An experimental view on the syntactic flexibility of German idioms

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Budapest-Potsdam-Lund Colloquium 2016

This research is part of a cross-linguistic collaboration:
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Question: | What factors influence the **syntactic flexibility of idioms?** |

We present a study in which we manipulated the following factors:

- type of syntactic construction
- semantic decomposability of the idiom
- and context / information structure

→ The results are relevant for theories of **syntax-meaning mapping**.

Semantic decomposability — syntactic flexibility

Nunberg et al. (1994, sec. 4) claim that **decomposability** is the crucial factor for **syntactic flexibility** of idiomatic phrases. An idiom is decomposable if each constituent refers figuratively to an element of the interpretation.

(1) a.   The beans were spilled by Pat. → idiomatic
     b.   The bucket was kicked by Pat. → only literal
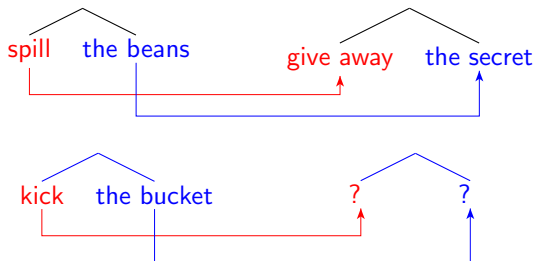
Syntactic flexibility of idioms in German

Nunberg et al. cite Ackerman & Webelhuth (1993), who show that
German prefield movement is not restricted to decomposable idioms:

(2)   Den Vogel hat Hans abgeschossen.
        the bird has Hans shot.off
        'Hans stole the show.'

One of the explanations Nunberg et al. offer: movement to the German
prefield is different from e.g. passivization or English topicalization in
that it **does not affect the interpretation** of the moved item.

Syntactic flexibility of idioms in German

Müller (2000) claims that a more **fine-grained hierarchy of decomposability** is needed:

opaque > *semi-opaque* > *semi-transparent* > *transparent*

can undergo movement to the prefield

passivization

wh-movement
modification

LD

Syntactic flexibility of idioms in German

There is disagreement concerning parts of idioms in the prefield.

- **Decomposability does not play a role**: a part of any idiom can be moved to the prefield (e.g. Müller 2000, Fanselow & Lenertová 2011). There can be other restrictions (e.g. accentuation in the latter approach), but they should affect all kinds of idioms alike.

- **Decomposability does play a role**: movement to the prefield is linked to a contrastive interpretation, and can therefore affect only parts of decomposable idioms (Frey 2005).

    (3) ✓ [the beans]$_{contrast}$ ... [spill the beans]$_{decomposable}$ ...

    (4) ✗ [the bucket]$_{contrast}$ ... [kick the bucket]$_{non-decomp}$ ...

Syntactic flexibility of idioms in German

Bargmann & Sailer (2015) conducted a corpus study on passivization of German idioms.

- Result: **Passive versions of non-decomposable idioms are attested in German**.
- Question: Why is that not possible in English?
- Answer: Passivization in German **does not "impose relevant constraints on the semantic properties of idiom components"**, whereas in English, it requires the derived subject to be a topic.

Our research questions:

- Is it true that some syntactic operations can affect parts of **non-decomposable** idioms, and others can affect only parts of **decomposable** ones? Is there a dichotomous or a gradient distinction?

- If so, is this due to the fact that the latter type of operation needs to access **the moved part's interpretation in isolation**?

  I.e., is the following reasoning correct?

A part of a non-decomposable idiom has no meaning on its own.
Operation X needs to access the meaning of the affected constituent.

A part of a non-decomposable idiom cannot undergo operation X.

