

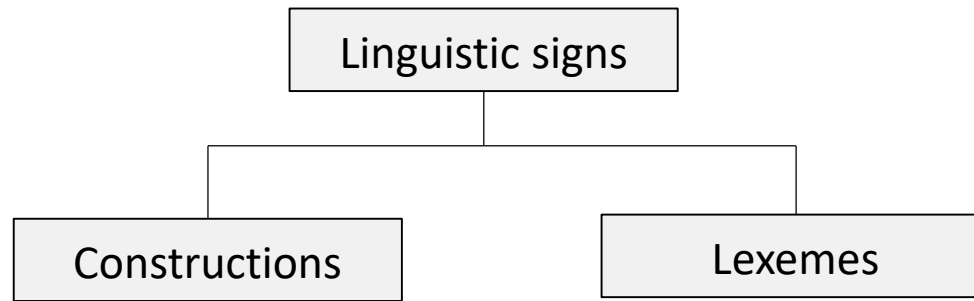
# The higher-level network

Holger Diessel

Lake Como Summer School 2019

# The higher-level network

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Signs are interconnected:

- Lexical relations
- Constructional relations
- Filler-slot relations

# **Lexical relations**

# Lexical relations

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Lexemes are interconnected in an association network.

Factors that influence lexical access:

- Frequency (Foster and Chambers 1973)
- Priming (Dell 1986)
- Neighborhood density and family size (Schreuder and Baayen 1993)

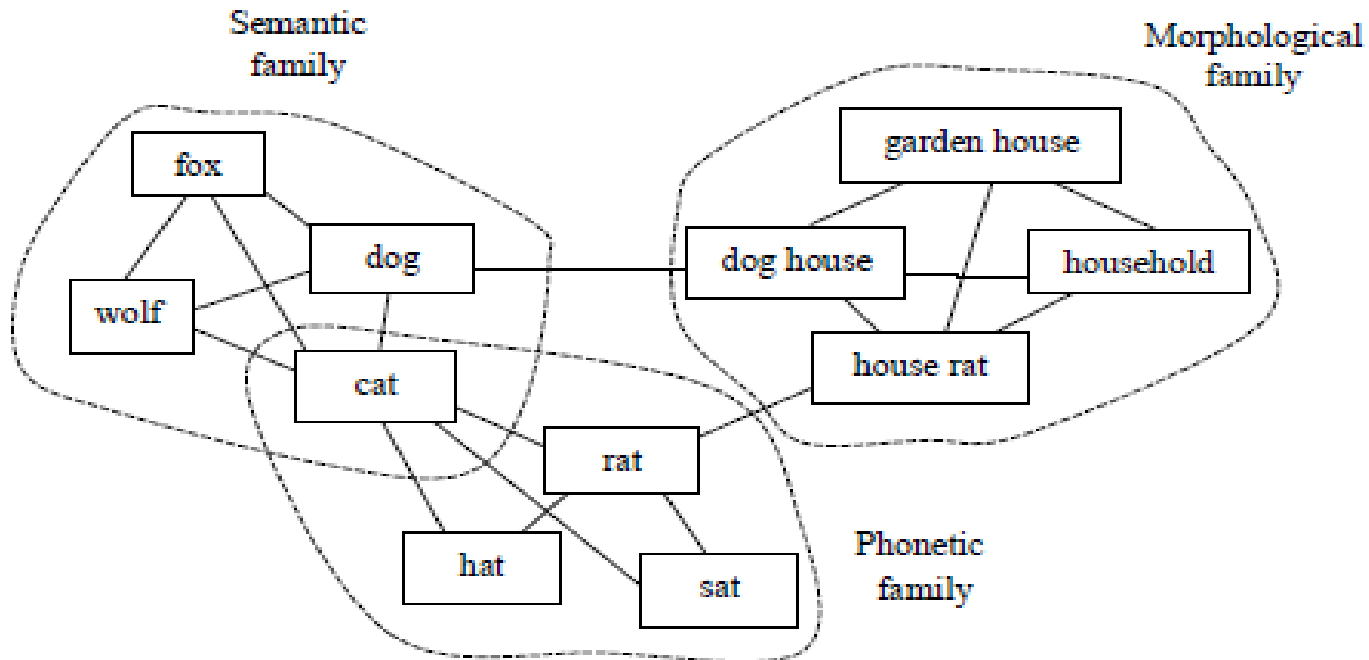
(1) cat: rat, hat, mat, sat, vat, pat, at  
cup: cut, up

(2) house: household, housing, dog house, rat house, garden house  
horizon: horizontal

➤ Dense neighborhoods and large families facilitate access and acquisition (e.g. Storkel 2004; Gahl et al. 2012)

# Lexical relations

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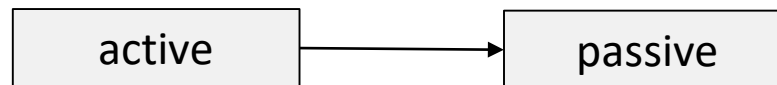


# **Constructional relations**

# Constructional relations

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Goldberg (2006): “... every surface pattern is best analysed on its own terms, without relying on explicit reference to a possible alternative phrase.”



Like lexemes, constructions are organized in „families“:

- Families of similarity
- Families of contrast

# **Families of similarity**



# Construction families

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Hypothesis: The activation (and acquisition) of constructions is influenced by the same factors as lexical access.

- Frequency
- Priming
- Constructional family size

Evidence for construction families comes:

- Sentence processing (Wells et al. 2009)
- Language acquisition (Diessel and Tomasello 2005)
- Language change (De Smet et al. (2018)

Example: RCs

# Construction families

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Many studies found that subject RCs are easier to learn and process than object RCs?

(1) The man [who \_\_ met the woman] ...

(2) The woman [who the man met \_\_] ...

- Subject RCs are easier because they involve a shorter distance between head and gap (e.g. Hawkins 2004).

# Construction families

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- Subject RCs are easier because they are similar to main clauses (Bever 1970; Diessel and Tomasello 2005; Wells et al. 2009).

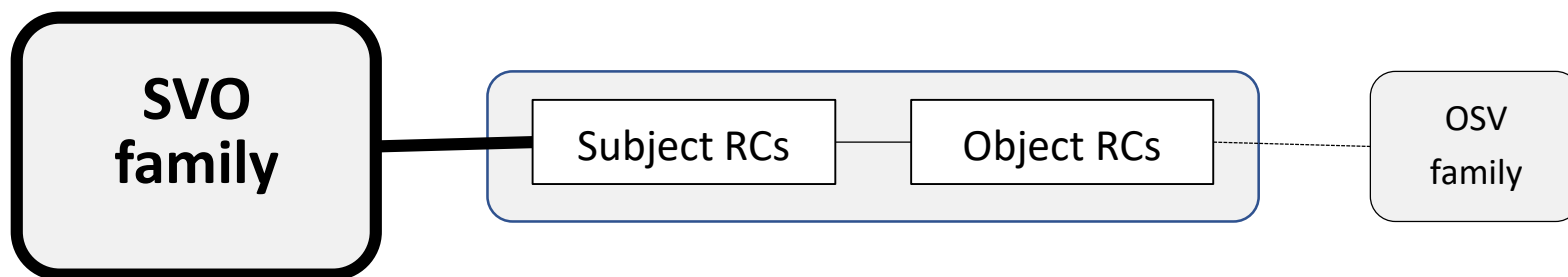
(1)	The man kicked the ball.	SVO
(2)	The man who kicked the ball ...	SVO
(3)	The ball (that) the man kicked ....	OSV

# Construction families

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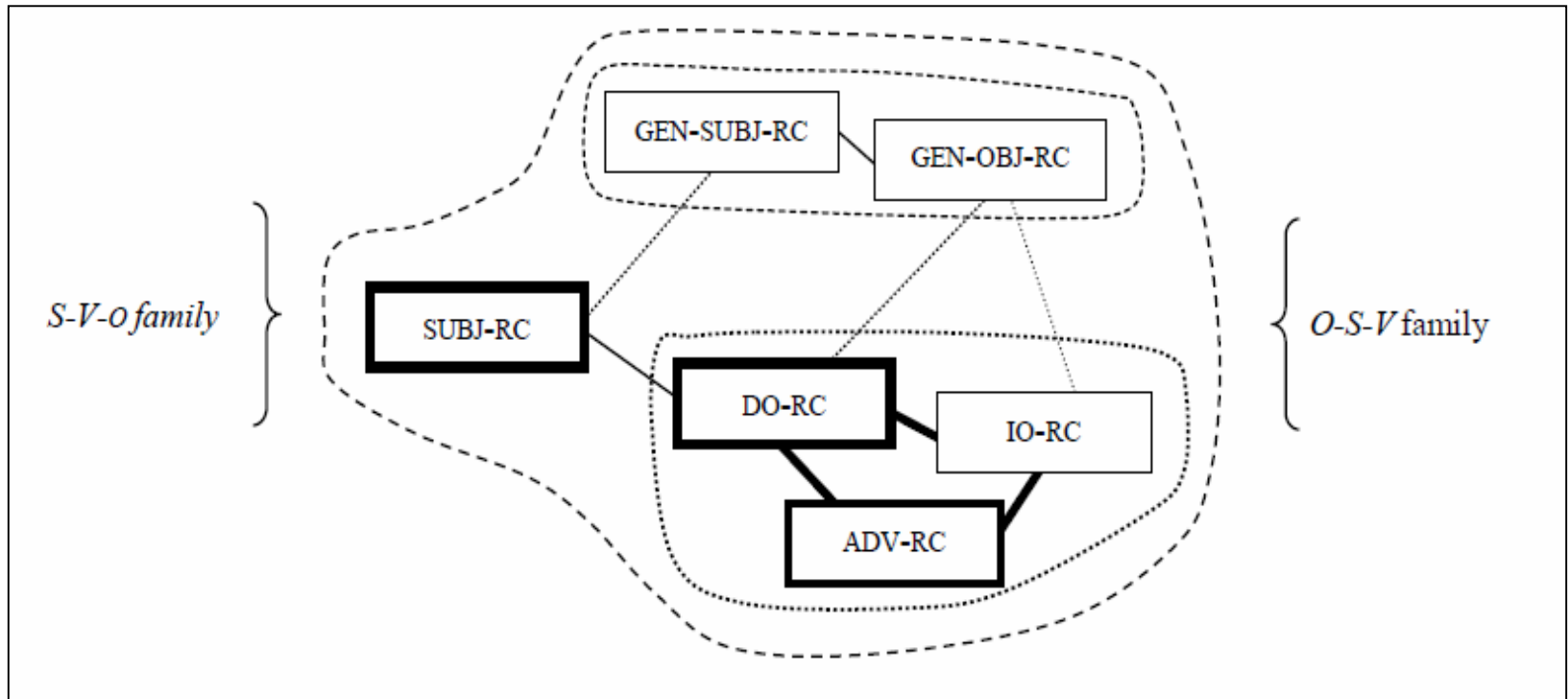
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- |     |                                     |     |
|-----|-------------------------------------|-----|
| (1) | The man kicked the ball.            | SVO |
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# Construction families

