow-covered* in English (Martin, 2005:example (6)).

Although this is not discussed by Martin, we can very well imagine that lexical incorporation (of the nominal root of the verb) and phrasal semantic incorporation co-exist, the verbal root lexically restricting the third argument, and the bare NP further restricting the same argument via semantic incorporation.

$$(8) \quad \lambda z \lambda x \exists y \ [[V(x,z,y) \ \& \ \text{LOAD}(y)] \ \& \ \text{BRICKS}(y)]$$

In this paper, we examine both the contribution of the verbal root and that of the *de*-complement in the construction in (1), and we argue against incorporation in both cases.

We assume that the structure of the construction under discussion is as in (9).



The construction conveys an interpretation of holistic affectedness of a Location by a Locatum, and the verbal root describes the mode or manner of occupation of the Location by the Locatum. In this construction, the verb describes an event “affecting” the direct object, the Location. The preposition *de* introduces a Locatum situated with respect to the direct object, and the object of this preposition is a DP, which we will argue is not semantically incorporated.³ The verbal root (\surd), which could be nominal or not, is directly merged with a V affix, rather than being incorporated from a complement position. While in some cases the verbal root may be analysed as restricting the denotation of the Locatum, we argue that this is far from being the general case.

We first set the stage by distinguishing two types of complements introducing a displaced entity. Then we discuss the contribution of the verb. We show that while in some cases, the verb may be seen as restricting the third argument, in many cases, the verbal root expresses how a Locatum is situated with respect to a Location, e.g. it may specify the mode of occupation of the Location by the Locatum. The relation between the Location and the Locatum is thus mediated by the verb.

³ As discussed in Hirschbühler and Mchombo (2006), V in (9) has selectional properties similar to those associated with an applicative affix in languages that license the construction via such an affix (German, Russian, some verb classes of Chichewa). In such languages, the applicative affix takes the Locatum as complement and the Location as specifier. (See also Tsedryk, 2006.)

Then, we turn to the nature of the *de* complement, and the way it composes with the verb. We defend the view that even when there is no overt determiner, the complement of *de* is a DP rather than a bare NP, at least in some cases, and that it is not semantically incorporated. We show that the well-known frozen scope of the Locatum is not a consequence of semantic incorporation.

2. Two types of ‘with’ complements: *de* vs. *avec*

As (10) shows, two distinct prepositions may introduce the phrase introduced by *with* in English.

- (10) a. Jean a chargé le camion *de* briques.
 b. Jean a chargé le camion *avec des* briques.
 ‘Jean loaded the truck with bricks.’

In this section, we show that the syntactic and semantic roles of these two phrases are distinct. *De* introduces an argument, a complement, while *avec* heads a means adjunct.⁴ Hence only the *de* complement is a candidate for incorporation, assuming Van Geenhoven’s (1998) approach to incorporation.

The argumental status of the *de*-phrase is consistent with the fact that it is often obligatory or near obligatory. In such cases, *avec* is not a possible alternative, something expected if it introduces an adjunct.

- (11) a. Luc a chargé Max d’une mission.
 b. *Luc a chargé Max (avec une mission). (* in the sense of (11a))
 ‘Luc put Max in charge of a mission.’
- (12) a. Luc a criblé le mur de balles.
 b. ?*Luc a criblé le mur (avec des balles).
 ‘Luc riddled (lit. sift-ed) the wall with bullets.’
- (13) a. Luc a imprégné l’éponge d’encre.
 b. *Luc a imprégné l’éponge (avec de l’encre).
 ‘Luc impregnated (soaked) the sponge with ink.’

In addition, as opposed to *avec*, the *de*-complement cannot appear after a VP substitute:

- (14) a. *Luc a chargé le camion de briques alors que je voulais qu’il le fasse de gravier.
 b. Luc a chargé le camion avec des briques alors que je voulais qu’il le fasse avec du gravier.
 ‘Luc loaded the truck with bricks even though I wanted him to do it with gravel.’

Moreover, *avec* requires an agentive subject, as expected if it is a adjunct of means, since these depend on the presence of an Agent. In contrast, *de* may appear with a variety of subjects, an Agent (15a), a Cause (15b), or no external argument in the unaccusative (15c).

⁴ This distinction correlates with the observation made by a reviewer that placing the oblique phrase before the direct object is more natural in (10a) than in (10b).

- (15) a. Pierre a rempli la baignoire d'eau/avec de l'eau.
'Peter filled the bathtub with water.'
b. L'orage a rempli la baignoire d'eau/*avec de l'eau.
'The storm filled the bathtub with water.'
c. La baignoire s'est remplie d'eau/*avec de l'eau.
'The bathtub filled with water.'

We are therefore not surprised that *de* and *avec* cooccur in a number of cases.

- (16) a. Gorgier un enfant **de sucre** avec des bonbons à la menthe.
'To gorge a kid with sugar with mint candies.'
b. Enrichir/rehausser une sauce **d'arômes subtils** avec des épices orientales.
'To enrich/enhance a sauce with subtle aromas with oriental spices.'

From these examples, we see that the verb describes the way the direct object is affected, the *de* complement introduces the entity affecting the direct object, typically by coming to occupy it, and the complement in *avec* expresses the means used to attain the desired result: sugar fills the kid (up to the throat), and the candies are the means to get sugar in the kid; aromas enrich the sauce, and the spices are the means to add aroma. Thus, the *de* complement corresponds to a Locatum argument, *y* in (17), and the *avec* complement to a Means (*w*).

- (17) [X CAUSE [Z BE-WITH y]] & MEANS(w)⁵

We conclude that only *de* complements are candidates for semantic incorporation.

