

# Fewer adjuncts: more relatives\*

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## 1 Introduction

Substantially agreeing with Hornstein (2009: 81), “it is fair to say that what adjuncts are and how they function grammatically is not well understood”. I refer the reader to, e.g., Hornstein 2009: chapter 4, Hornstein & Nunes 2008, Hunter 2010 or most recently Hunter 2015 for a catalog of properties and problems adjuncts raise in general, and in particular for all previous proposals including the one in terms of *set merge vs pair merge* explored in Chomsky 2000 (hardly compatible, as noted in Hornstein 2009: p. 81 with the Bare Phrase Structure assumptions defended in Chomsky 1995). These authors, with whose criticisms of previous proposals I agree, defend their own proposals, which try to deal with the properties adjuncts display while maintaining parsimonious assumptions about syntactic theory.

In this short note, I will simply put forth a different proposal, without discussion of these authors’s proposals. In a nutshell, the general, programmatic, idea is this:<sup>1</sup>

(1) There are no adjuncts, there is no adjunction.

Here I will only examine only phrasal PP adjuncts. In principle, this includes manner, location and temporals PPs, etc., as well as adjunct clauses introducing subordinating conjunctions.<sup>2</sup> The central ideas behind how the guideline (1) is implemented are the following:

(2) Adjunction involves a form of relativization.

(3) Relativization does not involve adjunction.

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\* To Kyle, un *compagnon de route*, in more ways than one.

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<sup>1</sup> A similar idea was presented at the LSRL 24 conference (cf. Sportiche 1994). It was also presented at Cornell University in 1993. Thanks to these audiences for their comments.

<sup>2</sup> I leave aside various kinds of adverbs, some of which can be treated the same way (e.g., predicative adverbs such as manner adverbials), while others (e.g., quantificational adverbs) require a different treatment, compatible I believe with the program in (1).

## 2 Fewer adjuncts

### 2.1 Introduction

Consider a phrase such as *in the barn* in (4). It denotes a property, that of being in the barn, holding of some entity.

- (4) a. I want this cow in the barn.  
 b. John was [<sub>VP</sub> [<sub>VP</sub> sleeping] [<sub>PP</sub> in the barn]]

In (4a), this entity is this cow. Underlyingly *this cow* is the subject of a small clause headed by *in*. Syntactically this is a subject predicate relation. Semantically, *this cow* locally saturates the predicate *in*, a simple case of Functional Application. Typically, the syntax of such a phrase is treated differently in a sentence like (4b). In (4b), it is treated as an adjunct, as shown, a PP underlyingly forming a VP constituent with a VP (sometimes a PP constituent forming a V' with a V'). As semantic counterpart, it is an unsaturated predicate composing with the predicate *sleeping* to yield (via Predicate Modification) a complex predicate *sleeping in the barn* holding of *John*.

Nothing a priori requires such a treatment (as noted in Heim & Kratzer 1998: 68). I would like to suggest that both of these cases should be treated in the same way. If they are, *in the barn* in (4b) has a subject with which it underlyingly forms a constituent. The next section provide an argument that it should.

### 2.2 Adjunct PPs have subjects

The argument is based on the fact that preposed PPs behave like preposed VPs or APs: they must totally reconstruct. An explanation of this observation can be constructed if all these constituents have a local subject (the Huang/Takano explanation).

#### 2.2.1 VPs or APs reconstruction

I will rely here on the discussion of predicate preposing found in Sportiche 2017a, sections 4.2.3, 5.3.2 and 5.3.3, the (fairly uncontroversial) conclusion of which I will adopt here. The basic observation is that predicate preposing, unlike argument preposing, does not increase the set of possible antecedents for a pied-pied anaphor. Thus a contrast is reported between the two sentences in (5) but not in (6):

- (5) a. They think that you like [these pictures of Bill / \*each other].  
 b. [These pictures of Bill / ✓each other], they think that you like *t*.

