4

Clitic Climbing Revisited

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Presently, there is overall consent among researchers on Romance in HPSG (Miller and Sag, 1997, Abeillé et al., 1998, Monachesi, 1996, 1999) that bounded clitic climbing (CC) is best understood in terms of argument composition. Despite the fact that all current analyses of CC are based on the same core idea, individual analyses of this phenomenon differ, though, as to the technical implementation: in particular, there does not appear to be agreement as to which structure, ARG-ST (Miller and Sag, 1997) or COMPS (Monachesi, 1996, 1999), provides the primary basis for composition. Furthermore, they all make use of book-keeping devices, be it the CLTS list, or the subtyping of lexical signs, *synsem* objects and HEAD values, whose specific workings are highly tailored to the particular language under discussion. As a result, the CLTS-list Monachesi (1996, 1999) invokes for Italian is in itself insufficient to capture the facts about participle agreement in French. Similarly, Miller and Sag's (1997) approach can only cover the Italian data at the expense of auxiliary types whose explanatory potential is fairly limited.

In this paper, I shall propose a unified approach that will be applicable to CC in both French and Italian. The approach will be cast entirely in terms of valence lists, argument structure and SLASH, such that construction- or language-specific book-keeping devices can be eliminated. As a side-effect, this approach provides a more strengthened view of lexical integrity, in that morphological information, i..e. an argument's mode of realisation, will not be directly accessible for subcategorisation.

4.1 Clitic climbing: the state of the art

4.1.1 French

Based on the rigorous application of the Zwicky and Pullum (1983) criteria, Miller (1992) has shown convincingly that French clitics bear much more resemblance to lexical affixes than to true postlexical clitics, and that they should best be derived in the lexical component. Still, the placement of these elements is not strictly local, in that they may attach to a host they are not directly an argument of. The most salient examples of non-local attachment certainly is CC in auxiliary-participle and causative constructions. Another instance where a clitic attaches to a host that does not assign it a semantic role is *en*-cliticisation: here, the clitic does not express a direct complement of the verb, but rather a complement of one of the verb's arguments. Another property of French clitics, which constitutes a challenge for a strictly lexical approach, is the observable parallelism between extraction and cliticisation with respect to participle agreement. In order to reconcile the bounded non-local placement of pronominal affixes with the lexicalist perspective, Miller and Sag (1997) build on Abeillé and Godard (1994) and Abeillé et al. (1998) who demonstrate that constituency tests suggest that the complement of the auxiliary, or the causative verb does not form a VP constituent. Following a proposal by Hinrichs and Nakazawa (1990), all these works assume that the upstairs verb not only subcategorises for a verbal complement but also for all the complements the verbal complement may take. Technically, this is achieved by composing the unsaturated ARG-ST list of the verbal complement onto the ARG-ST list of the upstairs verb, as in (1).

With the arguments of the downstairs verb represented on the ARG-ST list of the auxiliary or causative, bounded non-local cliticisation can be accounted for in a strictly lexical fashion, on a par with ordinary local realisation. In essence, affixation of a pronominal clitic lexically expresses (and therefore: suppresses) a corresponding member of the valence lists on the morphological host.

$$
(1) \quad \begin{bmatrix} \text{SS} \,|\, \text{LOC} & \begin{bmatrix} \text{CAT} & \begin{bmatrix} \text{HEAD} & verb \\ \text{ARG-ST} & \left\langle \boxed{1}, \text{V}\begin{bmatrix} \text{VFORM} & past\text{-}p \\ \text{ARG-ST} & \langle\boxed{1}\rangle \oplus \boxed{2} \end{bmatrix} \right\rangle \oplus \boxed{2} \end{bmatrix} \end{bmatrix} \end{bmatrix}
$$

Participle agreement A phenomenon that deserves special care, however, is French participle agreement: while past participles do not agree with any locally realised direct object NP, agreement in number and gender is obligatory, once the direct object is realised as a

pronominal affix or features in an unbounded dependency.

(2) a. Marie a   écrit / *écrite la   lettre.
         Marie has written   the letter

         'Marie has written the letter.'

     b. Marie l'a   *écrit / écrite.
         Marie her-has written

         'Marie has written it (=the letter).'

     c. la   lettre que Marie a   *écrit / écrite.
         the letter that Marie has written

         'the letter that Marie wrote' (Miller and Sag, 1997, 624)

It appears, thus, that the mode of realisation is visible to the partici-
ple, even if this realisation is actually a morphological property of the
upstairs verb. In order to make the mode of realisation visible on the
participle as well, Miller and Sag (1997) propose to organise *synsem*
objects into a hierarchy of realisational types: *canon(ical)-ss*, which
corresponds to local syntactic dependents, and *non-canon-ss*, which
subsumes *gap-ss* and *aff-ss*. While synsem objects of type *gap-ss* corre-
spond to a member in the head's SLASH value by virtue of the principles
of head-driven extraction (Bouma et al., 2001), the specification of an
ARG-ST member as *aff-ss* is tied to the morphological constraints which
spell out arguments thus marked as a pronominal affix.

(3)
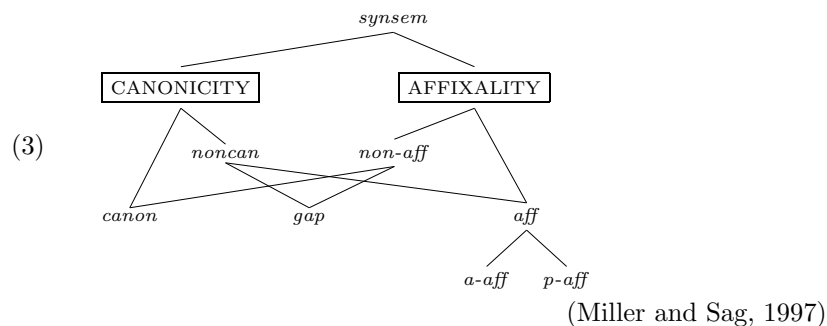
(Miller and Sag, 1997)

To account for the apparent valence reduction involved with affixal
realisation, Miller and Sag (1997) distinguish between plain words (*pl-
wd*), which do not realise any of their arguments morphologically, and
cliticised words (*cl-wd*). The effect of valence reduction is achieved by
constraining the COMPS list of words of type *cl-wd* not to contain any
members of type *aff-ss*.