The difference between *de* and *avec* sets the stage for discussing the contribution of the verb to the construction. We postpone to section 4 the discussion of the possible incorporation of the *de* complement.

3. The verb and incorporation

In (18), it is natural to analyse the verbal root as incorporating a nominal meaning that restricts the denotation of the Locatum.

- (18) Jean a fleuri la tombe de roses.
'Jean "flower-ed" the grave with roses.'

This is not always the case. Consider the verb *truffer* 'truffle+V'. The interpretation 'cause to contain truffles', 'put truffles in' is found in the absence of an oblique complement (19a). In this case, the N *truffe* associated with the verbal root restricts an implicit Locatum, as in (19c). The same interpretation arises with an *avec*-complement (19b), as expected if it is an adjunct.

- (19) a. Luc a truffé l'omelette.
'Luc "truffled" the omelet.' ('put truffles in')

⁵ "Z BE-WITH y" is equivalent to "Z HAS y" (Hale and Keyser, 1990; Labelle, 1992, 2000; Kiparsky, 1997). Thus, as pointed out by a reviewer, (20) below contains the secondary predication *L'omelette a des truffes blanches* 'The omelette has white truffles in it'.

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- b. Luc a truffé l’omelette avec des truffes blanches.
‘Luc “truffled” the omelet with white truffes.’
- c. $\lambda y \lambda z \lambda x [V(x,z,y) \& \text{TRUFFE}(y)] (\dots \& \text{white_truffle}(w))$

However, when the verb composes with a *de* complement, an interpretation of “extensive” occupation arises: (20) conveys that the omelet is holistically occupied by (bits of white) truffes.

- (20) Luc a truffé l’omelette de truffes blanches.
‘Luc “truffled” the omelet with white truffes.’

Hence the *de* complement contributes to defining the type of situation denoted by the verb phrase, something not observed with *avec*. The contrast between *truffer avec* and *truffer de* is enhanced when the oblique complement denotes something distinct from truffes, for example shrimps.

- (21) a. *Luc a truffé l’omelette avec des crevettes.
- b. Luc a truffé l’omelette de crevettes.
‘Luc “truffled” the omelet with shrimps.’

Example (21a) states that Luc put truffes in the omelet using shrimps, a contradiction. The interpretation of (21b) is that the omelet is filled with shrimps disseminated in it the way truffes would be. Here, the verbal root provides, not a restriction on the third argument, but a mode of occupation retrieved from our encyclopaedic knowledge of how truffes are used. A very schematic representation of this is given in (22), adopting Levin and Rappaport Hovav’s (2003) notation to express the modifier type meaning contributed by verbal roots.

- (22) $\lambda y \lambda z \lambda x [V_{\langle \text{MODE/MANNER} : \text{TRUFFLES} \rangle} (x,z,y)]$

Obviously much more needs to be said to capture the semantics of the example, whose interpretation will be roughly $[x \text{ CAUSE } [z \text{ HAVE-IN } \langle \text{MANNER} : \text{TRUFFLES} \rangle y]]$. The particular locative relation existing between the Location and the Locatum depends on the verb (e.g. HAVE-IN; HAVE-ON, as with *fleurir* ‘flower’; HAVE-AROUND, as with *entourer* ‘surround’) (see Kiparsky, 1997).

Hence, the figurative interpretation of *scattering y into z* is available with *de*, but not with *avec*. This follows if the construction in *de* conveys the meaning of holistic affectedness of the Location by the Locatum, the verb providing the mode of occupation.

- (23) a. *Luc a truffé son récit (avec des anecdotes scabreuses).
- b. Luc a truffé son récit d’anecdotes scabreuses.
‘Luc ‘truffled’ (=riddled) his story with saucy anecdotes.’
- (24) a. *Luc a truffé le terrain (avec des mines antipersonnelles).
- b. Luc a truffé le terrain de mines antipersonnelles.
‘Luc scattered the field with anti-personal mines.’

One may want to take the fact that *truffer de* has a figurative meaning as supporting the position of Kiparsky (1997) and Arad (2003) that, in this case, the verbal root is not a noun but a non-categorized root common to the verb and the noun; as our argumentation does not hinge on this, we will not discuss this issue further here.

The fact that, in the construction under discussion, the verb may describe the mode of occupation of the Location by the Locatum is very general, and is clearly seen with *remplir* ‘fill’ (which is not a denominal and doesn’t restrict the denotation of the Locatum), as well as with verbs like *cribler* ‘riddle’, *zébrer* ‘stripe like a zebra’, *quadriller* ‘make a grid pattern’, and many others.

- (25) a. Luc a criblé le mur de balles.
‘Luc riddled the wall with bullets.’
b. Les pouvoirs publics devraient quadriller la ville de pistes cyclables...
(www.gio.gov.tw/info/nation/fr/fcr97/2004/12/12-44.html, August 2, 2006)
‘The authorities should criss-cross the city with bicycle paths...’
c. Le lion avait zébré le dos du buffle de profondes blessures.
‘The lion striped the back of the buffalo with deep wounds.’

As insightfully shown by Martin (2005, 2006), such verbs describe the final appearance of the direct object as a result of the way the Locatum in *de* is distributed on it or, more generally, is situated with respect to it.

