

# 'das Fliegen' vs. 'fliegen': How is Verb-Noun Conversion Represented in L1 vs. L2 German Mental Lexicon?

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1

## Background

How are homonymous forms stored in the mental lexicon?

German exhibits a large range of homonymous forms with different grammatical functions, e.g.:

- inflected forms (1<sup>st</sup> & 3<sup>rd</sup> plural): *mieten* '(they/we) rent'
- infinitives: *mieten* 'to rent'
- verb-noun conversions: *das Mieten* 'the renting'
- countable nouns (in plural): *die Mieten* 'the rents'

- different morphological structures
- derivation and inflection

**Conversion (also 'zero-derivation'):**

- very productive in German
- frequently and controversially discussed topic in linguistics / [1]
- scarcely approached from psycholinguistic perspective (but see / [2])

According to previous research, several **hypotheses** have been formulated regarding the representation of such related forms, e.g. (among others):

**H1:** verbs and deverbals have **separate lexical entries** specified for word class / [3]  
→ no priming for verb-noun conversions, full priming for inflected forms

**H2:** verb and deverbals share a **common representation**:

**H2a:** one **basic lexical entry** with two word-class-specific **subentries** / [4]  
→ partial priming for conversions, full priming for inflection

**H2b:** **category neutral** stem entries in lexicon, word class is computed in syntax / [5]  
→ same priming for conversion and other inflected forms

**H3:** conversion is a **productive morphological process** through which verbs are turned into nouns (no lexical representation of conversions) / [6]

→ same priming as for inflected forms

(...)

→ Additional question here: **Is the representation the same in L1 and L2**

2

## The Present Study

### Two priming experiments

#### Experiment 1:

- 71 German native speakers
- mean age 27.4 years, 47 female, 24 male

#### Experiment 2:

- 70 German learners (B2-C1 level, Czech L1)
- mean age 22.6 years, 61 female, 9 male

#### Procedure:

- primes and targets consisted of phrases
- presented visually in two steps (S1 & S2)

#### Task:

- grammaticality judgments for every phrase (prime, target, & filler phrases).

Examples of primes and targets:

Condition	Prime Phrase		Target Phrase	
	S1	S2	S1	S2
identical	wir 'we'	MIETEN 'rent'	wir 'we'	MIETEN 'rent'
inflected	sie 'they'	MIETEN 'rent'	wir 'we'	MIETEN 'rent'
infinitive	wir wollen 'we want to'	MIETEN 'rent'	wir 'we'	MIETEN 'rent'
conversion	das 'the'	MIETEN 'renting'	wir 'we'	MIETEN 'rent'
noun	mit den zwei 'with the two'	MIETEN 'rents'	wir 'we'	MIETEN 'rent'
unrelated	wir 'we'	LACHEN 'laugh'	wir 'we'	MIETEN 'rent'