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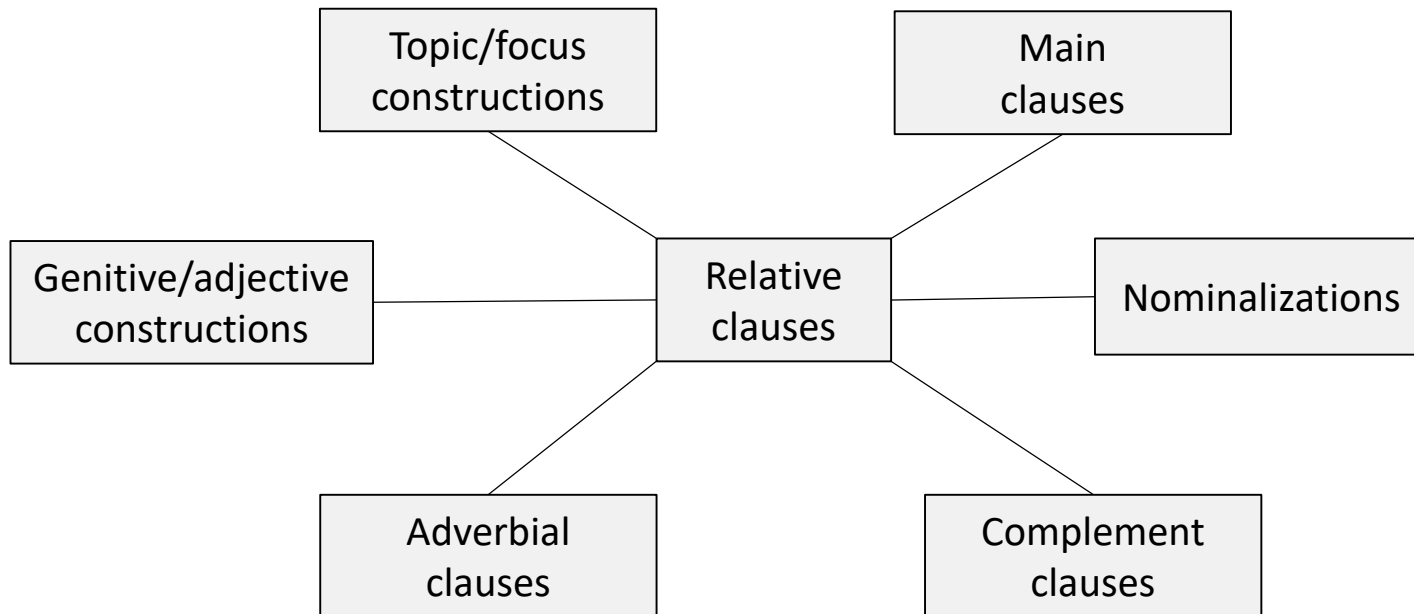


Sub-families of English RC-constructions (Diessel and Tomasello 2005).

# Construction families

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Construction families can also be studied from a cross-linguistic perspective.

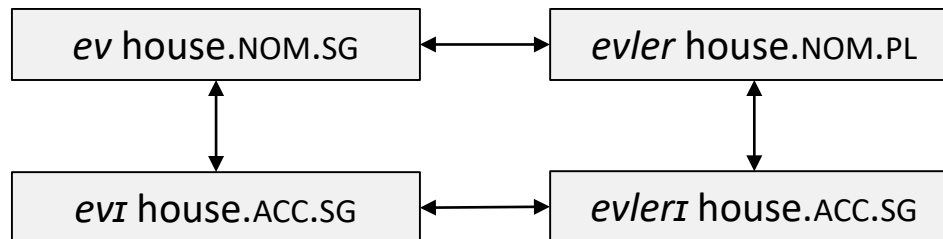


# **Families of contrast**

# Relations of contrast

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TURKISH	Singular	Plural
Nominative	ev	ev-ler
Accusative	ev-I	ev-ler-I
...	....	....



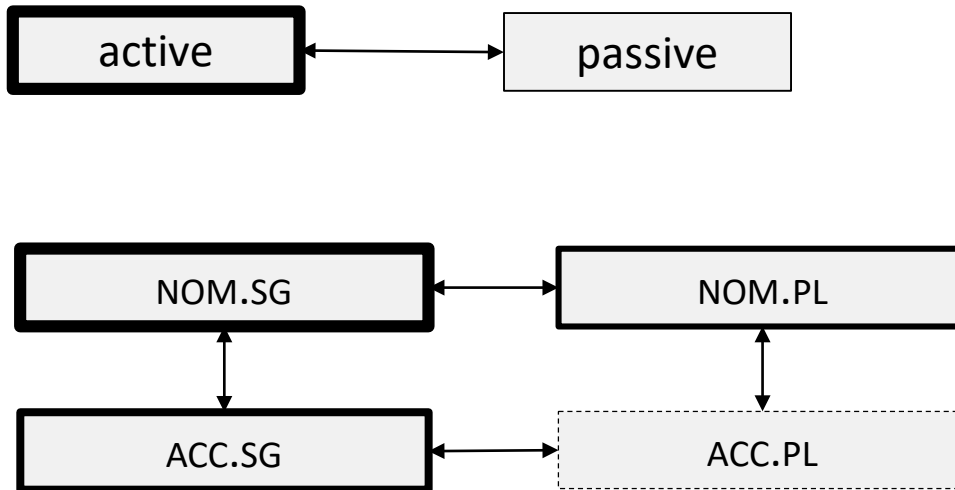
- Saussure's idea of the language system.



# Relations of contrast

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Constrative relations between constructions are almost always **asymmetrical**.



Encoding asymmetries are shaped by language use (cf. Haspelmath).

# Filler-slot relations

# Argument structure

# Goldberg 1995, 2006

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Traditional view: The verb is the determinant of argument structure.

*give* [actor, recipient, theme]

Construction grammar: Argument structure involves verbs and constructions.

- (1) She sneezed the napkin of the table
- (2) She smiled herself an upgrade.

# Goldberg 1995, 2006

---

## Verbs

*kick* [agent, patient]

*give* [agent, recipient, theme]

*run* [agent]

*tell* [sender, recipient, theme]

*eat* [agent, patient]

# Goldberg 1995, 2006

---

## Verbs

*kick* [agent, patient]

*give* [agent, recipient, theme]

*run* [agent]

*tell* [sender, recipient, theme]

*eat* [agent, patient]

## Constructions

NP V NP

NP V NP NP

NP V

NP V NP PP

# Goldberg 1995, 2006

---

## Verbs

*kick* [agent, patient]

*give* [agent, recipient, theme]

*run* [agent]

*tell* [sender, recipient, theme]

*eat* [agent, patient]

## Constructions

NP V NP

NP V NP NP

NP V

NP V NP PP

FUSION

# Problem 1

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Problem 1: There are many idiosyncracies.

- (1) a. He **gave** Mary the key.  
b. He **gave** the key to Mary.
- (2) a. He **told** Mary a joke.  
b. He **told** a joke to Mary.
- (3) a. \*He **donated** the Red Cross money.  
b. He **donated** money to the Red Cross.
- (4) a. \*He **said** Mary sorry.  
b. He **said** sorry to Mary.
- (5) a. He **asked** me a question.  
b. \*He **asked** a question to me.

**Exceptions???**



# Problem 2

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Problem 2: Goldberg's theory disregards distributional biases.

<b>Biased towards ditransitive</b>	<i>give, tell, show, offer, teach</i>
<b>Biased towards <i>to</i>-dative</b>	<i>bring, play, take, pass, sell</i>
<b>No bias</b>	<i>lend, send, write</i>

Gries and Stefanowitsch (2004): The co-occurrence of lexemes and constructions is semantically motivated.

There is good evidence that semantic factors influence the combination of lexemes and constructions, but one thing is missing in this account.

# Problem 2

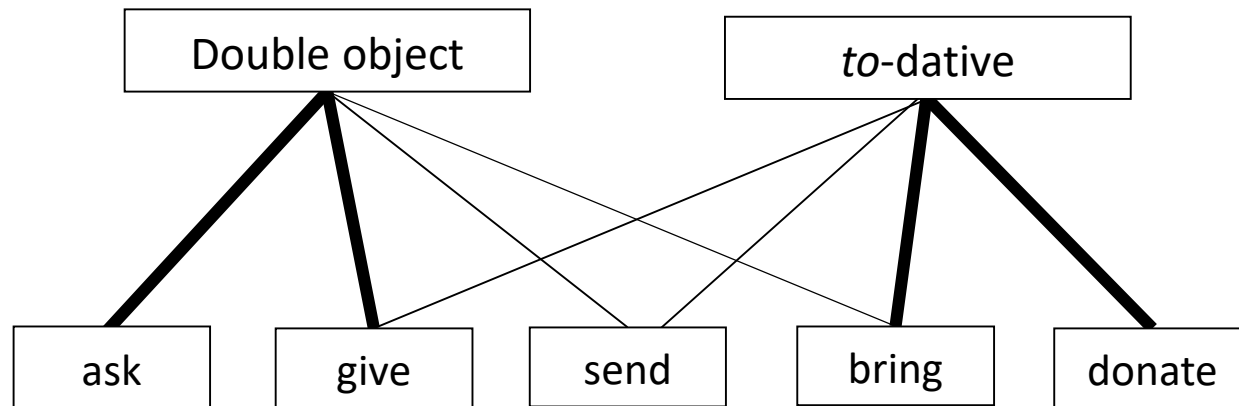
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Speakers 'know' that certain verbs tend to occur in particular constructions regardless of any semantic considerations (e.g. MacDonald et al. 1994).

- (1) a. Peter saw the man. NP-biased
- b. Peter saw the man is leaving.
  
- (2) a. Peter believed the man.
- b. Peter believed the man is leaving. S-biased

# Argument-structure network

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Filler-slots relations are determined by two factors:

- The semantic fit between lexemes and constructions
- Language users' experience with particular co-occurrence patterns

# Argument-structure network

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Extension of argument constructions to novel items:

- (1) She sneezed the napkin of the table.
- (2) Kendall fall that toy.

Extension of argument constructions to novel items is influenced by many factors, e.g. semantic similarity or item-based analogy (Boas 2010):

- (3) She blew the napkin off the table.

Other factors:

- Semantic verb classes
- Type and token frequency

# Wonnacott et al. 2008

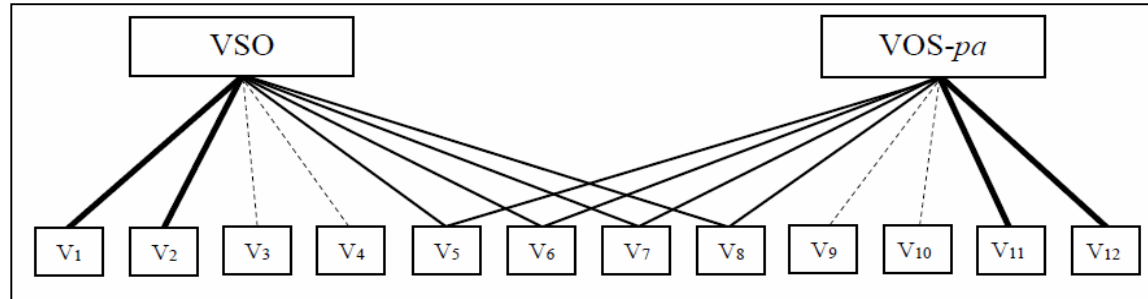
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Wonnacott et al. (2008) conducted a training study in which adult speakers were taught an artificial language with ...