Experiment: method and participants

- online questionnaire
- acceptability rating on a 1–7 scale (rating answers in a context)
- 41 participants (undergrad students)
- 121 written stimuli:
  - 90 from the idiom experiment
  - 12 from an unrelated study
  - 19 fillers (see appendix)

Experiment: design

$3 \times 5 \times 2$ design:

- **Factor 1: semantic decomposability** (within subjects)

  non-idiomatic, decomposable idiom, non-decomposable idiom
- **Factor 2: syntactic construction** (within subjects)

  canonical, object in the prefield, object left-dislocated, object scrambled, anaphoric control condition
- **Factor 3: context / information structure** (between subjects)

  broad focus, polarity focus

Every participant saw every item at all levels of factor 1 and 2, but only at one level of factor 3.

Experiment: factor 1 — semantic decomposability

Factor 1: semantic decomposability. We selected 6 non-idiomatic VPs, 6 decomposable idiomatic VPs, and 6 non-decomposable idiomatic VPs. They all consisted of a definite direct object and a verb.

We categorized the idioms based on the following criteria:

- Do we agree intuitively on the decomposability?
- Can the object be picked up by a pronoun? (if yes → decomposable)

  (5)   Peter threw in the towel, and Mary threw *it* in, too.

  This property was tested in a pilot study, and one item was replaced based on this criterion (*den Vogel abschießen* 'to achieve an outstanding result', lit. 'to shoot the bird'). We included this **anaphoric control condition** again in the experiment to recheck our categorization.

Experiment: factor 1 — semantic decomposability

Non-decomposable idioms (V + DP-object):

den Garaus machen	'make the GARAUS'	kill
das Zeitliche segnen	'bless the temporary'	die
die Leviten lesen	'read the LEVITEN'	to tell somebody off
den Löffel abgeben	'hand in the spoon'	die
das Handtuch werfen	'throw the towel'	give up
die Sau rauslassen	'release the pig'	misbehave/party wildly

decomposable idioms (V + DP-object):

das Kriegsbeil begraben	'bury the hatchet'	end a conflict
den Braten riechen	'smell the roast'	suspect sth.
den Faden verlieren	'lose the thread'	lose track of the plot
den Laufpass geben	'give the run-pass'	break up with somebody
den Tiefpunkt erreichen	'reach the bottom'	be devastated
das Eis brechen	'break the ice'	overcome reticency

Factor 2: syntactic construction. We tested the following variants:

(6) a. **Canonical word order** (unmarked):
        Sie   haben wohl   das Handtuch geworfen!
        they have   PART the towel   thrown
        'They apparently threw in the towel.'

   b. **Object in the prefield** (contrastive, according to Frey 2005):
       Das Handtuch haben sie wohl geworfen!

   c. **LD** (usually claimed to host a topic):
       Das Handtuch, das haben sie wohl geworfen!

   d. **Scrambling above a particle** (topic, according to Frey 2000):
       Sie haben das Handtuch wohl geworfen!

   e. **Anaphoric control condition**

Experiment: factor 3 — context / information structure

Factor 3: context / information structure. We tested each item in two contexts. This also affected the form of the target answer.

Q1 **why-question:**

Peter and Mary used to fight for employee rights.
Why haven't I heard anything about that lately?

A1 They threw in the towel!

Q2 **polar question:**

Peter and Mary used to fight for employee rights.
Have they given up?

A2 No, they would never throw in the towel!

The motivation for the **why-question context** was that the broad focus it induces can be seen as an information-structural baseline:

(7)   Peter and Mary used to fight for employee rights.
        Why haven't I heard anything about that lately?

They threw in the towel.	actual answer
They stopped talking about it.	alternative
Somebody else took over. ...	alternative

The why-question induces broad focus: the potential answers differ with respect to the whole IP.

The motivation for the **polar question context** was that dislocated idiom parts seem to be most acceptable when they occur in utterances including negation and allowing for a rise-fall intonation.

E.g., the following example is judged as fully acceptable by both Fanselow 2004 and Frey 2005:

(8)   Ins   /Bockshorn hat Emil sich   nicht\ jagen lassen.
       into.the goat.horn   has Emil himself not   chase let
       'Emil did not let himself be intimidated.'

Such examples arguably involve a **contrastive topic**.