As shown in (26)–(27), the contribution of the verb is not limited to mode of occupation, it may also convey a manner of action or simply the specific act leading to the result. Here also it is with *de* that the figurative meaning surfaces. In its literal meaning (26a), *bombarder* ‘to bomb’/‘to bombard’ accepts a complement in *avec* denoting the means. The complement in *de* in (26b) leads to an interpretation where leaflets fall on the city like bombs in a bombardment, an adverbial-type meaning; *avec* would be odd. Similarly, in the figurative sense of ‘bombard with questions’ (27), *de* is natural, but *avec* is excluded.⁶

- (26) a. Les avions ont bombardé la ville (**avec** des bombes incendiaires).
‘The planes bombed/bombarded the city with incendiary bombs.’
b. Les Américains ont bombardé les Vietnamiens **de** feuillets de propagande.
‘The Americans bombarded the Vietnamese with political leaflets.’
(27) a. *Les journalistes ont bombardé Chomsky (**avec** des questions).
‘The journalist bombed/bombarded Chomsky with questions.’
b. Les journalistes ont bombardé Chomsky **de** questions.
‘The journalist bombarded Chomsky with questions.’

We conclude that while in some cases, the verbal root incorporates a nominal meaning restricting the denotation of the Locatum argument, something which may be schematized as in (28), in others it conveys an adverbial meaning providing the mode of occupation by the Locatum or simply the manner of action, as expressed in (29). The combination of nominal and adverbial meanings is excluded by Kiparsky, 1997’s *Lexicalization constraint*.

⁶ An interesting example is (i) (from Table 37M1 of the LADL (<http://ladl.univ-mlv.fr/>)), where the verbal root *fusil* (riffle) does not classify the complement ‘questions’ (assimilated to bullets).

(i) Les journalistes ont fusillé Paul de questions.
‘The reporters “riffled” (i.e. shot) Paul with questions.’

Such examples are particularly amenable to a (neo-) constructionist approach to the semantics of the construction, where the construction provides the occupation relation between *Paul* and *questions* (he is covered/saturated with questions) and the verb gives, metaphorically here, the type of act that led to that relation.

(28) $\lambda y \lambda z \lambda x [V(x,z,y) \ \& \ P(y)]$

(29) $\lambda y \lambda z \lambda x [V_{\langle \text{MODE/MANNER} \rangle} (x,z,y)]$

As a result, the verbal root in (29) doesn't function as a restrictor on the Locatum argument, and it cannot plausibly be derived via incorporation from an argumental-like position. As, in all other respects, there is no substantial difference between the two types of oblique Locatum verbs, we consider that if indeed the verbal root is in a particular grammatical relation with the oblique Locatum, it is more a selectional type restriction relation than one to be expressed in terms of movement/conflation, further supporting Hale and Keyser's (2002) conclusion.⁷

Before leaving this section, let us make one final point regarding the contribution of the *de* complement. We saw with *truffer* that the *de* argument contributes to defining the event type denoted by the VP. Similarly, in (30a), we have a 'cause-to-be-full-of-milk' or 'cause-milk-to-fill-cup' event (there is only milk in the cup), while in (30b) we have a 'cause-to-be-full' event, with milk as a means (milk may have been added to coffee).

- (30) a. Luc a rempli la tasse **de** lait.
 b. Luc a rempli la tasse **avec du** lait.
 'Luc filled his cup with milk.'

This may appear natural if the complement of *de* is semantically incorporated as a co-predicate, or predicate modifier, of the verb, as in the semantic incorporation account described in (7). However, the reading arising from the presence of the *de*-complement is more generally to be attributed to a construction in which a Location in direct object position comes to be occupied by a Locatum expressed as a third argument of the predicate rather than as a predicate modifier. Indeed, the contrast between *de* and *avec* is the same when the Locatum is a quantified DP, which is not a candidate for semantic incorporation (31), and the interpretation found with *de* is also present when the Locatum is a subject (32)–(33). There is only milk in the cup in (32) and the figurative interpretation of *truffer* is found in (33).

- (31) Luc a rempli le camion **de/avec** toutes les boîtes qui restaient.
 'Luc filled the truck with all the boxes that remained.'
- (32) Du lait remplissait la tasse.
 'Milk filled the cup.'
- (33) Des anecdotes scabreuses truffaient son récit. (cf. (23b))
 'Saucy anecdotes filled his story.'

⁷ We believe that a thorough semantic analysis of denominal verbs would show that the semantic contribution of the verb is generally distinct from the simple selectional restriction type relation envisioned by Hale and Keyser. Consider for example *Max a entreposé les marchandises dans un couloir* ('Max warehoused (stored) the merchandise in a corridor'). Labelle (1992, 2000) argues that "the N incorporated in the verb provides a functional description of the final location of the displaced entity", not a location per se. The prepositional object is the sole element that introduces a location in the representation; it does not further specify a location introduced by the verb. What the example really conveys can best be expressed by *Max a mis les marchandises en entreposage dans le couloir* 'Max put the merchandise in storage in the corridor' (this example sounds unacceptable to one of the reviewers; a Google search yields similar examples, but the expression appears to be more common in Canada than in France). Here, the verbal root expresses some type of state of the direct object, in a way parallel to what is found in *Jean amasse des livres dans un coin* 'Jean heaps/piles (up) books in a corner', where the verbal root informs us of the final configuration assumed by the books, and the prepositional object tells us where the books are (Labelle, 1992, 2000). Developing this perspective goes beyond the goal of the present paper.

To summarize what has been said up to now, the *de* complement is an argument of the verb, and contributes to the definition of the event. When there is such a complement, the verbal root often contributes an adverbial-like reading allowing a figurative interpretation of the verb. In that case, the verbal root neither restricts nor saturates an argument position. In the remainder of this paper, we discuss the possible semantic incorporation of the *de* complement.

