

SFB 991



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# Predicting the semantics of English nominalizations

A frame-based analysis of *-ment* suffixation

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Concept Types and Frames in Language, Cognition, and Science (CTF'14)

Heinrich-Heine-Universität Düsseldorf, August 25 - 27, 2014

# Affix polysemy: *-ment*

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- Nominal suffix attaching mainly to verbal bases
- Various readings (Bauer et al. 2013, ch. 10)

<b>EVENT</b>	<i>assessment</i>
<b>RESULT</b>	<i>containment</i>
<b>STATE</b>	<i>contentment</i>
<b>PRODUCT</b>	<i>pavement</i>
<b>INSTRUMENT</b>	<i>entertainment</i>
<b>LOCATION</b>	<i>embankment</i>

# How do we get such readings?

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- Certain base verbs evoke certain readings (Bauer et al. 2013, 212)
  - Verb requires instrument → INSTRUMENT nominalization
    - *to wrap* → *wrap*
    - *to refresh* → *refreshment*

- Shift to a syntactic argument of the verb

*John **purchased a car**. His wife approves of this **purchase**.*



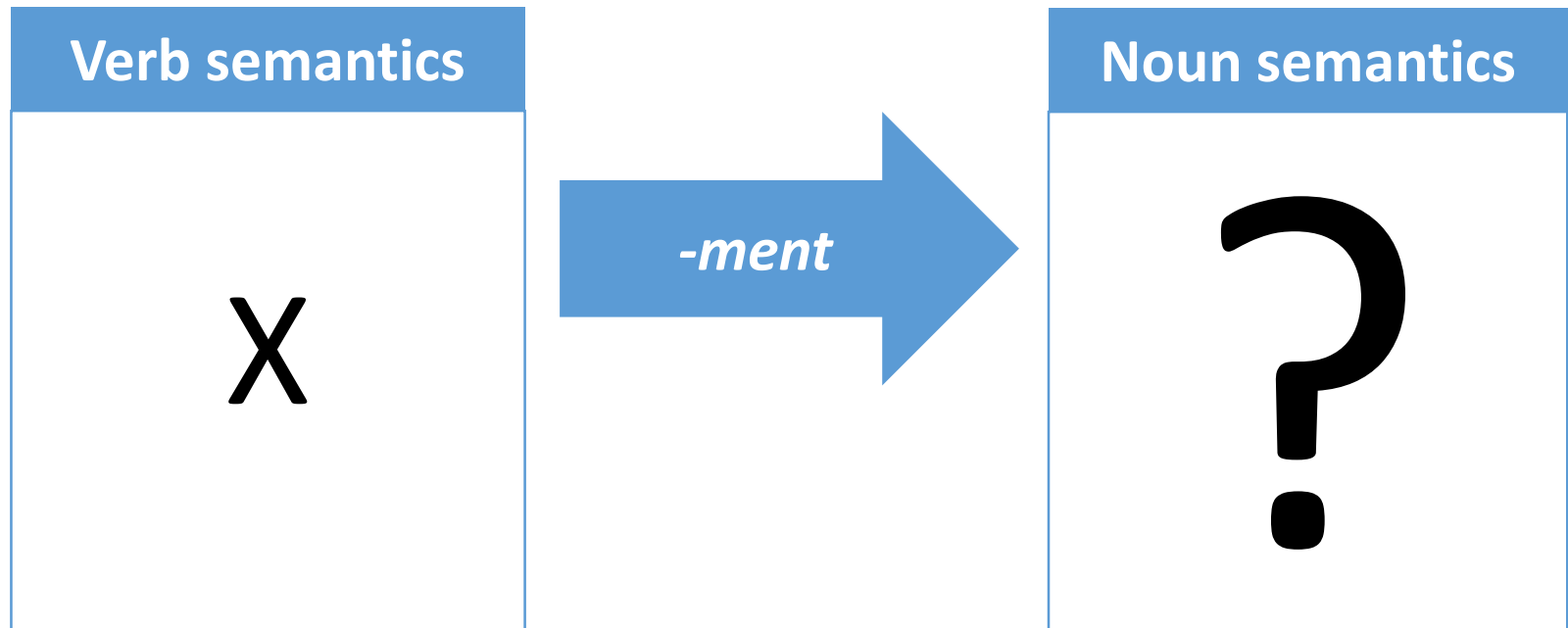
- Not restricted to syntactic arguments though

