

# The *belly* of the cabbage – Body-part metaphors as a window into the mind

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The Idea

Theory  
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Study  
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Results  
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Conclusion  
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Learnings  
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# Outline

The Idea

Theoretical Background

A cross-linguistic study of object and landscape terms

Results

Conclusion

Learnings

# The Idea

## Theoretical Background

## Body-part metaphors

## Body-part metaphors

- using a body-part to refer to parts of an object or landscape
- a different term for this phenomenon: ‘meronymy’
  - “meronymy is concerned with how parts and wholes are represented in language. Words for parts, such as leg, stem, and edge, are called meronyms.” (Tilbe 2017)

## Metaphor and Cognition

- connecting body and mind (Embodiment Theory)
- “metaphor is pervasive in everyday life, not just in language but in thought and action” (Lakoff and Johnson, 1980, 3)

## Metaphor and Cognition

- idiosyncratic metaphorical expressions such as *leg of the table* and *foot of the mountain* are not used systematically in our language or thought (Lakoff and Johnson, 1980, 54)
- ignoring language diversity
  - in Persian one can find the *shoulder, back, waist, neck, throat, breast, nose* of the mountain (Filippone 2006)

# Parallel metaphors as semantic universals

- metaphor is based on similarity
- “the associations on which they are based seem to be deeply rooted in human experience and largely independent of culture and environment” (Ullmann 1963)
- the anthropomorphic type is most common

## The different dimensions of similarity

## Dimension SHAPE

- body-part terms are applied on the basis of the shape of the object part and the internal geometry of the object itself

(Levinson 1994)

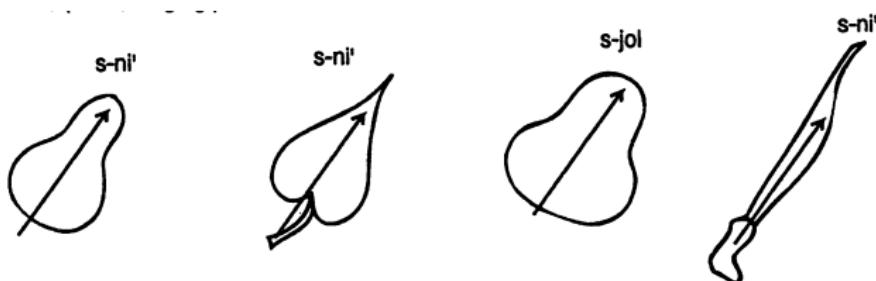


Figure 3: Extension of *nose* in Tzeltal (Levinson 1994).

## Dimension SPACE

- “the head is frequently associated with space, more concretely with the front and top regions” (Ibarretxe-Antuñano 2012)

(1) Mendi.buru-ra       igo       ginen  
mountain.head-ALL ascend.PFV AUX  
‘We climbed to the top of the mountain’

(Basque, Ibarretxe-Antuñano 2012)

## Dimension FUNCTION

- Tilbe (2017) compares two Mesoamerican languages (Tseltal, Zapotec) and English



Figure 4: Stimuli of the 'Shape-Function-Triad' experiment (Tilbe 2017).

## Dimension FUNCTION

- Tseltal and Zapotec speakers base their choice on an analogy of SHAPE
- English speakers use an analogy based on FUNCTION

## A cross-linguistic study of object and landscape terms

## Aim and Questions

- creating a systematic typological study to investigate body-part metaphors
1. How productively do languages use body-part terms to express parts of objects and landscapes?
  2. Of the three dimensions is one used more productively than the others?
  3. How much variation do we find between languages with respect to 1) and 2)?

## Method

# Participants

- 15 Participants
  - age 21-44
  - 8 female, 7 male
  - two data sets had to be excluded due to a low proficiency level of the participants in their household language
- in the end 13 different languages
  - Czech, Marathi, Persian, Greek, Vietnamese, Wolof, Mandarin Chinese, Khoekhoe, Hungarian, Japanese, Hebrew, Turkish, and Indonesian

