Animacy in German Folktales

The Wishing-Table, the Gold-Ass, the Cudgel in the Sack, and...

Julian Häußler, Janis von Keitz, Evelyn Gius

THERE was once a tailor who had three sons and one goat. [...] One day the eldest took the goat to the churchyard, where the best sprouts are, that she might eat her fill, and gambol about.

In the evening, when it was time to go home, he said,

"Well, goat, have you had enough?"

The goat <u>answered</u>,

"I am so full,
I cannot pull
Another blade of grass—ba! baa!"

The Table, the Ass, and the Stick from *Household stories from the collection of the Bros Grimm* (L & W Crane, 1882)

and when any one attacked him he would say, 'Stick, out of the sack!' and directly out jumped **the stick**, and <u>dealt a shower of blows</u> on the coat or jerkin, and the back beneath

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→ **Animacy detection as detection**

of characters/character action

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RQ1: Which function does atypical animacy have in German folktales?

RQ2: Relation between animacy and similar phenomena?

RQ3: Best feature combination for animacy classification?

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1. Animacy

- In (Computational) Linguistics

  - Understanding of animacy…
    - … "in terms of agency" (Westfall 2023)
    - … as "belonging to a set of generic semantic features" (Nieuwland and van Berkum 2006)

  - In NLP → Means for coreference resolution, text generation, etc.

- In (Computational) Literary Studies

  - No fixed concept of animacy
  - Can be explored through stylistic devices like personification and anthropomorphism.
  - Characters as fictional persons informed by readers' real-world knowledge (Jannidis 2004, 2012).

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2. Annotation

1. The entity performs an action independently and fulfills the agent role of a verb.

2. The entity makes independent verbal utterances.

3. The entity is described by a lexeme that refers to a living being, irrespective of its role or actions in the sentence.

The spindle immediately **jumped** out of her hand and out the door

(Spindle, shuttle and needle)

The king took her into his arms, lifted her onto **his horse**, and rode home with her

(Mary's Child)

2. Annotation

- 19 out of 211 of *Children's and Household Tales*

- With animate entities that are something other than humans or animals (*Atypical Animacy Corpus*)

- Among others: Mother Holle; The Table, the Ass, and the Stick; Brother and Sister; …

- Cohen's κ = 0.87

3. Animacy and Literary Character

	animacy type				
	human	animal	inanimate	supernatural	total
character	84 (53.5%)	32 (20.4%)	41 (26.1%)	0 (0%)	157 (100%)
not character	31 (38.3%)	35 (43.2%)	12 (14.8%)	3 (3.7%)	81 (100%)
total	115 (48.3%)	67 (28.2%)	53 (22.3%)	2 (0.8%)	238 (100%)

The straw said, "Dear friends, where do you come from?"

(*Straw, Coal, and Bean*)

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> (*Straw, Coal, and Bean*)

3. Animacy and NER

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The Table, the Ass, and the Stick from *Household stories from the collection of the Bros Grimm* (L & W Crane, 1882)

Animacy reference

Named entity

	animate	inanimate
named entity	193	106
no named entity	5,588	n/a

4. Classifier

```
embeddings
word
word+embedings
word+PoS
word+PoS+embeddings
word+PoS+lemma
...
                              (Karsdorp et al. 2015)
```

	inanimate			animate		
	P	R	F1	P	R	F1
lexical features	0.95	0.98	0.96	0.88	0.77	0.82
all features	0.96	0.97	0.97	0.87	0.81	0.84

• Lexical features → context window=3

• Embeddings → d-RoRo (Schumacher et al. 2023)

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5. Summary and Outlook

RQ1: Function of atypical animacy in German folktales?

➜ Atypical animacy as typical feature of folktales

RQ2: Relation to similar phenomena?

➜ Atypical animate entities as characters, animacy complementary to NER

RQ3: Best feature combination for classification?

➜ 4,096 annotations, lexical/semantic classifier, F1=0.84

- coreference resolution
- character recognition
- LLMs

github.com/forTEXT/animacy_in_german_folktales

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References

F. Jannidis, Figur und Person. Beitrag zu einer historischen Narratologie, de Gruyter, Berlin, 2004. doi: 10.1515/9783110201697.

F. Jannidis, Character, in: P. Hühn, J. C. Meister, J. Pier, W. Schmid (Eds.), The Living Handbook of Narratology, Hamburg University, Hamburg, 2012. https://www-archiv.fdm.uni-hamburg.de/lhn/node/41.html (last viewed: 2024/12/02).