*My granny used to **embroider pillowcases**. I love the **embroidery** on this one.*



# An interplay of verb and suffix

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# Issues concerning *-ment* data

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- Very productive in Early Modern English (15<sup>th</sup>-17<sup>th</sup> c.); nowadays still somewhat productive (Bauer et al. 2013, 199)
- Many (often highly lexicalized) derivatives
  - movement*      1393
  - department*    c. 1450
  - treatment*      1560
- Aim: synchronic analysis of the productive process
  - Neologisms (1900-today)

# Method

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- Neologisms (***Oxford English Dictionary***)
- Hapax Legomena (***Corpus of Contemporary American English***)
- 86 *-ment* derivatives from 24 verb classes (Levin 1993 / VerbNet)
- Largest class: PSYCH verbs (N=16)
- Semantic classification of derivatives
- Attestations from other corpora (GloWbE, WebCorp, WebCorp LSE, Google)

# Definition of PSYCH verbs

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- Semantically heterogeneous: psych states & change of psych states (cf. Levin 1993, 188-193)
- Typically two arguments: STIMULUS & EXPERIENCER
- Traditional categories (Pesetsky 1995): Object Exp. & Subject Exp.
- Four subcategories following Levin (1993) / VerbNet:

	Subject Experiencer	Object Experiencer
Transitive Verbs	ADMIRE verbs <i>The tourists <b>admired</b> the paintings</i>	AMUSE verbs <i>The clown <b>amused</b> the children</i>
Intransitive Verbs with PP	MARVEL verbs <i>Megan <b>marveled at</b> the beauty of the Grand Canyon</i>	APPEAL verbs <i>This painting <b>appeals to</b> Malinda</i>

# Semantic coding of derivatives

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## Traditional semantic categories

(Beard 1995; Spencer 2010; Sil et al. 2010; Osswald 2005; Brandtner 2011; Ehrich & Rapp 2000, cf. also VerbNet semantic annotation)

- EVENT

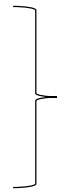
- STATE

- EXPERIENCER

- STIMULUS

- RESULT STATE

- ...



‘transposition’



# Some examples for attestations

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- EVENT

Medicine's and my great problem and great fault consist of what might be called the intellectualization – the **enrapturement** with science and technology – by which that legion of men and women who are today's doctors have allowed themselves to become besotted. (Webcorp\_BLOG\_1998)

- RESULT STATE

I know a lot of our compatriots also feel the same angst, consternation and **confoundment**. (GloWbE\_ART\_2012)

- STIMULUS

The Education Secretary arrived having just made her first big policy declaration - dressed up as a **reassurance** to Middle England that A-levels will be retained and that other exams may be made harder. (OED\_NEWS\_2005)

# Types in our dataset (N=16)

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affrightment

approvement

bumfuzzlement

confoundment

dumbfoundment

endullment

enragement

enrapturement

nonplusment

perturbment

reassurance

upsetment

soothement

staggerment

marvelment

worriment

# Results

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# Overview

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MARVEL verbs

# Output semantics: AMUSE verbs

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RESULT STATE is dominant: not surprising

- STIMULUS & EVENT nominalizations should be impossible
- Pesetsky (1995, 71):

Now consider the nominalizations that are related to causative ObjExp verbs like *annoy*. These nominalizations uniformly lack all causative force (as observed first, perhaps, by Lakoff (1970:126)). The present analysis is an interesting alternative description of this fact in morphological terms. Rather, they are nominalizations of corresponding noncausative predicates. Thus, *annoyance* does not mean 'the process of making annoyed', but 'the state of being annoyed'. *Amusement* does not refer to something amusing someone, but to the state of being amused.

These nouns are not result nominals (which may lack argument struc-

- Our data provide counter-evidence to these views

# Output semantics: MARVEL verbs

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*Approvement* is attested as STIMULUS, *musement* isn't:

Not surprising

- Artefact of the data: only two types in the dataset
- Verb class is heterogeneous in the first place:
  - Static vs. dynamic (e.g. *muse over*: 'to be pensive' vs. 'to ponder')
  - Different degrees of implied causation (e.g. *mourn over* vs. *approve of*)
- Enlarge the dataset!

