

# A model of functional dependencies in spatial cognition

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## Abstract

My primary aim of the current study is to demonstrate how geometric interpretation is determined by a predictable set of functional factors. First, after exploring universal functional dependencies (such as relationship between central and reference object) I show some scale-sensitive cases. Second, I demonstrate a model of functional constraints in spatial cognition consisting of (1) locational control, (2) support, (3) convexity, (4) interlocking, (5) functional enclosure, and (6) telicity.

In a more detailed analysis I discuss locative and containment relations. I show that the basic interpretation of containment is primarily derived from functional determinants of locational control, support and functional enclosure. After a brief overview of empirical studies on geometric and functional relations conducted by my research team, preliminary evidence is provided from a study on Latvian morphologically marked locative highlighting the role of functional constraints.

Finally, some basic functional dependencies and principles of their formal representation are discussed within the Region Connection Calculus (RCC) complemented with orientational and distance primitives, and object shape functions.

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

## References

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