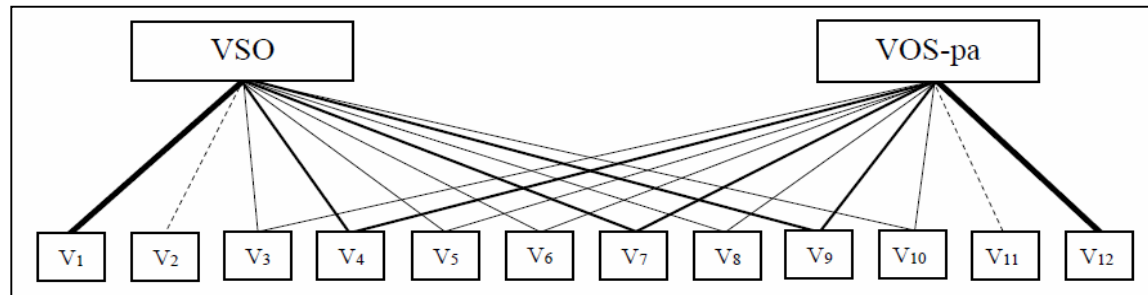
- 12 novel verbs
- 5 novel nouns
- 2 novel constructions: VSO and VOS-*pa*

# Wonnacott et al. 2008

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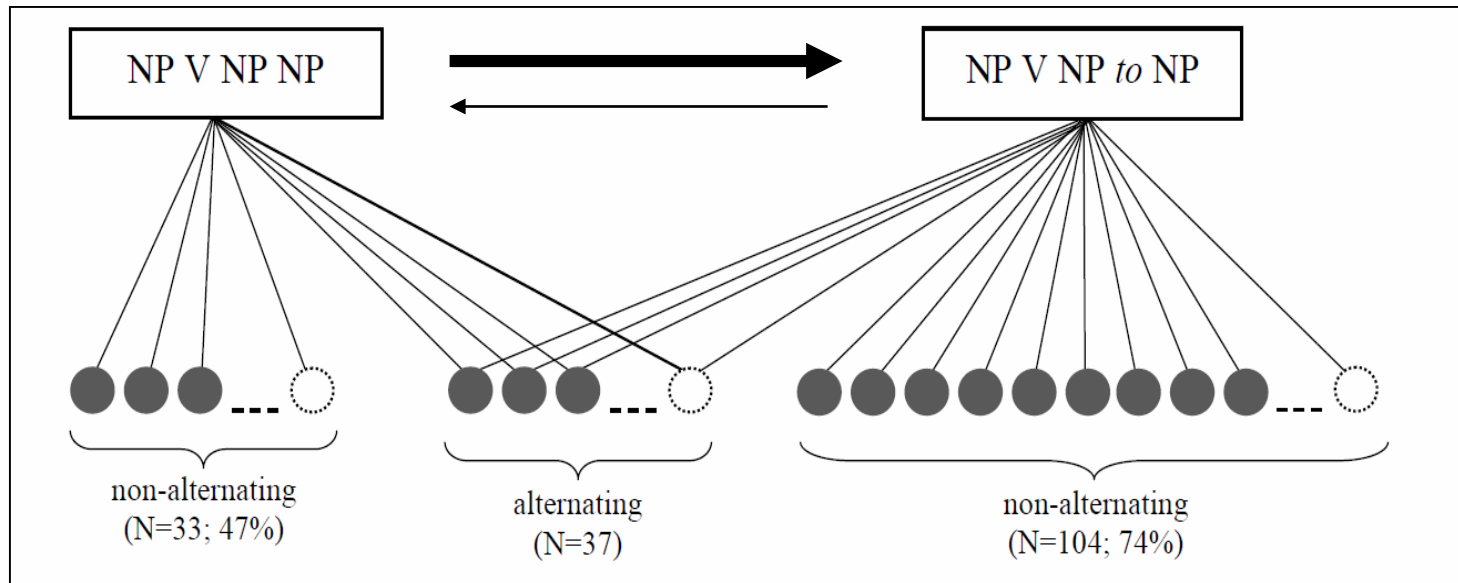


Few alternating verbs: subjects are lexically conservative (i.e. extensions are rare).



Many alternating verbs: subjects use both constructions with all verbs.

# Perek 2015



Novel verbs of the double-object construction are easily extended to the to-dative construction because the double object construction has a very large proportion of “alternating verb types”.

# Word classes



# Nouns and verbs

---

Traditionally, word class categories are associated with lexical items (e.g. 'tree' is a noun).

# Nouns and verbs

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Traditionally, word class categories are associated with lexical items (e.g. 'tree' is a noun), but one can also think of word classes as 'slots' of constructions.