## Participants

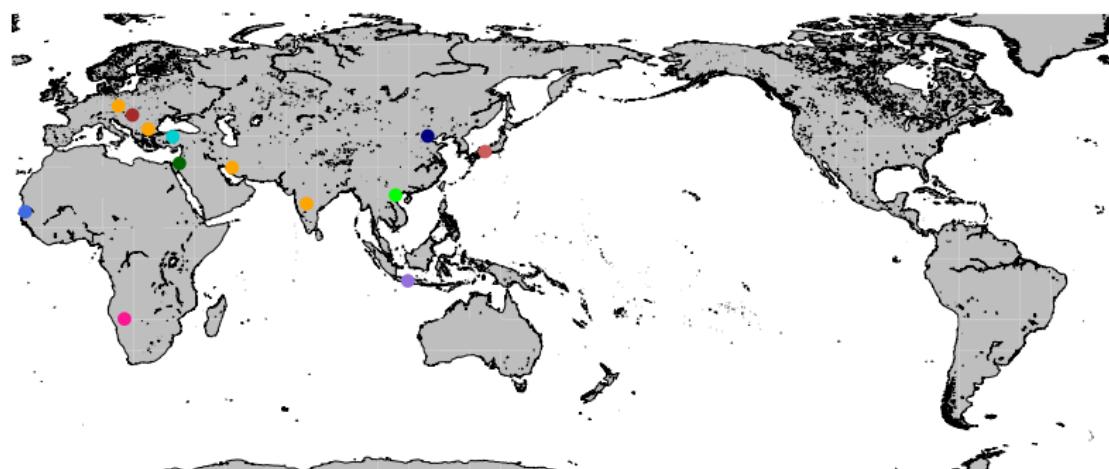


Figure 5: Overview of language families included in the final data set.

# Material

- seed list consisting of 92 body-part metaphors (examples in Table. 1)
- metaphors found in
  - my native and second language: German, English
  - literature: i.a. Basque, Malay, Persian, Swahili
  - the first session with my Wolof speaker
- categories included: object, food, plant, landscape

# Material

Table 1: Some examples from the seed list.

Body-part metaphor
toes of the garlic
heart of the cabbage
ear of the corn
head of the baguette
head of the house (roof)
leg of the bed
eye of the piano
eye of the needle
leg of the ladder
ear of the jug
ear of the pistol
sawtooth
eye of the storm
eye of the wood
knee of the water
mouth of the river
back of the mountain
face of the sky

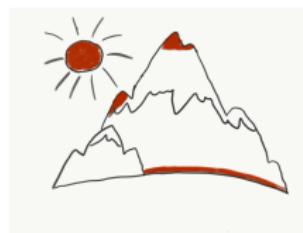
# Material



(a)



(b)



(c)

**Figure 6:** Pictures of the body-part metaphors 6a) neck/bottom/mouth of the bottle, 6b) pinhead, 6c) head/nose/foot of the mountain, and face of the sky.

# Results

## Frequency of body-part metaphors

## Overall frequency of metaphors in the language sample

- 76 of 92 body-part metaphors were present in at least one language
- metaphors such as *leg of the chair/table/bed* are present throughout the entire data set
- other metaphors have a lower frequency
  - *ear of the jug* occurs in 7/13 languages
  - *Buchrücken* 'book spine' occurs in 6/13 languages
  - *heart of the lettuce* occurs in 3/13 languages

## Overall frequency of metaphors in the language sample

- 26 metaphors occur only in one (2) or two languages (3)

(2) a. loxo banana

hand banana

'hand of banana'

(Wolof)

b. okyanus-un kolu

ocean-GEN arm

'arm of the ocean (*Meeresarm*)'

(Turkish)

## Overall frequency of metaphors in the language sample

- (3)    a. batāt-yā-c-ē                      dōl-ē  
            potato-OBL-gen-Pl eye-Pl  
            'eye of a potato'                      (Marathi)
- b. măt khoai.tây  
            eye potato  
            'eye of a potato'                      (Vietnamese)

## Frequency of metaphors in each language

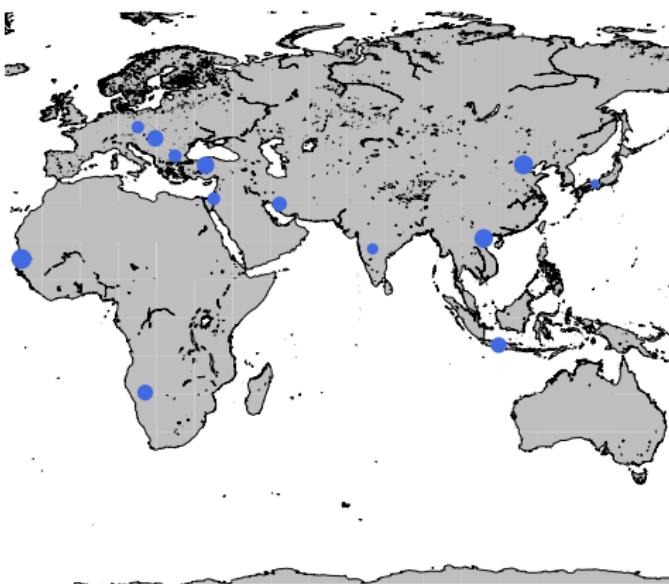


Figure 7: Frequency of metaphors in each language.