$$(4) \quad \begin{bmatrix} \text{PHON} & \langle \text{l'a} \rangle \\ \text{SUBJ} & \langle \boxed{1} \rangle \\ \text{COMPS} & \langle \boxed{2} \,|\, \boxed{5} \rangle \\ \text{ARG-ST} & \left\langle \boxed{1}, \boxed{2}\begin{bmatrix} \text{VFORM} & \textit{past-p} \\ \text{ARG-ST} & \langle \boxed{1} \,|\, \boxed{3} \rangle \end{bmatrix} \right\rangle \oplus \boxed{3}\langle \text{NP}[\textit{acc,p-aff}] \,|\, \boxed{5} \rangle \end{bmatrix}$$

$$(5) \quad \begin{bmatrix} \text{PHON} & \langle \text{a} \rangle \\ \text{SUBJ} & \langle \boxed{1}\text{NP}[\textit{nom}] \rangle \\ \text{COMPS} & \langle \boxed{2} \rangle \\ \text{ARG-ST} & \left\langle \boxed{1}, \boxed{2}\begin{bmatrix} \text{VFORM} & \textit{past-p} \\ \text{ARG-ST} & \langle \boxed{1} \,|\, \boxed{3} \rangle \end{bmatrix} \right\rangle \oplus \boxed{3}\left\langle \text{NP}\begin{bmatrix} \textit{gap} \\ \text{LOC} & \boxed{4} \\ \text{SLASH} & \{\boxed{4}\} \end{bmatrix} \,|\, \boxed{5} \right\rangle \\ \text{SLASH} & \{\boxed{4}\} \end{bmatrix}$$

As the authors further assume that argument composition in auxiliary-participle constructions proceeds via ARG-ST, it is clear that constraints imposed by the upstairs verb on any of the raised dependents will also be visible on the ARG-ST list of the downstairs verb, thanks to structure-sharing. Thus, participle agreement will be triggered by a specification for a non-canonical, i.e. *gap-ss* or *aff-ss*, accusative NP on the participle's ARG-ST list. Again, what appeared as a syntactic dependency could be resolved in an entirely lexicalist fashion.

If both the auxiliary and the participle have affixal synsem objects on their ARG-ST lists, we would actually expect morphological realisation both on the upstairs and on the downstairs verb. As argued by Miller and Sag (1997), French participles can never function as clitic hosts, independent of the auxiliary-participle construction. Consequently, they suggest to solve this problem morphologically: while tensed verbs and infinitives realise affixal arguments by means of affixation of appropriate clitics, the function that realises affixal arguments of a participle is the identity function.

(6) F_{PRAF} (X, Y, Z) = W, where W

     (1) $= X$, if $Y = \begin{bmatrix} \text{VFORM} & \textit{past-p} \end{bmatrix}$

     (2) $= \begin{bmatrix} \textit{encl-fm} \\ \text{BASE} & X \end{bmatrix}$, if $Y = \begin{bmatrix} \text{VFORM} & \textit{imp} \\ \text{NEG} & - \end{bmatrix}$

     (3) $= \begin{bmatrix} \textit{procl-fm} \\ \text{BASE} & X \end{bmatrix}$, otherwise.

(Miller and Sag, 1997, 594)

While this certainly solves the issue in auxiliary-participle construction, it will also predict that zero affixation is a potential mode of real-

isation for pronominal arguments in participial constructions, contrary to fact.

Causatives and "clitic trapping" The causative construction in French provides another challenge: in general, upstairs realisation of pronominal arguments is obligatory[1], unless the downstairs verb specifies any intrinsic clitics on its argument structure. In this case, no raised dependent can be expressed by a pronominal affix on the causative verb, but instead affixal realisation has to apply on the downstairs verb, a phenomenon referred to as clitic trapping.

(7)   a.   Marie le fait   lire à Paul
               marie it makes read to Paul

               'Marie is making Paul read it.'

   b.   Jean y   fait   aller Paul
               Jean there makes go   Paul

               'Jean makes Paul go there.'

(8)   a. * Tout   leur   en   fait   vouloir à Paul.
               everything to.them thereof makes want   to Paul

   b.   Tout   leur   fait   en   vouloir à Paul.
               everything to.them makes thereof want   to Paul

               'Everything makes them angry at Paul.'

   c.   Tout   leur   fait lui   en   vouloir.
               everything to.them makes to.him thereof want

               'Everything makes them angry at him.' (Miller and Sag, 1997, 610)

Intrinsic clitics, as opposed to argument clitics, do not alternate with any full NP arguments. Miller and Sag (1997) and Abeillé et al. (1998) therefore assume that verbs featuring intrinsic clitics have these prespecified as affixal members on ARG-ST, yet not on COMPS. In order to block upstairs cliticisation for all pronominal arguments of a verb featuring non-argument clitics, they propose to subclassify verbs into *red-vb* and *bas-vb* (for reduced valence and basic valence, resp.). While *pl-wd* verbs will always have a HEAD value of type *bas-vb*, *cl-wd* will carry a *default* specification of [HD *red-vb*]. Verbs that come with an intrinsic clitic on their argument structure are said to override this

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[1] I will limit the discussion here to the construction referred to as "composition faire". For a more detailed overview including non-composition faire, see Abeillé et al. (1998).

default, carrying a specification of [HD *bas-vb*], despite their being of type *cl-wd*.

In contrast to auxiliary-participle constructions, where no effects of trapping could be observed, composition with causative *faire* does not target the ARG-ST list of the downstairs verb. Instead, it is the COMPS value of the verbal complement which is appended onto the ARG-ST list of the causative verb. Furthermore, the causative requires its verbal complement to have a HEAD value of type *bas-vb*. As only intrinsic clitic verbs and plain verbs do possess a HEAD value of this type, the effect of clitic trapping will be captured as follows: if the downstairs ARG-ST specifies an intrinsic clitic, the entire lexical sign will be of type *cl-wd*. As a consequence, morphological constraints will spell-out all affixal members on the downstairs ARG-ST as appropriate pronominal affixes. Owing to the restriction mentioned above that bans affixal synsem objects from the COMPS list of cliticised verbs, upstairs realisation is effectively ruled out. If, however, the downstairs verb does not specify any non-argument clitics, it must be a *pl-wd*: as the morphological constraints regulating affixal realisation only apply to *cl-wd*s, downstairs cliticisation will be impossible.