Fewer adjuncts

- (6) a. They think that you will [visit Bill / \*each other].  
b. [Visit Bill / \*each other], they think that you will *t*.

To better control further data I will illustrate this contrast in French, with the anaphor *son propre*, ‘its own’, in its inanimate version, which is strictly subject to Condition A of the Binding Theory (see [Charnavel & Sportiche 2016](#)). In (7a), this anaphor is too far from its antecedent (the local antecedent would be fine). DP Preposing via Clitic Left Dislocation, as in (7b) overcomes this distance.<sup>3</sup>

- (7) a. \*Le champ magnétique<sub>m</sub> empêche les électrons d’augmenter la  
the field magnetic<sub>m</sub> prevents the electrons from raising the  
valeur de sa<sub>m</sub> propre intensité.  
value of its<sub>m</sub> own intensity  
‘The magnetic field<sub>m</sub> prevents the electrons from raising the value of  
its<sub>m</sub> own intensity.’  
b. [La valeur de sa<sub>m</sub> propre/ intensité]<sub>k</sub>, le champ magnétique<sub>m</sub>  
[The value of its<sub>m</sub> own intensity]<sub>k</sub>, the field magnetic<sub>m</sub>  
empêche les électrons de l’<sub>k</sub>augmenter.  
prevents the electrons from it<sub>m</sub> raising  
‘The value of its<sub>m</sub> own intensity, the magnetic field<sub>m</sub> prevents the elec-  
trons from raising.’

Clitic Left Dislocating an AP however, does not help:

- (8) a. \*Les fluctuations du champ magnétique<sub>m</sub> empêchent celles du  
the fluctuations of the field magnetic<sub>m</sub> prevent those of the  
champ électrique d’être égales à leurs<sub>m</sub> propre valeurs  
field electric from being equal to their<sub>m</sub> own values  
maximales.  
maximal  
‘The fluctuations of the magnetic field<sub>m</sub> prevent those of the electric  
field to be equal to their<sub>m</sub> own maximal values.’

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<sup>3</sup> Clitic Left Dislocation is movement from the embedded clause; see [Angelopoulos & Sportiche 2016](#). This allows reconstruction of the preposed phrase to some intermediate, high enough position to satisfy Condition A.

- b. \*[Égales à leurs<sub>m</sub> propre valeurs maximales]<sub>k</sub>, les fluctuations du  
 [Equal to their<sub>m</sub> own values maximal], the fluctuations of the  
 champ magnétique<sub>m</sub> empêchent celles du champ électrique de  
 field magnetic<sub>m</sub> prevent those of the field electric from  
 l'être.  
 it being  
 'Equal to their<sub>m</sub> own maximal values, the fluctuations of the magnetic  
 field<sub>m</sub> prevent those of the electric field from being'

The main treatment of this asymmetry is due to Heycock (1995) who argues that preposed predicates must always reconstruct for scope reasons. Granting that predicates must always reconstruct, for scope reasons, the question is why. If somehow, the semantic properties of predicates precluded them from being interpreted with wide scope, we would have such an explanation, but there do not seem to be reasons why failure to reconstruct a predicate should lead to semantic ill-formedness. Thus, a priori, there is nothing wrong with an example representation of the meaning of (9a) as (9b) with wide scope of the predicate:

- (9) a. Sleep, John will. (Or John will sleep).  
 b. There is a property P of sleeping, will (P (John)).