## Frequency of metaphors in each language

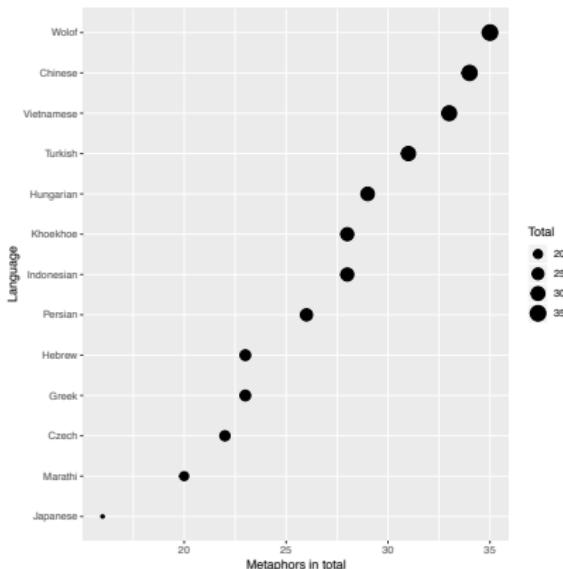
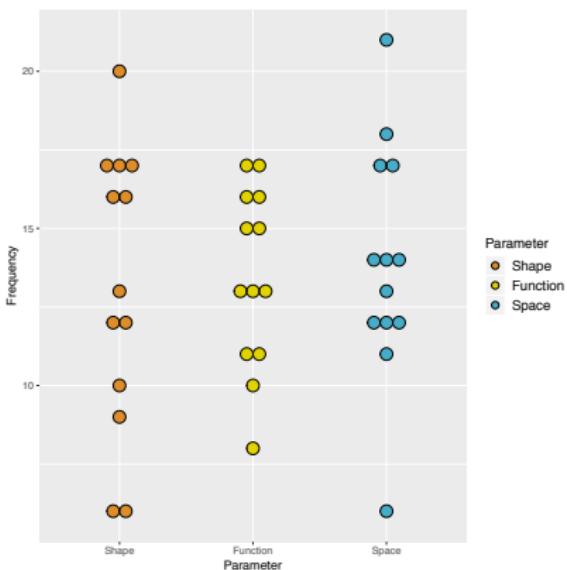


Figure 8: Frequency of metaphors in each language.

## Frequency of the three dimensions

## Overall frequency of the three dimensions



**Figure 9:** The x-axis distinguishes the dimensions and the y-axis shows how often these dimensions are used in each language.

## Overall frequency of the three dimensions

- the overall frequency of the dimensions differs slightly
  - SPACE is most common (mean 13.92)
  - closely followed by FUNCTION (mean 13.46) and SHAPE (mean 13.15)

# Frequency of the three dimensions in each language

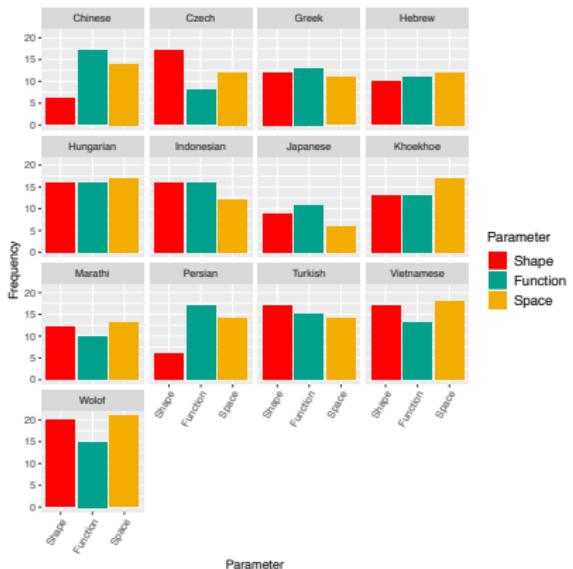


Figure 10: The frequency of the three dimensions in each language.

# Frequency of SHAPE in each language

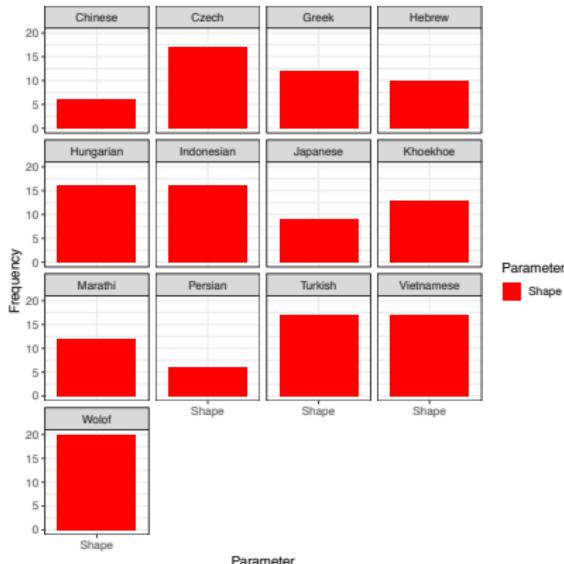


Figure 11: The frequency of the SHAPE dimension in each language.