$$
(9) \quad
\begin{bmatrix}
\text{SS} \mid \text{L} &
\begin{bmatrix}
\text{CAT} &
\begin{bmatrix}
\text{ARG-ST} & \left\langle \text{NP}_i, \text{V}
\begin{bmatrix}
\text{TRANS} & + \\
\text{HEAD} & \begin{bmatrix} bas\text{-}vb \\ \text{VFORM} \; inf \end{bmatrix} \\
\text{SUBJ} & \left\langle \text{NP}_j \right\rangle \\
\text{COMPS} & \boxed{2} \\
\text{CONT} & \boxed{1}
\end{bmatrix}
, \text{NP}[dat]_j \right\rangle \oplus \boxed{2}
\end{bmatrix}
\\[2em]
\text{CONT} &
\begin{bmatrix}
caus\text{-}rel \\
\text{ACTOR} & i \\
\text{UNDERGOER} & j \\
\text{RESULT} & \boxed{1}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

Composition *faire* (transitive complement)(Abeillé et al., 1998, 20)

To summarise: in order to capture the climbing properties of French clitics in auxiliary-participle and causative constructions, Miller and Sag (1997) introduce a threefold distinction for French verbs: plain verbs, which are lexical signs of type *pl-wd* with HEAD value *bas-vb*, ordinary clitic verbs, which are lexical signs of type *cl-wd* whose HEAD value is *red-vb*, and intrinsic clitic verbs, again words of type *cl-wd*, but whose HEAD value is set to the type *bas-vb*. However, to derive the effect of trapping Miller and Sag (1997) are forced to assume that

the presence of true argument clitics on an intrinsic clitic verb does not have any bearing on the HEAD value. To give an example, a verb like *lui en vouloir* is regarded as a *bas-vb*, regardless of the fact that the clitic *lui* 'to him/her' is actually the morphological realisation of a suppressed valency, i.e. the indirect object. Thus, the entire distinction between reduced and basic verbs, though partially motivated in other cases, must appear somewhat arbitrary once trapping of an argument clitic is involved.

Another issue related to the encoding of valence information by means of HEAD values becomes apparent once we consider coordination: if the mode of realisation of a verb's argument is encoded not only on ARG-ST but additionally on the HEAD value, we will actually expect any coordination of a VP or sentence to fail, as soon as one conjunct is headed by a plain verb ([HEAD *bas-vb*]) and the other by a cliticised verb ([HEAD *red-vb*]).

(10) En 1978, il est réélu   à la   présidence de l'Assemblée
      in 1978 he is   reelected to the presidency of the.assembly
      nationale contre Edgar Faure et   y   restera   jusqu'en
      national   against Edgar Faure and there will.stay until
      1981.
      1981

      'In 1978, he was reelected president of the National Assembly against Edgar Faure and remained it until 1981.'

However, as illustrated by the example above, this prediction is not borne out. The coordination data therefore underline that a valence-related distinction as subtypes of a HEAD value is quite oddly placed with respect to the feature geometry.

4.1.2 Italian

Italian tense auxiliaries, much like their French counterparts obligatorily trigger CC, and, still parallel, they do so irrespective of the argument status of the clitic. Past participles in Italian, however, are not inherently incapable of hosting a clitic. Rather, pronominal affixation to a past participle is only banned in auxiliary-participle constructions.

(11) a.   Vistolo, fu   facile decidere.
            seen it   was easy to decide

            'Having seen it, it was easy to decide.' (Monachesi, 1996, 47)

   b.   Rocco lo ha letto.
           Rocco it has read

           'Rocco has read it.'   (Monachesi, 1996, 194)

   c. * Rocco ha lettolo
           Rocco has read it

                            (Monachesi, 1996, 194)

Thus, in contrast to French, downstairs realisation appears to be blocked by the obligatoriness of argument composition, not by any morphological restriction on participles.

Besides auxiliaries, Italian witnesses a set of so-called restructuring verbs that optionally permit CC. Although these verbs are compatible with either upstairs or downstairs cliticisation, split realisation of the cluster is ruled out.

(12) a.   Martina lo   vuole leggere.
            Martina him wants read

            'Martina wants to read it.'   (Monachesi, 1999, 137)

     b.   Martina vuole leggerlo.
            Martina wants read-him

            'Martina wants to read it.'   (Monachesi, 1999, 138)

     c. * Vito lo   voleva spedirgli.
           Vito him wanted send-to.him

                          (Monachesi, 1999, 157)

     d.   Vito glielo   voleva spedire.
            Vito to.him-him wanted send

            'Vito wants to send it to him.' (Monachesi, 1999, 157)

Thus, precise control over the place of cliticisation is of major concern for any grammar of Italian cliticisation. Monachesi (1996, 1999), who builds on an earlier proposal by Miller and Sag, postulates a lexical rule that removes a valency from COMPS and appends it to a list-valued feature CLTS, a feature she considers to be the interface for morphological realisation.

$$
(13)\quad
\begin{bmatrix}
\textit{word} \\
\text{HEAD} \quad\quad \textit{verb} \\
\text{CLTS} \quad\quad\;\; \textit{elist} \\
\text{VAL}\,|\,\text{COMPS} \quad \boxed{1}\;\bigcirc\;\boxed{2}
\end{bmatrix}
\mapsto
\begin{bmatrix}
\text{CLTS} \quad\quad\quad \boxed{2}\;\textit{list}\big(\textit{cl-ss}\big) \\
\text{VAL}\,|\,\text{COMPS} \quad \boxed{1}
\end{bmatrix}
$$

                                   (Monachesi, 1999, 271)

Verbs undergoing argument composition impose the additional requirement that their verbal complement be a lexical sign whose CLTS value is the empty list.

$$(14) \quad \begin{bmatrix} \text{SS} \mid \text{L} \mid \text{CAT} & \begin{bmatrix} \text{HD} & verb \\ \\ \text{VAL} & \begin{bmatrix} \text{SUBJ} & \left\langle \boxed{1}\text{NP} \right\rangle \\ \\ \text{COMPS} & \left\langle \boxed{2} \begin{bmatrix} w\text{-}ss \\ \text{VAL} & \begin{bmatrix} \text{SUBJ} & \left\langle \text{NP} \right\rangle \\ \text{COMPS} & \boxed{3} \end{bmatrix} \\ \text{CLTS} & \langle \rangle \end{bmatrix} \right\rangle \oplus \boxed{3} \\ \\ \text{ARG-ST} & \left\langle \boxed{1}, \boxed{2} \mid \boxed{3} \right\rangle \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

Argument composition verb; adapted from Monachesi (1999, 151)

This ensures that with tense auxiliaries, which obligatorily compose, downstairs realisation will be impossible. Likewise, in the case of restructuring verbs, split realisation is effectively barred.