Our polar question context is compatible with a discourse structure like this (cf. Büring 2003):

(9)   Peter and Mary used to fight for employee rights.

        Did they give up?   actual question

           They did not throw in the towel.

           They did throw in the towel.

        Did they stop talking about it?   alternative question

        ...

The polar question induces polarity focus: the potential answers differ with respect to polarity. The incompleteness of the discourse invites potential alternative questions with different VPs or IPs, which amounts to saying that there is a broad contrastive topic.

Note that the context is also compatible with narrow contrast if the VP is non-idiomatic. In this context, it is thus possible to meet the proposed requirements for both prefield movement (contrast) and scrambling / LD (topicality).

(10)   The landlords are angry at Benjamin.

Did he lose the front door key?   actual question

He did not lose the front door key.

He did lose the front door keys.

Did he lose the garage door opener?   alternative question

...

Frey (2005) argues that this kind of narrow contrast is possible with decomposable idioms, too (even if the resulting alternative idioms do not exist, but it is conceivable what their meaning could be). Under this view, the polar question context should facilitate fronting of decomposable idiom parts, but not of non-decomposable ones.

(11)   Peter looked so sad when he came back from his girlfriend's place.

Did she give him the run-pass (= 'break up')?

She did not give him the run-pass.

She did give him the run-pass.

Did she give him the yellow card ($\sim$ 'warn him')?

...

Experiment: statistical method

We analyzed the results using a linear mixed effects model.

We used the following **contrast coding**:

- **Decomposability: comparison of adjacent levels**.

  non-idiomatic   decomposable idiom   non-decomposable idiom

- **Syntactic construction: comparison to baseline.**

  canonical   prefield   LD   scrambling   anaphor

- **Context: sum coding** (comparison of each level to the mean).

# Experiment: predictions

Prediction 1: If it is true that some syntactic operations depend on decomposability, we should find an interaction between the two factors.

If decomposability is a dichotomous distinction, we should only see patterns 1 and 2; if it is gradient, we should also see other patterns like 3 and 4.
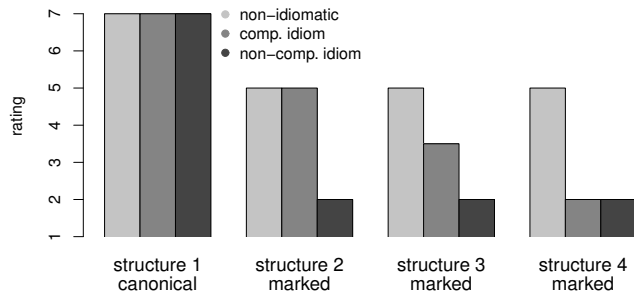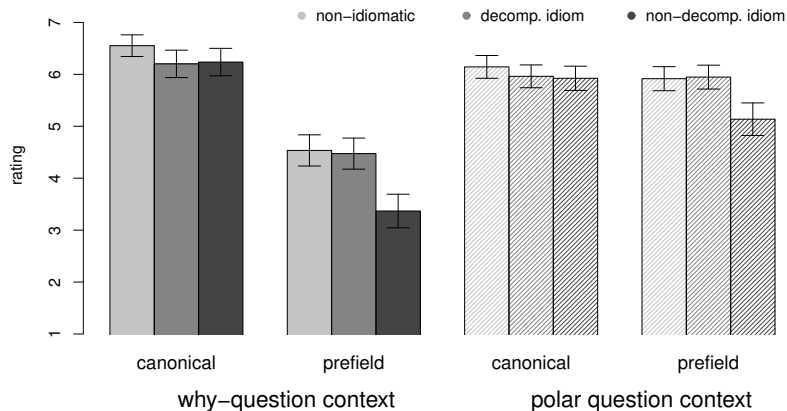
Experiment: predictions

Prediction 2: If the reason for this is that the operation needs to access the meaning of the affected part in isolation, providing a facilitating, contrast-inducing context should only raise the acceptability of decomposable items.