4. On the semantic incorporation of the *de* complement

Martin (2005, 2006) argues that the apparently bare NP complement of *de*, which for simplicity we will refer to as ‘the bare NP’, is semantically incorporated by the verb and functions as a predicate of the Locatum argument variable. This approach, which follows Van Geenhoven (1998), type-shifts the verb to allow it to compose with a property-denoting complement (see also McNally, 1998; Dobrovie-Sorin and Beyssade, 2004). For example, *beurrer* ‘butter’ in (34) would have the incorporating lexical entry in (35). When *margarine* combines with the verb, it provides the value for the predicate variable P:

- (34) La tartine est beurrée **de margarine** (par Pierre).
‘The toast is buttered with margarine (by Pierre).’ (Martin, 2006:example (41))⁸

- (35) $BEURRER_{\text{incorp}}: \lambda P \lambda z \lambda x \exists y [BEURRER(x, z, y) \wedge P(y)]$

The *de*-complement doesn’t introduce a variable in logical form, nor does it introduce a discourse referent; it is the verb that introduces existential quantification over the third argument. In addition, all relevant verbs potentially have two lexical entries, an incorporating one, and a non-incorporating one. For example, (36) would be the non-incorporating lexical entry of *beurrer*, that would be used for an example like (37) (Martin, 2006:example (42)).

- (36) $BEURRER_{\text{non-incorp}}: \lambda y \lambda z \lambda x [BEURRER(x, z, y)]$

- (37) La tartine est beurrée de toute la margarine (par Pierre).⁹
‘The toast is buttered with all the margarine (by Pierre).’

The choice between the two variants would be imposed by the nature of the complement of *de*, incorporating when the NP is bare and non-incorporating when it is quantified.

As observed by many authors, type-shifting the verb to resolve the mismatch between its semantic type and that of the weak indefinite leads to a multiplication of lexical entries (Chung and Ladusaw, 2004; Farkas and de Swart, 2003; de Swart, 2001). This is particularly unsatisfactory when more than one argument position are filled by a weak indefinite. As an alternative, Chung and Ladusaw (2004) define a special mode of composition, Restrict, that avoids type-shifting the verb.

⁸ A reviewer does not accept this example. We agree that the verbal passive interpretation, when *par Pierre* is included, is difficult. However, active examples are very common in Canada and are also found in France:

(i) Réchauffer le pain pita . . . , le creuser et le beurrer de tarama puis garnir du mélange de crudités.
warm up the pita bread . . . , hollow it and butter it with tarama, then garnish with the mix of raw vegetables
(http://www.cuisinart.fr/fr/recettes3.php?id_recette=264).

(ii) . . . si t[']es prête à . . . te beurrer de creme hydratante . . .
if you are ready to butter yourself with moisturizing cream; (scrapadings.ixene.net).

⁹ A reviewer does not accept Martin’s example, even with *beurré* replaced by *artiné*. We accept the example when *par Pierre* is omitted, but do not find it natural. An example which is perfect for us is *La tartine était beurrée de tout ce qui restait de la margarine* ‘The piece of bread was buttered with all of what was left of the margarine’.

In the same spirit, Farkas and de Swart (2003), working within the DRT framework, argue that it is necessary to distinguish two modes of composition, one for true incorporated nominals (via Unification), and one for ordinary indefinites and definite DP's (via Instantiation).

More importantly, de Swart (2001) shows that, while existentially closing an argument variable in the lexical entry of the verb may work for upward entailing weak indefinites, it doesn't account for downward entailing and non-monotone ones.

- (38) a. Jean a chargé le camion de briques. (increasing)
 b. Jean a chargé le camion d'au moins/d'au plus/d'exactly 3000 briques.
 (increasing/decreasing/non-monotone)
 'John loaded the truck with at least/at most/exactly 3000 bricks.'

To solve the problem, she defines distinct rules of closure for each type of weak indefinite.

- (39) a. monotone increasing (a fish, fish, three fish):
 $\exists C: \lambda x^{\vee} Q(x)(P_{\min}) \sim >_{\exists C} \exists x(\vee Q(x) \wedge \vee P(x))$
 b. monotone decreasing (at most three fish, no fish, few fish) :
 $\forall C: \lambda x^{\vee} Q(x)(P_{\max}) \sim >_{\forall C} \forall x(\vee Q(x) \rightarrow \vee P(x))$
 c. non-monotone (exactly ten fish) :
 $\exists! C: \lambda x^{\vee} Q(x)(P_n) \sim >_{\exists! C} \exists \gamma(\vee Q(\gamma) \wedge \vee P(\gamma) \wedge \forall \gamma'(\vee Q(\gamma') \wedge \vee CN(\gamma')) \rightarrow \gamma' \sqsubseteq \gamma)$

This type of approach, which allows the various weak indefinites to compose correctly with the verb without multiplying lexical entries, as the monotonicity of the indefinite determines the particular rule of closure used, is preferable, and it eliminates the need for semantic incorporation.

We will show in the following sections that there are further empirical arguments that cast doubts on the incorporation approach.

5. The categorial nature of the *de*-complement

In (40), the constituent following *de* is not preceded by a determiner; this type of complement is considered a bare NP by Martin, and subject to semantic incorporation. This is not the case in (41), where it can be seen that the complement of *de* may be introduced by a definite determiner, a strong or a weak quantifier.

- (40) Jean a chargé le camion **de grosses briques**.
 'John loaded the truck with larges bricks.'
- (41) a. Luc a décoré son mur **de ses propres/deux aquarelles**.
 'Luc decorated his wall with his own/two watercolours.'
 b. Les soldats ont truffé le terrain **de toutes les mines antipersonnelles restantes**.
 'The soldiers strew the ground with all the anti-personal mines left.'