Discussion

If we try and apply Miller and Sag's (1997) proposal to the Italian facts, we will soon be faced with a fundamental problem: while subtyping of *synsem* objects according to the mode of realisation was quite handy for French participle agreement, we will be hard pressed to rule out simultaneous upstairs and downstairs affixation in Italian auxiliary-participle constructions. As witnessed by (11), we cannot invoke morphological restrictions to block cliticisation to the participle. Exactly the same problem will arise with restructuring verbs: if argument composition applies and a clitic is attached to the upstairs verb, the specification of the corresponding argument as *aff-ss* will inevitably be present on the downstairs verb as well, due to structure-sharing. As suggested to me by Sag and Godard (p.c.), one can invoke the distinction of (verbal) HEAD values into *bas-vb* and *red-vb* and postulate that auxiliaries and restructuring verbs require the HEAD path of their verbal complement to be of type *bas-vb*. However, this solution appears to be an essentially technical one: as intrinsic clitics in Italian may undergo clitic climbing (see the next section), this move will entail that intrinsic clitic verbs in this language must bear a HEAD-value of type *red-vb*, in contrast to French, where these verbs are considered *bas-vb* under the approach of Miller and Sag (1997). Thus, it becomes apparent that the *bas-vb*/*red-vb* distinction is devoid of any deeper linguistic, let alone cross-linguistic, motivation.

Monachesi's (1996, 1999) approach, however, does not fare any better, when applied to French: as neither the (non-empty) CLTS list, nor the reduced COMPS list of the upstairs verb are visible on the downstairs participle, agreement cannot be tied to the presence of a clitic.

As both Miller and Sag (1997) and Monachesi (1996, 1999) motivate their respective devices with the necessity of providing an interface to morphology, this amounts to the claim that interfaces between major grammatical modules should indeed be language-specific: quite an unsatisfactory result. I will therefore eliminate both devices from the grammars of French and Italian and explore whether the restrictions they serve to model cannot be derived directly by means of features which are widely accepted as universal.

4.2 Reanalysis

Italian If we reconsider the Italian facts, it becomes apparent that the central task accomplished by the CLTS feature is to ensure, together with the subcategorisation for a word-level verbal complement, that the valence lists of the downstairs verb be intact, whenever argument composition applies. While the restriction to non-phrasal verbal complements is certainly sufficient to inhibit syntactic saturation of valencies, it cannot block lexical valence reduction, as performed by a cliticisation lexical rule. However, this effect can easily be obtained without any diacritic features, if we make reference to argument structure and valence directly: for argument composition verbs in Italian, it is therefore sufficient to require that the ARG-ST value of the verbal complement be identical to a shuffle of the valence features with a list of gaps. An argument composition *lexeme* will then have a representation as below (both in Italian, and in French, unless stated otherwise):

$$
(15) \quad
\begin{bmatrix}
\textit{arg-composing-lxm} \\
\text{COMPS} \quad \left\langle \boxed{1} \right\rangle \oplus \boxed{4} \oplus \boxed{2} \\
\text{ARG-ST} \quad \left\langle [\ ] \right\rangle \oplus \left\langle \boxed{1}
\begin{bmatrix}
\text{HEAD} & \textit{verb} \\
\text{COMPS} & \boxed{2} \\
\text{ARG-ST} & \left\langle [] \right\rangle \oplus \boxed{3}(\boxed{2} \bigcirc \textit{list}(gap))
\end{bmatrix}
\right\rangle \oplus \boxed{4} \oplus \boxed{3}
\end{bmatrix}
$$

If we follow Monachesi (1996, 1999) and assume that affixal realisation in Italian involves valence reduction, the verbal complement of an argument-composition verb will simply have no chance to realise any of its valencies locally: neither syntactically, nor lexically.

As to the interface to morphology, it is hard to see what can be gained by breaking up valence reduction and morphological realisation into a two-step operation, if all the information present on CLTS may

equally well be retrieved from COMPS directly, provided that valence reduction and spell-out apply in tandem. The only place in Monachesi's (1999) analysis where the CLTS feature is actually non-redundant is the representation she proposes for inherent clitic verbs, e.g. *si arrabbia* 'gets angry':

$$(16) \quad \begin{bmatrix} \text{HD} & \begin{bmatrix} verb \\ \text{AGR} & \boxed{1} \end{bmatrix} \\ \text{SUBJ} & \langle \text{NP} \rangle \\ \text{COMPS} & \langle \rangle \\ \text{CLTS} & \langle \text{NP}[mark\text{-}ss, \text{ AGR } \boxed{1}] \rangle \end{bmatrix}$$

(Monachesi, 1999, 113)

Monachesi (1999) observes that inherent clitics do not alternate with any full argument XPs, and she therefore suggests that these clitics are lexically represented directly on CLTS. Thus, unlike argument clitics, they do not correspond to a valence of the verb, and are therefore neither represented on any valence list, nor is their appearance on CLTS related to a valence by application of the cliticisation lexical rule. Although initially plausible, this move, however, precludes an account of clitic climbing on the basis of argument composition in these cases, and actually predicts that inherent clitics should not be able to climb. However, as illustrated by the data below, inherent clitics, on a par with argument clitics, do undergo clitic climbing, both with restructuring verbs and with auxiliaries.

(17) a. Non ci si   può arrabbiare con una persona della quale
       not us self can get angry with a   person of   which
       non si   ha stima.
       not self has esteem

       'One cannot get angry with someone one does not hold in high esteem.'

    b. Il   direttore si é arrabbiato un pò, perché nessuno
       the director self is got angry a bit because no one
       sapeva ancora bene la   propria parte a memoria.
       knew   yet   well the own   part by heart

       'The director has got a bit angry, because no one knew his part by heart yet.'

To conclude, as the CLTS-list is for the most part fully redundant, or else, makes empirically wrong predictions, this language-specific bookkeeping feature can safely be dispensed with.