- N/V schemas

# Noun and verb schemas

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\_\_-∅

\_\_-s

\_\_-ion

**N-SCHEMAS**

**MORPHO**

# Noun and verb schemas

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\_\_-∅

\_\_-s

\_\_-ion

**N-SCHEMAS**

\_\_-∅

\_\_-s

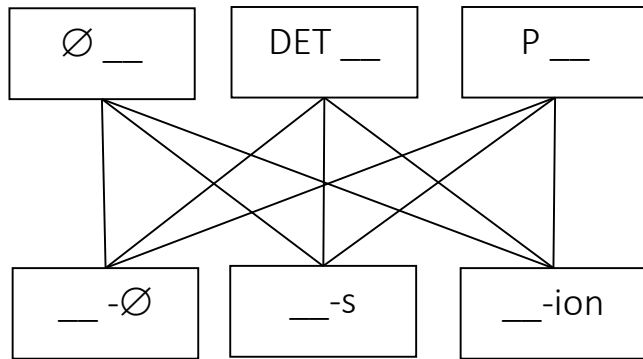
\_\_-ize

**V-SCHEMAS**

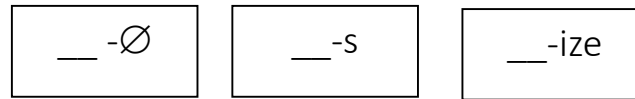
**MORPHO**

# Noun and verb schemas

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**N-SCHEMAS**



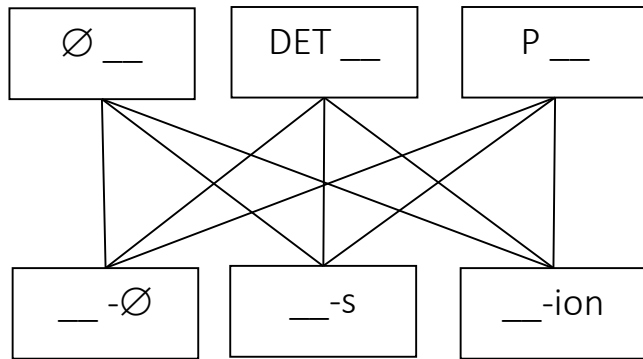
**V-SCHEMAS**

**PHRASAL**

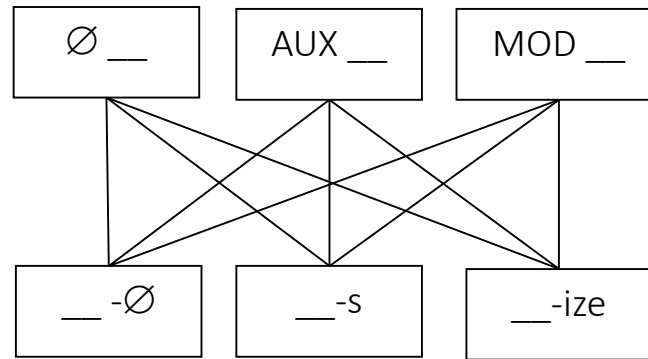
**MORPHO**

# Noun and verb schemas

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**N-SCHEMAS**



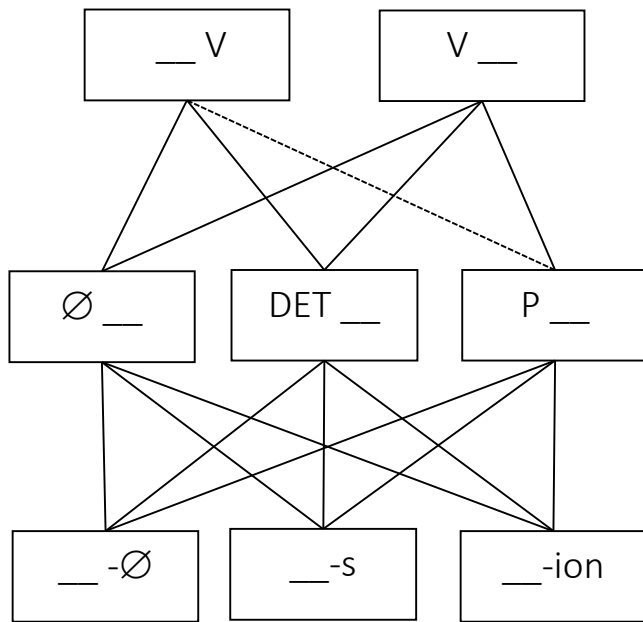
**V-SCHEMAS**

**PHRASAL**

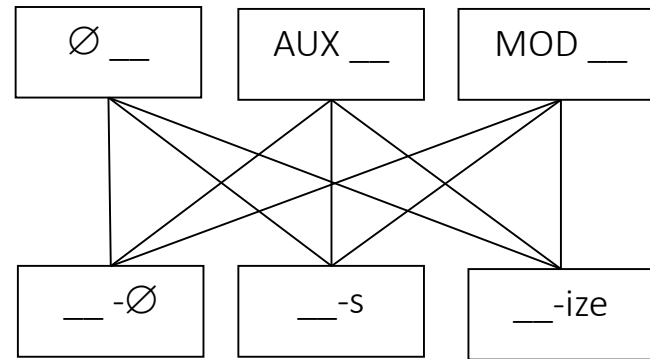
**MORPHO**

# Noun and verb schemas

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**N-SCHEMAS**



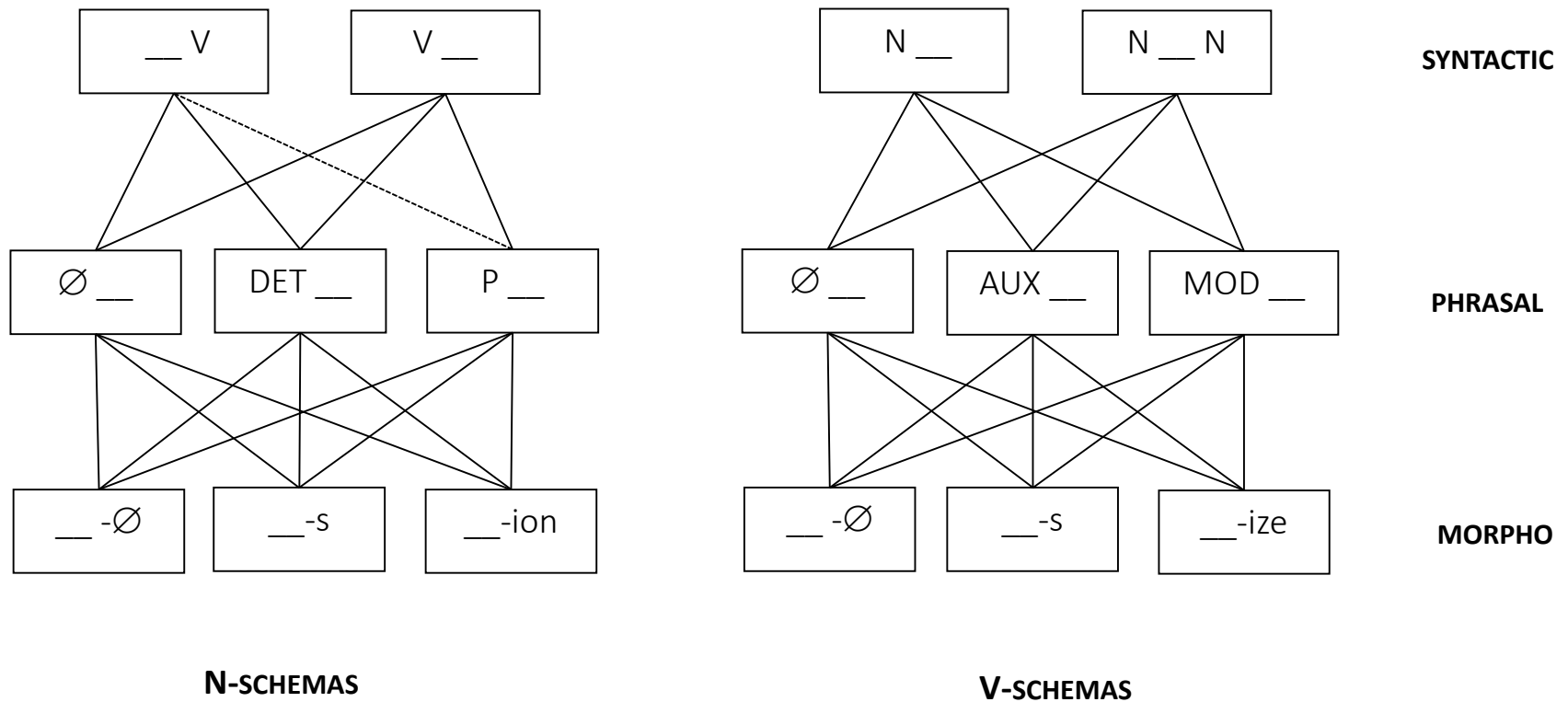
**PHRASAL**

**MORPHO**

**V-SCHEMAS**

# Noun and verb schemas

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# Nouns and verbs

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- Structures of N/V-schemas are language particular, but the their meanings and functions are universal.

Word class schemas **conceptualize** lexemes in specific ways **to perform particular speech** act functions (Langacker 1991; Croft 1991).

- **N-schemas** conceptualize lexemes as non-relational and a-temporal entities in order to perform an act of reference.
- **V-schemas** conceptualize lexemes as relational and temporal entities in order to perform an act of predication.

- (1) Give me the *hammer*.
- (2) She *hammered* the metal flat.

# Nouns and verbs

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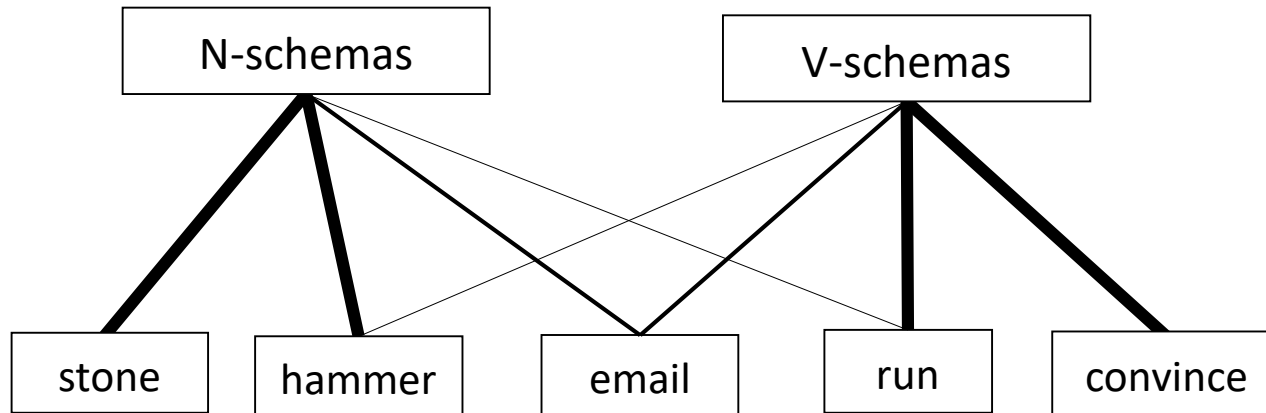
N/V-schemas tend to occur with particular lexical items.

		Objects	Actions	Others
Quiché	N-schemas	176	0	13
	V-schemas	0	108	12
Nguna	N-schemas	254	10	0
	V-schemas	15	113	51
Soddo	N-schemas	183	8	1
	V-schemas	7	75	13
Ute	N-schemas	161	2	1
	V-schemas	2	156	82

Croft 1991

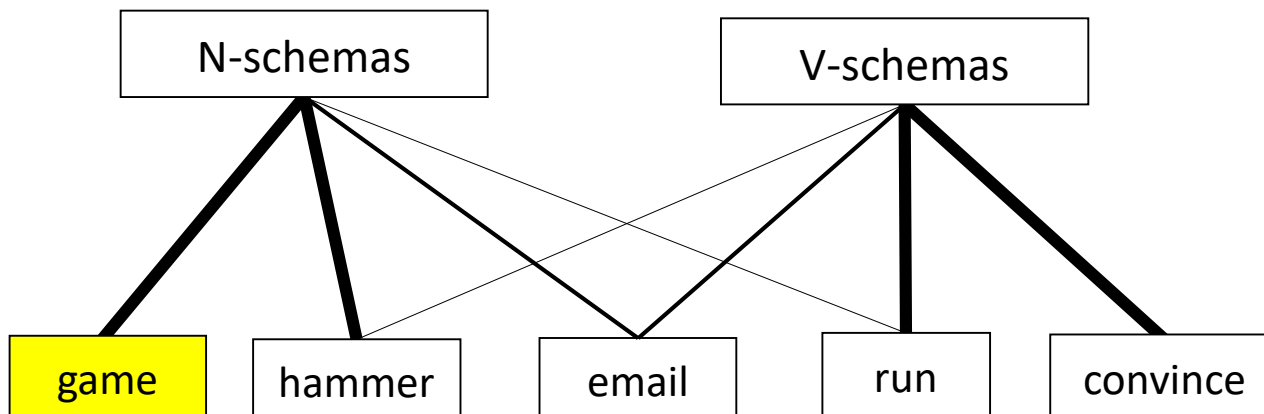
# Nouns and verbs

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# Nouns and verbs

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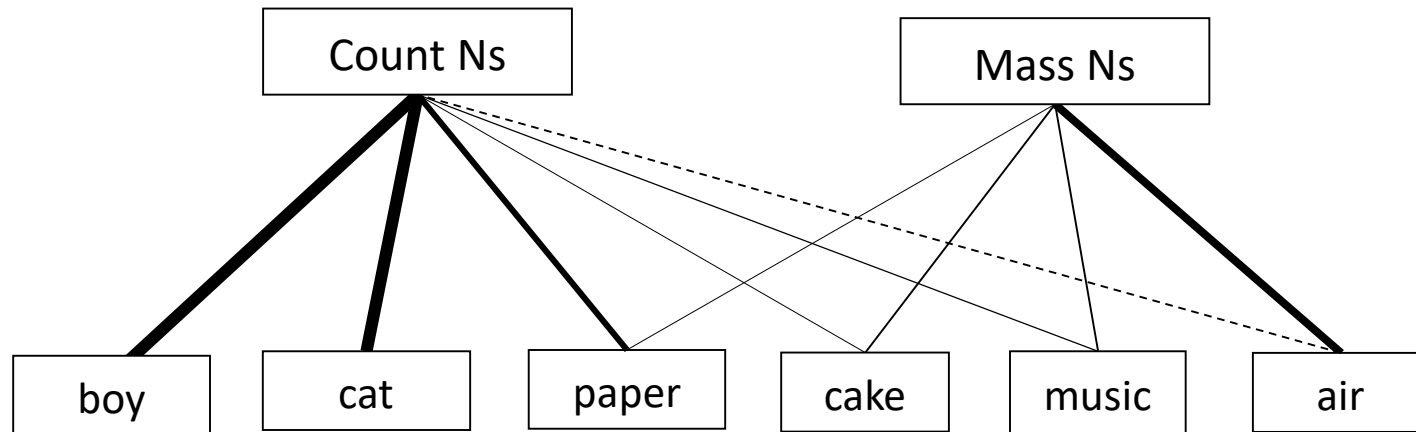


The associations are determined by two factors:

- The semantic fit between lexemes and constructions
- Language users' experience with particular co-occurrence patterns

# Mass/count nouns

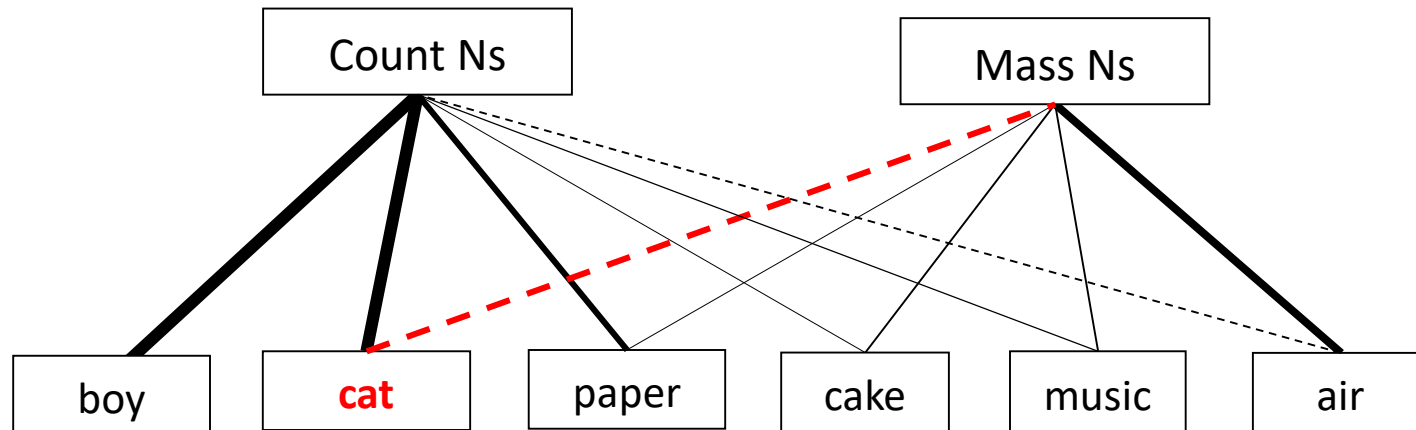
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(1) There is **cat** all over the driveway.

