

Polysemy and De-contextualization:

A Quantitative Investigation Based on Similarity for the Identification of Prototypical Meaning

Sae Nishiuchi †

Sachi Kato ‡

Masayuki Asahara ‡

† University of Tsukuba

‡ National Institute for Japanese Language and Linguistics

Research objectives:

Identifying prototypical meanings through similarity judgement

Case study:

The polysemous word and Japanese tenses

Previous techniques used **to identify prototypical meanings** of polysemous words:

- 1) Historically earliest attested meaning
- 2) Predominance in the semantic network in the sense of type-frequency
- 3) Predictability regarding other senses
- 4) A sense which relates to lived human experience

(Evans 2005: 44)

We propose an another **quantitative method** for identifying prototypical meanings by **judging similarities** in a one-to-many presentation.

Proposed method:

Similarity judgement in a one-to-many presentation

Prototypical example of the source

→ High similarity of **all targets**

[[内の語の意味が例文とどのくらい似ているか判定してください。 source: prototypical (例文) : 20: 【汚い】 *Kitanai* [non-past form]

0色は本藍ほどに丈夫ではありませんし、使えば 0 The pigment which this is dyed with is not as long-lasting as real indigo, and as you use it, it will fade and become dull.

1くたびれた顔をして、すり切れた【きたない】 1 He had a tired face, wore tattered, filthy clothes, and used to work at that baker's place.

2おれみたいな顔や身体つきの人間にはいっばん 2 Your words sound to humans like me most of all like the sort of vulgar turns of phrase to which noble thoughts and evil imaginings alike can give way, and that's because we're

3「書いてくれ」とノートを出すと、下手くそな 3 I took out my notebook, asking him, 'Write it down'. He scrawled out 'VELTLINNER' in terrible handwriting, and messily erased one

4だらしないクルー一だ和船の中はすぐに【汚く】 4 A slovenly crew can quickly make even the cleanest ship messy. But not a single piece of garbage could be seen littering the corridors of this ship.

Prototypical example of target 2

→ High similarity for target 2 only

[[内の語の意味が例文とどのくらい似ているか判定してください。 (例文) : 20: 【汚い】 *Kitanai* [non-past form]

15彼らはそんな【きたない】仕事をしているの 15 Despite doing such dirty work, they maintain a far cleaner appearance than the chimney sweeps and garbage men who work aboveground.

16そのうち【汚い】ぬかるみに変わる雪は、ま 16 Snow, which eventually turns into mucky slush, matched his disposition perfectly.

17滝沢と鈴木はいいコンビだった。二人とも金 17 Takizawa and Suzuki make a great pair. Both are stingy with their money.

18大規模な犯罪者、とりわけ麻薬商人にとって 18 One of the problems that career criminals, especially drug dealers, face is how to launder their misbegotten dirty money.

19古書集めに興味のない世間一般の人は、なん 19 Although your average person uninterested in collecting old manuscripts might wonder why in the world someone would pay so much money for a dusty old book, ...

target2: prototypical

Hypothesis: the difference between prototypical and derived meanings appeared in **their tense forms**.

De-contextualised non-past form: **prototypical** > derived

De-contextualised past form: derived > prototypical

Japanese polysemous adjectives *Kitanai* and *Kitsui*

non-past form / past form

Kitanai / *Kitanakatta* means 'dirty', 'stingy', and 'messy'.

Kitsui / *Kitsukatta* means 'tight', 'tough' and 'severe'

Deduced through (1) Historically earliest attested meaning and (4) Relation to human experiences.

Results

<i>Kitanai</i>	dirty	unpleasant	messy	mean / stingy
Non-Past form <i>Kitanai</i>	3.49	3.29	3.12	2.90
Past form <i>Kitanakatta</i>	3.28	2.88	2.93	2.68

the prototypical meanings tend to be similar to the de-contextualised non-past and past forms.

<i>Kitsui</i>	tight	tough	strong	severe
Non-Past form <i>Kitsui</i>	2.98	3.40	2.99	3.06
Past form <i>Kitsukatta</i>	2.52	3.12	2.62	2.41

Kitsui's prototypical meaning is not 'tight' but 'tough'.

Experiment Settings

Similarity judgement of polysemous sentences.

Sentences × Non-past and Past forms, without prior context, and by using a crowdsourcing service.

	Sentences	Participants	Date	Costs
Each words <i>Kitanai</i> & <i>Kitsui</i>	20	380 + 256	2019/02 & 2020/07	Total ¥11572

References

Evans, V. 2005. The Meaning of Time: Polysemy, the Lexicon and Conceptual Structure. *Journal of Linguistics* 41(01): 33-75.

Taylor, J.R. 1989. *Linguistic Categorization. Prototypes in Linguistic Theory*. Oxford: Clarendon Press.

Conclusion

- ✓ we propose another method to estimate the prototypical senses.
- ✓ the de-contextualised forms tend to be more similar to the prototypical meaning than others.
- ✓ the prototypical meaning of *Kitsui* may be not 'tight' but 'tough' in this experiment.