

Supplement 1

Algorithm 1: Multi-part matching

Input : target ontology $O^* = ((SO^*_1, \dots, SO^*_n), C^*)$,
similarity thresholds $subThresholds = [\tau_1, \dots, \tau_n]$ for sub-ontologies
 (SO^*_1, \dots, SO^*_n)

Output :

- 1 $r' \leftarrow [\emptyset, \dots, \emptyset]$;
- 2 **for** $i = 1$ **to** n **do**
- 3 $bestSim \leftarrow 0$; $bestTarget \leftarrow \emptyset$;
- 4 **foreach** $c'_i \in SO^*_i$
- 5 $condProb \leftarrow \text{computeCondProbability}(c'_i, [(r'_1, \dots, r'_{i-1})])$;
- 6 //
- 7 **calculates conditional probability** $P(c'_i | r'_1, \dots, r'_{i-1}) = \frac{N(SO^*_i = c'_i \cap SO^*_{i-1} = r'_{i-1} \cap \dots \cap SO^*_1 = r'_1)}{N(SO^*_{i-1} = r'_{i-1} \cap \dots \cap SO^*_1 = r'_1)}$
- 8 **if** $condProb \geq 0$ **then**
- 9 $sim \leftarrow \text{computeSimilarity}$
- 10 **if** $sim > bestSim$ **then**
- 11 $bestSim \leftarrow sim$;
- 12 $bestTarget \leftarrow c'_i$;
- 13 **end**
- 14 **if** $bestSim > \tau_i$ **then**
- 15 $r'_i \leftarrow bestTarget$;
- 16 **end**
- 17 **return** r' ;