# Mass/count nouns

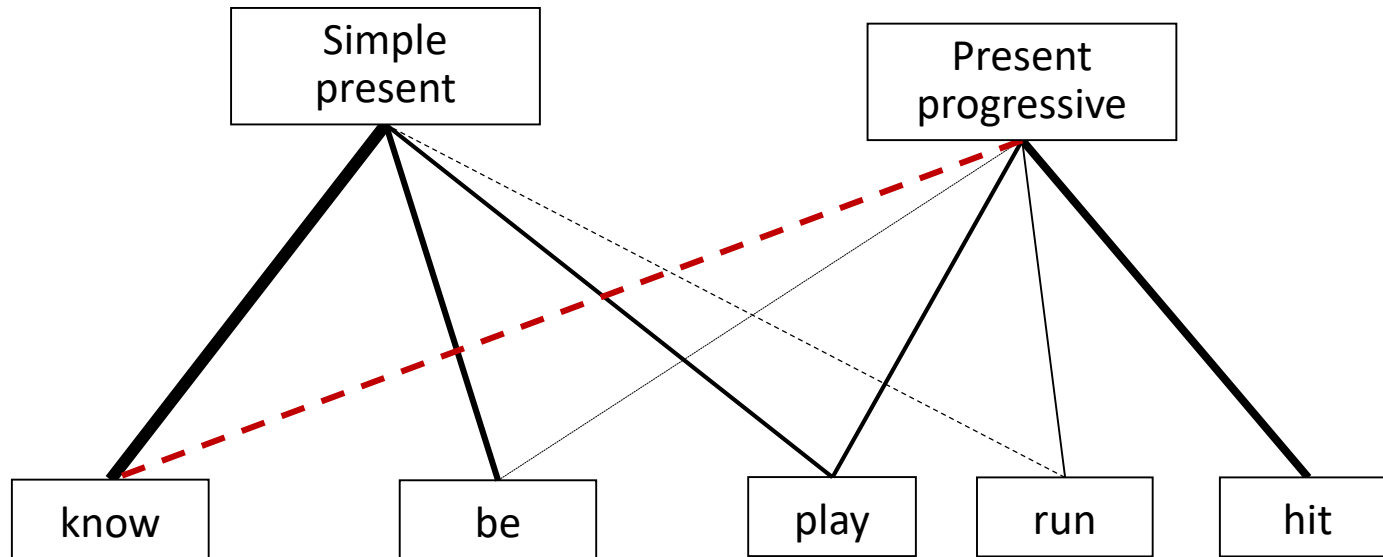
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(1) There is **cat** all over the driveway.

# Mass/count nouns

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(1) ? Peter is **knowing** this book.

# Nouns and verbs

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sing – sang

ring -rang

**Bybee and Modor (1983)**

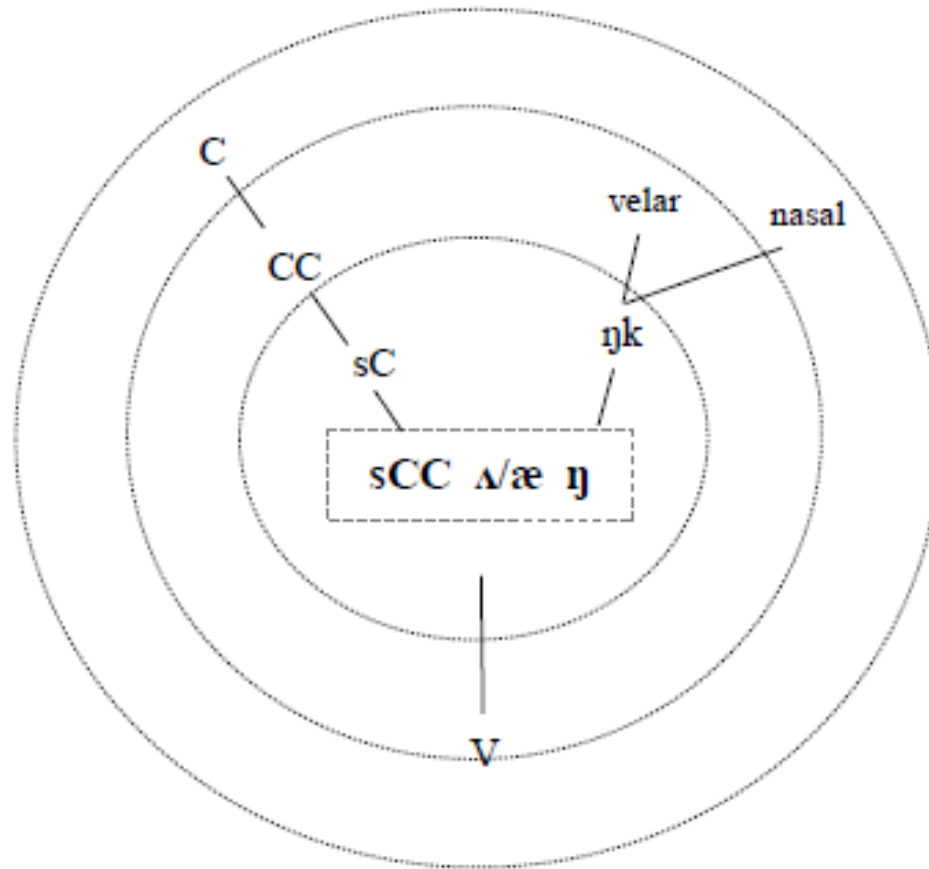
Participants were given nonce verbs and were asked to form the past tense (under time pressure)

Given present tense	Percentage of irregulars	Given present tense	Percentage of irregulars
sCC i η	44%	sCC i η/ηk	44%
sC i η	37%	sCC i k/g	25%
CC i η	27%	sCC i n/m	21%
C i η	22%	sCC i C	4%



