

# HPSG and the interfaces

Paola Monachesi

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# 1 What are clitics?

- Clitics occur in a special position within the sentence.

(1) Martina lo legge.  
Martina cl.(acc) reads  
'Martina reads it.'

- Clitics occur in a fixed order which is usually different from that of the corresponding full phrases.

(2) a. Martina me lo spedisce.  
Martina cl.(dat) cl.(acc) sends  
b. \*Martina lo mi spedisce.  
Martina cl.(acc) cl.(dat) sends  
'Martina sends it to me.'

- Clitics cannot be stressed.

(3) a. Martina lo vuole.  
Martina cl.(acc) wants  
b. \*Martina LO vuole.  
Martina cl.(acc) wants  
'Martina wants it.'

- Even within a single language, elements which have been traditionally considered clitics can deviate from the properties mentioned above. Clitics do not constitute a uniform class.
- *Proposal*: decompose the properties of clitics and assimilate them to those of other well established categories.

## 2 Italian clitics

- Italian distinguishes accusative, dative, partitive and locative clitics.

(4)

	I S	II S	III S	I P	II P	III P
DAT	mi	ti	gli (m) le (f)	ci	vi	loro/gli
ACC	mi	ti	lo (m) la (f)	ci	vi	li (m) le (f)
REFL	mi	ti	si	ci	vi	si
PART	ne					
LOC	ci/vi					

- Italian clitics attach to a verb and precede it (*proclitics*) if the verb is finite. They follow it (*enclitics*) if it is non-finite or imperative.

(5) Martina lo legge.  
 Martina cl.(acc) reads  
 ‘Martina reads it.’

- It can be argued that Italian clitics behave as affixes on the basis of several tests proposed by Zwicky and Pullum (1983).
  - (i) Degree of selection with respect to the host.
  - (ii) Rigid order.
  - (iii) Coordination.
  - (iv) Arbitrary gaps.
  - (v) Morphophonological idiosyncrasies.
  - (vi) Verb left-dislocation.

## 3 The analysis

- The challenge that clitics pose for any analysis is that their morphophonological properties must be reconciled with their syntactic charac-

teristics (i.e. pronominal clitics satisfy the subcategorization requirements of verbs).

- It will be assumed that cliticization is a lexical operation which has both a syntactic/semantic effect and a morphophonological one.
- The syntactic/semantic effect is reflected on the fact that clitics satisfy the subcategorization requirements of the verb they are an argument of.
- Verbs which have undergone this operation are enriched with the relevant featural information, which is used in morphophonology for the realization of the cliticized verb form.

(6) Complement Cliticization Lexical Rule (CCLR)

$$\left[ \begin{array}{l} \textit{word} \\ \text{HEAD} \quad \textit{verb} \\ \text{VAL} \mid \text{COMPS} \quad \boxed{1} \circ \boxed{2} \\ \text{CLTS} \quad \textit{elist} \end{array} \right] \mapsto \left[ \begin{array}{l} \text{VAL} \mid \text{COMPS} \quad \boxed{1} \\ \text{CLTS} \quad \boxed{2} \text{ list } (\textit{cl-ss}) \end{array} \right]$$

- The effect of the rule is that the relevant complements are removed from the COMPS list of the verb and added as members of the CLTS list.
- It plays a key role in the analysis of sentences in simple tenses.

(7) Martina lo legge.  
 Martina cl.(acc) reads  
 ‘Martina reads it.’

(8)  $\left[ \text{COMPS} \langle \text{NP}[\text{acc}] \rangle \right]$

(9)  $\left[ \text{COMPS} \langle \rangle, \text{CLTS} \langle \text{NP}[\text{acc}]_{[3sgm]} \rangle \right]$

## 4 Morphophonological properties of Italian clitics

- The crucial issue is how to relate the information contained in the CLTS list to the phonological realization of the clitic.
- Relevant questions in this respect are how to account for the rigid order of the clitics and how to deal with the morphophonological idiosyncrasies and the arbitrary gaps which occur in the clitic cluster.
- Italian clitics seem to be ordered in a way that doesn't have a straightforward connection with syntactic, semantic or phonological information.