French participle agreement The situation in French is slightly more tricky. The key to a reanalysis of CC in French, as I believe, can be found by reviving an earlier version of Miller and Sag's approach, i.e. the kind of analysis advanced in Sag and Godard (1993) and Miller and Sag (1995): these authors propose that cliticisation does not operate directly on argument structure, but instead takes as input the output of the Complement Extraction Lexical Rule (CELR; Pollard and Sag, 1994). This latter rule removes a subcategorisation requirement for a local dependent from the COMPS list and inserts it into SLASH, providing the basis for a traceless theory of extraction:

$$
(18) \quad
\begin{bmatrix}
\text{COMPS} & \boxed{0} \oplus \left\langle \boxed{2}\begin{bmatrix}\text{LOC} & \boxed{3}\end{bmatrix} \right\rangle \oplus \boxed{1} \\
\text{ARG-ST} & \left\langle ..., \boxed{2}, ... \right\rangle \\
\text{SLASH} & \boxed{4}
\end{bmatrix}
\mapsto
$$

$$
\begin{bmatrix}
\text{COMPS} & \boxed{0} \oplus \boxed{1} \\
\text{ARG-ST} & \left\langle ..., \boxed{2}\begin{bmatrix}\text{LOC} & \boxed{3} \\ \text{SLASH} & \{\boxed{3}\}\end{bmatrix}, ... \right\rangle \\
\text{SLASH} & \boxed{4} \cup \{\boxed{3}\}
\end{bmatrix}
$$

(CELR; adapted from Miller and Sag, 1995)

The Complement Affixation Lexical Rule (CALR) then operates on the output of the CELR, and moves an element of SLASH into the PRAS feature. This feature serves the purpose of providing an interface to realisational morphology, a feature basically identical to the CLTS list of Monachesi (1996, 1999). In itself, it is essentially redundant once morphological schemata can be tied directly to the change in SLASH specifications.

$$
(19) \quad
\begin{bmatrix}
\text{HEAD} & verb \\
\text{SLASH} & \boxed{2} \cup \{\boxed{0}\} \\
\text{PRAS} & \boxed{1}
\end{bmatrix}
\mapsto
\begin{bmatrix}
\text{HEAD} & verb \\
\text{SLASH} & \boxed{2} \\
\text{PRAS} & \boxed{1} \cup \{\boxed{0}\}
\end{bmatrix}
$$

(CALR; adapted from Miller and Sag, 1995)

What is noteworthy about the formulation of the CELR, is that it leaves a "trace" of its application on the corresponding member of ARG-ST: with argument-composition verbs, the application of the CELR on the higher verb can thus be detected on the lower verb as well, thanks to structure-sharing. In this version of Miller and Sag's theory of French cliticisation, French past participle agreement with non-local dependents and with clitics can easily be accounted for by reference to an accusative argument on ARG-ST whose local value is token-identical with

the element in its singleton SLASH set. This approach to past participle agreement, in contrast to its more recent incarnation, can capture the salient parallelism between cliticisation and extraction directly, without having to stipulate the relatedness in terms of a particular setup of the hierarchy of *synsem* types.

In the past, the CELR has been subject to mainly two objections. As noted by Müller (1994), in its most general (and most useful) formulation the CELR can be applied recursively to its own output. While this gives sound results with words whose argument structure is fully specified, it leads to the generation of infinite lexica when applied to underspecified valence lists, as typically found with argument composition verbs. Furthermore, in the context of classical SLASH passing, as in, e.g., Pollard and Sag (1994), it may give rise to spurious ambiguities whenever argument composition is involved: as the CELR may equally well apply to the downstairs and the upstairs verb, every unbounded dependency construction that happens to feature an argument composition verb will give rise to two structural descriptions, one where SLASH is introduced on the upstairs verb, and one where it is introduced on the downstairs verb.

With the advent of head-driven extraction (Sag, 1997, Bouma et al., 2001), these issues have been resolved, as SLASH values are now defined by means of relational constraints, determining the SLASH of the lexical head as the union of the SLASH values of its arguments. Similarly, generation of infinite lexica has also become a non-issue.[2] Still, the sad story is that an analysis in terms of the CALR, like the one suggested in Miller and Sag (1995), cannot be carried over unmodified: Miller and Sag (1997) note that the locality of cliticisation is defined by the availability of argument composition and contrast this observation with *en*-cliticisation where locality is not observed in the same strict sense. With SLASH amalgamation, as formulated in Sag (1997), an unmodified CALR would predict affixal realisation of unbounded non-local dependents: a prediction which is clearly inadequate. Consequently the authors maintain a SLASH-based analysis of *en*, while for all other clitics, including accusatives, cliticisation operates on ARG-ST members directly. However, as we have seen, this reformulation necessitates the use of additional book-keeping, e.g. by means of a distinct *synsem* type.

Yet, the good news is that, even for clitics other than *en*, Miller and Sag's (1995) approach can be ported to the framework of head-driven extraction quite naturally. All we have to do is to tie the lexical

---

[2]Generation of infinite lexica is certainly only problematic in the context of otherwise static lexica with meta-level lexical (redundancy) rules. In a dynamic approach to lexical productivity, such as Koenig's (1999), no problem should arise.

binding of a non-local dependency to the presence of a gap on the local ARG-ST.[3]

(20)

$$
\begin{bmatrix}
\textit{loc-arg-marking} \\
\text{HD} \quad \boxed{2} \\
\text{ARG-ST} \quad \boxed{3} \; \textit{list} \; \bigcirc \left\langle \begin{bmatrix} \text{LOC} & \boxed{4}\begin{bmatrix}\text{CONT } \textit{pron}\end{bmatrix} \\ \text{NLOC} & \begin{bmatrix}\text{INHER} \mid \text{SL} & \{\boxed{4}\} \\ \text{TO-BIND} \mid \text{SL} & \{\ \}\end{bmatrix} \end{bmatrix} \right\rangle \\
\text{NLOC} \quad \begin{bmatrix}\text{TO-BIND} \mid \text{SL} & \{\boxed{4}\} \cup \boxed{5}\end{bmatrix} \\
\text{M} \quad \left\langle \begin{bmatrix} \textit{stem} \\ \text{PH} & \boxed{0} \\ \text{HD} & \boxed{2}\textit{verb} \\ \text{ARG-ST} & \boxed{3} \\ \text{NLOC} & \begin{bmatrix}\text{TO-BIND} \mid \text{SL} & \boxed{5}\end{bmatrix} \\ \text{M} & \left\langle \begin{bmatrix}\textit{morpheme} \\ \text{PH} & \boxed{0} \\ \text{HD} & \boxed{2}\end{bmatrix} \right\rangle \bigcirc \boxed{1} \end{bmatrix} \right\rangle \bigcirc \boxed{1} \bigcirc \left\langle \begin{bmatrix}cl\end{bmatrix} \right\rangle
\end{bmatrix}
$$