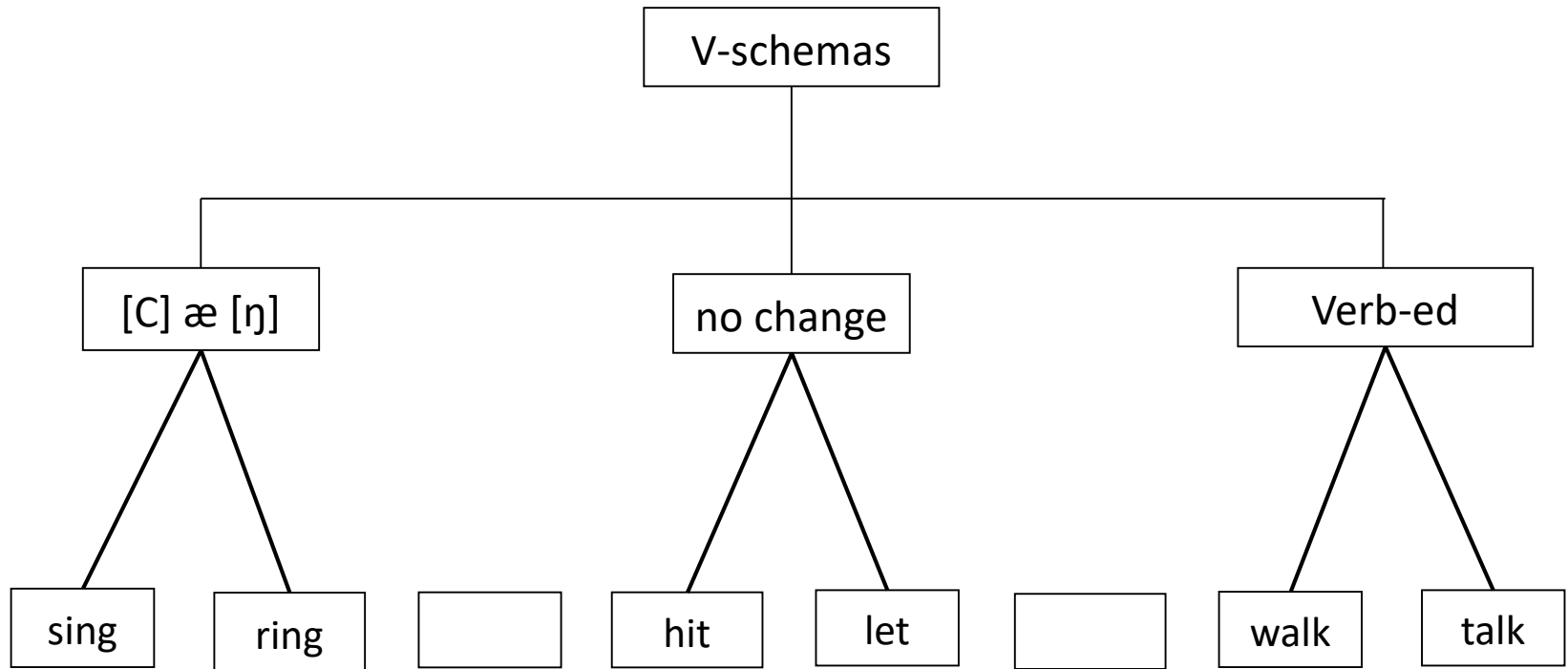
# Nouns and verbs

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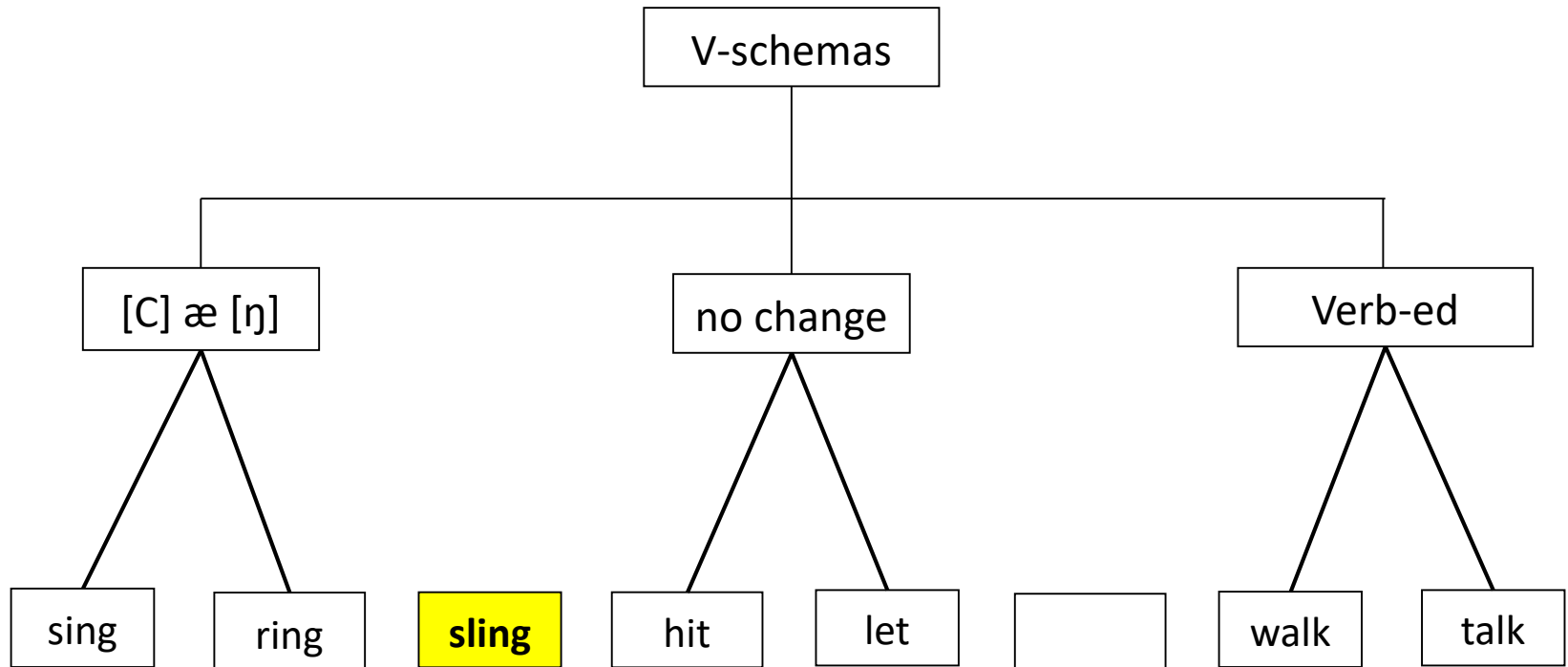
# Regular and irregular verbs

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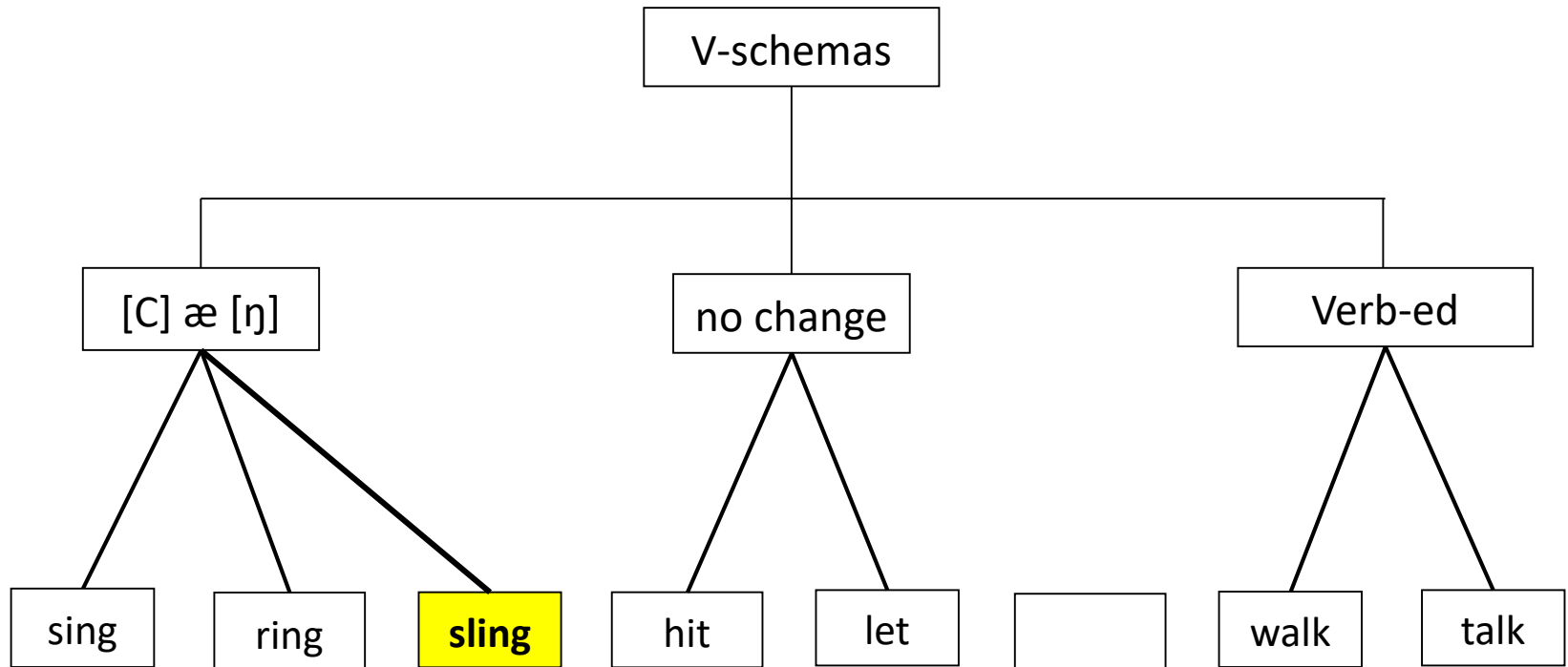
# Regular and irregular verbs

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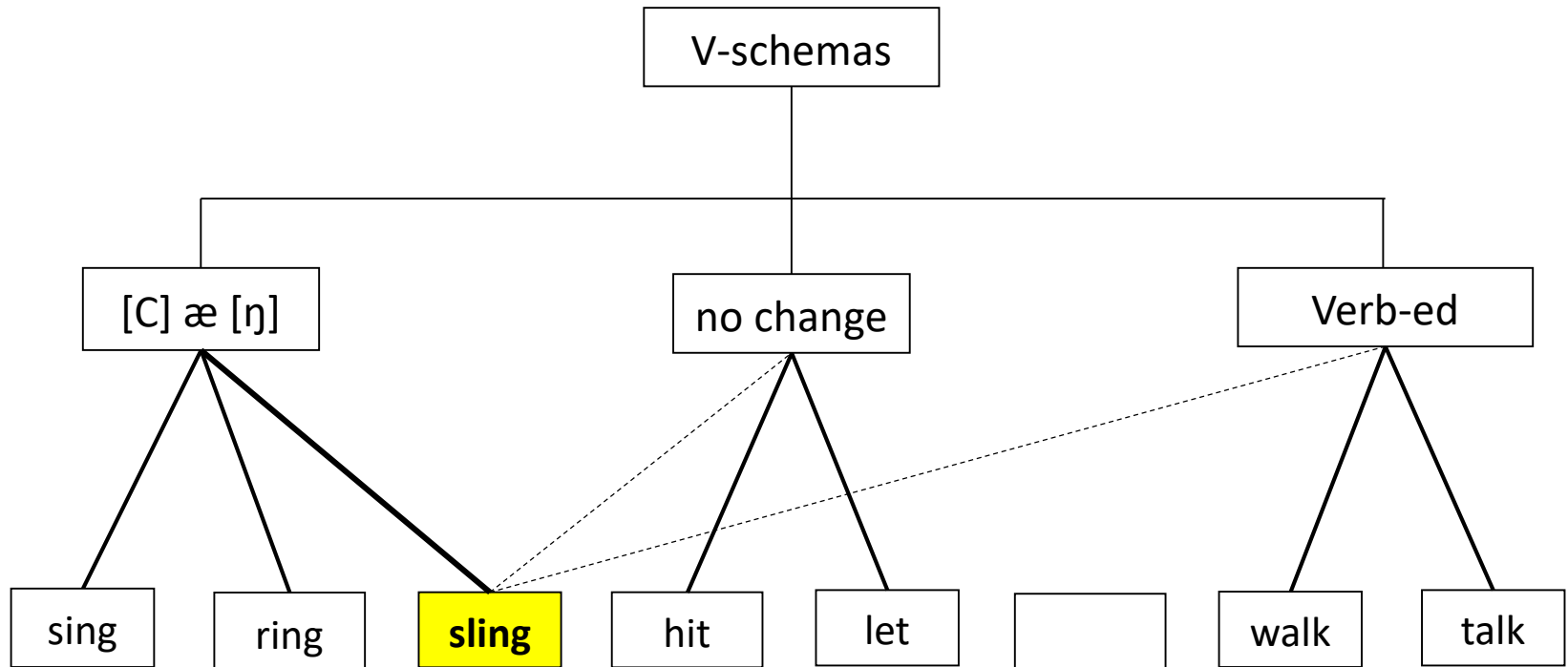
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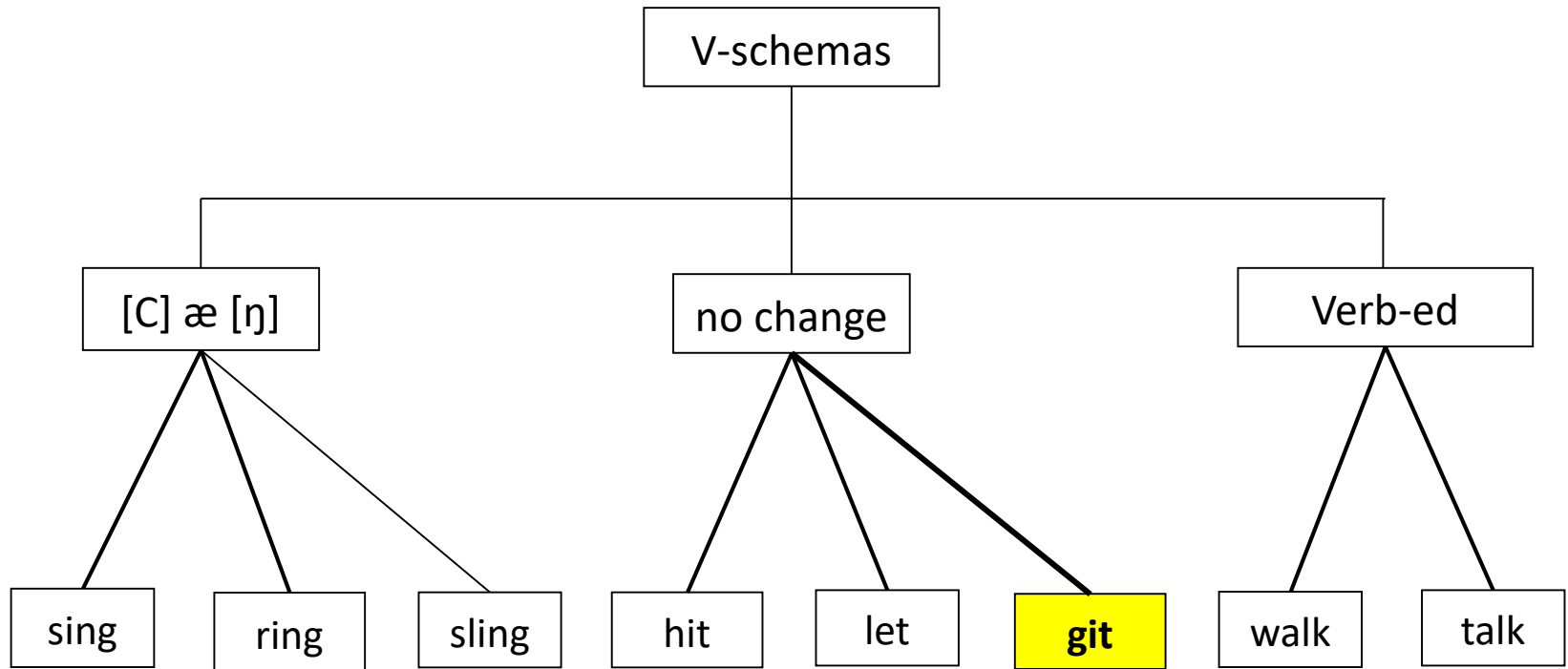
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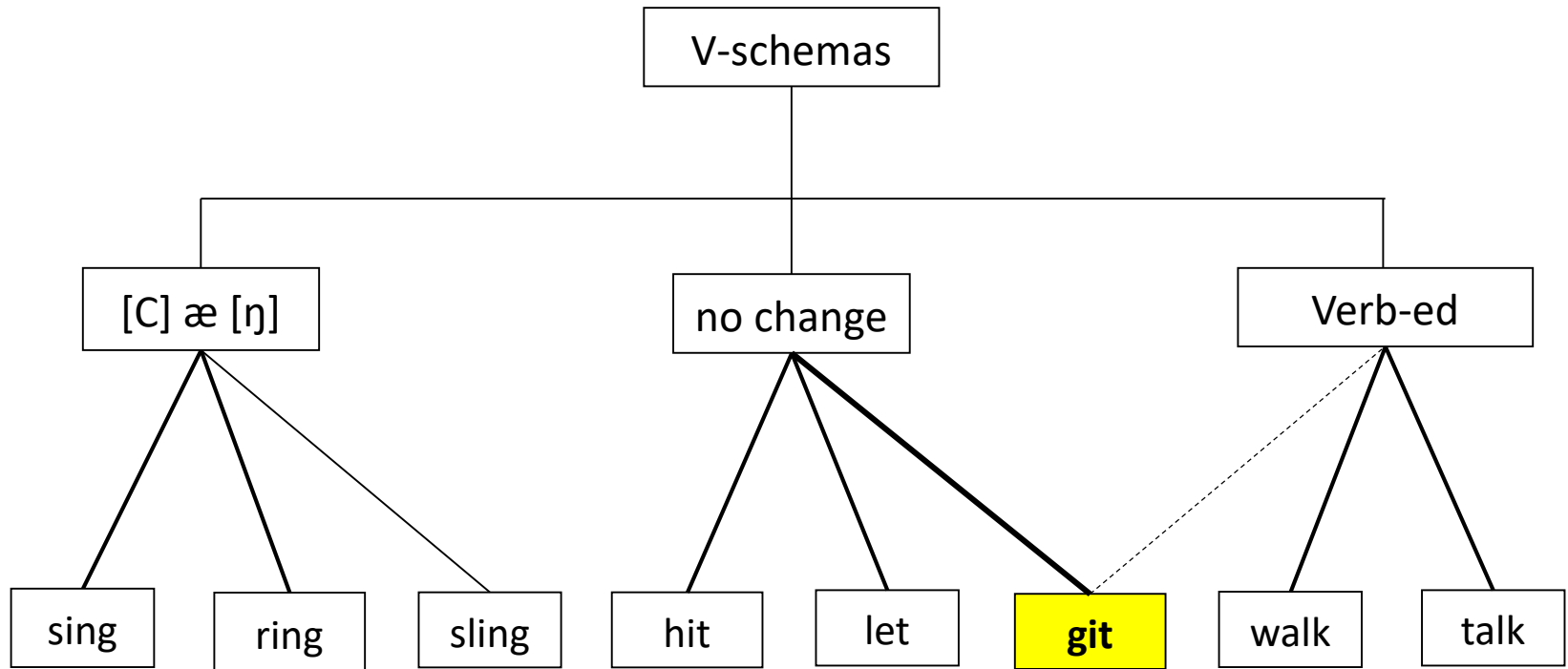
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# Regular and irregular verbs