How is the absence of an overt determiner in (40) to be analyzed? One way is to consider with Martin that the constituent is a bare NP; an alternative is to consider that it contains a null determiner, in conformity with the traditional 'rule of cacophony' dating back to Port-Royal. This rule deletes or bans the overt realization of the indefinite determiners *du/de_la/des* when preceded by the preposition *de*. It would presumably have its source in the common origin of that preposition and the *de* that is part of the indefinite determiners *du/de_la/des* (*du* and *de_la*

introduce mass nouns; *des* is a plural indefinite, the plural counterpart of *un* in the determiner paradigm of French count nouns¹⁰).

Observe that the bare NP approach evades the question of why it is precisely after *de* that *du/de_la/des* are excluded, given that *de* also introduces full DPs. In particular, *un/une* is allowed after *de*, while *des* is excluded.

- (42) Jean a voté **pour** une femme/**pour** des mafiosis.
'Jean voted for a woman/for mafiosis.'
- (43) Jean a parlé **d'**une femme/**de** (*des) mafiosis.
'Jean talked about a woman/about mafiosis.'

The cacophony rule also leads us to expect the contrast between (44a), where *des* introduces the plural direct object, and (44b), where *des* cannot introduce the object of the corresponding noun.

- (44) a. Acheter un cheval/**des** chevaux.
'To buy a horse/horses.'
- b. L'achat **d'**un cheval/**de** (***des**) chevaux.
'The buying of a horse/of horses.'

Finally, if bare NPs were freely accepted after *de*, one would expect a singular atomic bare NP to be possible, contrary to fact. While singular mass nouns follow *de*, singular atomic nouns are excluded.

- (45) Jacques a chargé le camion ***de container/d'un container/de sable**.
'Jacques loaded the truck with container/with a container/with sand.'

The exclusion of a singular atomic NP after *de* (as opposed to a DP with determiner *un*) is unexpected within the incorporation approach, given Farkas and de Swart's (2003:117) generalization that 'if a language allows plurals to incorporate, it will allow singulars as well'.

These facts show that we cannot dispense with the cacophony rule: *du/de_la/des* are excluded after *de*. Here, two different avenues may be considered. The first would impose the use of a bare NP in the offending context (avoiding the D level); the second would project a DP but avoid spelling out the D features or impose the selection of a null determiner. There are reasons to prefer the second avenue, at least in some cases.

One of these cases is the fact that the complement of *de* may have a specific reading and wide scope with respect to an intensional operator, whether there is an overt indefinite determiner or not. Sentence (46), where the *de*-complement is a Source, may be interpreted as saying that there are (specific) European countries from which Pierre wants to import drugs.

- (46) Pierre veut importer de la drogue **de pays européens/ d'un pays européen**.
'Pierre want to import drugs from European countries /from a European country.'

The specific interpretation is also observed in the construction examined here.

¹⁰ See de Swart's (2005) detailed discussion of some of the similarities and differences between *des* and *un*.

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- (47) a. Dali veut décorer la façade **d'œuvres/d'une œuvre** de sa création.
 'Dali wants to decorate the façade with works/with a work of art that he made.'
 b. François doit charger deux étudiants **de tâches difficiles/d'une tâche difficile**.
 'François must "entrust" two students with difficult jobs/with a difficult job.'

Under the wide scope reading of the *de*-complement, there are specific works of art that Dali wants to use, and there are specific tasks that are asked of the students. In being compatible with a specific reading, the determinerless constituent following *de* behaves like a DP introduced by *des*, as in (48), for example. In contrast, bare plurals in English always have narrowest scope.

- (48) Pierre veut réciter des poèmes censurés.
 'Pierre wants to recite (some) banned poems.'

Whether the specific reading depends on determiners introducing discourse referents (Farkas and de Swart, 2003:30), or whether it is obtained via a Choice function restricted to DP's (Chung and Ladusaw, 2004:154, note 9), we are led to the conclusion that, in the relevant cases, the constituent following *de* is a DP.

Moreover, we see in (49), that the *de*-complement may be the antecedent of *d'autres/les autres*.

- (49) On a rempli cette salle de patients ; d'autres/les autres attendent à l'extérieur.
 'We filled this room with patients ; others/the others are waiting outside.'

Dobrovie-Sorin and Beysade (2004:chapter 2) argue that the phrases in *du/de_la/des* in argument position in French are the almost exact counterpart of Spanish and English bare plurals, and that they have a property-type denotation, with the exception for some uses of *des*, which they claim are marked in that they have a partitive contrastive use. In this usage, *des NP* may provide the antecedent of *d'autres/les autres* '(the) others' and has a quantificational DP denotation. (Their example (41b)).

- (50) *Des enfants* tambourinaient sur leurs tables, tandis que *d'autres* criaient à tue-tête.
 'Some children were drumming on their tables, while others were shouting at the top of their voice.'

Coming back to (49), the fact that the complement of *de* may be the antecedent of *d'autres* similarly indicates that it is headed by a null determiner introducing a discourse referent. There is however no intuitive sense in which the DP in question is interpreted as contrastive or partitive, and no evidence that it is marked in any way. (Similarly for *des* in (48).)

While we do not make the strongest claim that the complement of *de* is uniformly a DP rather than a bare NP, we feel that the above examples are best analyzed as containing a null indefinite determiner equivalent to *des* and raise the possibility that the *de*-complement is always a DP.