# Output semantics: \*EXPERIENCER

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EXPERIENCER is not attested in PSYCH verb + *-ment* combinations

- Affix rivalry
  - Suffix for EXPERIENCER and PATIENT: *-ee* (or *-er*)
- Verb class might disallow it
  - Not convincing, cf. *soothee* and *sufferer*
- *-ment* might disallow it
  - EXPERIENCER isn't mentioned in the pertinent literature
  - Data set: no [+animate] readings (except, potentially, STIMULUS)
  - At least a preference for [-animate]!

# A frame-based analysis

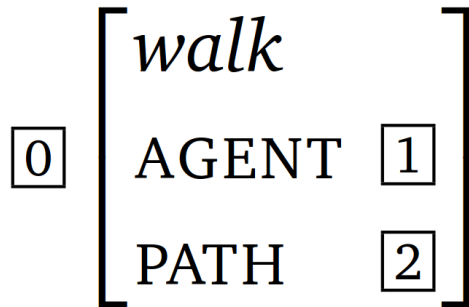
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*-ment* on AMUSE verb bases

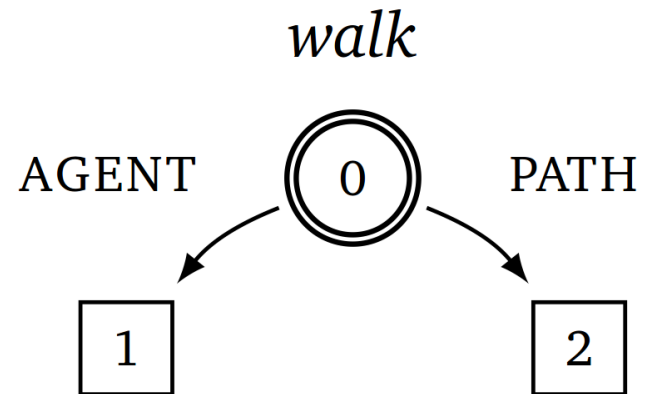


# Modeling semantics in frames

(e.g. Barsalou 1992 a,b; Löbner 2013; Petersen 2007)



