

Network Core Mechanisms of Exponence

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Construction morphology

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1. Basic ingredients of Construction Morphology (Booij, in preparation).
2. Non-compositional properties of complex words
3. Mismatches between form and meaning: the role of paradigmatic relations
4. Allomorph selection
5. Inflection (multiple exponence and periphrasis).

## 1. Basic ingredients of CM

1.1. Word-based morphology: morphological schemas express generalizations over sets of existing words, and are recipes for forming new words.

(1) buy    buyer  
eat    eater  
shout    shouter

(2)  $[[x]_V er]_N$  ‘one who Vs’

Tripartite parallel architecture (Jackendoff, 2002). Words are signs. Pairings of forms and meanings ( $\approx$  Sign-based morphology, (Inkelas and Zoll, 2005; Orgun, 1999))

Figure 1. The schema for deverbal *-er*

$\omega_i$	$\leftrightarrow$	$N_i$	$\leftrightarrow$	$[\text{one who PRED}_j]_i$
		\		
$[ ]_j [\text{er}]_k$		$V_j \text{Aff}_k$		

“Pieces of syntactic structure can be listed in the lexicon with associated meanings, just as individual words are; these are the MEANINGFUL CONSTRUCTIONS of the language.”

“Construction grammar makes no principled distinction between words and rules: a lexical entry is more word-like to the extent that it is fully specified, and more rule-like to the extent that it contains variables [...].”

“[L]exical entries are arranged in an inheritance hierarchy.” (Jackendoff, 2008), p. 15.

Compounding schema for English:

$$(3) \quad \begin{array}{c} [[a]_{Xk} [b]_{Ni} ]_{Nj} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_k]_j \\ \quad \quad \quad | \quad | \\ \quad \quad \quad [\alpha F] \quad [\alpha F] \end{array}$$

#### 1.2. Hierarchical lexicon with subpatterns and default inheritance (Booij, 2005)

(4)	<i>Noun:</i>	<i>example</i>
	ber-e ‘bear’	bere-sterk ‘very strong’, bere-aardig ‘very kind’
	bloed ‘blood’	bloed-serieus ‘very serious’, bloed-link ‘very risky’
	dood ‘death’	dood-eng ‘very scary’, dood-gewoon ‘very ordinary’
	kei ‘boulder’	kei-goed ‘very good’, kei-gaaf ‘very nice’
	pis ‘piss’	pis-nijdig ‘very angry’, pis-woedend ‘very angry’
	poep ‘shit’	poep-heet ‘very hot’, poep-lekker ‘very pleasant’
	ret-e ‘ass’	rete-leuk ‘very nice’, rete-spannend ‘very exciting’
	reuz-e ‘giant’	reuze-leuk ‘very nice’, reuze-tof ‘very good’

[[bere]<sub>N</sub> [x]<sub>A</sub>]<sub>A</sub> ‘very A’

#### Reduplication in Afrikaans (Botha, 1988)

- (5) Die kinder drink bottels-bottels limonade  
 The children drink bottles-bottles lemonade  
 ‘The children drink bottles and bottles of lemonade’  
 Bakke-bakke veldblomme versier die tafels  
 Bowl-bowls veldblomme versier die tafels  
 ‘The tables are decorated with wild flowers by the bowlful’

$[[x]_{Npl,i} [x]_{Npl,i}]_{Nj} \leftrightarrow [\text{CONSIDERABLE NUMBER OF OBJECTS}]_j$

The two constituents are co-indexed which indicates their identity. The phonological make up of the two constituents is also identical but there are los of cases in which reduplication triggers additional phonological operations (Inkelas and Zoll, 2005).

### 1.3. Schema unification: co-occurrence of word formation patterns

(6)	<i>verb</i>	<i>deverbal adjective</i>	<i>on-adjective</i>
	bedwing ‘suppress’	bedwing-baar ‘suppressable’	on-bedwing-baar ‘unsuppressable’
	bestel ‘deliver’	bestel-baar ‘deliverable’	on-bestel-baar ‘undeliverable’
	blus ‘extinguish’	blus-baar ‘extinguishable’	on-blus-baar ‘unextinguishable’

(7)  $[\text{on-A}]_A + [\text{V-baar}]_A = [\text{on}[[\text{V-baar}]_A]_A$

(8)	<i>noun</i>	<i>verb</i>
	caffeine	decaffeinatize
	moral	demoralize
	mythology	demythologize
	nuclear	denuclearize
	Stalin	destalinize

(9)  $[\text{de} [[x]_N \text{ate}]_V]_V \quad [\text{de} [[x]_N \text{ize}]_V]_V \quad [\text{de} [[x]_A \text{ize}]_V]_V$

