

# **Functional dependencies in spatial cognition: A study of some spatial configurations in Latvian.**

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Although geometrical knowledge is a significant component in spatial semantics, it is determined by functional knowledge. In our study we show that geometric interpretation is determined by a predictable set of functional factors. First, we show that there are universal functional dependencies (such as dependencies between central and reference object). Second, we show that some functional dependencies are scale-sensitive (e.g., socio-spatial cognitive anchors in urban environment characterizes large-scale spatial cognition). Third, we show some specific patterns of functional interaction: (a) locational control, (b) convexity, (c) support, and (d) telicity.

We demonstrate some preliminary empirical data from Latvian showing the impact of functional relations on the interpretation of geometric relations. In particular we present a case study of Latvian locative showing the plausibility of the current model in explaining language-dependent and case-marked morphologically encoded locative relations.

Finally we discuss some additional reasons for functional dependencies and provide some features of their logical representation.

Our study is consistent with and provides some enrichments to the frameworks of Coventry, Carmichael, & Garrod, 1994, Coventry & Garrod, 2004, Galton, 2000, Pustejovsky, 2012, Mani & Pustejovsky, 2012.

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