Lexical and grammatical meaning: attributive adjectives in French

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Summary This paper gives an LFG+Glue analysis of the relationship between syntactic position and meaning with respect to adjectives in French. We explore the balance between lexically- and grammatically-contributed meaning, and suggest that the two attributive positions for adjectives in French, pre- and post-nominal, differ in this regard: the more semantically complex pre-nominal position is associated with an absence of grammatically contributed meaning, giving rise to a variety of lexically-specified kinds of meaning not associated with the predicative uses of adjectives (specifically, in our examples, expressive and non-restrictive meanings). The post-nominal position, by contrast, is associated with a meaning constructor that gives rise to simple intersective meanings. We discuss two apparent exceptions, and show how these can be accommodated.

The basic analysis The canonical position for attributive adjectives in French is post-nominal. Almost all adjectives that can be used predicatively can also appear post-nominally with their predicative meaning, e.g.

(1) a. Le ballon est rouge.
    the ball is red
    'The ball is red.'

  b. Le ballon rouge est lourd.
    the ball red is heavy
    'The red ball is heavy.'

A number of adjectives can appear both post- and pre-nominally, although the latter involves a change in meaning:

(2) a. La Bible est sacrée.
    the Bible is sacred
    'The Bible is sacred.'

  b. La Bible sacrée est lue pendant la messe.
    the bible sacred is read during the mass
    'The sacred Bible is read during mass.'

  c. La sacrée Bible est si difficile à lire!
    the EXPRESSIVE Bible is so difficult to read
    'The bloody Bible is so difficult to read!'

(3) a. Le président est ancien.
    the president is old
    'The president is old/ancient.'

  b. Le président ancien boit son whisky.
    the president old drinks his whisky
    'The old (= aged) president drinks his whisky.'

  c. L' ancien président boit son whisky.
    the old president drinks his whisky
    'The old (= former) president drinks his whisky.'

Examples (2a)–(2b) show the normal, literal meaning of *sacré(e)*, 'sacred', whereas when it is used pre-nominally, as in (2c), it has instead an expressive meaning, along the lines discussed by Potts (2005). Example (3b) shows that post-nominal *ancien* has the same meaning as predicative *ancien* in (3a), that is, 'old (in age)'. However, when it is used pre-nominally, it has the non-intersective meaning 'former'. Traditional grammarians of French (e.g. Milner 1978; Jones 1996) have thus remarked that while the post-nominal position is associated with literal, predicative meanings, the pre-nominal position is associated with non-restrictive meanings: those which do not restrict the denotation of the head noun.

Predicative adjectives are usually assumed to have the simple $\langle e, t \rangle$ type of properties.[1] However, when they are used attributively they require a higher type, since instead of being predicated of the subject, they modify the head noun's own property-denoting meaning. That is, they must have the type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$, taking the type $\langle e, t \rangle$ of common nouns as input and producing a new meaning of the same type. Partee (e.g. 1987) and others have proposed an operation of *type-shifting* to account for this and related phenomena, which generalises the relationship between expressions which can appear in different compositional modes – for instance, between predicative and attributive meanings of adjectives – by 'lifting' them from the lower type to the higher type, and modiying their compositional meaning appropriately. In LFG+Glue, this has generally been formalised by the inclusion of a special meaning constructor. For example, Dalrymple (2001: 266) analyses a simple English intersective adjective like *French* as contributing two different meaning constructors:

(4) a. $\lambda x.French(x) : [(\uparrow_\sigma \text{VAR}) \multimap \uparrow_\sigma]$
  b. $\lambda P \lambda Q \lambda x.Q(x) \wedge P(x) :$
    $[(\uparrow_\sigma \text{VAR}) \multimap \uparrow_\sigma] \multimap$
    $[[((\text{ADJ} \in \uparrow)_\sigma \text{VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{RESTR})] \multimap [((\text{ADJ} \in \uparrow)_\sigma \text{VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{RESTR})]]$

(4a) gives the lexical meaning, while (4b) realises the appropriate type-lifting operation: it consumes the resource corresponding to the adjectival meaning in order to produce a type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$ modifier ready to conjoin the adjectival meaning with the nominal meaning. Andrews (2010) calls the kind of meaning constructor in (4a) a *lexical meaning constructor*, since it introduces lexical meaning, while (4b) is an example of what he calls a *grammatical meaning constructor*, since its role is merely to manage other lexical meanings.

We assume, following Zweigenbaum (1988), that adjectives all take subjects, so that the predicative, not attributive, use is the basic or unmarked case. This means that the Glue component of the lexical meaning constructor for an adjective will be slightly different from Dalrymple's:

(5) *rouge*   Adj $\lambda x.red(x) : [(\uparrow \text{SUBJ})_\sigma \multimap \uparrow_\sigma]$

The grammatical meaning constructor which lifts this meaning to the higher, modifier type is therefore altered accordingly. Let us encode this in a template, for ease of readability:

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[1] Or the appropriately intensionalised version. For the sake of simplicity we stick to the extensional realm.