neutral context   facilitating context
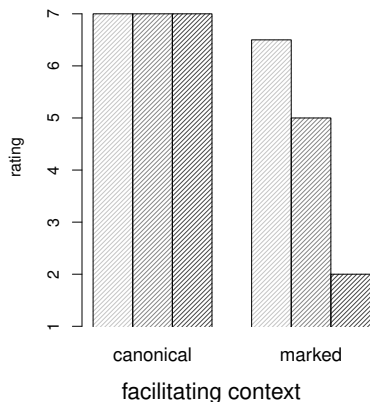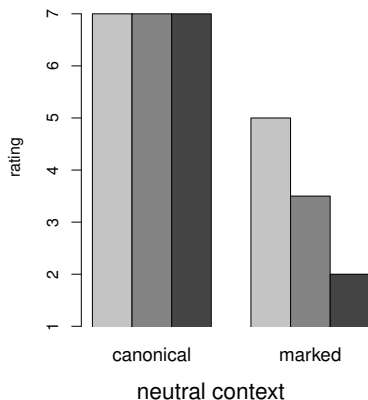
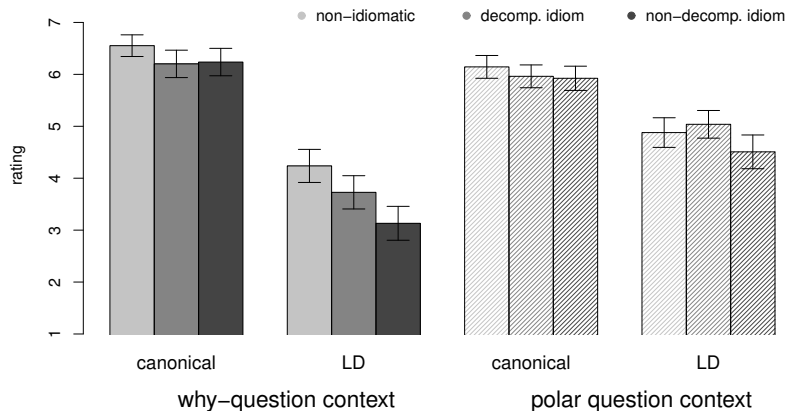# Experiment: results — canonical vs. object in the prefield

The acceptability difference between decomposable and non-decomposable idioms is significantly larger when the object is in the prefield than in the canonical baseline. This does not hold for non-idiomatic vs. decomp. idioms.

[canonical vs. prefield] × [non-idiomatic vs. decomp. idiom]: t = 1.4
[canonical vs. prefield] × [decomp. idioms vs. non-decomp. idiom]: t = -5.4

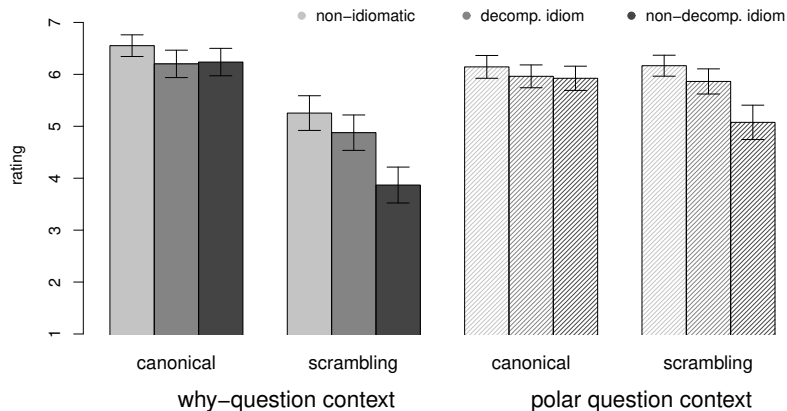# Experiment: results — canonical vs. left-dislocated object

The acceptability difference between decomposable and non-decomposable idioms is significantly larger when the object is left-dislocated than in the canonical baseline. This does not hold for non-idiomatic vs. decomp. idioms.

