

A multi-layered model for morphological constructions

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1. Introduction

Morphological schemas / patterns can be seen as sets of parallel correspondences between (formal, syntactic and semantic) properties of distinct lexemes:

barca	⇔	imbarcare	=	guinzaglio	⇔	inguinzagliare
X		inX		X		inX
N		V _{are}		N		V _{are}
x		loc (y, x)		x		loc (y, x)
'boat'		'embark'		'leash _N '		'leash _V '

An issue: which sets of correspondences count as a distinct morphological pattern?

How to draw the boundaries between a pattern and another?

The correspondence between a semantic (and syntactic) specification and a formal one is rarely 1:1.

Morpho-lexical paradigms intervene in the delimitation and identification of morphological patterns.

Denominal verbs with a spatial reading ('put y into x') in Italian:

- | | | |
|--------|--------------------------|-------------------------------|
| (1) a. | stiva ⇒ stivare | 'hold _N ' / 'stow' |
| b. | barca ⇒ imbarcare | 'boat' / 'embark' |
| c. | ospedale ⇒ ospedalizzare | 'hospital' / 'hospitalize' |
| d. | trono ⇒ intronizzare | 'throne' / 'enthrone' |

Denominal verbs with a qualitative reading ('make / provoke x (to y)) in Italian:

- | | | |
|--------|----------------------------|--------------------------|
| (2) a. | emozione ⇒ emozionare | 'emotion' / 'excite' |
| b. | voglia ⇒ invogliare | 'desire' / 'tempt' |
| c. | terrore ⇒ terrorizzare | 'terror' / 'terrorize' |
| d. | bastardo ⇒ imbastardizzare | 'bastard' / 'bastardize' |

Hypotheses:

- The sets (1) and (2) correspond to distinct lexeme formation patterns, each displaying multiple exponents.
- (a), (b), (c) (and (d)) correspond to different lexeme formation patterns (conversion, *in*-prefixation, *-izzare*-suffixation,...) with variable (underspecified) semantics.

Focus on denominal / deadjectival prefixed Vs.

- | | | |
|--------|---------------------------|---|
| (3) a. | qualitative | |
| | pazzo ⇒ impazzire | 'fool' / 'go mad' |
| | bello ⇒ abbellire | 'beautiful' / 'embellish' |
| | foltò ⇒ sfoltire | 'thick' / 'make less thick' |
| b. | spatial | |
| | barca ⇒ imbarcare | 'boat' / 'embark' |
| | gancio ⇒ agganciare | 'hook _N ' / 'hook _V ' |
| | coperchio ⇒ scopercchiare | 'lid' / 'uncover' |
| c. | iterative | |
| | bandiera ⇒ sbandierare | 'flag' / 'shake a flag' |

Directionality (+/- polarity), only available for event [+telic] readings, not for activities.

2. Paradigmatic CxM

Word-formation can be viewed primarily as a means of integrating a (new) complex lexeme into a morpho-lexical network.

From the point of view of morphology, this means at the crossing point of a morphological family and of a morphological series.

It can be argued that all (formal and semantic) properties of complex lexemes are an outcome of this mechanics.

Word-formation patterns (constructions) emerge as generalizations made on the lexicon.

These generalizations may involve different (formal, categorial, semantic) features of lexemes; constructions may be more or less specific.

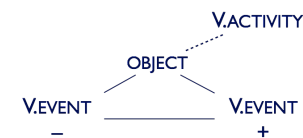
As the lexicon may display heterogeneous and possibly contradictory properties, word-formation patterns are best represented in terms of hierarchically ordered constraints (cf. Plénat & Roché 2014, Roché & Plénat 2014).

We may formulate the hypothesis that derivational paradigms tend to reproduce the structure of lexico-conceptual networks.

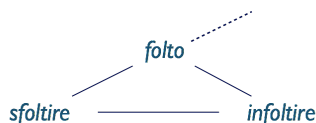
(Derivational) Paradigm Uniformity Constraint

- All derivational paradigms are identical.
- A derivational paradigm always coincides with a lexico-conceptual network.

Lexico-conceptual network of object-related event verbs (for 'object', cf. Roché ms.):



The lexico-conceptual network of the noun *folto* ('thick') includes the verbs *infoltire* ('make thick(er)') and *sfoltire* ('make (less) thick', whose semantics can be represented as follows: $\text{cause}(z, \text{become}(y, [\neg]x))$).



3. Prefixed verbs in Italian

The shape of the exponent is not the only variable active for denominal / deadjectival prefixed verbs in Italian. These variables include:

- the inflectional class of the verb (infinitive in *-are* vs. *-ire*)
- the semantic reading of the verb (qualitative vs. spatial)
- the semantic polarity of the verb (positive / convergent vs. negative / divergent)
- the category of the base (N or A)

(cf. Reinheimer-Rîpeanu 1974, Crocco Galêas & Iacobini 1993, Iacobini 2004, Todaro 2017...).