(6) INTERSECT :=
$$\lambda P\lambda Q\lambda x.Q(x) \wedge P(x) :$$
$$[(\uparrow \text{SUBJ})_\sigma \multimap \uparrow_\sigma] \multimap$$
$$[[((\text{ADJ} \in \uparrow)_\sigma \text{ VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ RESTR})] \multimap [((\text{ADJ} \in \uparrow)_\sigma \text{ VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ RESTR})]]$$

Our proposal is simply to associate this meaning constructor not with the lexical entries of adjectives, as in Dalrymple (2001), but rather with the right-hand AdjP node in the N′ expansion rule of French:

(7)   N′   →   AdjP*   N′   AdjP*
              $\downarrow \in (\uparrow \text{ADJ})$ $\uparrow = \downarrow$ $\downarrow \in (\uparrow \text{ADJ})$
                                                         @INTERSECT

It seems appropriate to associate a grammatical meaning constructor with a grammatical rule in this way, and, in doing so, we prevent intersective adjectives from appearing in the pre-nominal position, since they lack the appropriate meaning constructor to do so. Without the INTERSECT constructor, their low type prevents them from composing properly, leading to a case of resource surplus (Asudeh 2004), with the adjective meaning left over. What is more, this analysis predicts that there should not be (simple) adjectives in French that only appear predicatively, since they could always be lifted by this grammatically-provided meaning constructor to an attributive type. This prediction appears to be borne out.

On the other hand, the kinds of non-restrictive adjectives that appear pre-nominally are assumed to have a more complex type in their lexical entries, thus ensuring that they can compose without the presence of the INTERSECT constructor. For instance, we assume the meaning constructor given by Dalrymple (2001: 264) for the 'former' sense of *ancien*:[2]

(8) $\lambda P\lambda x.former(P, x) :$
       $[((\text{ADJ} \in \uparrow)_\sigma \text{ VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ RESTR})] \multimap [((\text{ADJ} \in \uparrow)_\sigma \text{ VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ RESTR})]$

This has the higher $\langle\langle e,t\rangle, \langle e,t\rangle\rangle$ type already, and can thus felicitously appear in the left-hand AdjP position. It also *cannot* appear either predicatively or in the right-hand position. In the second case, this is because the call to INTERSECT in the rule given in (7) is not optional. In case we attempted to use the meaning constructor in (8) along with that given by INTERSECT, we would once again encounter a case of resource surplus.

Thus, by associating the right-hand syntactic position with a grammatical meaning constructor that lifts predicative meanings into attributive ones, we correctly restrict intersective adjectives to appear either predicatively or post-nominally, and restrict non-intersective adjectives to appear only pre-nominally. Others have suggested such semantically-motivated restrictions on adjective order in French (e.g. Waugh 1977), but they tend to associate a specific meaning with *both* positions. We believe this is unwarranted, and leads to overly vague characterisations of the meaning associated with especially the pre-nominal position. We suggest instead that this is really an elsewhere position: the post-nominal slot is associated with a particular (grammatically provided) semantics, but the pre-nominal one is associated with whatever meaning the adjective brings.

Some complications There are at least two exceptional classes which a strict interpretation of our analysis might predict should not occur: apparently intersective adjectives which nonetheless appear pre-nominally, and apparently non-intersective ones which appear post-nominally.

The first group consists of a relatively small class of adjectives which are loosely semantically related. The following is a partial list (based on Jones 1996: 320):

(9)   *jeune* 'young', *vieux* 'old', *bon* 'good', *mauvais* 'bad', *grand* 'big, tall', *petit* 'small, short', *gros* 'big, fat', *vaste* 'wide', *haut* 'high', *beau* 'beautiful, handsome', *joli* 'pretty'

(10) a. un beau   sourire   b. un petit   cheval
       a   *beautiful smile*   *a*   *small horse*
       'a beautiful smile'   'a small horse'

These are certainly restrictive adjectives: the set of small horses is a subset of the set of horses, for instance. But they are not straightforwardly intersective, since they all involve a degree of subjectivity or relativisation. That is, the set of beautiful things will vary from speaker to speaker (it is subjective), and the set of small things varies from context to context: a small horse is not necessarily a small animal, given the existence of cats, mice, etc. In spite of this observation, any attempt to explain the fact that adjectives of this class can appear pre-nominally as a general property of their meanings is doomed to failure, for two reasons. Firstly, such adjectives can, for the most part, also appear post-nominally, although native speakers tend to report this as having a more emphatic meaning. Secondly, other adjectives with these same properties never appear pre-nominally. For instance, while *joli* 'pretty' and *gros* 'fat' appear before the noun, *laid* 'ugly' and *mince* 'thin' never do. And other adjectives which are clearly subjective, such as *interessant* 'interesting' or *marrant* 'funny', always appear post-nominally. For this reason, we treat this class as lexical exceptions, and encode the fact that they can appear in both positions by providing them with an optional call of the INTERSECT template in their lexical entries:

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[2]Whether this appears in a separate lexical entry or whether the meaning of *ancien* is disjunctive (i.e. whether we have a case of homophony or polysemy) we leave an open question.

