



$$h_2 \to r_2 \to t_2$$



Structure Information

False negative generation via 2-hub neighborhood

Negative Triples (shown only for the triple #2)

$$h_2 \rightarrow r_2 \rightarrow t_1 \qquad h_2 \rightarrow r_2 \rightarrow h_1$$

$$h_2 \rightarrow r_2 \rightarrow t_3$$
 $h_2 \rightarrow r_2 \rightarrow h_2$ \vdots \vdots

$$h_2 \to r_2 \to t_N \qquad h_2 \to r_2 \to h_N$$

Hard Negative Triples

set E

$$h_2 \rightarrow r_2 \rightarrow t_1^-$$

$$h_2 \rightarrow r_2 \rightarrow t_2^-$$

False Negative Triples

$$h_2 \to r_2 \to s_1$$

$$h_2 \to r_2 \to s_2$$

Negative tail embedding