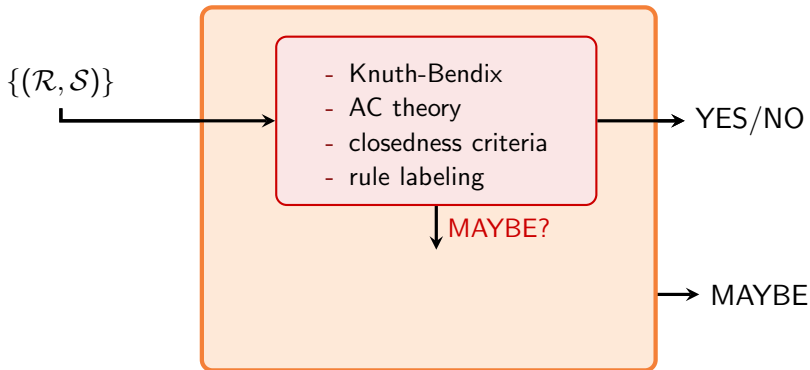


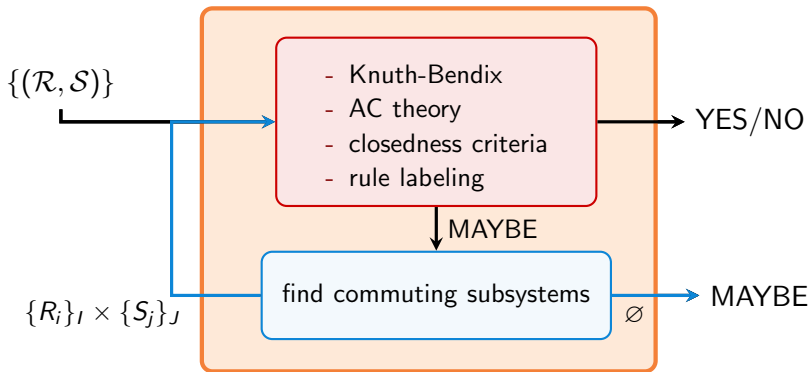
CoLL: Commutation Tool for Left-Linear TRSs



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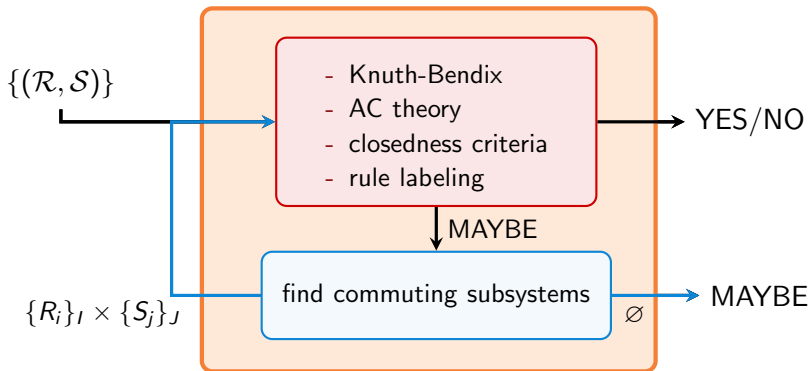
CoLL: Commutation Tool for Left-Linear TRSs



- based on Hindley's commutation lemma:

$\bigcup_i \mathcal{R}_i$ and $\bigcup_j \mathcal{S}_j$ commute if \mathcal{R}_i and \mathcal{S}_j commute for all i, j

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- based on Hindley's commutation lemma:
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- left-linearity is often essential for commutation

What's new?

supported several closedness criteria

1 commutation

- *almost parallel closedness* (Toyama 1988)

2 self commutation (confluence)

- *extension of parallel closedness* (Toyama 1981)
- *simultaneous closedness* (Okui 1998)
- *upside parallel closedness* (Ohta and Oyamaguchi 1997)
- *outside closedness* (Ohta and Oyamaguchi 2003)

and also improved AC-related feature