6. Anaphora and implicit arguments

Martin (2005, 2006) adduces the examples in (51) as evidence that there is a lexical entry of the verb with an existential quantifier binding the Locatum variable.

- (51) a. Le toast qui est beurré_i est très chaud, alors, ça_i/#il_i fond. [le beurre_i]
 'The toast which is buttered_i is very hot, then it_i melts.' [the butter_i]
 b. Jean a beurré le toast ; ça_i/#il_i a fondu. [le beurre]

The idea is that anaphora is possible because, in the absence of a *de*-complement, the incorporating variant of the verb (existentially quantifying over the *y* argument) is selected. (The nature of *P* – here, that it is a butterfly substance – is supplied by the verb). The pronoun must be neuter (*ça*) because its antecedent is not nominal.

Notice, however, that anaphora with *ça* is found in cases where appeal to incorporation is not plausible.

- (52) a. Jean est allé chez McDonald's ; *ça* lui est resté sur l'estomac. [la nourriture]
'Jean went to McDonald's; it stayed on his stomach.' [the food]
b. Le ciel était couvert ; *ça* allait nous tomber dessus. [la pluie]¹¹
'The sky is covered; it was going to fall on us.' [the rain]

What is denoted by *ça* in these examples doesn't find a linguistic antecedent in the preceding clause. In (52a), the food is recovered because we know that McDonald's serves food. In (52b) we infer that what covers the sky is *clouds*. This may be made explicit by adding *de nuages* 'with clouds' to the first sentence. The incorporation analysis would predict existential quantification over *clouds*, but *ça* refers to a distinct entity, the rain. This type of use of *ça* is best resolved by inference, and there is no reason to think that it is different in (51). Moreover, (51) is extremely marginal, and certainly not as good as the perfectly natural (52a–b), which suggests that the availability of *ça* is strongly discourse dependent. We conclude that (51) does not provide evidence for incorporating lexical entries of verbs existentially quantifying over a Locatum argument.

7. Scope

In (53), the scope of the *de* complement is narrower than that of the direct object, i.e. the Locatum doesn't distribute over the direct object, even though both complements are weak indefinites.

- (53) a. Dans le magasin, Luc avait drapé un mannequin *de drapeaux*. 1 > (des); *(des) > 1
'Luc draped a mannequin with flags.'
b. Luc a bardé une caille *de trois tranches de lard*. 1 > 3/ *3 > 1
'Luc barded a quail with three slices of bacon.'
c. Luc a saupoudré deux plats *de trois épices*. 2 > 3; *3 > 2
'Luc sprinkled two dishes with three spices.'

To account for (53), the semantic incorporation approach would have to stipulate in the lexical entry that the existential quantifier associated with the Locatum *y* occupies the most internal position.

¹¹ A reviewer does not accept this example, claiming that *ça* with weather verbs must be anchored to T⁰. We have no problem with the example and similar ones are attested:

- (i) On guettait le moment où *ça* allait nous tomber dessus, ...
'We were looking for the moment when it was going to fall (=rain) on us.'
(http://www.eclecticspace.net/index2.php?rub=kayak&ssrub=loire_2001/samedi18.)
(ii) Ben ici on a rangé car on pensais[sic] que *ça* allait nous tomber dessus, mais *ça* a tenu bon.
'Well, we put everything away because we thought that it was going to fall (=rain) on us, but it (=the weather) held.'
([http://www.rc-tech.ch/forum/lofi/version/index.php/t440-1100.html.](http://www.rc-tech.ch/forum/lofi/version/index.php/t440-1100.html))

De Swart's approach correctly yields narrow scope for the *de*-complement without stipulation, as the oblique Locatum is composed with the verb before the direct object. For example, the composition of the two internal arguments using her rules would result in (54), with *z*, the Location, scoping over *y*:

$$(54) \quad \lambda x \exists z \exists y (\forall Q(x, z, y) \wedge \forall P(y) \wedge \forall R(z))$$

In addition, a *de* complement containing a strong quantifier, and therefore not a candidate for incorporation, also has narrow scope with respect to the direct object.¹²

- (55) a. Luc avait drapé un mannequin *de chaque drapeau français* qu'il possédait. 1 > chq; *chq > 1
 'Luc draped a mannequin with each French flag he owned.'
 b. Luc a bardé une caille *de chaque tranche de lard*. 1 > chq
 Luc barded a quail with each slice of bacon.
 c. Luc a saupoudré deux plats *de chaque épice*. 2 > chq; *chq > 2
 'Luc sprinkled two dishes with each spice.'

The narrow scope interpretation of the strongly quantified oblique Locatum in (55) cannot result from semantic incorporation, which applies only to weak indefinites. In consequence narrowest scope of a weak indefinite oblique Locatum cannot be used as evidence in favor of semantic incorporation. We conclude that the narrow scope of the oblique Locatum is a property of the construction.

The fact that the scope of the Locatum is 'frozen' under that of the Location in the Oblique Locatum Construction has been much discussed, along with the frozen scope in the Double Object Construction.

- (56) a. Maud draped a (different) sheet over every armchair. every > a
 b. Maud draped a (#different) armchair *with every sheet*. *every > a
 (Bruening, 2001:example (4))
- (57) a. I gave a child each doll. a > each, *each > a
 b. I gave a doll to each child. (Bruening, 2001:example (2)) a > each, each > a

There are currently two types of accounts of frozen scope, some syntactically oriented, others semantically oriented. Adopting a syntactic approach, Bruening (2001) accounts for the scope facts by assuming that: (a) quantifiers are attracted to the specifier of *v* due to a feature associated with this head; and (b) the Oblique Locatum Construction is a (high) Applicative structure where the Location argument asymmetrically c-commands the Locatum, as in (58), with V1 the Applicative head. Because each instance of Attract must obey Shortest, the oblique Locatum will have lower scope than the Location, as depicted in (58).^{13,14}

¹² Similarly, the oblique Locatum has narrow scope w.r.t. negation whether quantified or not.

