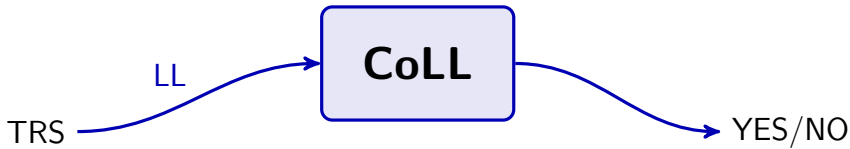
CoLL-Saigawa v1.6 (Shintani & Hirokawa, JAIST)



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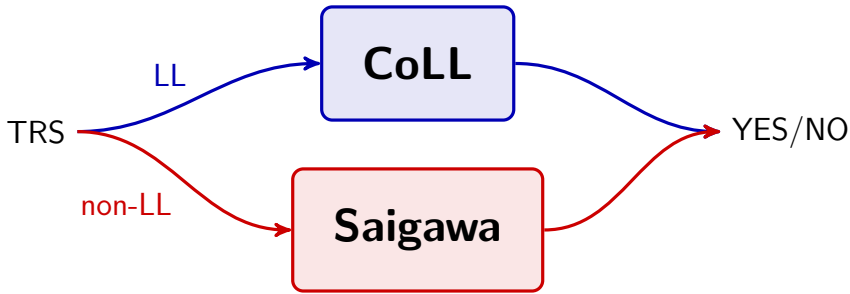

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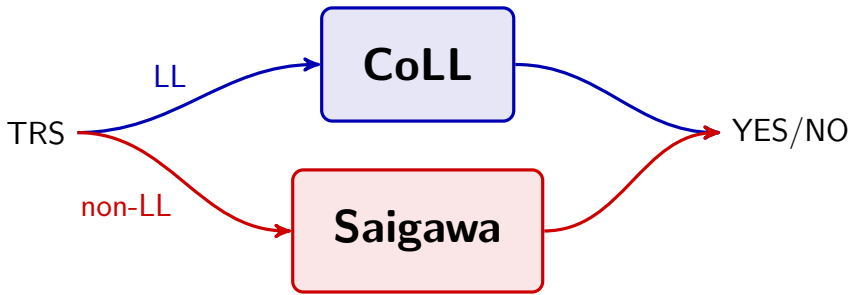

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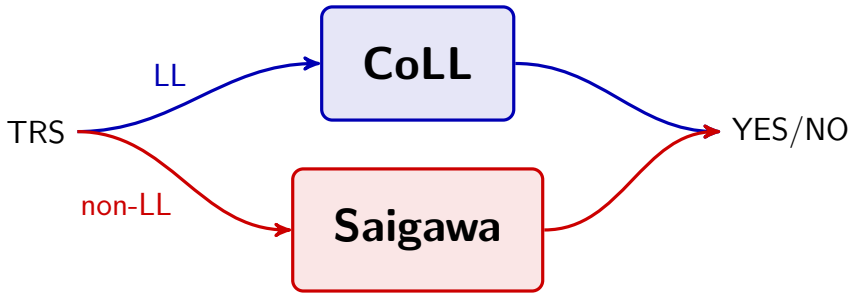

- CoLL-Saigawa uses MiniSmt, NaTT, and Z3
- no major changes from last year

Relatively New Features

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- upside-parallel/outside closedness

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Theorem (Oyamaguchi and Ohta 1997)

left-linear TRS is confluent if

- $\overset{p}{\leftarrow} \rtimes \overset{\epsilon}{\rightarrow} \subseteq \overset{\triangle p}{\twoheadleftarrow} \cup \overset{\epsilon}{\rightarrow}^{=}$ *for all* $p > \epsilon$ *and*
- $\overset{\epsilon}{\leftarrow} \rtimes \overset{\epsilon}{\rightarrow} \subseteq (\overset{>\epsilon}{\twoheadleftarrow} \cup \overset{\epsilon}{\rightarrow}) \cdot (\twoheadleftarrow \cup \overset{\epsilon}{\rightarrow})$

where, $s \overset{\triangle p}{\twoheadrightarrow} t$ *if* $s \overset{Q}{\twoheadrightarrow} t$ *for some* $Q \subseteq \{q \mid |q| \leqslant |p|\}$

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- $\xleftarrow{\epsilon} \rtimes \xrightarrow{\epsilon} \subseteq (\xleftarrow{> \epsilon}\!\!\!\!\!\!\shortparallel \cup \xrightarrow{\epsilon}) \cdot (\xleftarrow{}\!\!\!\!\!\!\shortparallel \cup \xrightarrow{\epsilon})$

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- criteria based on parallel/simultaneous critical pairs

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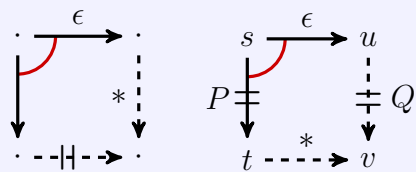

for some v *with* $\mathcal{V}\mathrm{ar}(v, Q) \subseteq \mathcal{V}\mathrm{ar}(s, P)$

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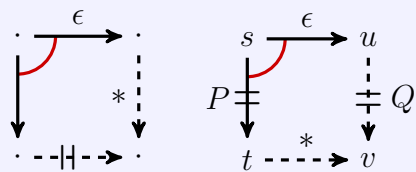

for some v *with* $\mathcal{V}\mathrm{ar}(v, Q) \subseteq \mathcal{V}\mathrm{ar}(s, P)$

Theorem (Okui 1998)

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