Note on Match-seeking and Match-repelling particles

D. Gueorguiev 11/7/2021

Between two primitive particles

Let us consider two V-particles which are not composite – they are given with their semantic signatures respectively:

$ssig(V') = [\boldsymbol{p}'_0\ \boldsymbol{a}'_{0,1}\ \boldsymbol{p}'_1\ \boldsymbol{p}'_0\ \boldsymbol{a}'_{0,2}\ \boldsymbol{p}'_2\ \boldsymbol{p}'_0\ \boldsymbol{a}'_{0,3}\ \boldsymbol{p}'_3\ \ \dots\ \ \boldsymbol{p}'_l\ \ \boldsymbol{a}'_{l,n}\ \ \boldsymbol{p}'_n]$

$ssig(V'') = [\boldsymbol{p}''_0\ \boldsymbol{a}''_{0,1}\ \boldsymbol{p}''_1\ \boldsymbol{p}''_0\ \boldsymbol{a}''_{0,2}\ \boldsymbol{p}''_2\ \boldsymbol{p}''_0\ \boldsymbol{a}''_{0,3}\ \boldsymbol{p}''_3\ \ \dots\ \ \boldsymbol{p}''_i\ \ \boldsymbol{a}''_{i,n}\ \ \boldsymbol{p}''_n]$

Here each of the quantities $\boldsymbol{p}$ denotes the property signature vector of the corresponding property P of the V particle. The vector $\boldsymbol{a}_{r,s}$ denotes the signature of the property association particle $A_{r,s}$ which binds to a pair of properties P_r and P_s in the property graph $\mathcal{P}$ of the V particle.

Match-seeking particle MA binds to a subgraph $\mathcal{S}$ of the property graph $\mathcal{P}$ of the V particle.

Between two semantic structures

Let us have two semantic structures S_1 and S_2.

S_1

S_2

Let the semantic signature of S_1 is given with:

$ssig(S_1) = [\mathbf{V}_1\ \mathbf{A}_{1,2}\ \mathbf{V}_2\ \mathbf{A}_{1,3}\ \mathbf{V}_3\ \ \dots\ \ \mathbf{A}_{r,p}\ \mathbf{V}_p]$

and the semantic signature of S_2 is given with:

Between a primitive V particle and a semantic structure S