### 1.4. Schemas can also be used for multi-word lexical units.

French N à N

- (10) moulin à poivre ‘pepper mill’  
verre à vin ‘wine glas’  
bois à feu ‘firewood’

fruit à confiture ‘jam fruit’  
moteur à essence ‘petrol engine’

Particle verbs in Germanic languages are separable, yet lexical units

## 2. Non-compositional properties of complex words

### 2.1. Exocentric compounds

#### (11) *French*

chauffe-eau ‘water heater’  
coupe-ongles ‘nail clipper’  
garde-barrière ‘gate keeper’  
grill-pain ‘toaster’

#### *Italian*

lava-piatti ‘dish washer’  
mangia-patate ‘potato eater’  
porta-lettere ‘postman’  
rompi scatole ‘brain breaker, puzzle’

#### *Spanish*

lanza-cohetes ‘rocket launcher’  
come-curas ‘lit. eat priests, anti-clerical’  
mata-sanés ‘lit. kill healthy people, quack doctor’  
limpia-botas ‘lit. clean boots, boot black’

(12)  $[[V_k][N_i]_{N_j}] \leftrightarrow [AGENT / INSTRUMENT_j \text{ OF ACTION}_k \text{ ON OBJECT}_i]_j$

Spanish exocentric adjectives

#### (13) pell-i-rojo

hair-LINKING VOWEL- red

‘red-haired’

cabiz-bajo

head-low

‘with low head, crest-fallen’

(14)  $[[x]_{Ni} [y]_{Aj}]_{Ak} \leftrightarrow [\text{PROPERTY OF HAVING OBJECT}_i \text{ WITH PROPERTY}_j]_k$

Dutch: gender of nouns derived from verbs by conversion:

(15)	<i>verb stem</i>	<i>noun with common gender</i>
	bouw ‘to build’	bouw ‘building’
	loop ‘to walk’	loop ‘walk’
	trap ‘to kick’	trap ‘kick’
	val ‘to fall’	val ‘fall’
	was ‘to wash’	was ‘wash’
	zet ‘to put’	zet ‘move’

(16)  $[[x]_{vj}]_{N[-neuter]_i} \leftrightarrow [\text{ACTION}_j]_i$

Verbs with prefixes like *be-*, *ge-*, *ont-* and *ver-* do allow for conversion, but in this case the converted noun has neuter gender:

(17)	<i>verb</i>	<i>derived neuter noun</i>
	ge-bruik ‘to use’	gebruik ‘use’
	ge-loof ‘to believe’	geloof ‘belief’
	ver-bruik ‘to consume’	verbruik ‘consumption’
	ver-zuim ‘to omit’	verzuim ‘omission’
	ver-lang ‘to desire’	verlangen ‘desire’
	be-derf ‘to spoil’	bederf ‘decay’
	be-gin ‘to begin’	begin ‘beginning’
	be-heer ‘to manage’	beheer ‘management’
	ont-bijt ‘to breakfast’	ontbijt ‘breakfast’
	ont-werp ‘to design’	ontwerp ‘design’
	ont-zet ‘to relieve’	ontzet ‘relief’

(18)  $[[\text{Prefix-x}]_{vj}]_{N[+neuter]_i} \leftrightarrow [\text{ACTION}_j]_i$  (Prefix = *be-*, *ge-*, *ont-*, *ver-*)

### 3. Mismatches between form and meaning: the role of paradigmatic relations

- (19)
- |            |            |
|------------|------------|
| alpin-ism  | alpin-ist  |
| altru-ism  | altru-ist  |
| aut-ism    | aut-ist    |
| bapt-ism   | bapt-ist   |
| commun-ism | commun-ist |
| pacif-ism  | pacif-ist  |

- (20)  $\langle [x\text{-ism}]_{N_i} \leftrightarrow \text{SEM}_i \rangle \leftrightarrow \langle [x\text{-ist}]_{N_j} \leftrightarrow [\text{person involved in SEM}_i]_j \rangle$

- (21)
- |                             |                               |
|-----------------------------|-------------------------------|
| alloc-eer ‘to allocate’     | alloc-atie ‘allocation’       |
| communic-eer ‘communicate’  | communic-atie ‘communication’ |
| reden-eer ‘to reason’       | reden-atie ‘reasoning’        |
| stabilis-eer ‘to stabilize’ | stabilis-atie ‘stabilization’ |

- (22)  $\langle [x\text{-eer}]_{V_i} \leftrightarrow [\text{SEM}]_i \rangle \leftrightarrow \langle [x\text{-atie}]_{N_j} \leftrightarrow [\text{action of SEM}_i]_j \rangle$

