Supplementary explanation

- Ruipeng Wang
- M2
- Knowledge Base Lab.

Relationship between patterns “specific”

$$P_g \preccurlyeq P_s \iff \exists\theta\ \forall e = p\left(cl_g\right) \in P_g\ \exists p(cl_s) \in P_s\ s.t.\, cl_g\theta \subseteq cl_s$$

$$cl = \{l_1 = X_1, l_2 = X_2, \dots, l_n = X_n\}$$

θ is a substitution, which is a finite set of the form

$$\{X_{g1} = X_{s1}, X_{g2} = X_{s2}, \dots, X_{gn} = X_{sn}\}$$

in the case between patterns

($\{\dots, X_i = t_i, \dots\}$ *between pattern and domain)*

$$P_1 = \{p(l_1 = A, l_2 = B), q(l_1 = B, l_2 = A)\}$$

$$P_2 \preccurlyeq P_1 \qquad \uparrow \qquad \theta = \{C = B\}$$

$$P_2 = \{p(l_1 = A, l_2 = B), q(l_1 = C\ )\}$$

Equivalence

$$P_s \sim P_g \Leftrightarrow_{def} \; P_s \preccurlyeq P_g \, , P_g \preccurlyeq P_s$$

$$P_1 = \{p(l_1 = A_1), q(l_1 = X_1\, , l_2 = Y_1)\}$$
$$P_2 = \{p(l_1 = A_2), q(l_1 = X_1\, , l_2 = Y_1), q(l_1 = X_2\, , l_2 = Y_2)\}$$
$$P_3 = \{p(l_1 = A_3), q(l_1 = X_1\, , l_2 = Y_1), q(l_1 = X_2\, , l_2 = Y_2), q(l_1 = X_3\, , l_2 = Y_3)\}$$
…

$$\boldsymbol{P_1 \sim P_2 \sim P_3 \sim} \; \ldots$$

equivalent patterns have same images in domain D, we need not distinguish them in their ability of explaining D.

Def of Descriptive Pattern

(1) $|[P]| \geq N\tau \ \ (0 < \tau \leq 1)$. i.e. P is frequent.

(2) maximal among frequent patterns. i.e. frequent $Q \succcurlyeq P \Longrightarrow P \succcurlyeq Q$ $(i.e\ Q \sim P)$