

Saigawa: A Confluence Tool

Nao Hirokawa, Dominik Klein

JAIST

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Saigawa: A River in Kanazawa



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Theorem (Hirokawa & Middeldorp '11)

A left-linear TRS \mathcal{R} is confluent if $\text{CP}(\mathcal{R}) \subseteq \downarrow_{\mathcal{R}}$ and $\text{CPS}'(\mathcal{R})/\mathcal{R}$ is terminating.

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Suppose \mathcal{R}/AC is terminating. The TRS $\mathcal{R} \cup \text{AC}$ is confluent if and only if $\text{CP}_{\text{AC}}(\mathcal{R} \cup \text{AC}, \mathcal{R}) \subseteq \downarrow_{\mathcal{R}_{\text{AC}}}$.

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Theorem (Klein & Hirokawa '12)

Suppose \mathcal{R} and \mathcal{S} strongly non-overlap each other and \mathcal{S} is confluent. $\mathcal{R} \cup \mathcal{S}$ is confluent if and only if $\text{CP}_{\mathcal{S}}(\mathcal{R}) \subseteq \downarrow_{\mathcal{R} \cup \mathcal{S}}$.

demo

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⇒ capture large classes of TRSs with least effort