As specified in (20) above, introduction of a pronominal affix (*cl*) onto morphological structure, i.e. the M(ORPH) list, is paired with the introduction of an element into the NLOC|TO-BIND|SL value.[4] The locality of affixal realisation is captured by requiring that the non-local dependency "bound" by the cliticised verb originate on a local argument, which is identified by the structure-sharing of its LOC value with the only element in its NLOC|INHER|SL. In contrast to locality-sensitive cliticisation, which characterises almost all French clitics, the morphological schema introducing *en* is less restrictive in that it lexically binds a non-local dependency, regardless of whether the non-local dependency originates on a local dependent or not. In essence, the schema given in (21) is equivalent to the *en*-cliticisation rule defined in Miller and Sag

---

[3]Throughout the analysis, I use the type *gap* as a mere shorthand for feature structures where the LOC value is token-identical to the only member in SLASH.

[4]The above formulation assumes that argument marking recursively adds formatives to a flattened morphological representation suitable to express morphotactic constraints between different clitics (see Crysmann, 2002). For present purposes, nothing hinges on this particular perspective on templatic morphology: A schema may just as well introduce multiple clitics simultaneously. See also Crysmann (1999, 2000) for arguments in favour of a flat MORPH list comprising morphemes alongside non-morphemic affixal exponents.

(1997).[5]

$$
(21) \quad
\begin{bmatrix}
\textit{nloc-arg-marking} \\
\text{HD} \quad \boxed{2} \\
\text{ARG-ST} \quad \boxed{3}\left(\textit{list} \, \bigcirc \, \left\langle \begin{bmatrix} \text{NLOC} & \begin{bmatrix} \text{INHER} \mid \text{SL} & \{\boxed{4}\} \\ \text{TO-BIND} \mid \text{SL} & \{\ \} \end{bmatrix} \end{bmatrix} \right\rangle \right) \\[2em]
\text{NLOC} \quad \begin{bmatrix} \text{TO-BIND} \mid \text{SL} & \left\{ \boxed{4} \begin{bmatrix} \text{HD} & \begin{bmatrix} \textit{noun} \\ \text{CASE} \ \textit{de} \end{bmatrix} \\ \text{CONT} & \begin{bmatrix} \textit{pron} \\ \text{IND} \ \textit{ref} \end{bmatrix} \end{bmatrix} \right\} \cup \boxed{5} \end{bmatrix} \\[3em]
\text{M} \quad \left\langle \begin{bmatrix} \textit{stem} \\ \text{PH} & \boxed{0} \\ \text{HD} & \boxed{2}\textit{verb} \\ \text{ARG-ST} & \boxed{3} \\ \text{NLOC} & [\text{TO-BIND} \mid \text{SL} \ \boxed{5}] \\ \text{M} & \left\langle \begin{bmatrix} \textit{morpheme} \\ \text{PH} & \boxed{0} \\ \text{HD} & \boxed{2} \end{bmatrix} \right\rangle \bigcirc \boxed{1} \end{bmatrix} \right\rangle \bigcirc \boxed{1} \bigcirc \left\langle \begin{bmatrix} \textit{cl} \\ \text{PH} \ \langle \text{en} \rangle \end{bmatrix} \right\rangle
\end{bmatrix}
$$

In both cases, lexical introduction of an element in TO-BIND|SL is sufficient to block further percolation of the corresponding INH|SL value: the SLASH INHERITANCE PRINCIPLE states that the INH|SL value of the mother is the set difference of the INH|SL and TO-BIND|SL values of the head daughter (Sag, 1997).

Let us consider the case of local argument marking again. With simple tenses, its application is trivial: a gap argument of the verb is realised as a pronominal affix and the non-local dependency is bound by a lexical binder before it actually gets a chance of percolating up the tree. With complex tenses that involve argument composition, the arguments the auxiliary inherits from its past participle complement are local members of the auxiliary's ARG-ST list. It follows that application of a *loc-arg-marking* schema can introduce a pronominal affix onto the auxiliary's MORPH list, and restrict the corresponding (raised) argument to be a gap that is lexically bound by the argument marking auxiliary. As argument composition means token-identity between the ARG-ST value of the participle and a sublist of the auxiliary's ARG-ST, it is clear that one of the participle's arguments is constrained to be a

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[5]The restriction to referential *en* was introduced to inhibit long-distance cliticisation for "trapped" intrinsic clitic *en*, as discussed in the next section.

gap, too.

Thus, participle agreement can be captured in a uniform fashion as agreement in number and gender with an accusative gap on the participle's ARG-ST, exactly as proposed by Miller and Sag (1995). The effect of valence reduction on the participle and, hence, the auxiliary is actually predicted by the principle of ARGUMENT CONSERVATION (Miller and Sag, 1997) which states that a shuffle of the valence features SUBJ, COMPS, and SPR is token-identical to the list of non-gap members on ARG-ST.

Causatives Before we can delve into an account of CC and clitic trapping with French causatives, let us briefly discuss what a suitable representation of intrinsic clitics may look like. Miller and Sag (1997) argue to represent them as members of ARG-ST that fail to be represented on COMPS. While such an analysis would probably still work with the account of French defended here, it will not blend easily with our analysis of Italian outlined above. Thus, I will suggest that intrinsic clitics (in both languages) should be distinguished from argument clitics by means of their INDEX value, which I take to be of type *expl*. Failure of inherent clitics to alternate with syntactic dependents will then be related to the non-existence of free expletive pronouns in the French lexicon.

Composition *faire* enforces upstairs cliticisation whenever the downstairs verb does not specify any expletive pronominal arguments, whereas it blocks upstairs cliticisation with intrinsic clitic verbs. It follows that the argument composition properties of *faire* are not as strict as those of tense auxiliaries, in that they do not require unconditionally that the verbal complement has an empty TO-BIND|SL. If the mechanism of composition itself imposes less restrictions, we can, instead, formulate the relevant constraints as conditions on upstairs cliticisation. To achieve this, I will relax the restrictions on the lexeme *faire*, and complement it with constraints on the set of words that can be derived from such a lexeme by means of pronominal affixation. Thus, the entry for the lexeme would look roughly like (22), which is compatible with both upstairs and downstairs cliticisation.[6]

---

[6]The entry for composition *faire* given below must of course be further diferentiated, by means of subtypes, as to the case of the controller argument (direct vs. indirect object). See, e.g., Abeillé et al. (1998) for details.

