Defeasible identity constraints in TDL

Proposal: YADU backwards and forwards

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YADU

- Lascarides and Copestake (1999)
  `https://aclanthology.org/J99-1002`
- Combining strict and defeasible constraints (DefFS)
- Priority for defeasible constraints

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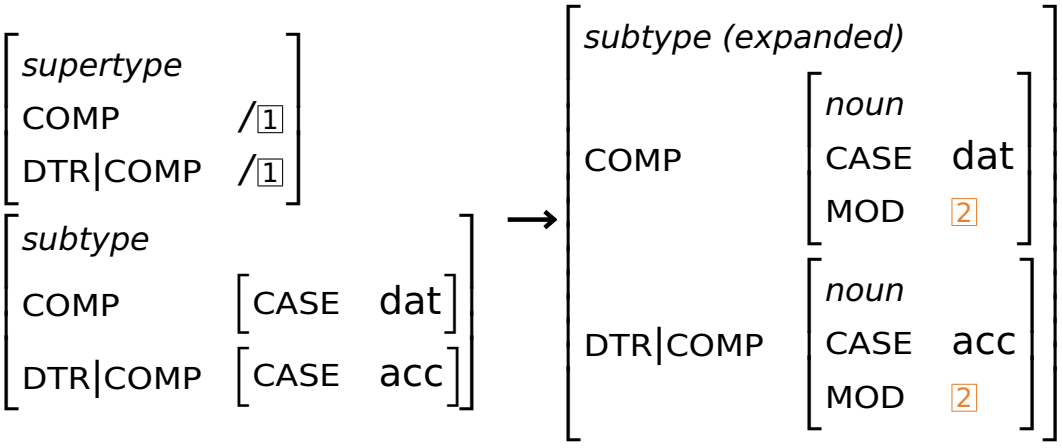
  - Add as many default constraints as possible (there may be more than one result)
- YADU (Lascarides and Copestake, 1999):
  - Find generalisation of credulous default unification (giving one result)

Problem Statement

$$\begin{bmatrix} \textit{supertype} & \\ \text{COMP} & /\boxed{1} \\ \text{DTR}|\text{COMP} & /\boxed{1} \end{bmatrix}$$

$$\begin{bmatrix} \textit{subtype} & \\ \text{COMP} & \begin{bmatrix} \text{CASE} & \text{dat} \end{bmatrix} \\ \text{DTR}|\text{COMP} & \begin{bmatrix} \text{CASE} & \text{acc} \end{bmatrix} \end{bmatrix}$$

Problem Statement



Applying YADU

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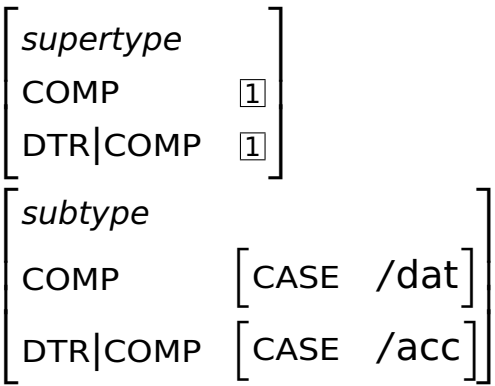
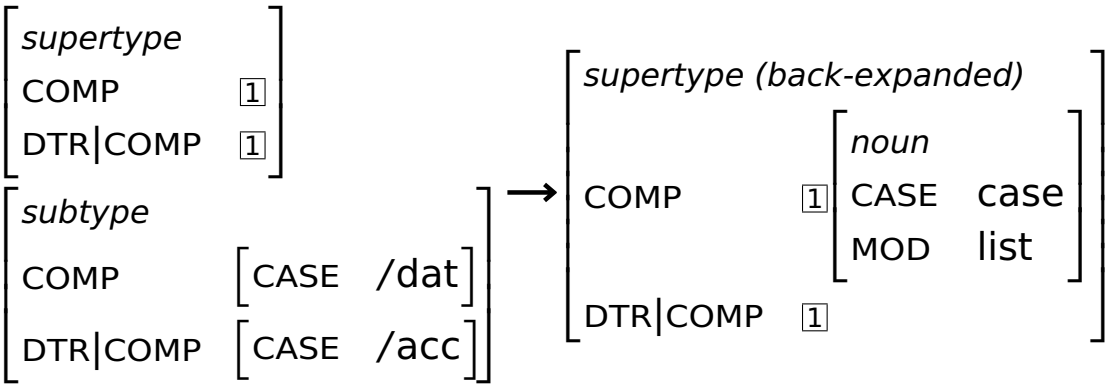
- The “pushed down” identity combines something more specific and something less specific:
  - Existence of new feature path: more specific
  - Identity constraint on new path: less specific