### Materials:

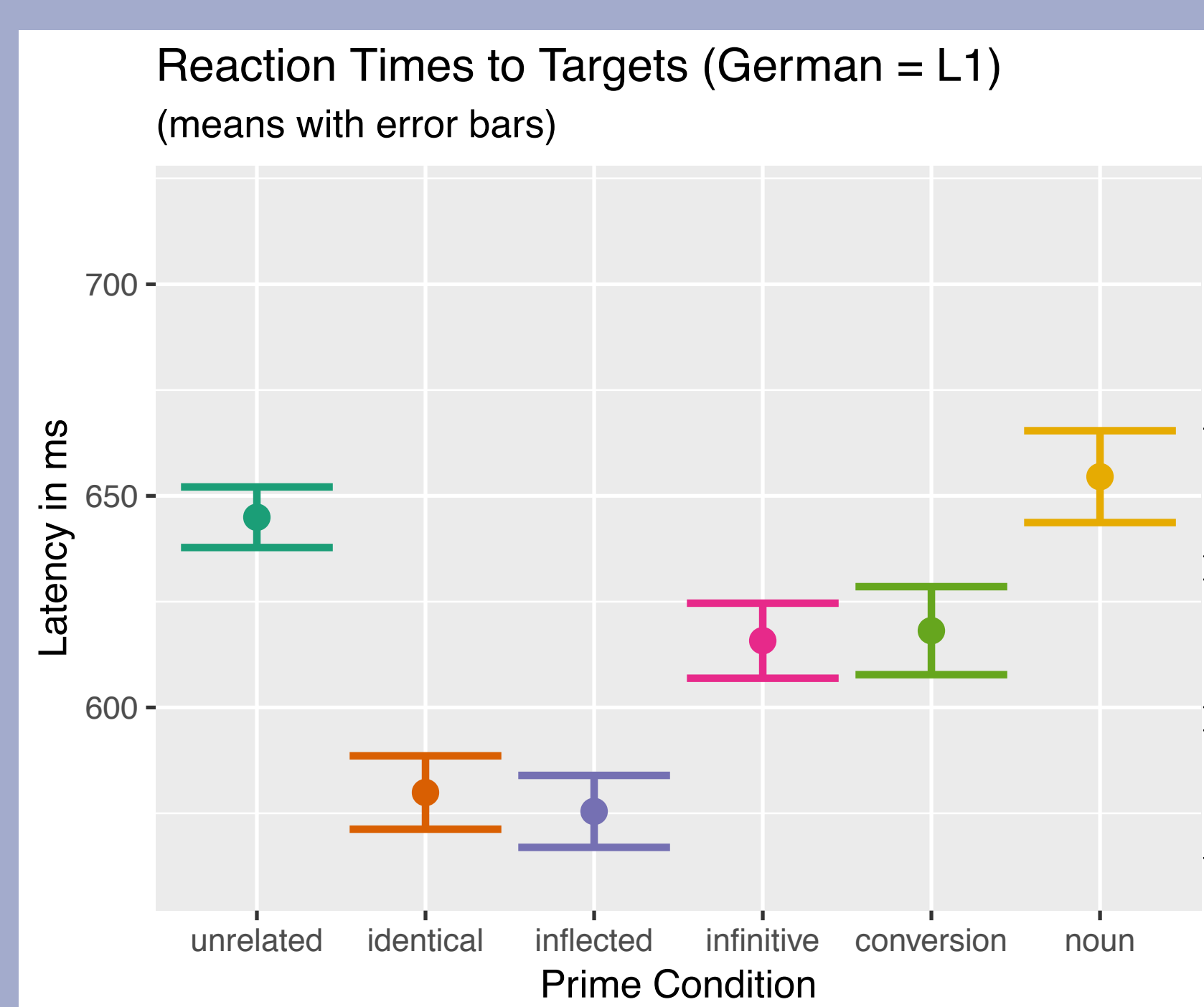
- 24 German verbs with corresponding homonymous forms of countable noun
- large number of filler phrases (92% of all trials) in order to balance yes/no responses, number and type of pronouns, structures etc.

### Design:

- For each item, the **target** was **always the same phrase** combined with different prime phrases (conditions).
- The second part of the **prime** phrase (S2) was **always identical with S2 of the target** (except for the unrelated condition).

3a

## Results of Experiment 1: German = L1



### → three subgroups

(Tukey contrasts with correction of cumulated alpha errors according to the Bonferroni procedure)

unrelated = noun (p=0.99)

(slowest, no priming)

infinitive = conversion (p=0.99)

(in-between, partial priming)