¹³ Contrary to previous literature, Bruening claims that the oblique Locatum can take scope over the subject ('A (different) teacher gave me every book'/'A (different) armchair was draped with each sheet'), a judgment which we have not been able to reproduce for French.

¹⁴ Tsedryk (2006) shows that the results of Bruening can be achieved with a structure involving a low applicative; the analysis can be extended to the structure postulated in (9).

(58) $[_{VP} [_{VP} [_{VP} \text{Subject} [v^{[P]} [_{VP1} [Q1 \text{Location}] V1 [_{VP2} \text{draped} [\text{with} [Q2 \text{Locatum}]]]]]]]]]$

Consider now (59), where the Locatum is a strongly quantified DP and the direct object a weak quantifier.

(59) Luc veut saupoudrer deux plats *de chaque épice*. 2 > chq ; *chq > 2
 ‘Luc wants to sprinke two dishes with each spice.’

Frozen scope holds here, whether the Location is interpreted as specific or non-specific. Bruening’s approach accounts for (59), but it involves QR of the weak indefinite direct object, even in its non-specific reading. If non-specific weak indefinites are not subject to QR, as in the incorporation analysis or in de Swart’s approach, where closure of weak indefinites occurs at the level of VP, it is unclear how to prevent wide scope of the strongly quantified Locatum over the weak indefinite Location direct object. A way to maintain Bruening’s type of approach would be to make weak indefinites available for QR by type-shifting them from type $\langle e, t \rangle$ to a generalized quantifier type denotation (a possibility that de Swart, 2001:80 mentions but decides to stay away from for methodological and theoretical reasons).

Another approach to frozen scope is the semantic account offered by Nakanishi (2001). Taking into account cases of frozen scope in Japanese *Indirect Object–Direct Object* constructions (the equivalent of the English *Double Object Construction*) where QR cannot be operative, Nakanishi (2001) attributes the effect to the specificity of the indefinite indirect object, interpreted with the help of a Choice function. Such an approach would account for the specific interpretation of the direct object in (59), but not for the non-specific interpretation of this object. This indicates that appeal to a Choice function is not general enough to account for the fact that the oblique Locatum never distributes over the Location, and that an independent constraint, perhaps a structural constraint of the type discussed by Bruening, is required.

We may add that, in (60)–(61) the complement of *de* may be specific and the direct object, again non-specific. Example (60) would be acceptable in a context where there are two specific lines of the Coran that Saddam must copy over and over again on a sheet of paper until it is full. Any sheet of paper will do, but the lines of the Coran are specific. Similarly, for (61).

(60) Comme punition, Saddam doit remplir une feuille de cahier *de (deux) versets du Coran*.
 ‘As punishment, Saddam must fill a sheet of paper with (two) verses of the Coran.’

(61) L’architecte veut absolument orner une salle de cet édifice *d’œuvres déprimantes*.
 ‘The architect absolutely wants to decorate one room of this building with some depressing artwork.’

Descriptively, the *de* complement appears to be interpreted higher than the modal, but, crucially, it does not distribute over the direct object (there is only one sheet of paper/one room), indicating that it has lower scope than this object. The facts find a natural interpretation if the specific Locatum in (60)–(61) is interpreted with the help of a Choice function, which leaves the Locatum *in situ* and under the scope of the Location as far as distributive properties are concerned. Again, this type of interpretation of the *de* complement is incompatible with an incorporation analysis, as far as we can see.

It may turn out that the scope facts we are considering are related to the fact that the Oblique Locatum Construction and the Double Object Construction are particular species of “possession”-related constructions, given that the same scope restrictions are present with verbs like *contenir*

‘contain’ and *posséder* ‘own’, where the Location is a subject and the Locatum a direct object, as shown in (62), which contrasts with (63), where the functions of the arguments are reversed.

- (62) a. Une boîte **contenait** trois chaussures /chaque chaussure. $1 > 3/\text{chq} ; *3/\text{chq} > 1$
 ‘A box contained three shoes/each shoe’.
 b. Un étudiant **possède** chaque livre. $1 > \text{chq} ; * \text{chq} > 1$
- (63) Une chaussure **occupait** chaque boîte. $*1 > \text{chq} ; \text{chq} > 1$
 ‘A shoe occupied each box’.

It is not clear how a syntactic approach appealing to Shortest would account for the above contrast. (The excluded reading of (63), but not that of (62), might be explained by pragmatics.)

To conclude, it should be clear that the scope facts do not provide an argument in favor of semantic incorporation of the apparent bare NP Locatum in the Oblique Locatum Construction. Regarding frozen scope, Bruening’s type of approach would appear to account for the facts if weak indefinites can be type-shifted from type $\langle e, t \rangle$ to a generalized quantifier type denotation, making them subject to QR. Syntactic restrictions on QR would ensure that the oblique Locatum has frozen scope with respect to the direct object. But the matter is complex, as indicated by contrasts such as in (62) vs. (63) and we will leave it for further research.

8. Conclusion

Incorporation is a multi-faceted phenomenon. The Oblique Locatum Construction allowed us to consider two facets of the question. Regarding the verb, we argued that while the verbal root may in some cases be interpreted as restricting a Locatum variable in a manner similar to what is found in noun incorporation, often, the verb expresses the mode/manner of occupation of the Location. In this case at least, a syntactic-like incorporation account is not appropriate.