(11)   *beau*   Adj $\lambda x.beautiful(x) : [(\uparrow \text{SUBJ})_\sigma \multimap \uparrow_\sigma]$
                               ($@$INTERSECT)

Note that strictly speaking such behaviour is actually not unexpected given our proposal: all we are saying is that non-intersective adjectives *cannot* appear post-nominally. The pre-nominal position is ambivalent on this point. The second group of exceptions, however, involves adjectives which appear post-nominally but which do not have a straightforwardly intersective meaning, and so is more immediately troubling:

(12)   Le bombardement américain de Baghdad était intensif.
     the bombardment American of Baghdad was intensive
     'The American bombardment of Baghdad was intensive.'

The relationship between the head noun and adjective in (12) is not the same as in the parallel predicative sentence: we cannot straightforwardly say that the bombardment *was* American. Rather, the bombardment was *carried out* by America(ns). That is, the adjective fills some argument role of the noun (in this case the Agent role). This is only possible for event-denoting nouns: *une voiture américaine* is just a car which is also American, for instance. But event-denoting nouns are more semantically complex than simple property-denoting nouns, since they include an event variable. For this reason, successful composition with an attributive adjective requires a more complex kind of type-lifting than that provided by the regular INTERSECT constructor. The basic lexical meaning for *bombardement* is given in (13).[3] Alongside this, we have an optional meaning constructor which adds an open Agent position, as in (14).

(13) $\lambda e \lambda x. bombard(e) \wedge \epsilon(e) = x : (\uparrow_\sigma \text{ EVENT}) \multimap (\uparrow_\sigma \text{ VAR}) \multimap (\uparrow_\sigma \text{ RESTR})$

(14) $\lambda P \lambda y \lambda e \lambda x. P(e)(x) \wedge Agent(e) = y :$
     $[(\uparrow_\sigma \text{ EVENT}) \multimap (\uparrow_\sigma \text{ VAR}) \multimap (\uparrow_\sigma \text{ RESTR})] \multimap (\uparrow_\sigma \text{ AGENT}) \multimap (\uparrow_\sigma \text{ EVENT}) \multimap (\uparrow_\sigma \text{ VAR}) \multimap (\uparrow_\sigma \text{ RESTR})$

Composing the two gives the meaning constructor in (15):

(15) $\lambda y \lambda e \lambda x. bombard(e) \wedge \epsilon(e) = x \wedge Agent(e) = y : (\uparrow_\sigma \text{ AGENT}) \multimap (\uparrow_\sigma \text{ EVENT}) \multimap (\uparrow_\sigma \text{ VAR}) \multimap (\uparrow_\sigma \text{ RESTR})$

In order to combine this new meaning with an attributive adjective, we need a version of INTERSECT which predicates the adjectival meaning not of the variable described by the noun, but rather of the variable denoting the agent:

(16) $\lambda P \lambda Q \lambda e \lambda x. \exists y[Q(y)(e)(x) \wedge P(y)] :$
     $[(\uparrow \text{ SUBJ})_\sigma \multimap \uparrow_\sigma] \multimap$
     $[((\text{ADJ} \in \uparrow)_\sigma \text{ AGENT}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ EVENT}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ RESTR})] \multimap$
     $((\text{ADJ} \in \uparrow)_\sigma \text{ EVENT}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ VAR}) \multimap ((\text{ADJ} \in \uparrow)_\sigma \text{ RESTR})$

Space precludes the inclusion of a full proof in this abstract, but the ultimate meaning obtained for *bombardement américain* is given in (17):

(17) $\lambda e \lambda x. \exists y[american(y) \wedge bombard(e) \wedge \epsilon(e) = x \wedge Agent(e) = y]$

We propose to also include the modified type-lifter given in (16) on the right-hand AdjP projection of the French N′ rule, in disjunction with INTERSECT: if an adjective appears here, it is either simply intersective, or it fills some argument role of an event-denoting noun. Although such a disjunctive analysis is less satisfying than a unified explanation, it nontheless accurately describes the facts, and once again has the advantage of predicting that argument-filling adjectives should also be those which can appear predicatively, as is the case with adjectives like *américain*. The fact that their meaning appears to shift in certain attributive uses is merely down to their mode of composition, not to any change in the meaning of the adjective *per se*.

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[3]The eta operator maps an event to an individual which represents that event (Asudeh et al. 2014: 78); this allows event-denoting nominals to nonetheless be modified by adjectives which can also describe individuals, e.g. *cruel*.