# Frequency of SPACE in each language

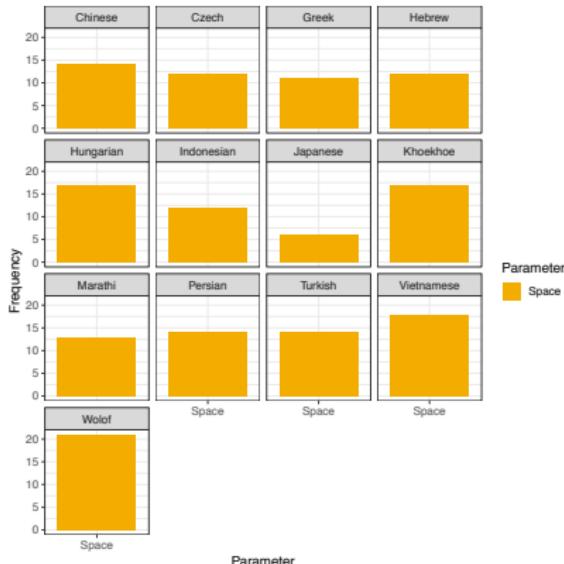


Figure 12: The frequency of the SPACE dimension in each language.

# Frequency of FUNCTION in each language

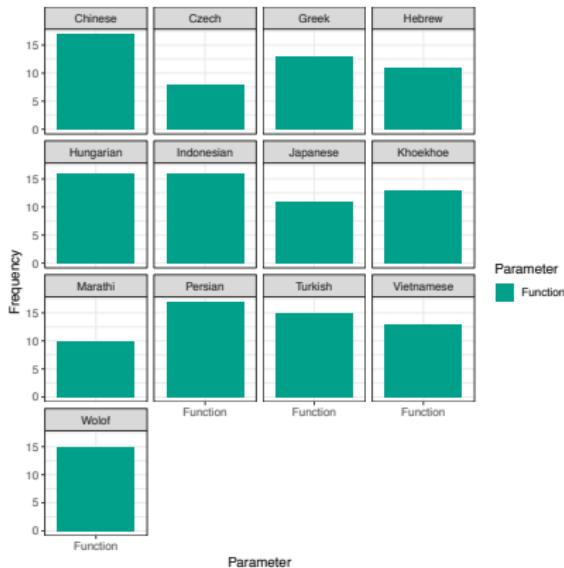


Figure 13: The frequency of the FUNCTION dimension in each language.

# Conclusion

## Conclusion

- the theoretical basis and the cognitive process of the phenomenon must be investigated more extensively
- body-part metaphors rely on similarity
  - the similarity can be connected to different dimensions:  
SHAPE, FUNCTION, SPACE

## Conclusion

- languages differ in terms of how productively they use body-part metaphors
- the frequency of the three dimensions were not significantly different in the overall language sample
- however, individual languages differ in terms of which dimension they use more often

# Learnings

## Biases and Obstacles

- the pictures and metaphors are very European
- the examples of the categories are not universal
  - landscape terms are highly dependent on the surroundings of the language group
- body-parts can also be used as measurements
  - *head* in Hungarian and *leg* for chairs in Japanese
- the categorization of the body is not universal
  - colexification of *leg/foot* or *arm/hand*
- influences of other languages
  - translations
  - learning a second language and living in another country

# Thank you!

The slides of the presentation can be found  
on my ResearchGate page:

[https://www.researchgate.net/profile/Annika\\_Tjuka](https://www.researchgate.net/profile/Annika_Tjuka)

## References

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## Open questions

- Can we find more salient body-parts in different languages?
- Is a certain body-part connected to a certain dimension?
- How productively is this process used for new objects, e.g. mobile phone, notebook, etc.?

## Other results

Table 2: Frequency of body-part metaphors in the different languages.

Occurrence in language	Frequency
0	16
1	15
2	11
3	9
4	7
5	7
6	8
7	4
8	5
9	5
11	2
13	3

## Other results

Table 3: Frequency of body-parts in total.

Body-part	Frequency
belly	1
forehead	1
tendon	1
heel	2
spine	2
tongue	2
lip	3
shoulder	3
face	5
nose	5
sole	6
butt	7
heart	7
vein	8
ear	9

## Other results

Table 4: Frequency of body-parts in total. *continued*

Body-part	Frequency
body	13
skin	13
tooth	13
back	15
foot	15
neck	17
arm	22
hand	22
eye	25
mouth	33
head	45
leg	54