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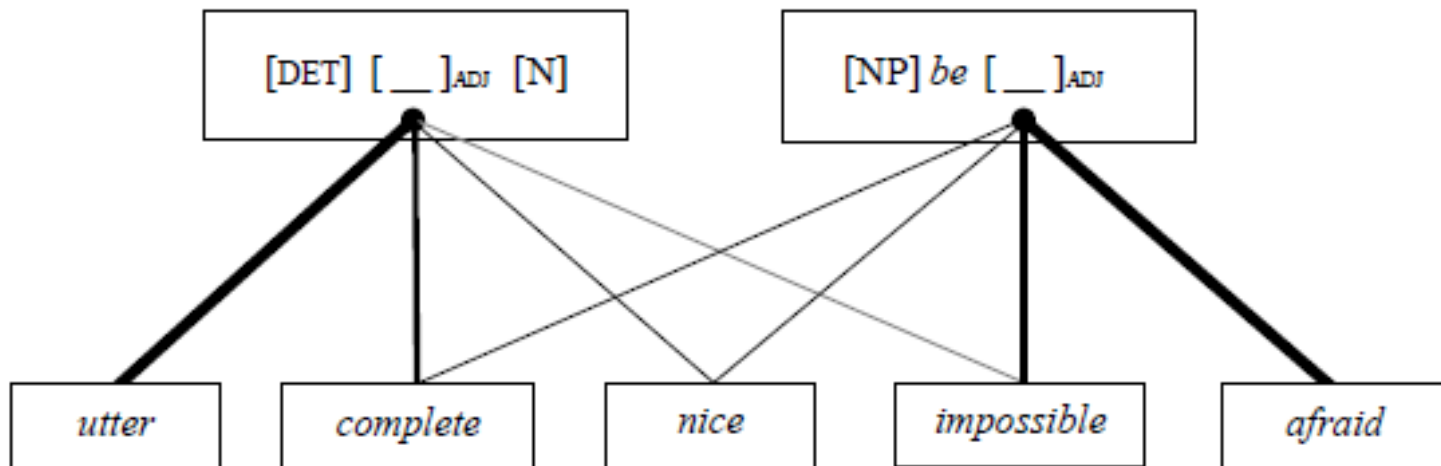


# Adjectives



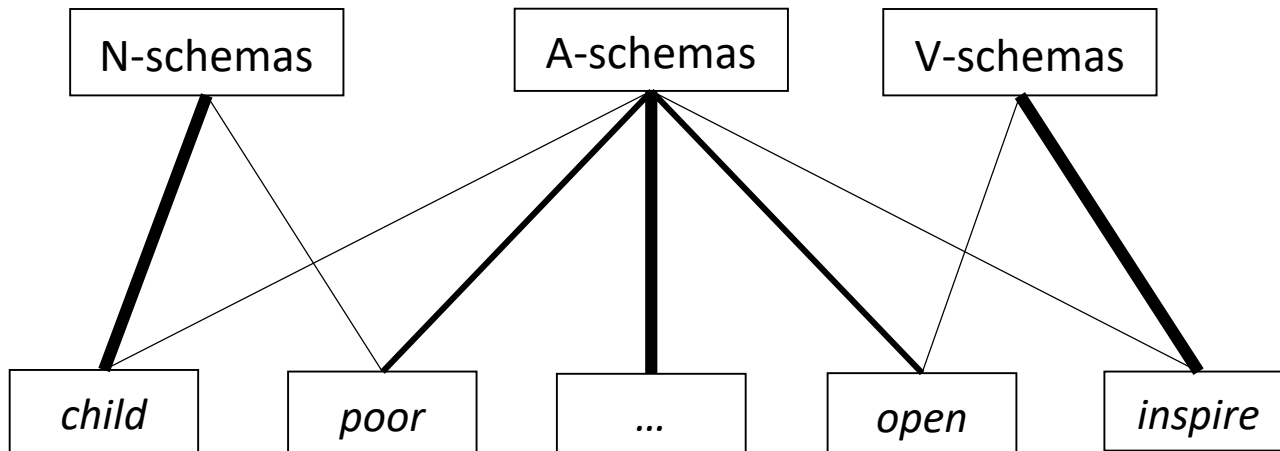
# Adjectives

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# Adjectives

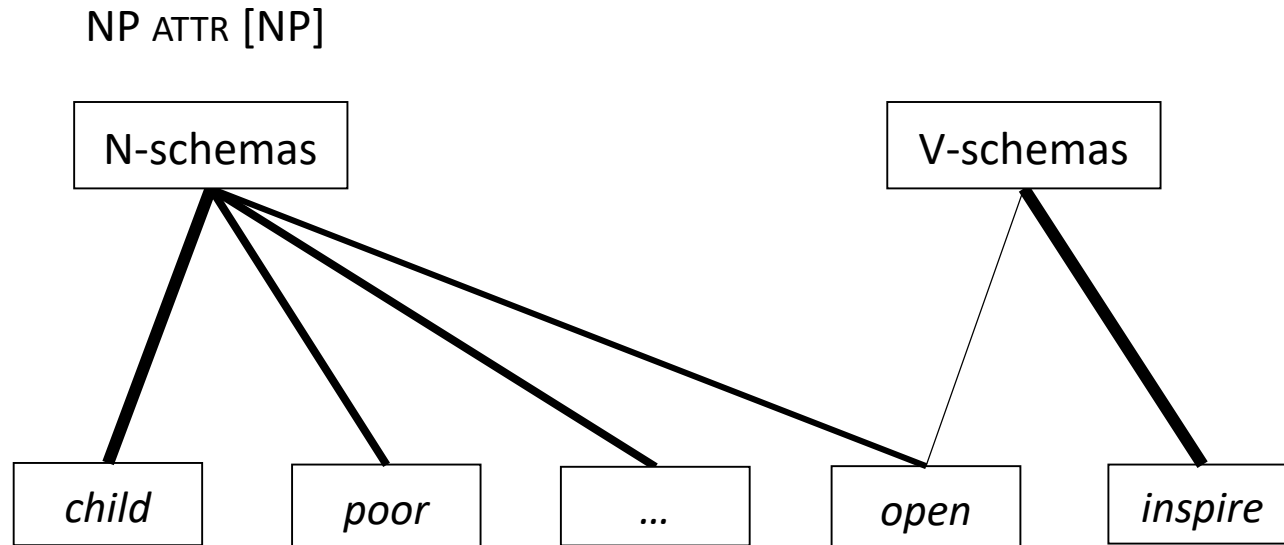
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Dixon (1977): Where have all the adjective gone?