(22)

$$
\begin{bmatrix}
\textit{comp-faire-lxm} \\
\text{HD} \quad \textit{verb} \\
\text{VAL} \begin{bmatrix}
\text{SUBJ} \quad \left\langle \boxed{0}\text{NP}_{\boxed{i}} \right\rangle \\
\text{COMPS} \quad \left\langle \boxed{1},\boxed{4}\text{NP}_{\boxed{j}} \right\rangle \oplus \boxed{3}
\end{bmatrix} \\
\text{ARG-ST} \left\langle \boxed{0},\boxed{1}
\begin{bmatrix}
\text{HD} \begin{bmatrix} \textit{verb} \\ \text{VFORM } \textit{inf} \end{bmatrix} \\
\text{VAL} \begin{bmatrix} \text{SUBJ} \quad \left\langle \boxed{2}\text{NP}_{\boxed{j}} \right\rangle \\ \text{COMPS} \quad \boxed{3} \end{bmatrix} \\
\text{ARG-ST} \quad \left\langle \boxed{2} \right\rangle \oplus \left(\boxed{3} \bigcirc \textit{list}(gap) \right) \\
\text{CONT} \quad \boxed{k}
\end{bmatrix}, \boxed{4} \right\rangle \oplus \left(\boxed{3} \bigcirc \textit{list}(gap) \right) \\
\text{CONT} \begin{bmatrix}
\text{RELN} \quad \textit{cause} \\
\text{ACT} \quad \boxed{i} \\
\text{UND} \quad \boxed{j} \\
\text{SOA-ARG} \quad \boxed{k}
\end{bmatrix}
\end{bmatrix}
$$

The condition on upstairs cliticisation is imposed on the resulting word-level *sign*, the morphological top-level: if the ARG-ST value of the complement verb only consists of elements whose INDEX is *ref*, we can impose the further restriction that the TO-BIND|SL of the verbal complement be empty, and that both gap and non-gap arguments of this verb have to raise onto the ARG-ST of the causative verb. Thus, in the absence of any intrinsic clitics on the verbal complement's ARG-ST, gap-raising is enforced.

(23)

$$
\begin{bmatrix}
\textit{word} \\
\text{ARG-ST} \quad \left\langle \boxed{0},\boxed{1}\begin{bmatrix} \text{ARG-ST} \quad \left\langle \text{NP} \right\rangle \oplus \textit{list}\left(\begin{bmatrix} \textit{ppro} \vee \textit{npro} \\ \text{IND } \textit{ref} \end{bmatrix} \right) \end{bmatrix}, \boxed{2}\text{NP} \right\rangle \oplus \textit{list} \\
\text{CONT} \quad \begin{bmatrix} \text{RELN} \quad \textit{cause} \end{bmatrix}
\end{bmatrix}
$$

$$
\rightarrow \begin{bmatrix}
\text{ARG-ST} \quad \left\langle \boxed{0},\boxed{1}\begin{bmatrix} \text{COMPS} \quad \boxed{4} \\ \text{ARG-ST} \quad \left\langle \text{NP} \right\rangle \oplus \boxed{5}\left(\boxed{4} \bigcirc \textit{list}(gap) \right) \\ \text{TO-BIND} \quad \{\ \} \end{bmatrix}, \boxed{2} \right\rangle \oplus \boxed{5}
\end{bmatrix}
$$

Conversely, if the ARG-ST value of the complement contains the specification for an expletive object, clitic climbing will be blocked by requiring all raised downstairs arguments to be direct syntactic dependents of the upstairs verb, i.e. members of COMPS. In other words, clitic trapping will be modelled by means of gap-trapping.

$$(24) \quad \begin{bmatrix} word \\ \text{ARG-ST} \quad \left\langle \boxed{0,1}\left[\text{ARG-ST} \left\langle \text{NP} \right\rangle \oplus \left(\left\langle \left[\text{IND } expl\right]\right\rangle \bigcirc list \right)\right], \boxed{2}\text{NP} \right\rangle \oplus list \\ \text{CONT} \quad \begin{bmatrix}\text{RELN} & cause\end{bmatrix} \end{bmatrix}$$

$$\rightarrow \begin{bmatrix} \text{COMPS} \quad \left\langle \boxed{1}\right\rangle \oplus list \oplus \boxed{4} \\ \text{ARG-ST} \quad \left\langle \boxed{0,1}\begin{bmatrix}\text{COMPS} & \boxed{4} \\ \text{ARG-ST} & \left\langle \text{NP}\right\rangle \oplus \left(\boxed{4} \bigcirc list(gap)\right)\end{bmatrix}, \boxed{2}\right\rangle \oplus \boxed{4} \end{bmatrix}$$

While enforcing upstairs cliticisation in the absence of any intrinsic arguments is pretty straightforward, I feel that the constraint on downstairs cliticisation deserves some explanation: as stated in (24) above, a causative *word* whose verbal complement selects an "expletive" complement must realise all arguments it inherits syntactically, a restriction which is captured by having the raised arguments (tag 4) represented on both the ARG-ST and the COMPS list of the causative. As this is a constraint on feature structures of type *word*, which is a syntactic atom and a morphological top-level, it is clear that no cliticisation rule can realise any raised valency as a lexical affix on the causative. Thus, if an intrinsic clitic were indeed raised, the only option is syntactic realisation. However, it appears that the French lexicon does not provide any expletives other than lexical affixes. As a consequence, a subcategorisation requirement for an "expletive" syntactic dependent can never be satisfied upstairs. As composition *faire* takes a lexical sign as its verbal complement (indicated by the fact that only gaps can escape representation on the valence lists of the downstairs verb), the latter cannot discharge any subcategorisation requirements as local syntactic dependents. Thus, there are only two ways in which a mismatch between ARG-ST and the valence lists may arise: lexicalised extraction and morphological realisation. While both options are available to realise referential arguments, only morphological realisation can deal with intrinsic arguments, due to the lack of non-affixal expletives in the French lexicon.