The Huang-Takano proposal answers the question why as follows:

- i. Subjects are generated predicate internally (Koopman & Sportiche 1991).
  - ii. Predicate preposing a constituent without its subject moves a constituent containing the trace subject of this predicate (Huang 1993).
  - iii. A trace must be semantically bound by its antecedent (see, e.g., Fox 2003 for how this is done in terms of Trace Conversion).
  - iv. There being a moved subject trace in preposed predicates, this binding requires total reconstruction of the moved predicate phrase to get this subject trace bound (Takano 1995). The LF of (10b) must be (10a), deriving the star in (6b), or (10a) and (10b):
  - v. As a result, while (6a) and (6b) behave alike at LF, (5a) and (5b) (lacking such an internal trace) need not.
- (10) a. \*They<sub>k</sub> think that John<sub>m</sub> will [<sub>t<sub>m</sub></sub> visit each other<sub>k</sub>]  
 b. [<sub>t<sub>m</sub></sub> Visit each other<sub>k</sub>]<sub>p</sub>, they<sub>k</sub> think that John<sub>m</sub> will <sub>t<sub>p</sub></sub>

Fewer adjuncts

## 2.2.2 Adjunct PP reconstruction

Adjunct PP preposing behaves like predicate preposing: Clitic left dislocating the adjunct locative PP does not increase the anaphor binding options. Thus (11b) behaves like (6b) or (10b). Again, controlling for potential confounds by using French inanimate anaphors, consider:<sup>4</sup>

- (11) a. \*Le courant électrique<sub>m</sub> force les réactions chimiques à  
The current electric forces the reactions chemical to  
ralentir dans son<sub>m</sub> propre champ magnétique.  
slow down in its own field magnetic  
'The electric current forces the chemical reactions to slow down in its  
magnetic field.'
- b. \*[Dans son<sub>m</sub> propre champ magnétique]<sub>k</sub>, le courant électrique<sub>m</sub>  
[In its own field magnetic], the current electric  
force les réactions chimiques d'y<sub>k</sub> ralentir.  
forces the reactions chemical to there slow down  
'In its magnetic field, the electric current forces the chemical reactions  
to slow down.'
- c. [<sub>t<sub>sub</sub></sub> [in its own magnetic field]], the electric current allows the chem-  
ical reactions to slow down *t*.

This is not surprising: A PP lacking a subject is a predicate and must totally reconstruct. Granting the Huang/Takano explanation of this fact, this means that the structure of (11b) must be as in (11c), where the PP contains a trace of its subject *t<sub>sub</sub>*, where the subject is not *the chemical reactions*. In other words, PP adjuncts are in fact small clauses. This conclusion raises a number of questions we now turn to.<sup>5</sup>

## 3 More relatives

The conclusions of the previous sections raise the following questions, which we address in turn.

- i. What is the subject SUB of the adjunct PP in (4b)?
- ii. What are the properties of PP adjuncts captured by the standard syntax given them?

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<sup>4</sup> An electric current in a wire creates a magnetic field around it.

<sup>5</sup> To assess the same facts in English, compare: (i) *The electric currents<sub>m</sub> forced [the chemical reactions<sub>k</sub> to slow down near each other<sub>k,\*m</sub>]*, and (ii) *[Near each other<sub>k,\*m</sub>]<sub>p</sub>, the electric currents<sub>m</sub> forced [the chemical reactions<sub>k</sub> to slow down *t<sub>p</sub>]*.*

- iii. What is the structure of the sentence (4b)?
- iv. How does this structure explain the properties of (some) phrasal adjuncts in these structures?

### 3.1 The subject of a PP adjunct

Under the standard syntax of PP adjuncts, a PP adjunct syntactically combines with a VP to form a VP. The semantic counterpart of this analysis is the rule of Predicate Modification (Heim & Kratzer 1998, section 4.3). Thus in:

(12) John was [<sub>VP</sub> [<sub>VP</sub> sleeping] [<sub>PP</sub> in the barn]].

*sleep* and *in the barn* combine to form a complex predicate holding of *John*. In other words (because this adjunct is an intersective modifier), the meaning is that John was sleeping and John was in the barn: The subject of the PP is understood to be *John*. But consider:

(13) A cow is missing in the barn

This does not mean that a cow is missing and is in the barn. Alternatively, total reconstruction of *a cow* inside the scope of the verb *miss*, a conceivable and plausible option, congruent with *miss* being unaccusative, would leave the VP without a subject, hence the PP unsaturated. So this is not viable either.

