# The Notion of Affinity in Semantic Structures

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Example:

Semantic structure :

*“I live in and my name is.”*

= “live”

= “a car”

= “Sofia”

= “Dimitar”

= “Poison”

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We have semantic particles which demonstrate affinity for specific properties. This means the particle attracts unconnected -particles with specific combination of properties in their signature. It also demonstrates anti-affinity i.e. repels unconnected -particles which have different combination of properties in their signature.

Affinity field of the semantic structure – a discrete field which defines affinity / anti-affinity force between the particle of the semantic structure and a test particle

denotes the set of indices of the -particles in the semantic structure

is the property tree of the test particle . We will assume general form of .

The affinity force is a function that maps the property tree to a signed real number. The function identifies specific features of the property tree such as the presence of specific subtree of or a specific set of properties toward which has strong affinity (attraction). Note that has implicit dependence on the semantic structure as well which is in a context different than could have different values for the same .

To illustrate how to model the affinity field let us draw an example of a semantic structure which consists of three particles , and . We would like to estimate the affinity field of the structure S for a test particle .

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Structure

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## Affinity Frequency Spectrum