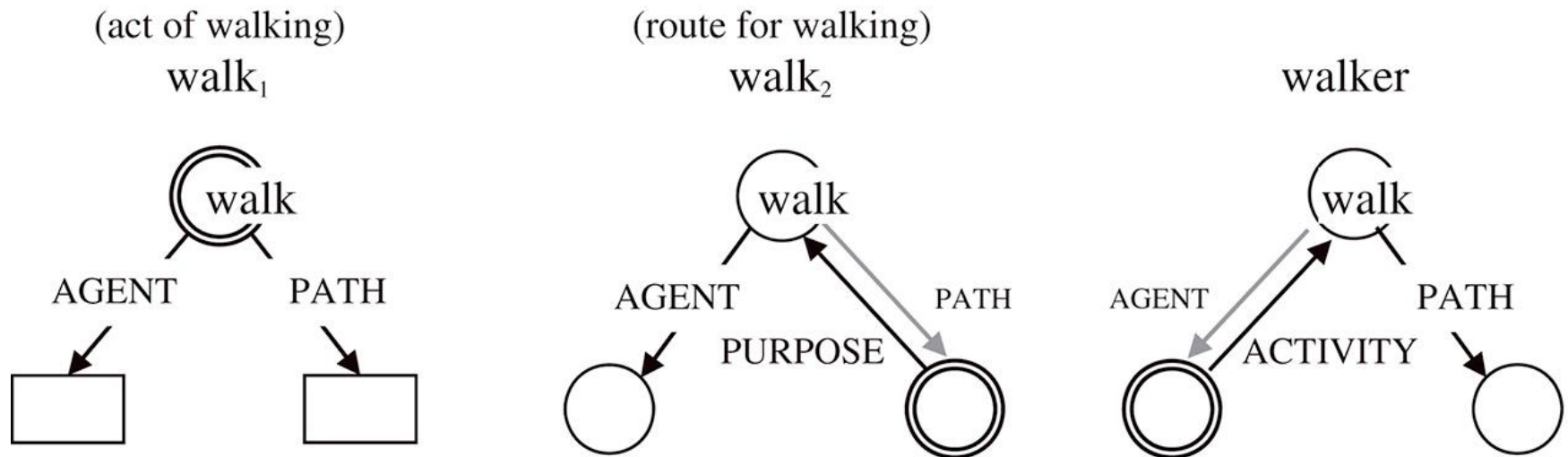
Frame matrix of the verb *walk*



Frame graph of the verb *walk*

# Modeling semantic shifts in frames

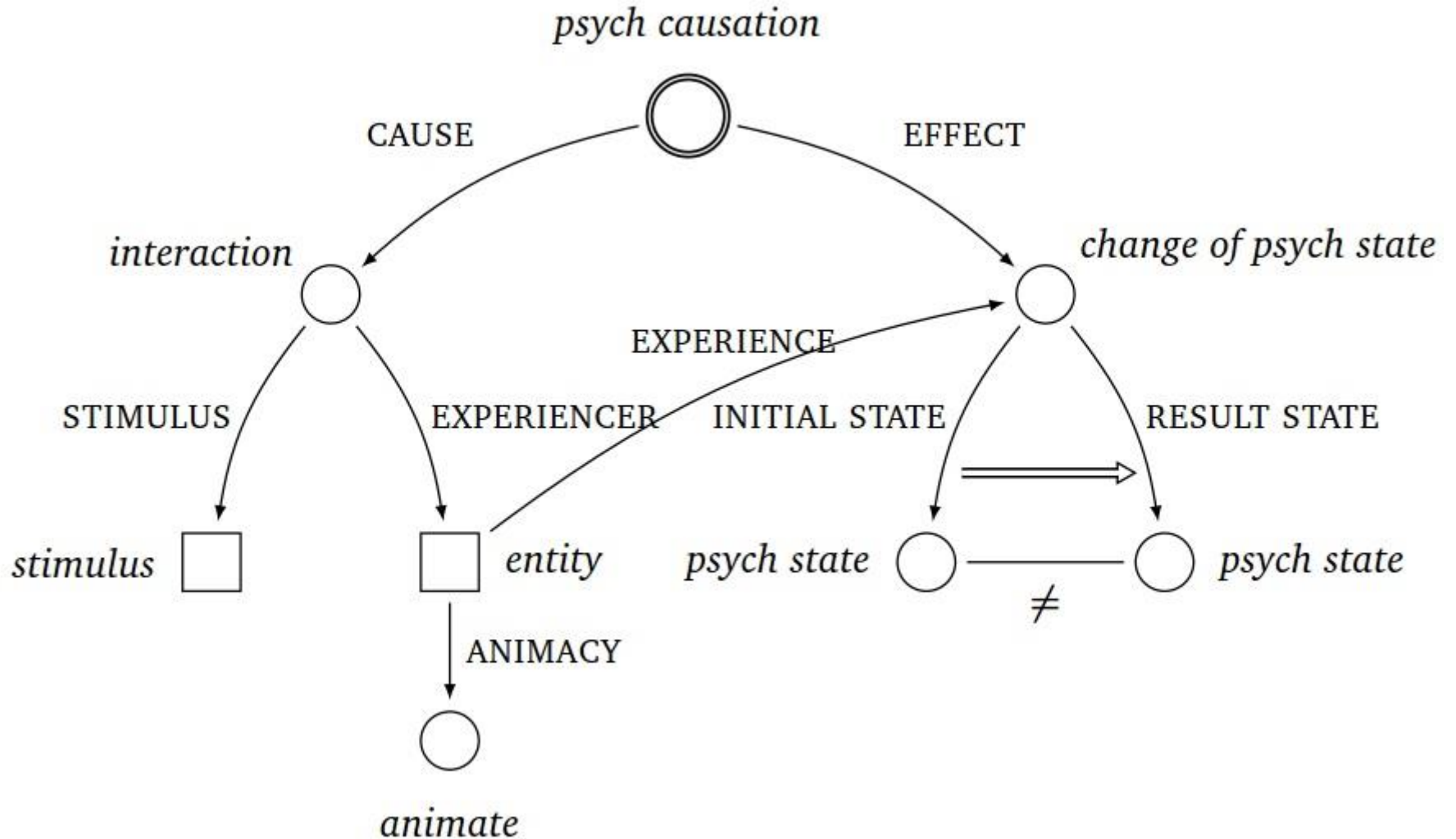
