

## Metaphorical extension of bodily orientation in Mandarin:

### What can constructional schemas tell us about embodiment?

Conceptual metaphors manifest themselves as a conceptual link between bodily experiences and the subjective self. Of particular interest to the present study is how we understand the world via our bodily orientation. Although considerable research has been devoted to the metaphorical extension of bodily orientation, rather less attention, however, has been paid to the extent to which the symmetry along each spatial dimension holds in the metaphorical domains. Moreover, corpus-based approach to metaphors still relies more on the rank-ordering of raw frequency distribution of lexicon rather than the influences of its formal/constructional contexts.

We, therefore, capitalize on the symbolic nature of constructions in submitting to the view that constructional schemas conventionalize the recurring semantic relations, thus serving as indicative evidence for metaphorical mappings. Taking Mandarin as our main concern, we investigated the degree to which the symmetry of our bodily orientation is preserved in our metaphorical understanding, by focusing on the Mandarin Locative Construction (MLC) "*zai4* + NP + (*zhi*) + LOCATIVE" (Ex. 1-3). The hypothesis is that the more often an NP co-occurs with a specific locative within this construction, the more likely it is conceptualized via the spatial dimension.

Data collection and processing proceeded as following. First, instances of MLCs were automatically retrieved from the Academia Sinica Balanced Corpus based and submitted to Covarying Collexeme Analysis (Stefanowitsch and Gries, 2005). Specifically, we focused on 7 locatives along three spatial dimensions: *shang4/xia4* ("up/down"), *qian2/hou4* ("front/back"), *nei4/wai4/zhong1* ("in/out/center"). Most importantly, a down-sampled cooccurrence table of the covarying collexemes was constructed and submitted to a hierarchical clustering, using the Manhattan distance measure and Ward's method. If the locatives along the same dimension were "symmetrically" extended to other metaphorical domains, then they should cluster at the early stage.

Interestingly, the generated dendrogram, as shown in Figure 1, reveals that only FRONT/BACK is amalgamated at the earliest stage as one cluster, suggesting a symmetrical extension of this spatial dimension to other non-spatial domains. Yet UP and OUT were grouped earliest as well, suggesting their similar metaphorical behaviors and IN was amalgamated into the FRONT/BACK cluster, indicating that IN is used more similarly to FRONT/BACK rather than to its contrastive counterpart OUT.

Such distributional patterns have far-reaching implications on the embodiment of conceptual metaphors. In our experiences, the flexibility of moving forward/backward is symmetrical in the sense that our subjective self has the equal power to determine the extent of moving range along the FRONT/BACK dimension. Nonetheless, the way we interact with the environment along the vertical dimension is asymmetrical in the sense that gravity predetermines the default downward movement of all masses in the universe. Similarly, our interaction with the environment along the dimension of IN/OUT appears asymmetrical in the sense that the imbalanced sizes between our human bodies and the outer world imply different degrees of freedom in charge. Therefore, the (a)symmetry of metaphorical patterns along each spatial dimension may come as corollary of our recurring (a)symmetrical daily interaction and bodily experiences with the physical environment.

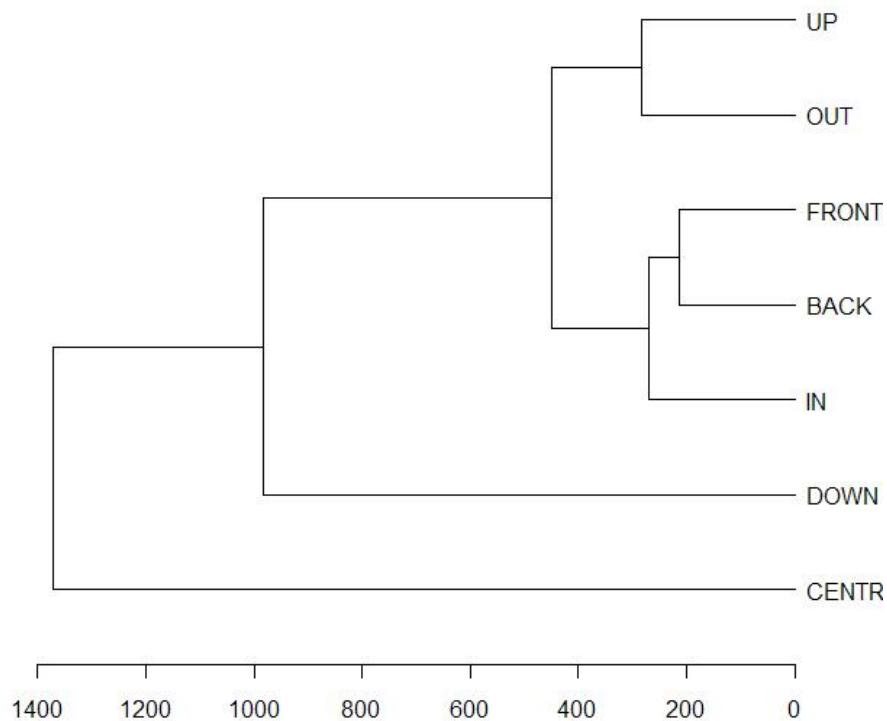


Figure 1: Dendrogram of the locatives in Mandarin Locative Construction (clustered according to their covarying NPs)

### Examples of Mandarin Locative Constructions

- (1) zai4 guo4cheng2 zhong1  
ZAI process CENTER  
"in the process"
- (2) zai4 qing2kuang4 xia4  
ZAI situation DOWN  
"under the situation"
- (3) zai4 jin1nian2 qian2  
ZAI this.year FRONT  
"before this year"

### References

Stefanowitsch, A, and Gries, ST. 2005. Covarying collexemes. *Corpus Linguistics and Linguistic Theory* 1:1-43.