Rather, (13) means that the barn is missing a cow or to put it more closely to the surface syntax, a “missing” is occurring in the barn, which is a missing of a cow. I will take this to mean that the subject is the expression denoting the missing (of a cow). More concretely, I will take it that the underlying VP [<sub>VP</sub> *a cow miss*] denotes the definite or indefinite “event” “the missing of a cow” or the indefinite “event” “a missing of a cow”. I will also take it that this VP is the subject of the PP *in the barn*.

(14) [<sub>PP</sub> [<sub>VP</sub> *a cow miss*] [<sub>in</sub> [<sub>the barn</sub>]]]

In particular, no argument of the verb need meet the locative property denoted by the adjunct. Only the event denoted by the VP does.

### 3.2 Properties of adjuncts

The standard syntax of PP adjuncts as in (15) is meant to encode and allow a number of properties these adjuncts have.

(15) a. [<sub>XP</sub> [<sub>XP</sub> [<sub>XP</sub> [<sub>XP</sub> ... X<sup>0</sup> ...] adjunct] adjunct] adjunct]

Fewer adjuncts

- b. [VP [VP [VP [VP ... [V<sup>0</sup> sleep] ...] [like a log]] [in the barn] [in the afternoon]]
  - c. [NP [NP [NP [NP ... [N<sup>0</sup> student] ...] [in a red shirt]] [with long hair]] [from Namibia]]
- (16)
- a. Adjunction conserves the identity of the adjunction site: Adjunction to an  $X^n$  ( $n$  perhaps limited to max) returns (or perhaps more precisely can return) an  $n$  level projection, of the same category  $X$  with the same (token) head as  $X^n$ .
  - b. Adjuncts to an  $X^n$  are (or can be) selected by  $X^0$  (as in, e.g., duration PP adjuncts only compatible with non telic predicates).
  - c. Adjunction is optional.<sup>6</sup>
  - d. (Some but not all) adjuncts (unlike arguments) can be unboundedly iterated (e.g., the *with* phrase in (15c) (the lack of iterability very possibly due to semantic incoherence rather than selectional constraints).

The main effect of the first property is that, an XP, seen from the outside of this XP, behaves like an XP whether or not this XP has adjuncts or not. Thus, assuming (a harmless oversimplification) that syntactically, T selects a VP, T will see this VP whether or not the VP is modified. Taking into account these properties as well as the conclusion of Section 3.1, we reach a seeming contradiction. For the sentence (4b), we simultaneously want the two structures:

- (17)
- a. [VP [VP sleep] [PP in the barn]]
  - b. [PP [VP sleep] [in [the barn]]]

### 3.3 The structure of adjunction

To solve this contradiction, it suffices to merge the two structures by allowing the VP to occur twice, once as subject of the PP and one outside of it:<sup>7</sup>

- (18) [VP [VP<sub>k</sub><sup>1</sup> sleep] [PP [VP<sub>k</sub><sup>2</sup> sleep] [in the barn]]]

But what kind of structure is this? It is the syntactic structure created by the device that allows a constituent—here the PP—to be seen from its outside as one of its

<sup>6</sup> This does not mean that the property type of the adjunct is optional. Thus sleeping does take place at some time or in some place, e.g., regardless of the presence of a temporal or locative adjunct. This suggests that an event introduces time and place variables existentially closed without restriction (other than pragmatic domain restriction). Adjuncts provide explicit restrictions.

<sup>7</sup> Throughout, I will represent these relative structures as “externally” headed (by which I do **not** mean not derived by promotion), although nothing here precludes treating some of them as internally headed.

subconstituents — here the VP subject of PP. This device is of course relativization, the syntactic counterpart of a semantic operation shifting the type of a constituent to one of its subconstituents. In the standard case of a relative clause, a relative clause is seen from the outside as one of the NPs it contains. Accordingly the structure in (18) involves VP relativization with  $VP_k^2$  controlled by or trace of  $VP_k^1$ , and thus silent.