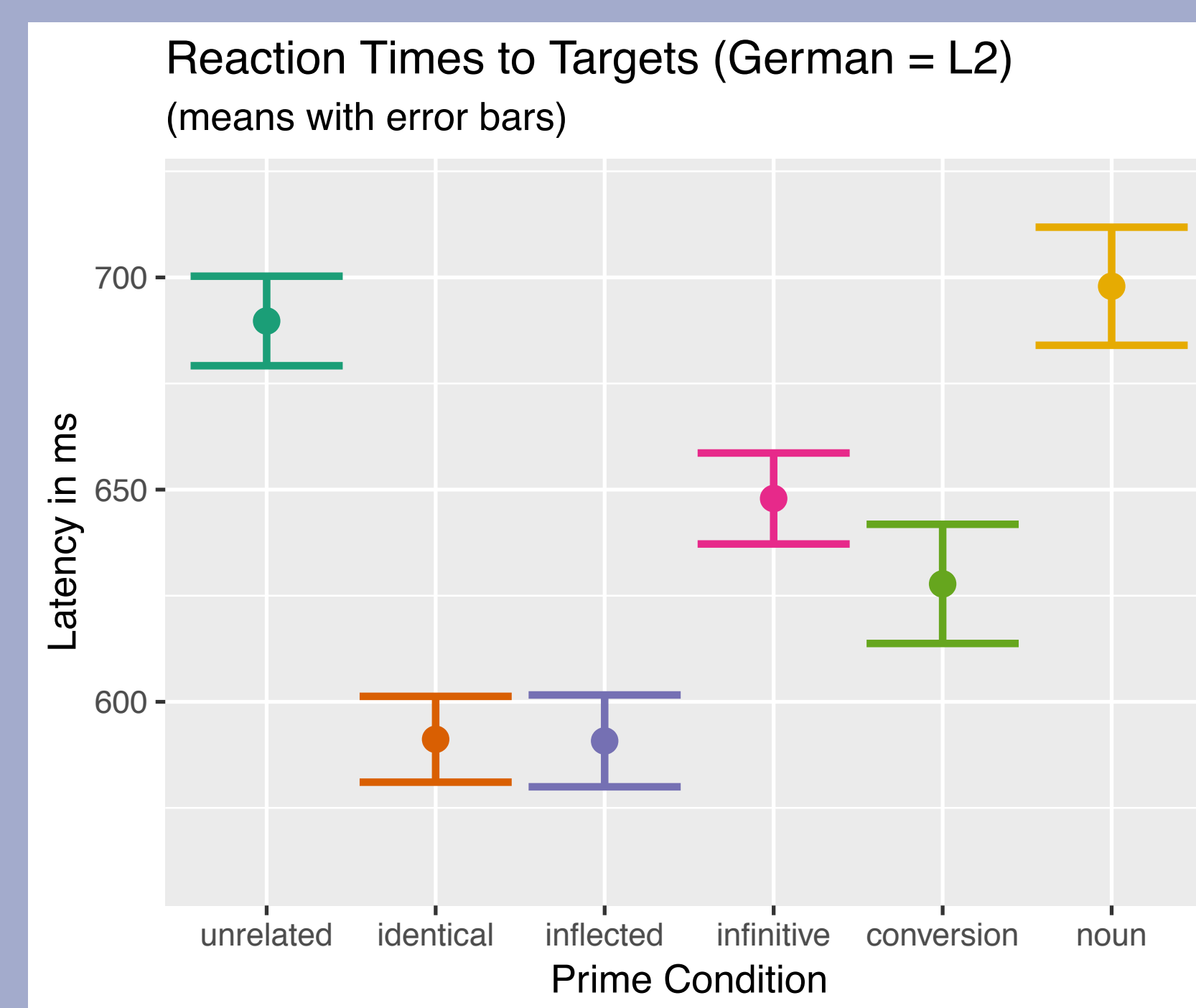
identical = inflected (p=0.98)

(fastest, full priming)

\*differences between groups: all p>0.05

3b

## Results of Experiment 2: German = L2



### → three subgroups

(Tukey contrasts with correction of cumulated alpha errors according to the Bonferroni procedure)

unrelated = noun (p=0.57)

(slowest, no priming)

infinitive = conversion (p=0.26)

