Menu

Prop Logic: Resolution

CDCL

Theories: Equality (ground) CC

Linear Arithmetic Simplex, FM

Prop + Theories: CDCL(T)

Nelson-Oppen

FOL (no equality): ~~Resolution~~

Equational Reasoning: Superposition

KBC

→ FOL + Eq

KBC $\rightsquigarrow$ convergent + Equiv in the limit

if a run is fair then: $\approx_{E_0} = \approx_{E_\infty \cup R_\infty}$

$= \longleftrightarrow^*_{E_\infty \cup R_\infty} = \downarrow_{R_*}$

A proof in $E_\infty \cup R_\infty$ of $s \approx t$

sequence $(s_0, \dots, s_n)$ $s_0 = s$, $s_n = t$

$i \in \{1, \dots, n\}$ 1. $s_{i-1} \longleftrightarrow_{E_\infty} s_i$ $\subset$ $(\{s_{i-1}, s_i\}, -, -)$

2. $s_{i-1} \longrightarrow_{R_\infty} s_i$: $(\{s_{i-1}\}, \ell, s_i)$ $>$

3. $s_{i-1} \longleftarrow_{R_\infty} s_i$: $(\{s_i\}, \ell, s_{i-1})$ $<$

By contradiction let ? proof in $E_\infty \cup R_\infty$

T is not rewrite proof in R_*

1. step in E_∞

2. step in $R_\infty \setminus R_*$

3. $S_{i-1} \xleftarrow[R_*]{} S_i \longrightarrow S_{i+1}$ peak

$\| s \to \to \to s' \leftarrow \leftarrow \leftarrow \leftarrow t$ rewrite proof$\|$

1 is finite $s = t$ is deleted will in the step

a) Oriented $S_{i-1} \xleftrightarrow[s=t]{E_\infty} S_i \rightsquigarrow S_{i-1} \xrightarrow[R_\infty]{} S_i$

b) Delete

$$S_{i-1} \xleftrightarrow[s=t]{E_\infty} S_i \rightsquigarrow S_i \quad (S_i = S_{i-1})$$

PCP

(ab, ab, aa) $\quad ab|ab|aa$

(aba, ba, a) $\quad aba|ba|a$

$$\to f_R(\varepsilon, \varepsilon) \to d$$

$$f_R(g_a(x), g_a(x)) \to c$$

$$f_R(g_b(x), g_b(x)) \to c$$

$$f_R(g_a(g_b(x)), g_a(g_b(g_a(y)))) \to f_R(x, y)$$

$$f_R(g_a(g_b(x)), g_b(g_a(y))) \to f_R(x, y)$$

$$f_R(g_a(g_a(x)), g_a(y)) \to f_R(x, y)$$