It should be clear that adjunction as relativization can derive all the properties listed in (16):

- i. Adjunction conserves the identity of the adjunction site because a relative clause headed by an XP behaves like that XP.
- ii. Selection is of the VP, hence of the V by the prepositional head of the PP adjunct.
- iii. A VP, e.g., can appear as a bare complement of T or as the head of a VP relative, optionally, hence the optionality of adjuncts.
- iv. Iterability comes from the fact that relative clauses can be stacked. Thus, the derivation of (19a) involves the stacking derivational steps in (19b) and (19c) as in Kayne 1994, much as in (19d):

- (19)
- a. [sleep in the barn in the afternoon]
  - b. [sleep<sub>m</sub> [*t<sub>m</sub>* in the barn]]
  - c. [[sleep<sub>m</sub> [*t<sub>m</sub>* in the barn]]<sub>k</sub> [*t<sub>k</sub>* [in the afternoon]]]
  - d. [[man<sub>m</sub> [you saw *t<sub>m</sub>*]]<sub>k</sub> [that I knew *t<sub>k</sub>*]]

The type of relative clause involved is what is sometimes called a reduced relative as the italicized strings in:

- (20)
- a. The *people arrived at the station* are ready.
  - b. I met a *man happy to sing*.
  - c. Here is a *student from Namibia*.
  - d. *A sleeping in the barn*.

DP relativization and what it can pied pipe (DPs, PPs, or even VPs as in Italian) or degree relativization (aka comparatives) which pied pipes DPs, are in principle unbounded. Relativization in reduced relatives is strictly bounded and limited to the relativization of the highest subject (or highest argument) of the relative constituent, a general fact that remains unexplained.



Fewer adjuncts

#### 4 Relatives

We reanalyzed (some) adjunction structures in terms of relativization. But if relatives are themselves adjunction structures, we have not eliminated adjunction structures. Whether they are depends on how relatives are structurally analyzed. There are two classes of a priori viable analyses.

In promotion analyses of relative clauses (RC), the peripheral head of the RC originates inside the RC. It is clear that promotion analyses do not need adjunction; rather, they need double movement, first of a *wh*-DP to the periphery of the RC, followed by subextraction of the head NP of this DP further up (see, e.g., [Kayne 1994](#), [Bianchi 1999](#), or [de Vries 2002](#)). These movements take place all within a constituent, e.g., a CP, complement of a D:

$$(21) \quad D [_{CP} [NP_m \dots [D t_m]_k [\dots t_k \dots ]]]$$

In matching analyses of RCs on the other hand, the external head of the relative is first merged outside of the RC with the RC adjoined to it in one way or another. If adjunction is to be eliminated, matching should not be available. This is what I argue in [Sportiche 2017b](#) to which I refer the reader.<sup>8</sup>

#### 5 Concluding remarks

The approach presented here exemplified by structures such as (18) syntactically encodes rather transparently one aspect of Davidsonian event semantics, namely that the locative PP is predicated of the event denoted by the VP. This approach is outlined rather than explored in depth and thus leaves open many questions. One such question is that of adjunct order and hierarchy: adjunct PPs typically display a neutral order (e.g. in a sentence with broad focus responding of a general out of the blue question of the type *So what's new?*). Following [Cinque \(1999\)](#), we take this to reflect the fact that different adjuncts are predicated of different constituents in far more finely articulated structures. This extends to adjunct clauses, e.g. *because* or *since* introduced clauses, see [Charnavel to appear](#).

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<sup>8</sup> Rules of interpretation should of course be provided for these non adjunction structures. A revised version of Predicate Modification could be used, but it is also possible to devise rules relying only on Functional Application, I think.

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Fewer adjuncts

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