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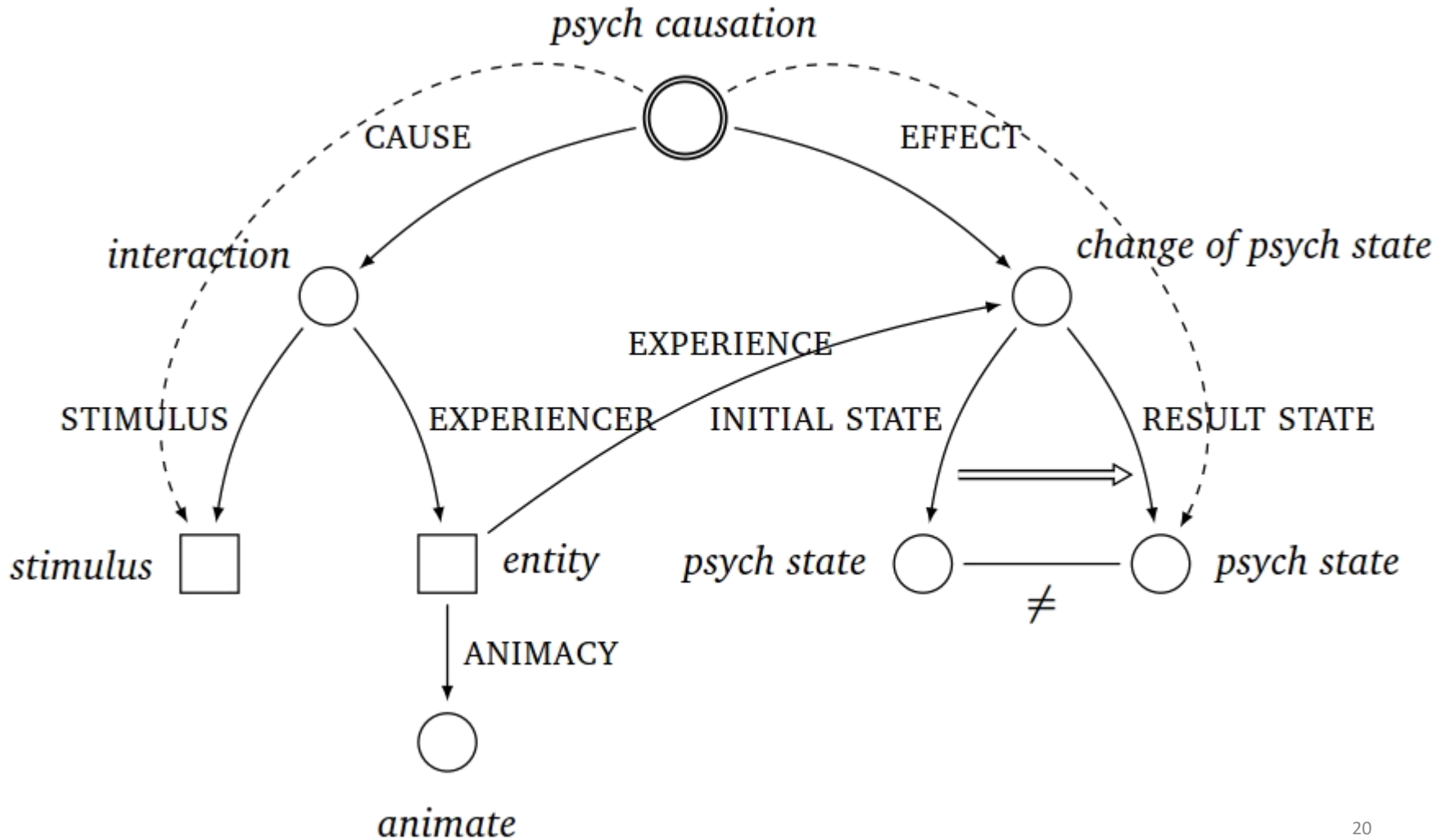
Frame graphs for three nouns derived from the verb *walk*  
(Löbner 2013, Figure 12.9)