4.2.1 Reflexive clitics

So far, our reanalysis has concentrated on a discussion of the clearcut cases such as the climbing properties of pronominal arguments and intrinsic non-argument clitics. We have not, however, provided an account of the clitic *se* 'self', in all its different uses, i.e. true reflexive, medio-passive and inherent pronominal. As described in Abeillé et al. (1998), medio-passive and inherent *se* essentially pattern with other

intrinsic clitics as far as the causative construction is concerned:

(25) a.   Le snobisme fait   se vendre bien les classiques.
            the snobism   makes self sell   well the classics

            'Snobism makes the classics sell well.'

      b.   La chaleur a   fait   s'évanouir Paul.
            the heat   has made self.faint   Paul

            'The heat made Paul faint.'

      c. (*) Marie a   fait   se laver les enfants.
             Marie has made self wash the children

            'Marie has made the children wash themselves.' (Abeillé
            et al., 1998, 24)

   Within the context of our analysis sketched above, it is quite
straightforward to integrate non-argument clitic *se*: essentially, it will
be sufficient to classify the corresponding members of the downstairs
ARG-ST to bear an INDEX of type *expl*. Accordingly, inherent reflexive
and medio-passive verbs will only be licit as a complement of the "gap-
trapping" variant of causative *faire*, as licensed by (24). Gap-raising,
however will be impossible with these verbs, as their ARG-ST list will
contain at least one member whose INDEX is not of type *ref*.

   With true reflexive clitics, the empirical situation is not as clear-
cut: while for some speakers (=variety A) true reflexives pattern with
medio-passive and inherent *se*, in that they allow the reflexive marker
on the downstairs infinitive, others (=variety B) are unable to embed
true reflexive verbs under composition *faire*. How can we make sense
of this inter-speaker variation in the light of the present approach?

   Let us begin with variety A: apparently, what happens here, is that
true reflexives are subject to exactly the same constraints as intrinsic
clitics, so a natural extension to the above analysis would be to simply
add another implicational constraint which licenses the gap-trapping
variant of *faire*, just in case the ARG-ST of the verbal complement should
contain an anaphor ([CONT *ana*].

$$(26) \begin{bmatrix} word \\ \text{ARG-ST} \quad \left\langle \boxed{0},\boxed{1}\begin{bmatrix} \text{ARG-ST} \left\langle \text{NP} \right\rangle \oplus \left(\left\langle \begin{bmatrix} \text{CONT} \ ana \end{bmatrix} \right\rangle \bigcirc list \right) \end{bmatrix}, \boxed{2}\text{NP} \right\rangle \oplus list \\ \text{CONT} \quad \begin{bmatrix} \text{RELN} \quad cause \end{bmatrix} \end{bmatrix}$$

$$\rightarrow \begin{bmatrix} \text{COMPS} & \langle \boxed{1} \rangle \oplus list \oplus \boxed{4} \\ \text{ARG-ST} & \left\langle \boxed{0},\boxed{1} \begin{bmatrix} \text{COMPS} & \boxed{4} \\ \text{ARG-ST} & \langle \text{NP} \rangle \oplus \left(\boxed{4} \bigcirc list(gap) \right) \end{bmatrix}, \boxed{2} \right\rangle \oplus \boxed{4} \end{bmatrix}$$

Thus, in this variety, gap-trapping is licensed in case of the presence of an intrinsic (24) or reflexive (26) argument, whereas gap-raising is only enforced in the complementary situation, where the ARG-ST list of the downstairs verb consists entirely of referential (pro)nouns.

Speakers of variety B, however, display an interesting gap with referential reflexives. It seems that the constraints that enforce/inhibit gap-raising do not exactly match up in this variety. Thus, if we assume that these speakers have a slightly more general version of (23), yet share all the constraints enforcing gap-trapping with speakers of the A-variety, the ungrammaticality of (25) is readily accounted for:

$$(27) \quad \begin{bmatrix} word \\ \text{ARG-ST} & \left\langle \boxed{0}, \boxed{1} \begin{bmatrix} \text{ARG-ST} & \langle \text{NP} \rangle \oplus list\left(\begin{bmatrix} \text{IND} & ref \end{bmatrix} \right) \end{bmatrix}, \boxed{2}\text{NP} \right\rangle \oplus list \\ \text{CONT} & \begin{bmatrix} \text{RELN} & cause \end{bmatrix} \end{bmatrix}$$

$$\rightarrow \begin{bmatrix} \text{ARG-ST} & \left\langle \boxed{0},\boxed{1} \begin{bmatrix} \text{COMPS} & \boxed{4} \\ \text{ARG-ST} & \langle \text{NP} \rangle \oplus \boxed{5}\left(\boxed{4} \bigcirc list(gap) \right) \\ \text{TO-BIND} & \{ \} \end{bmatrix}, \boxed{2} \right\rangle \oplus \boxed{5} \end{bmatrix}$$

Put differently: in this variety the constraint inhibiting gap-trapping given above is simply not lax enough to permit downstairs cliticisation in all and every case where gap-raising is banned: in essence, the constraint in (27) is largely identical to the one for the A-variety given in (23), except that the restriction to non-reflexives is dropped. As a consequence, presence of a referential reflexive will lead to a situation where both the antecedent of (26) and of (27) will simultaneously be satisfied. The respective consequents of these two constraints, however, are mutually incompatible, banning gap-raising in the former, while requiring it in case of the latter. Speakers of the A variety appear to have closed the gap by tightening the restriction on gap-raising (23) in such a way that the kind of over-specification characteristic of the grammar of B speakers will be avoided.

4.3 Conclusion

To conclude our discussion of clitic climbing in French, we have shown that idiosyncratic book-keeping devices such as the typing of ARG-ST

members as to their affixal realisation can be eliminated in favour of an approach that exclusively relies on valence features, argument structure, and non-local features. In doing this, we have offered a more uniform picture of French cliticisation. As a side effect, empirically and conceptually questionable mechanisms such as the vacuous application of affixal realisation to past participles have become obsolete. The current approach, which is partly a reformulation, in the context of head-driven extraction, of an earlier proposal by Miller and Sag (1995), is able to capture more directly the observed parallelism between extraction and cliticisation in French past participle agreement.

Similarly, I have sketched in this paper how the salient property of clitic climbing in Italian, i.e. the ban on split cliticisation, can be captured by reference to valency and argument structure alone. Thus, the elimination of different language-specific book-keeping devices from the grammars of French and Italian clitic climbing paves the way for more insightful comparative studies of Romance cliticisation: while in both languages argument composition is crucial to define the locality of CC, the major syntactic difference can be traced to a single distinction: Italian clitics are lexical realisations of arguments, whereas French clitics are lexical binders of (local) gaps.

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