[canonical vs. LD] × [non-idiomatic vs. decomp. idiom]: t = 0.5
[canonical vs. LD] × [decomp. idioms vs. non-decomp. idiom]: t = -3.2

Experiment: results — canonical vs. scrambled object

The acceptability difference between decomposable and non-decomposable idioms is significantly larger when the object is scrambled above a particle than in the baseline. This does not hold for non-idiomatic vs. decomp. idioms.

[canonical vs. scrambling] $\times$ [non-idiomatic vs. decomp. idiom]: t = -0.4
[canonical vs. scrambling] $\times$ [decomp. idioms vs. non-decomp. idiom]: t = -5.1

For all marked syntactic structures (prefield, LD, scrambling), the **polar question context reduced the acceptability difference** in comparison to the baseline condition significantly.

[canonical vs. prefield] $\times$ context: t $=$ 12.9
[canonical vs. LD] $\times$ context: t $=$ 9.9
[canonical vs. scrambling] $\times$ context: t $=$ 9.4

The factor context did not enter any significant interaction with decomposability: the acceptability of non-idioms, decomposable idioms and non-decomposable idioms was **equally raised**.

Discussion

Evaluation of the research questions:

- Is it true that some syntactic operations can affect parts of non-decomposable idioms, and others can affect only parts of decomposable ones? Is there a dichotomous or a gradient distinction?

- → **Non-decomposable** idioms indeed show **less syntactic flexibility** in our results. The statistics point towards a **dichotomous** distinction. However, even dislocation of parts of non-decomposable idioms is **not categorically unacceptable**: in a suitable context, such structures can be as acceptable as > 5 on a 7-point scale.

Evaluation of the research questions:

- If so, is this due to the fact that the latter type of operation needs to access the moved part's interpretation in isolation?

  I.e., is the following reasoning correct?

A part of a non-decomposable idiom has no meaning on its own.
Operation X needs to access the meaning of the affected constituent?

A part of a non-decomposable idiom cannot undergo operation X.

$\rightarrow$ The findings concerning the **context factor** put the **second premise** in question: if it held, providing a context in which the required interpretation is easily available should facilitate dislocating parts of decomposable idioms, but not of non-decomposable ones.

Alternative views on the context factor:

- **Pars pro toto movement:** Fanselow (2004) proposes that the left-peripheral movement requires a certain interpretation, but this requirement can be satisfied also by a part of the relevant information-structural category (e.g., a part of a contrastive topic), which carries the formal (prosodic) marking

(12) ✓ [γ]$_{\text{position for CT}}$ α β [δ]$_{\text{CT}}$ ϵ

Discussion

Alternative views on the context factor:

- **Prosodically driven movement:** Taking the idea a step further (in the spirit of e.g. Zubizarreta 1998, Szendrői 2001), prosody-interpretation mapping rather than syntax-interpretation mapping could even be the primary motivation to move a part of a contrastive topic to the left:

(13) Sie würden [**nie**\]$_{FOC}$ [das Handtuch werfen]$_{CT}$.

$\rightarrow$ marking the CT by a rising accent is impossible when it follows the focal accent.

(14) /Das Handtuch würden sie [**nie**\]$_{FOC}$ [~~das Handtuch~~ werfen]$_{CT}$.

$\rightarrow$ marking the CT by a rising accent is possible when (a part of) it precedes the focal accent.

Both approaches (pars pro toto, prosodically driven movement) would predict that a suitable context should generally raise the acceptability, irrespective of decomposability.

However, some questions remain open:

- What causes the **degradedness of the non-decomposable idioms** in marked syntactic constructions?
- How to interpret the results of the **anaphoric control condition**?

Open questions: reason for degradedness

Open question 1: What causes the **degradedness of the non-decomposable idioms** in marked syntactic constructions?

- Even if the investigated operations are not linked 1:1 to a certain interpretation, there could still be a more general preference for a continuous realization of information-structural categories and a penalty for partial movement (which is unavoidable when the object is moved out of a non-decomp. idiomatic VP).
- Or there could be a more specific preference for a continuous realization of semantically non-compositional phrases.