Database of 1,674 denominal and deadjectival prefixed verbs automatically extracted from the *ItWac* corpus (and manually cleaned) (Todaro 2017):

	ARE	IRE	TOT.
a-	332	40	372
A	92	29	121
N	240	11	251
in-	461	188	649
A	64	126	190
N	397	62	459
s-	409	19	428
A	55	14	69
N	354	5	359
de-	118	0	118
A	19	0	19
N	99	0	99
dis-	103	4	107
A	20	3	23
N	83	1	84
TOT.	1423	251	1674

3. Analysis

Apart from some general tendencies (no deadjectivals with a spatial reading; no *de-/dis-* prefixation in the *-ire* class), a biunivocal relation between the various features of prefixed verbs is impossible to find:

		qualitative				spatial			
		+		-		+		-	
		N	A	N	A	N	A	N	A
a-	-are	✓	✓			✓			
	-ire	✓	✓						
in-	-are	✓	✓			✓			
	-ire	✓	✓						
s-	-are	✓	✓	✓	✓				✓
	-ire	✓	✓	✓	✓				

de-	-are	✓	✓		✓
	-ire				
dis-	-are	✓	✓		✓
	-ire				

No correlation between an exponent and a meaning, between an inflectional class and a meaning, etc.

They are best described in terms of a general $[\text{pref}[X]]_v$ construction with unspecified features, that can be selected by speakers, among others, according to their compatibility with the meaning to be expressed (the slot in the morphological paradigm to be filled).

A general construction:

$$[\text{pref}[X]_{N/A}]_{V\text{-are/-ire}} \leftrightarrow [\text{CAUSE}(z, \text{BECOME}(y, [\neg]x))]_j$$

Each individual sub-construction results from the combination of the choices made by speakers among the possible values of each variable.

Events involving spatial and qualitative relations are subtypes of a general meaning involving a *CAUSE* predicate (cf. Aurnague 2011, 2012).

Subconstructions:

Qualitative:

invecchiare ('get old': deadjectival, qualitative, +, *-are*)

$$[\text{in}[X]_A]_{V\text{-are}} \leftrightarrow [\text{CAUSE}(z, \text{BECOME}(\text{be_old}_i(x, d1)))_j]$$

incoraggiare ('encourage': denominal, qualitative, +, *-are*)

$$[\text{in}[X]_N]_{V\text{-are}} \leftrightarrow [[\text{CAUSE}(z, \text{BECOME}(\text{be_with_courage}_i(x, d1)))]_j]$$

sfoltire ('make less thick': deadjectival, qualitative, -, *-ire*)

$$[\text{in}[X]_A]_{V\text{-ire}} \leftrightarrow [\text{CAUSE}(z, \text{BECOME}(\neg\text{be_thick}_i(x, d1)))]_j$$

Spatial

imbarcare ('embark': denominal, spatial, +, *-are*)

$$[\text{in}[X]_N]_{V\text{-are}} \leftrightarrow [\text{CAUSE}(z, \text{BECOME}(\exists x \text{boat}(x) \ \& \ \text{loc}(y, \text{boat}_i)))_j]$$

scoperchiare ('uncover': denominal, spatial, -, *-are*)

$$[\text{s}[X]_N]_{V\text{-are}} \leftrightarrow [\text{CAUSE}(z, \text{BECOME}(\exists x \text{lid}(x) \ \& \ \neg\text{loc}(y, \text{lid}_i)))]_j$$

In a spatial relation, X (the verb's base) may correspond either to the Figure or to the Ground (or be ambiguous, cf. *incorniciare* 'frame v'), the ambiguity is resolved mainly on the basis of pragmatics.

4. Conclusions

Morphological constructions show compatibility (or not) with slots in lexico-conceptual paradigms, thus shaping morphological (derivational) paradigms:

Derivational paradigms are independent from the word-formation patterns (construction) that instantiate them.

Their shape (number of cases, connections...) is partially modeled by more general lexico-conceptual networks.

Word-formation patterns are evaluated on the basis of their compatibility with slots in derivational paradigms.

Denominal and deadjectival verbs in Italian (and in other Romance languages):

multiple features variously distributed among different constructions.

only partially correlated with semantic properties of derived lexemes.

the compatibility of each feature with a specific meaning (= a slot in the derivational paradigm) may be calculated independently.

Each (sub)construction depends on choices made by speakers over the set of potential values for each (formal or semantic) variable.

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