- (23)
- | <i>toponym</i> | <i>inhabitative</i> | <i>toponymic adjective</i> |
|----------------|---------------------|----------------------------|
| Provençe       | Provenç-aal         | Provenç-aal-s              |
| Amerika        | Amerik-aan          | Amerik-aan-s               |
| Catalonië      | Catal-aan           | Catal-aan-s                |
| Guatemala      | Guatemalt-eek       | Guatemalt-eek-s            |
| Chili          | Chil-een            | Chil-een-s                 |
| Madrid         | Madril-een          | Madril-een-s               |
| Portugal       | Portug-ees          | Portug-ees                 |
| Ambon          | Ambon-ees           | Ambon-ees                  |
| Rome           | Rom-ein             | Rom-ein-s                  |
| Palestina      | Palest-ijn          | Palest-ijn-s               |
| Bretagne       | Breton              | Breton-s                   |
| Azië           | Azi-aat             | Azi-at-isch                |
| Monaco         | Moneg-ask           | Moneg-ask-isch             |
| Israel         | Israel-iet          | Israel-it-isch             |
| Moskou         | Moskov-iet          | Moskov-it-isch             |

(24)  $\langle [x]_{Ni} \leftrightarrow [\text{inhabitant of } j]_i \rangle \leftrightarrow \langle [[x]_{Ni-s}]_{Ak} \leftrightarrow [\text{relating to } j]_k \rangle$

(25)

<i>inhabitative</i>	<i>toponymic adjective</i>	<i>female inhabitative</i>
Provençaal	Provençaal-s	Provençaal-s-e
Amerikaan	Amerikaan-s	Amerikaan-s-e
Catalaan	Catalaan-s	Catalaan-s-e
Guatemalteek	Guatemalteek-s	Guatemalteek-s-e
Chileen	Chileen-s	Chileen-s-e
Madrileen	Madrileen-s	Madrileen-s-e
Portugees	Portugees	Portuge-s-e
Ambonees	Ambonees	Ambone-s-e
Romein	Romein-s	Romein-s-e
Palestijn	Palestijn-s	Palestijn-s-e
Breton	Breton-s	Breton-s-e
Aziaat	Aziat-isch	Aziat-isch-e
Monegask	Monegask-isch	Monegask-isch-e
Israeliet	Israelit-isch	Israelit-isch-e
Moskoviet	Moskovit-isch	Moskovit-isch-e

(26)  $\langle [[x]_{Ni-s}]_{Ak} \leftrightarrow [\text{relating to } j]_k \rangle \leftrightarrow \langle [[[x]_{Ni-s}]_{Ak}]_{Ni} \leftrightarrow [\text{female inhabitant of } j]_i \rangle$   
 where  $j$  is the index for the geographical entity involved also mentioned in schema (24).

#### 4. Hierarchical lexicon and allomorph selection

4.1. Subpatterns of compounding can be expressed in a hierarchical lexicon. Japanese *suru*-compounding, formation of verbs from verbal nouns (constructional idiom) (Kageyama, 1982):

- (27)
- a. yama-nobori-suru  
 mountain-climbing-do  
 ‘to do mountain climbing’
  - b. kenyuu-suru  
 research-do  
 ‘to do research’

- c. hoo-bei-suru  
visit-USA-do
- d. saikuringu-suru  
cycling-do  
'to cycle'

(28) [[VN] [*suru*]<sub>V</sub>]<sub>V</sub> 'to perform the act denoted by VN'

#### 4.2. Allomorph selection in Dutch: governed by morphological structure.

- (29) preposition: met [mɛt]  
postposition and particle: mee [me:]  
first part of a compound: mede [me:də]
- (30) [ [*mede*]<sub>ADV</sub> N ]<sub>N</sub> 'N shared with other persons'  
mede-beslissing 'co-decision'  
mede-bewoner 'fellow occupant'  
mede-broeder 'fellow brother'  
mede-lander 'fellow countryman'  
mede-weten '(shared) knowledge'
- (31) mee-bidden 'to join in praying' [mee-V] 'to join in V-ing'  
mee-denken 'to join in thinking'  
mee-drinken 'to join in drinking'  
mee-eten 'to join in eating'
- (32) mede-bewoner / \*mee-bewoner 'co-occupant'  
mede-gelovige / \*mee-gelovige 'fellow believer'  
mede-klinker / \*mee-klinker 'consonant'
- (33) a. eind-examen / \*einde-examen 'end-exam, final exam'  
eind-gesprek / \*einde-gesprek 'end-interview, final interview'  
eind-station / \*einde-station 'end-station, final station'  
eind-spel / \*einde-spel 'end-game, final game'
- b. aard-appel / \*aarde-appel 'earth-apple, potato'  
aard-atmosfeer / \*aarde-atmosfeer 'earth-atmosphere'  
aard-schok / \*aarde-schok 'earth-quake'

aard-worm/ \*aarde-worm 'earth-worm'

(exception: *aarde-werk* 'earthenware, pottery', in which *aarde* has a specialized meaning).