Open question 2: The factors **compositionality** and **context** have a similar effect on the **anaphor control condition**, which we included to recheck our idiom categorization.

(15) Mary and Peter used to fight for employee rights. Why haven't I heard anything about that lately?
      Although nobody would have thought that they would ever throw in the towel, they threw it in eventually.

(16) Mary and Peter used to fight for employee rights. Did they give up?
      Although everybody thought that they would throw in the towel, they did not throw it in.

Open questions: anaphoric control condition
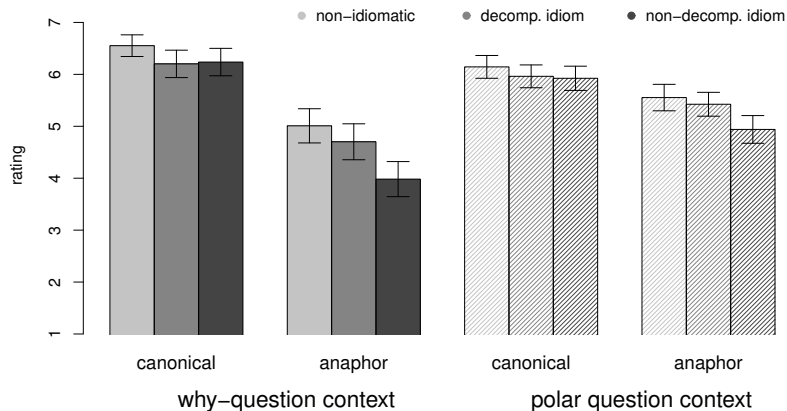
The acceptability difference between decomposable and non-decomposable idioms is significantly larger when the object is picked up by a pronoun. This does not hold for non-idiomatic vs. decomp. idioms.

[canonical vs. anaphor] × [non-idiomatic vs. decomp. idiom]: t = 0.3
[canonical vs. anaphor] × [decomp. idioms vs. non-decomp. idiom]: t = -3.4

Open questions: anaphoric control condition

Why does the polar question context make it more acceptable to refer back to an idiom part by a pronoun?

- Does the polar question context for some reason **ameliorate** all kinds of problems (potentially including a syntax-interpretation mismatch)?
- Is it just a coincidence?
  - The sentence used in the polar question context is e.g. more **plausible** than the other?
  - The speakers who judged the polar question items were syntactically more liberal (context was a **between-subjects** factor)? They also rated one group of fillers higher.

Summary

- Prefield movement, left dislocation and scrambling in German are less acceptable when they involve a non-decomposable idiom part than when they involve a non-idiomatic or decomposable part of the VP.

- In polar-question/negative-answer contexts, which invite a contrastive topic interpretation of the VP or the object, all the tested marked structures are more acceptable, irrespective of decomposability.

$\rightarrow$ Possible interpretation: An individual contrastive/topical interpretation of the dislocated element is not required.

$\rightarrow$ But: did the context manipulation work in the intended way?

Outlook

- How do idioms behave with respect to constructions in other languages which are reported to be linked more closely to a particular interpretation (e.g. focus/topic position in Hungarian)?

  $\rightarrow$ ongoing cross-linguistic work on Hungarian and Serbian

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Appendix: filler results

- **Fake idioms:** VPs whose literal interpretation does not make sense in the provided context; but they have not idiomatic interpretation either. *Mean rating: 1.56*

  (17)   I heard that Michael had to give a presentation in the seminar. Do you think he did well?
          No, he certainly did not make the telephone ring!

- **Pun coordinations:** idiomatic constituent coordinated with a non-idiomatic one. *Mean rating: 3.92*

  (18)   Mario seems upset, did he lose something?
          He lost his wallet and his head.

- **Existing idioms with lexical errors:** *Mean rating: 1.86*

  (19)   Why is Mary not coming to the soccer training anymore?
          She threw the rifle onto the roof. *(to throw the rifle into the grain = to give up)*