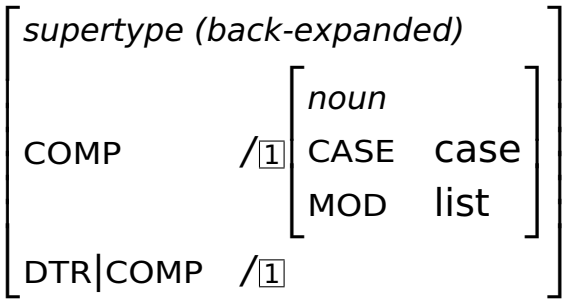
Applying YADU “backwards”

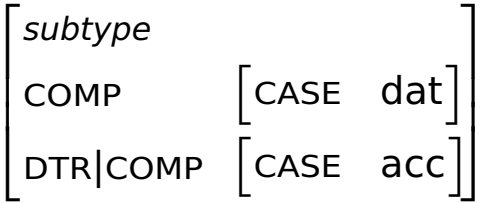


Applying YADU “backwards”



… then YADU “forwards”





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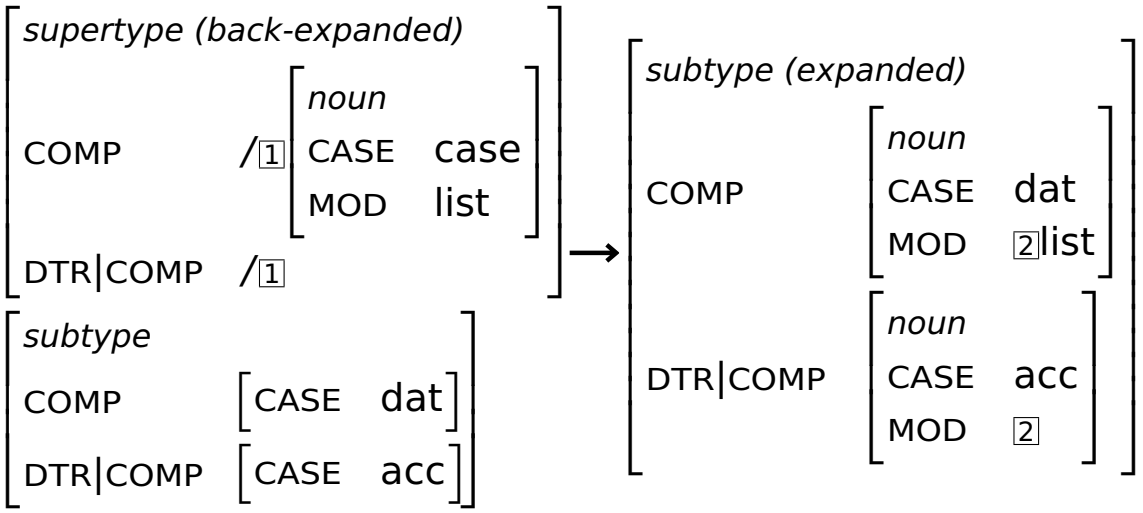

Summary

- Proposal: YADU applied backwards, then forwards (YADUDAY? or UDAYADU?)
- Allows defeasible identity constraints to be expanded, without a completely new mechanism
- All features need to be expanded when rules are defined (unification during parsing is too late)