F. Karsdorp, M. van der Meulen, T. Meder, A. van den Bosch, Animacy Detection in Stories, in: M. A. Finlayson, B. Miller, A. Lieto, R. Ronfard (Eds.), 6th Workshop on Computational Models of Narrative (CMN 2015), volume 45 of *Open Access Series in Informatics (OASIcs)*, Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl, Germany, 2015, pp. 82–97. doi:10.4230/OASIcs.CMN.2015.82.

M. S. Nieuwland, J. J. A. van Berkum, When peanuts fall in love: N400 evidence for the power of discourse, Journal of cognitive neuroscience 18 (2006) 1098–1111. doi:10.1162/jocn.2006.18.7.1098.

M. Schumacher, I. Uglanova, E. Gius, d-Romane-Romantik (d-RoRo), 2022. doi:10.5281/ZENODO.7215170.

M. Westfall, Perceiving agency, Mind & Language 38 (2023) 847–865. doi:10.1111/mila.12399.

Title image: https://en.wikipedia.org/wiki/File:Tischlein_deck_dich_(2).jpg (last viewed: 2024/12/02).

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Appendix

Atypical Animacy Corpus
- KHM 6 Trusty John
- KHM 10 The Pack of Ragamuﬃns
- KHM 11 Brother and Sister
- KHM 18 The Straw, the Coal, and the Bean
- KHM 24 Mother Holle
- KHM 28 The Singing Bone
- KHM 30 The Louse and The Flea
- KHM 36 The Table, the Ass, and the Stick
- KHM 41 Herr Korbes
- KHM 42 The Godfather

- KHM 49 The Six Swans
- KHM 56 Sweetheart Roland
- KHM 80 The Cock and the Hen
- KHM 88 The Singing, Springing Lark
- KHM 89 The Goose Girl
- KHM 103 Sweet Porridge
- KHM 142 Open Sesame
- KHM 171 The Willow-Worn
- KHM 188 Spindle, Shuttle, and Needle

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Appendix

- Karsdorp et al. (2015): Animacy Detection in Stories
  - 74 Dutch folktales, words labelled for animacy (≙ second layer of our annotation)
  - 11,542 animate tokens of 743 word types
  - Maximum entropy classifier,10-fold-cross validation
  - F1-Score for animate class: 0.91

- Our approach
  - 19 German Folktales, words labelled for animacy, animate entites tagged with properties 'character' and 'animacy type'
  - 4,096 animate tokens
  - Maximum entropy classifier, 10-fold cross validation
  - F1-Score for animate class: 0.84

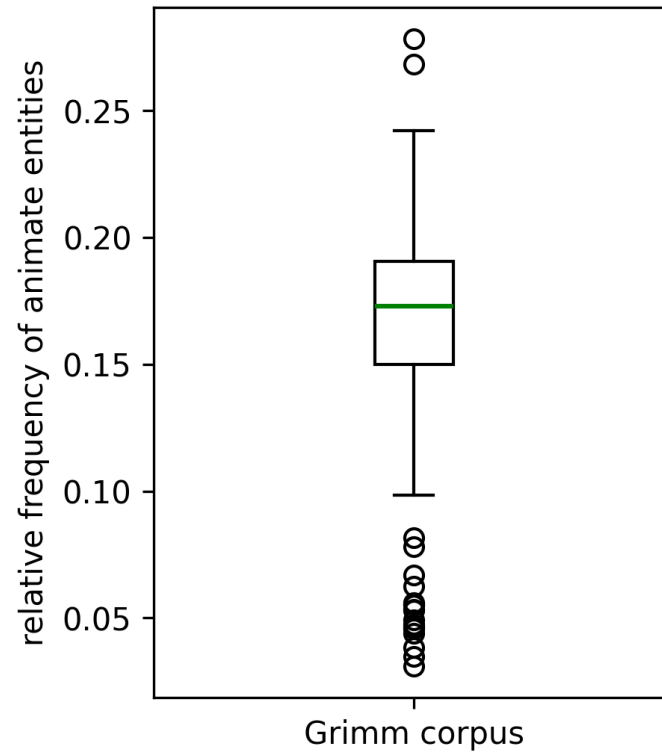TECHNISCHE UNIVERSITÄT DARMSTADT

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Appendix

Figure 1: Relative frequency of animate entities of the 211 *Children's and Household Tails*

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