# Adjectives

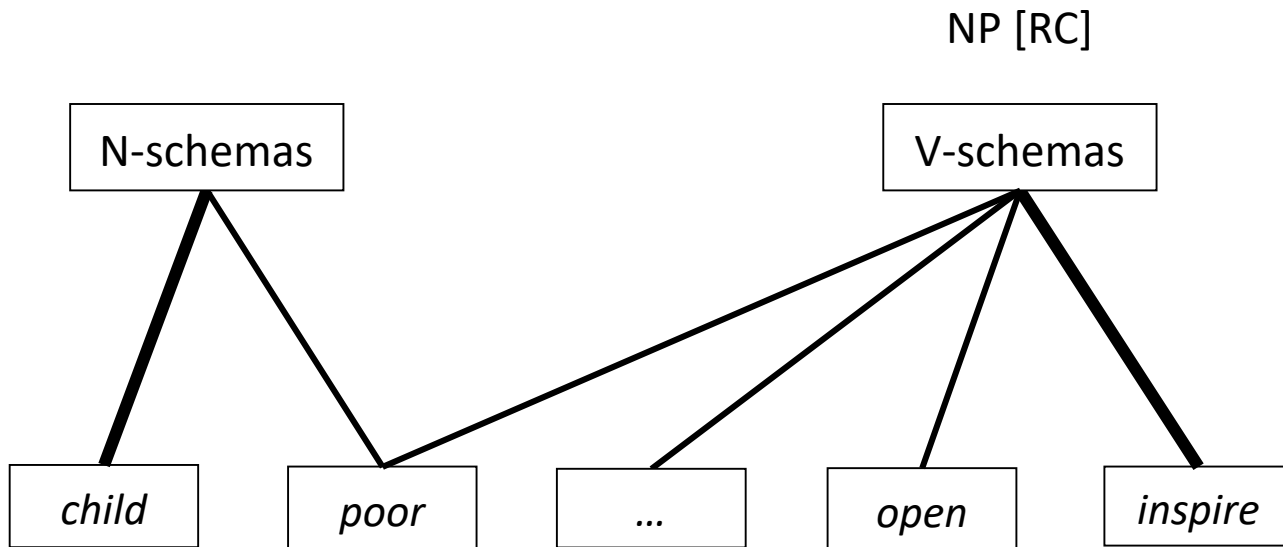
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Dixon (1977): Where have all the adjective gone?

# Adjectives

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Dixon (1977): Where have all the adjective gone?

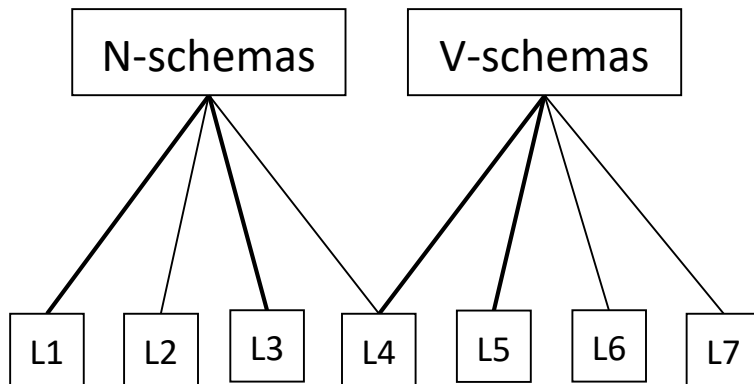
Are the major word class categories universal?

(e.g. Broschart 1997; Croft 2001; **Evans and Osaka 2005**;  
Chung 2012; Haspelmath 2012; Rijkhoff and van Lier 2013)

# Cross-linguistic aspects of word classes

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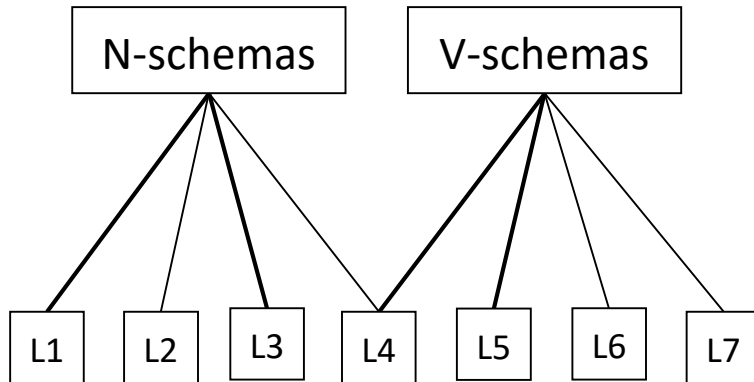
German



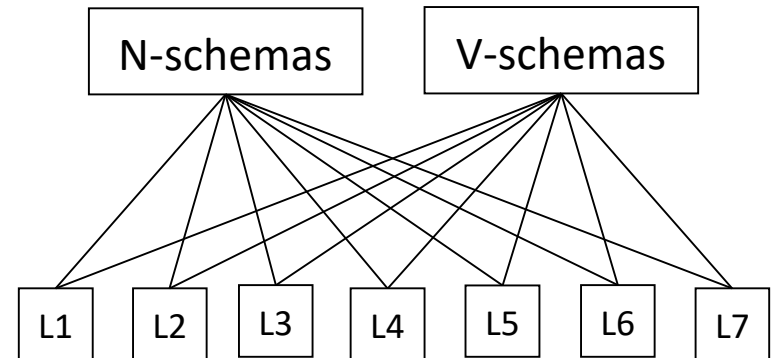
# Cross-linguistic aspects of word classes

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German



Nootka / Mundari



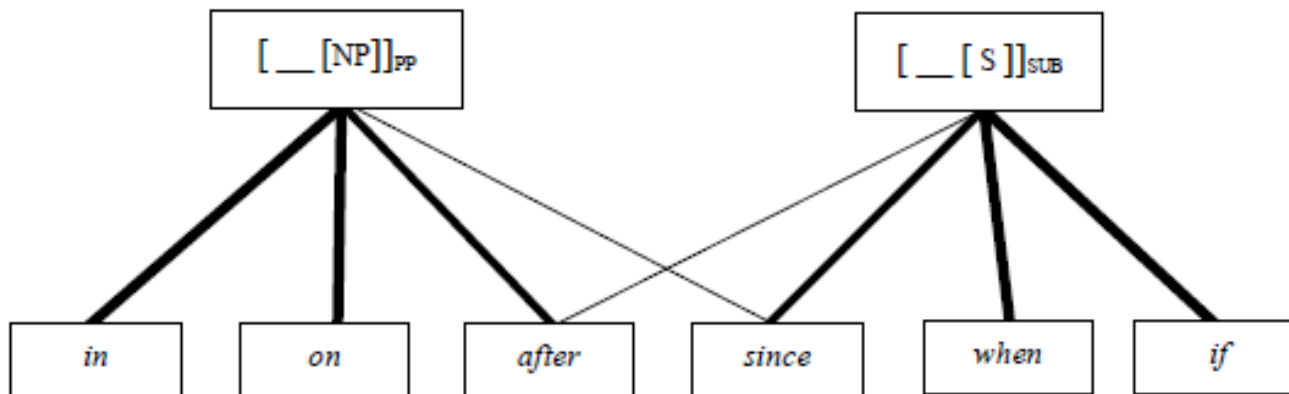
- All languages have formally distinct N/V-schemas
- All languages associate lexemes with these schemas
- Speakers „know“ these associations

# Grammatical function words



# Function words

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# Function words

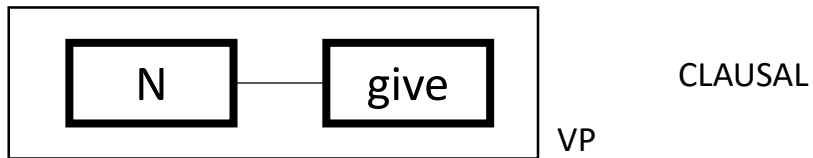
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- All grammatical function words are derived from Ns, Vs and DEMs.
- The development of function words accounts for the structures of N/V-schemas.

# Function words

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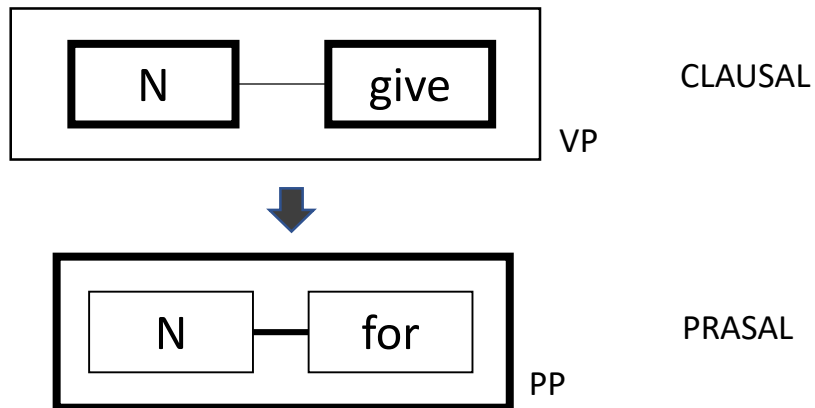
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# Function words

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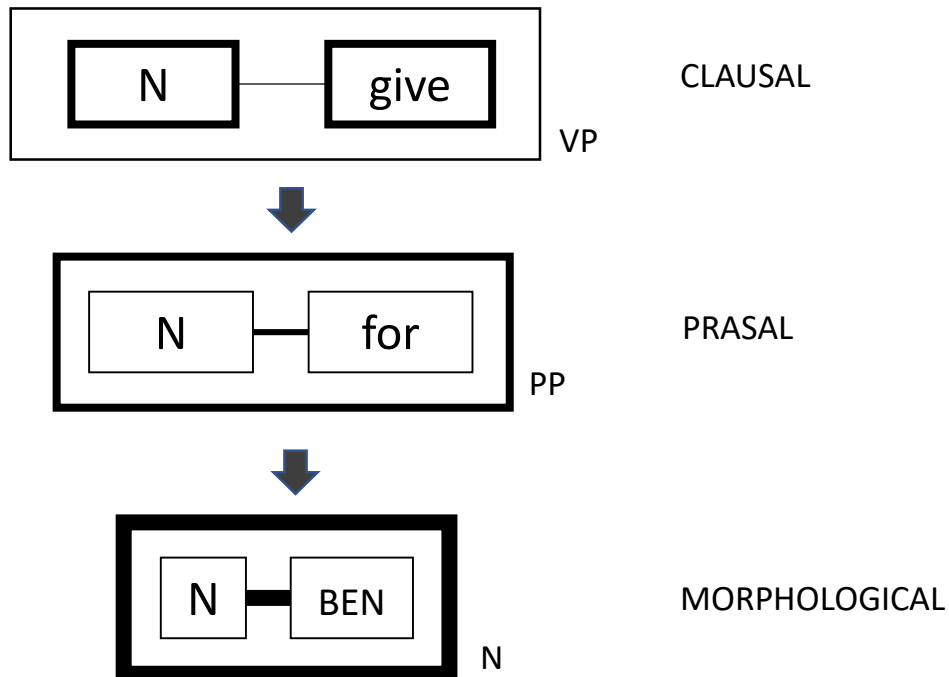
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# Function words

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- All grammatical function words are derived from Ns, Vs and DEMs.
- The development of function words accounts for the structures of N/V-schemas.



**Thank you!**