# Modeling psych causation

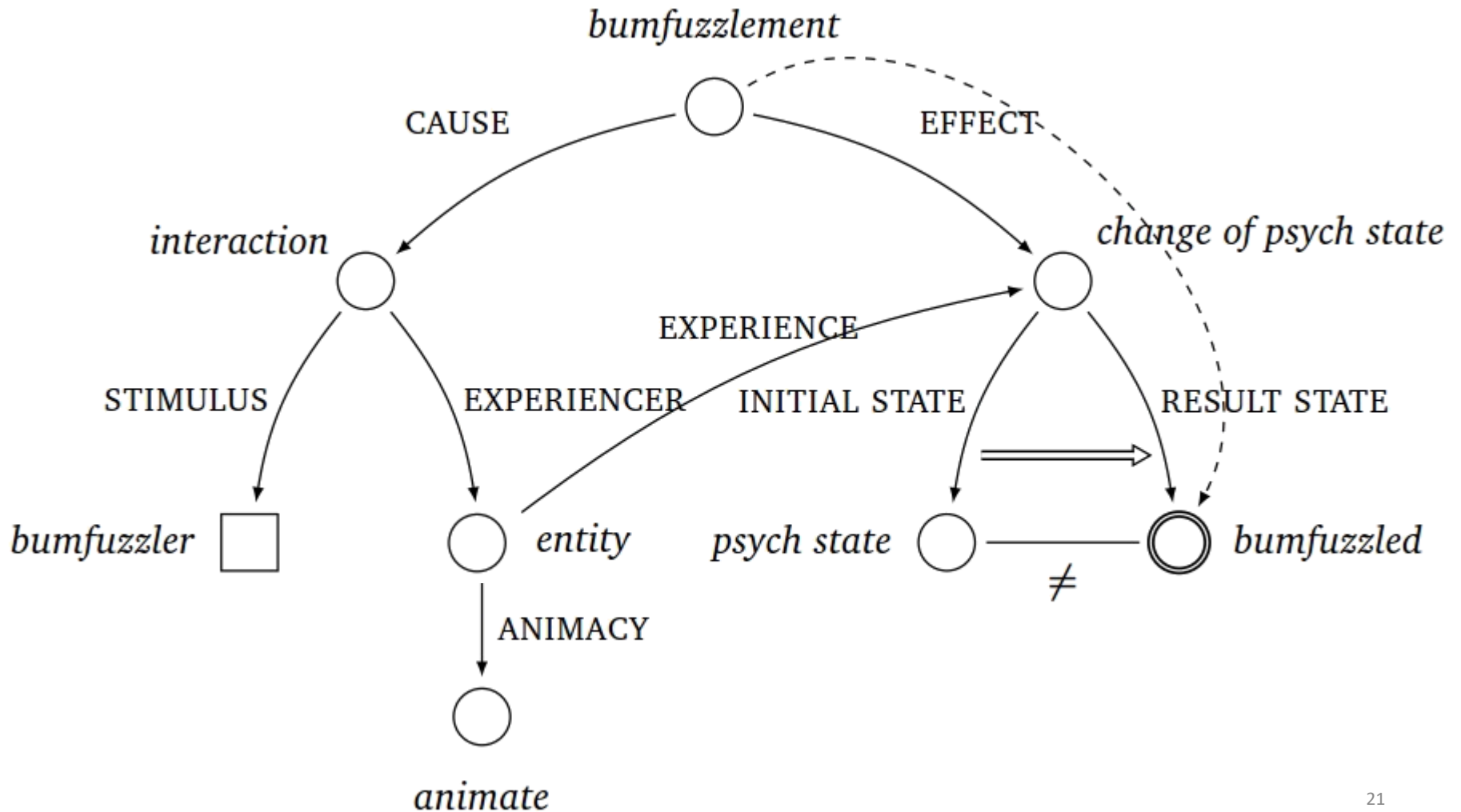
(cf. Löbner 2013, Naumann 2013, Osswald & Van Valin 2014)



# Modeling affix polysemy



# Bumfuzzlement: Shift to RESULT STATE



# Summary

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- *-ment* has clear preferences for certain types of base verb.
- Resulting derivatives show a well restricted set of possible readings (transposition, RESULT STATE, STIMULUS; no EXPERIENCER).
- Shifts can target argumental and non-argumental components of the semantic representation.
- Attested readings result from clearly defined shifts in the semantic structure of the respective base verbs.
- These shifts are governed by certain constraints and/or preferences.

# Conclusion

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- Affix semantics:
  - The potential to induce particular kinds of shift in the semantic structure of the base
- Possible readings of *-ment* nominalizations emerge from the predictable interaction of base semantics with affix semantics
- Future work: Test this with further verb classes

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Thank you very much for your attention!