(10)

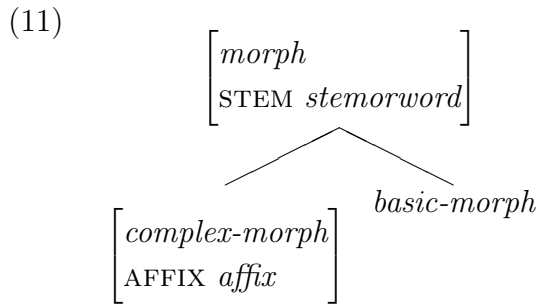
ce la	gliela	la si	me la	se la	te la	ve la
ce le	gliele	le si	me le	se le	te le	ve le
ce li	glieli	li si	me li	se li	te li	ve li
ce lo	glielo	lo si	me lo	se lo	te lo	ve lo
ce ne	gliene	le ci	me ne	se ne	te ne	ve ne
ci si	gli ci		mi ci		ti ci	vi ci
	gli si		mi si		ti si	vi si

- I will suggest that the unit that results from the combination of the clitics is not the result of a word formation process such as template morphology, but it represents the phonological ‘spell-out’ of certain morphosyntactic features of the verb.

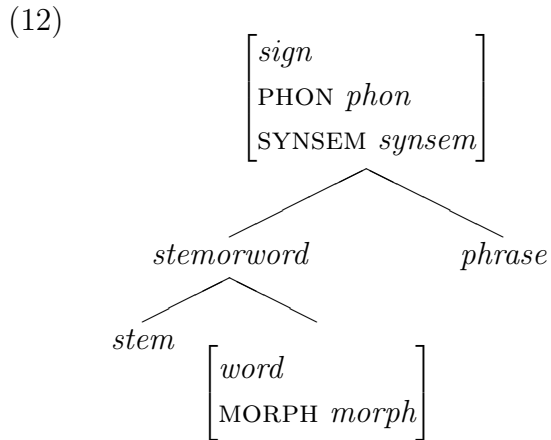
## 5 The signature

- Appropriate constraints relate the information contained in the CLTS list to the actual phonological realization of the pronominal clitic.
- Following Bird and Klein (1994) and most of the work concerned with morphology in HPSG, I have suggested that words have more structure than proposed in P&S 94.

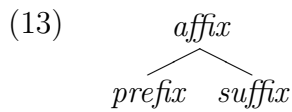
- The type *word* has MORPH as additional appropriate attribute, with value *morph*.
- It is further partitioned into two subtypes, which are *complex-morph* and *basic-morph*.
- The attribute STEM is defined as appropriate for *morph* and it is inherited by both of its subtypes.
- *Complex-morph* has an additional attribute associated with it, which is AFFIX.



- In the case of inflection, the attribute STEM has *stem* as value, while in the case of cliticization its value is *word*.
- I have followed Zwicky (1990) in assuming that stems constitute the input for inflectional processes while cliticization has an inflected word as stem and produces another inflected word.
- Cliticization constitutes thus an outer layer of inflectional morphology.
- *stemorword* is a subtype of *sign*.



- Affixes will be distinguished between prefixes and suffixes.



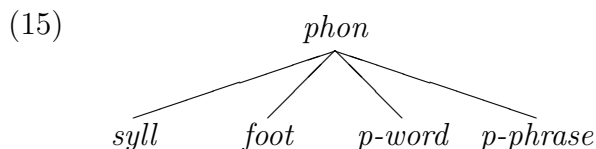
- The only appropriate attribute for *affix* is PHON.



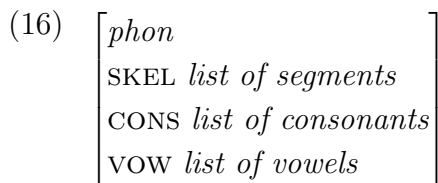
- Since affixes (and pronominal clitics) have only phonological information associated with them, it follows that they are not considered *signs*.
- This approach shares thus insights with realizational approaches to morphology such as those of Anderson (1992) or Stump (1992) that assume that morphemes do not exist as lexical entries, but only as realization of certain morphosyntactic properties of the host.

## 6 Phonology

- It is necessary to give more structure to the PHON value, in order to encode a prosodic hierarchy such as that proposed by Nespor & Vogel (1986).