(in-between, partial priming)

identical = inflected (p=0.96)

(fastest, full priming)

\*differences between groups: all p>0.05

	unrelated	identical	inflected	infinitive	conversion	noun	p-value
RT in ms	645.0	579.9	575.5	615.8	618.1	654.5	<0.001
accuracy in %	97.6	99.2	99.6	97.6	99.6	97.6	0.282

linear mixed effect models with participants and items as random effects (random intercepts and slopes)

	unrelated	identical	inflected	infinitive	conversion	noun	p-value
RT in ms	689.7	591.2	590.8	647.9	627.8	697.9	<0.001
accuracy in %	98.8	98.8	100.0	98.8	99.5	94.9	0.322

linear mixed effect models with participants and items as random effects (random intercepts and slopes)

4

## Summary of Results

Both experiments yielded the same pattern of results. A joint analysis confirmed that there was no significant interaction of 'language' and 'condition' (p=0.563). Regardless of the status of German as L1 or L2, **identity** and **inflection** conditions exhibited **full priming**. For the homonymous countable **noun** condition, that patterned together with the **unrelated**

condition, **no priming effect** was attested. Crucially, the **conversion** condition patterned together with the **infinitive**. Both conditions manifested **partial priming** and differed significantly from both the full-priming group and no-priming group.

5

## Discussion

Instances of **verb-noun conversion** in German do not show the same priming potential as identical or inflected verb forms. However, they are better primes than homonymous countable noun forms. This indicates that verbs and nouns in a conversion-relationship are much closer related than verbs and homonymous countable nouns. The findings are thus inconsistent with **H1** (verb-noun conversions have an independent lexical entry), **H2b** (deverbals and verb share the same representation), and **H3** (no existing entry, but actively created from the verb entry). They are, however, compatible with **H2a** (word class specific sub-entries).

Interestingly, the status of **infinitive forms** is also different from other (inflected) instances of the same verb and from homonymous countable nouns. Thus, infinitives do not share the same status as other forms of the verbal paradigm in the lexicon. The

findings are compatible with typological accounts assuming that infinitives belong to a special word class, with interim status combining features of nouns and verbs (together with converbs, participles etc.). / [7]

Finally, **countable nouns** (although semantically related polysems) behave like completely unrelated words (no priming). They are unlikely to share a lexical entry with the corresponding verb, but to have their own, independent lexical entry. This does not comply with accounts that assume a single entry for polysemes / [8], but it complies with accounts supposing that distinguishable senses are separately represented. / [9]

Additionally, **L1 and L2** participants exhibited the **same pattern** of results. This indicates that L2 speakers represent entries in their mental lexicon in a similar way like L1 speakers.

6

## References

/ [1] for an overview, see Bauer & Valera (2005) / [2] Stolterfoht, Gese, & Maienborn (2010); Pliatsikas, Wheeldon, Lahiri & Hansen (2014) / [3] Don (2004); Plank (2010); Caramazza & Hillis (1991); Shapiro Mottaghy, Schiller, Poeppel, River, Müller, Caramazza, Krause (2005). / [4] based on research on polysemy, cf. Bauer & Valera (2005); Rabagliati & Snedeker (2013); Kleptousiotou & Baum (2007); Pykkänen, Llinás, & Murphy (2006) / [5] based on Distributed Morphology, cf. Halle & Marantz (1993, 1994); Marantz (1997, 2001); Harley & Noyer (1999); Embick &

Noyer (2006); see also Smolka et al. (2007). / [6] Barner & Bale (2005); Stolterfoht et al. (2010) / [7] See Ylikovski (2003) for an overview, cf. also generative linguistic accounts (extended verbal projection with a nominal layer on the top of it, e.g., Borsley & Kornfilt (2000); Alexiadou (2001). / [8] Ruhl (1989) / [9] Cruse (1986); Deane (1988); Langacker (1987); Rice (1992); Tuggy (1993).