Compare: *chocolade-reep* (*chocola*), *lade-kastje* (*la*) with long forms in compounds.

- (34) [[eind]<sub>N</sub> [x]<sub>N</sub>]<sub>N</sub> 'final [x]<sub>N</sub>'  
[[aard]<sub>N</sub>[x]<sub>N</sub>]<sub>N</sub> '[x]<sub>N</sub> related to earth'

(35) stem allomorphy in Dutch verbs

glijd /glij 'to glide'  
rijd /rij 'to ride / drive'  
snijd /snij 'to cut'  
wijd / wij 'to dedicate'

Long allomorph appears in derived words, and the short allomorph is used in compounds:

- |  |                         |
|--|-------------------------|
| (36) <i>compound</i>                       | <i>derived word</i>     |
| glij-baan 'slide-track, slide'             | glijd-er 'slid-er'      |
| glij-middel 'slide-means, lubricant'       |                         |
| rij-baan 'ride-track, lane'                | rijd-er 'rid-er'        |
| rij-bewijs 'ride-license, driving license' |                         |
| rij-wiel 'ride-wheel, bike'                |                         |
| snij-biet 'cut-beet, spinach beet'         | snijd-er 'cutt-er'      |
| snij-gras 'cut-grass, cutting gras'        | snijd-baar 'slice-able' |
| snij-vlak 'cut-edge, cutting edge'         | snijd-sel 'cutt-ing'    |
| wij-water 'holy water'                     | wijd-ing 'consecration' |

- (37) [[glij]<sub>V</sub> [x]<sub>N</sub>]<sub>N</sub>  
[[rij]<sub>V</sub> [x]<sub>N</sub>]<sub>N</sub>  
[[snij]<sub>V</sub> [x]<sub>N</sub>]<sub>N</sub>  
[[wijd]<sub>V</sub> [x]<sub>N</sub>]<sub>N</sub>

- (38) a. eer-wraak ‘honour-revenge, revenge for the protection of family honour’  
 eer-betoon ‘honour-show, tribute’  
 b. ere-lid ‘honorary member’ / \*eer-lid  
 ere-voorzitter ‘honorary chairman’ / \*eer-voorzitter  
 ere-doctor ‘honorary doctor’ / \*eer-doctor

(39) [[ere]<sub>N</sub>[x]<sub>N</sub>]<sub>N</sub> ‘honorary x’

## 5. Inflection

### 5.1. Multiple exponence cf. (Gurevich, 2006)

The cells of a paradigm are morphological schemas that are paradigmatically related.

Latin *mensae -mens-as* <[x -ae] ↔ N<sub>[+nom, +pl]</sub>> ↔ <[x -as] ↔ N<sub>[+acc, +pl]</sub>>

5.2. Periphrasis = phrasal, multi word construction (Blevins, 2008; Booij, 2002; Börjars et al., 1997; Sadler and Spencer, 2001).

(39) Paradigm of 3rd pers. sg. forms of *laudare* 'to praise'

IMPERFECTIVE	Active	Passive
<i>Present</i>	laudat	laudatur
<i>Past</i>	laudabat	laudabantur
<i>Future</i>	laudabit	laudabitur
PERFECTIVE	Active	Passive
<i>Present</i>	laudavit	laudatus/a/um est
<i>Past</i>	laudaverat	laudatus/a/um erat
<i>Future</i>	laudaverit	laudatus/a/um erit

Deponentia have the same pattern: *loquor / locutus est* ‘speaks / has spoken’

(40) 3rd pers. sg. forms of the Dutch verb *doden* 'to kill'

IMPERFECTIVE	Active	Passive
<i>Present</i>	doodt	wordt gedood
<i>Past</i>	doodde	werd gedood
PERFECTIVE		
<i>Present</i>	heeft gedood	is gedood
<i>Past</i>	had gedood	was gedood

[[x]<sub>v0-Part</sub> [word]<sub>v0</sub>]<sub>v0</sub> ↔ Pass [ PRED] (Pass = argument suppression)

Subtype of the raising construction: Syntactic compound, accessible for movement operations, no violation of lexical integrity.

Progressive construction (Booij, 2008)

(41) Jan is aan het fiets-en / \*Jan is fietsend / De fietsende professor  
John is at the cycle-INF / John is cycling / The cycling professor  
'John is cycling'

Jan is de aardappels aan het schillen  
John is the potatoes at the peel-INF  
John is peeling the potatoes'

(42) [[aan]<sub>P</sub> [[het]<sub>Det</sub> [V-INF]<sub>N</sub>]]<sub>NP</sub>]<sub>PP</sub> 'V-ing continuously'

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