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# Base selection

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- *-ment* selects only two subcategories of PSYCH verbs

No APPEAL verbs, no ADMIRE verbs

13 AMUSE verbs

*afright, bumfuzzle, confound, dumbfound, endull, enrage, enrapture, nonplus, perturb, reassure, upset, soothe, stagger*

2 MARVEL verbs

*approve (of), marvel (over)*

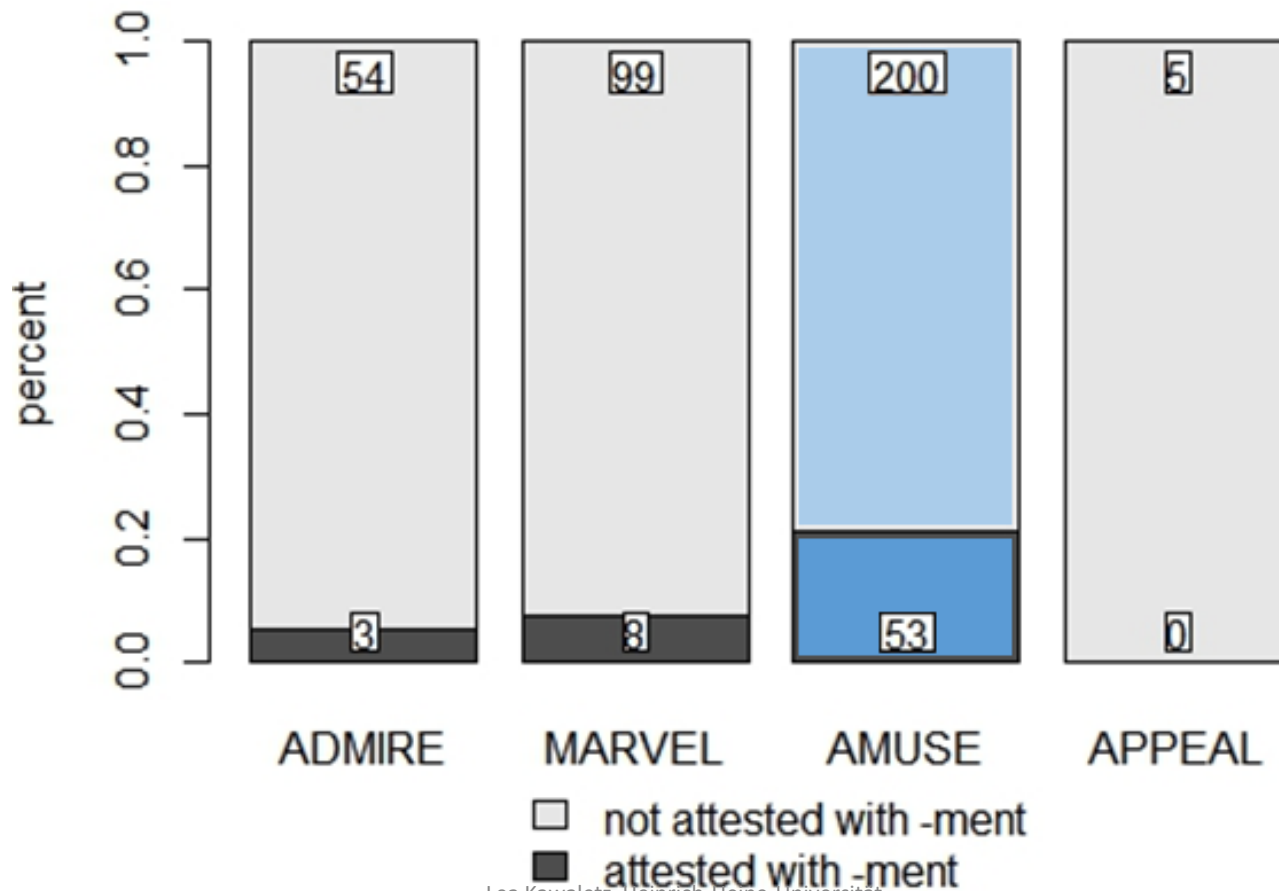
1 AMUSE & MARVEL verb

*worry*

- Preference for AMUSE verbs seems to be a general tendency

# Base selection

- Preference for AMUSE verbs seems to be a general tendency



# Why prefer AMUSE verbs?

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- Artefact of lexical distribution: Only five verbs in APPEAL verb class, three of which are very infrequent
- Preference for other derivational processes
  - MARVEL verbs: conversion (*sorrow, freakout*)
  - ADMIRE verbs: *-ation* (*reaffirmation, adoration*) and conversion (*mistrust, grudge*)