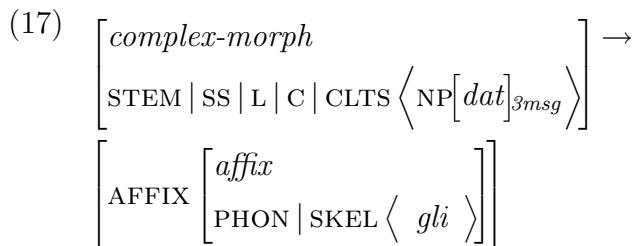


- Following Bird & Klein (1994), I will assume that *phon* will have certain appropriate features which are necessary to distinguish the segmental structure.



## 7 The realization of the clitics

- The link between the information contained in CLTS and the actual phonological realization of the clitic can be created by means of appropriate constraints.





- The constraint states that if there is a STEM with a CLTS list with one element which is a third person singular, masculine, dative NP, it must be realized as a clitic whose phonological form is *gli*.
- Certain generalizations can be expressed with respect to the position of the clitic. If the verb is finite, the clitics precede it.

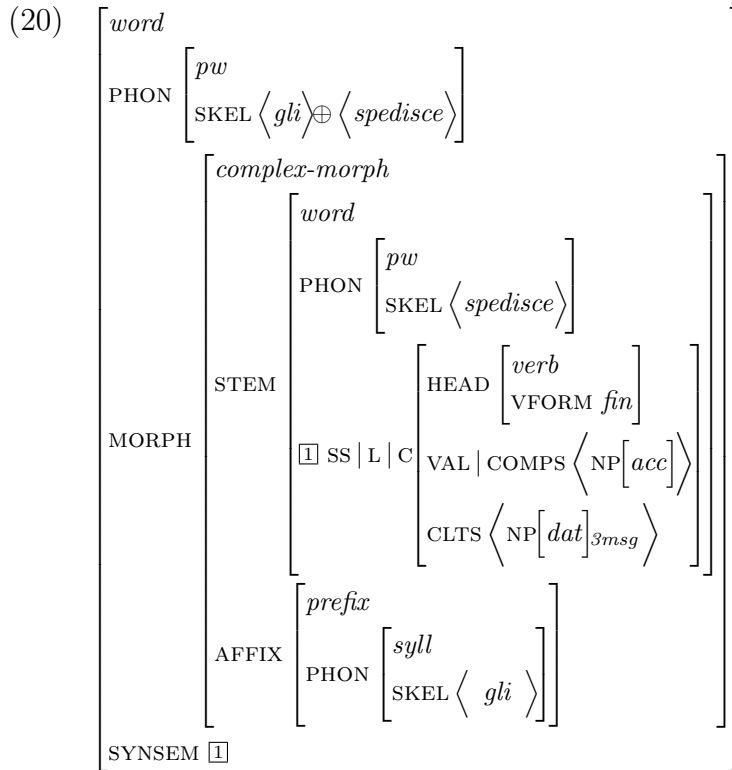
$$(18) \left[ \begin{array}{l} \text{word} \\ \text{MORPH} \left[ \begin{array}{l} \text{complex-morph} \\ \text{STEM} \left[ \begin{array}{l} \text{word} \\ \text{SS | L | C | H} \left[ \begin{array}{l} \text{verb} \\ \text{VFORM } \textit{fin} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \rightarrow$$

$$\left[ \begin{array}{l} \text{PHON} \left[ \begin{array}{l} \textit{pw} \\ \text{SKEL } \boxed{1} \oplus \boxed{2} \end{array} \right] \\ \text{MORPH} \left[ \begin{array}{l} \text{complex-morph} \\ \text{STEM} \left[ \begin{array}{l} \text{word} \\ \text{PHON} \left[ \begin{array}{l} \textit{pw} \\ \text{SKEL } \boxed{2} \end{array} \right] \end{array} \right] \\ \text{AFFIX} \left[ \begin{array}{l} \textit{prefix} \\ \text{PHON} \left[ \begin{array}{l} \textit{syll} \\ \text{SKEL } \boxed{1} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

- If the verb is nonfinite or imperative, the clitics will follow it.