As for the *de*-complement, we argued that the semantic incorporation account, though attractive, faces various problems, and there are reasons to prefer an analysis that composes the argument with the verb in a manner that takes into account the type of the constituent introduced by *de*, without multiplying lexical entries, perhaps along the lines of *de Swart (2001)*. In the course of the discussion, we have seen that the frozen scope of the *de* complement with respect to the direct object is general, both when this complement is a weak indefinite, and when it is a strongly quantified DP. Consequently, the narrow scope of the weakly quantified complement of *de* cannot be attributed independently to its $\langle e, t \rangle$ type, and to incorporation.

Acknowledgements

This work has benefited from SSHRC grants #410-2004-1870 to Paul Hirschbühler (Alternance locative et structure événementielle: approche interlinguistique et diachronique) and #412-2004-1002 to France Martineau (Modéliser le changement: les voies du français, Major Collaborative Research Initiative). We would like to thank an anonymous reviewer and M. Teresa Espinal for detailed and constructive comments. All remaining errors are ours.

References

- Arad, M., 2003. Locality constraints on the interpretation of roots: the case of Hebrew denominal verbs. *Natural Language and Linguistic Theory* 21, 737–778.

- Bruening, B., 2001. QR obeys superiority: frozen scope and ACD. *Linguistic Inquiry* 32, 233–273.
- Carlson, G., 2005. When morphology ... disappears. In: Orgun, C., Sells, P. (Eds.), *Morphology and the Web of Grammar. Essays in Memory of Steven G. Lapointe*. CSLI Publications, Stanford, CA, pp. 241–263.
- Chung, S., Ladusaw, W., 2004. *Restriction and Saturation*. MIT Press, Cambridge, MA.
- de Swart, H., 2001. Weak readings of indefinites: type shifting and closure. *The Linguistic Review* 18, 69–96.
- de Swart, H., 2005. *Aspectual Implications of the Semantics of Plural Indefinites*. Ms., Utrecht University, Utrecht, The Netherlands.
- Dobrovie-Sorin, C., Beyssade, C., 2004. *Définir les indéfinis*. CNRS Éditions, Paris.
- Farkas, D.F., de Swart, H., 2003. *The Semantics of Incorporation: From Argument Structure to Discourse Transparency*. University of Chicago Press, Chicago.
- Hale, K., Keyser, S.J., 1990. On some syntactic rules in the lexicon. *Lexicon Project Working Papers*. Center for Cognitive Science, MIT, Cambridge, MA.
- Hale, K., Keyser, S.J., 1993. On argument structure and the lexical expression of syntactic relations. In: Hale, K., Keyser, S.J. (Eds.), *The View from Building 20: Essays in Linguistics in Honour of Sylvain Bromberger*. MIT Press, Cambridge, MA, pp. 53–109.
- Hale, K., Keyser, S.J., 2002. *Prolegomenon to a Theory of Argument Structure*. MIT Press, Cambridge, MA.
- Haugen, J.D., this volume. *Hyponymous Objects and Late Insertion*.
- Hirschbühler, P., Mchombo, S., 2006. The Location Object Construction in Romance and Bantu: Applicatives or Not? Poster Presented at The Bantu-Romance Connection: An ESF Exploratory Workshop, Department of Linguistics and Phonetics, University of Leeds, May 26–27, 2006.
- Kiparsky, P., 1997. Remarks on denominal verbs. In: Alsina, A., Bresnan, J., Sells, P. (Eds.), *Complex Predicates*. CSLI Publications, Stanford, CA, pp. 473–499.
- Labelle, M., 1992. La structure argumentale des verbes locatifs à base nominale. *Linguisticae Investigationes* 16, 267–315.
- Labelle, M., 2000. The semantic representation of denominal verbs. In: Coopmans, P., Everaert, M., Grimshaw, J. (Eds.), *Lexical Specification and Insertion*. John Benjamins, Amsterdam, pp. 215–240.
- Levin, B., Rappaport Hovav, M., 2003. Roots and templates in the representation of verb meaning. Handout, Department of Linguistics, Stanford University, Stanford, CA, May 15, 2003 (<http://www.stanford.edu/~bclevin/su03.pdf>).
- Martin, F., 2005. Genitives of substance and locative verbs in French. In: Kim, J.-Y., Partee, B., Lander, Y.A. (Eds.), *Possessives and Beyond: Semantics and Syntax*. UMOP 29. GLSA Publications, Amherst, MA, pp. 411–426.
- Martin, F., 2006. De-N nus indéfinis prédictatifs et prédicats incorporants. In: Corblin, F., Ferrando, S., Kupferman, L. (Eds.), *Indéfinis et Prédications*. Presses Universitaires de Paris, Sorbonne, Paris, pp. 521–534.
- McNally, L., 1998. Existential sentences without existential quantification. *Linguistics and Philosophy* 31, 353–392.
- Nakanishi, K., 2001. Indefinites and frozen scope in Japanese: Restriction on QR and choice functions. In: Megerdorian, K., Bar-el, L.A. (Eds.), *WCCFL 20 Proceedings*. Cascadilla Press, Somerville, MA, pp. 456–469.
- Tsedryk, Egor., 2006. *Alternances ditransitives: Une étude de la symétrie en syntaxe*. Ph.D. thesis, University of Western Ontario.
- Van Geenhoven, V., 1998. *Semantic Incorporation and Indefinite Descriptions: Semantic and Syntactic Aspects of Noun Incorporation in West Greenlandic*. CSLI Publications, Stanford, CA.