$$(19) \left[ \begin{array}{l} \text{word} \\ \text{MOR} \left[ \begin{array}{l} \text{ST} \left[ \begin{array}{l} \text{word} \\ \text{SS} \mid \text{L} \mid \text{C} \mid \text{H} \left[ \begin{array}{l} \text{verb} \\ \text{VFORM } \textit{nonfin} \vee \textit{imp} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \rightarrow \\ \text{PHON} \left[ \begin{array}{l} \textit{pw} \\ \text{SKEL } \boxed{2} \oplus \boxed{1} \end{array} \right] \\ \text{MORPH} \left[ \begin{array}{l} \text{STEM} \left[ \begin{array}{l} \textit{stem} \\ \text{PHON} \left[ \begin{array}{l} \textit{pw} \\ \text{SKEL } \boxed{2} \end{array} \right] \end{array} \right] \\ \text{AFFIX} \left[ \begin{array}{l} \textit{suffix} \\ \text{PHON} \left[ \begin{array}{l} \textit{syll} \\ \text{SKEL } \boxed{1} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

- A cliticized verb form like *gli spedisce* ‘he sends him’ is associated with the following description:



## 8 Morphophonological idiosyncrasies

- The same approach can be used also if more than one clitic is present. In this case, the two clitics merge together into a new unit, which is not necessarily related to the two individual parts it is composed of.
- The problem of the ordering of clitics doesn't arise.
- Constraints can be formulated to account for the fact that if the clitic *mi* cooccurs with the third person accusative clitic or with the partitive clitic, it is realized as *me*.

$$(21) \left[ \begin{array}{l} \text{complex-morph} \\ \text{STEM} \mid \text{SS} \mid \text{L} \mid \text{C} \mid \text{CLTS} \left\langle \text{NP} \left[ \text{dat} \right]_{1Sg}, \text{NP} \left[ \text{acc} \right]_{3MSg} \right\rangle \right] \rightarrow \\ \left[ \begin{array}{l} \text{AFFIX} \left[ \begin{array}{l} \text{affix} \\ \text{PHON} \mid \text{SKEL} \left\langle \text{melo} \right\rangle \end{array} \right] \end{array} \right]$$

- A similar change is triggered by the third person dative feminine *le*, which surfaces as the masculine dative *gli* in the same context.
- Another relevant case is that of vowel deletion which occurs if a clitic like *lo* or *la* attaches as a proclitic to a verb which begins with a vowel.

$$(22) \left[ \begin{array}{l} \text{complex-morph} \\ \text{STEM} \left[ \begin{array}{l} \text{PHON} \left[ \begin{array}{l} \text{VOW} \left\langle \text{1} \right\rangle \oplus \text{2} \\ \text{SKEL} \left\langle \text{1} \right\rangle \oplus \text{3} \end{array} \right] \\ \text{SS} \mid \text{L} \mid \text{C} \mid \text{CLTS} \left\langle \text{NP} \left[ \text{acc} \right]_{3MSg} \right\rangle \end{array} \right] \right] \rightarrow \\ \left[ \begin{array}{l} \text{AFFIX} \left[ \begin{array}{l} \text{prefix} \\ \text{PHON} \mid \text{SKEL} \left\langle \text{l} \vee \text{lo} \right\rangle \end{array} \right] \end{array} \right]$$

## 9 Arbitrary gaps

- The approach proposed can also deal with cases of arbitrary gaps.
- Third person clitics cannot combine with a present participle.

$$(23) \left[ \begin{array}{l} \text{complex-morph} \\ \text{STEM} | \text{SS} | \text{L} | \text{C} | \text{HEAD} \left[ \begin{array}{l} \text{verb} \\ \text{VFORM} \neg \text{pres part} \end{array} \right] \\ \text{CLTS} \langle \text{NP}[\text{acc}]_{3pl} \rangle \\ \left[ \begin{array}{l} \text{AFFIX} \left[ \begin{array}{l} \text{suffix} \\ \text{PHON} | \text{SKEL} \langle \text{le} \rangle \end{array} \right] \end{array} \right] \end{array} \right] \rightarrow$$

- Italian doesn't allow the combination of a first or second person accusative clitic together with a dative one.
- This fact can be accounted for by the *Clitic Realization Principle* which says that verbal stems which have a nonempty CLTS list must satisfy one of the realizational constraints of the type discussed.

$$(24) \left[ \begin{array}{l} \text{complex-morph} \\ \text{STEM} | \text{SS} | \text{L} | \text{C} | \text{CLTS } \textit{nelist} \end{array} \right] \rightarrow C_1 \vee C_2 \vee \dots C_n$$

- If no realizational constraint spells out the combination *gli mi/ti*, sentences with this clitic combination are not grammatical because they don't satisfy the *Clitic Realization Principle*.
- The combination of a a first and second person clitic can be treated in a similar way.