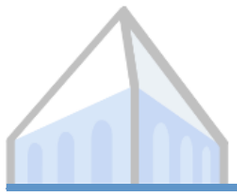
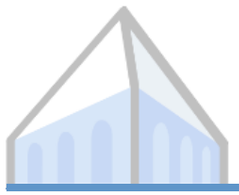
Robust Conversion of CCG Derivations to Phrase Structure Trees

Jonathan K. Kummerfeld†, Dan Klein† and James R. Curran‡

UC Berkeley† and U Sydney‡

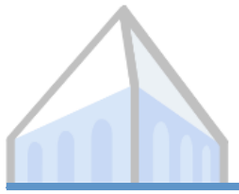


Motivation



Motivation

- Various parsing formalisms:
  HPSG, CCG, LTAG, etc.



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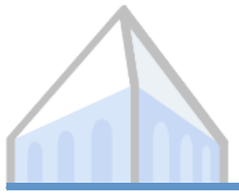
- Scientific Motivation:
  Investigate the relationship between formalisms

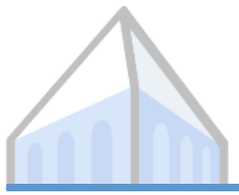


Motivation

- Various parsing formalisms:
  HPSG, CCG, LTAG, etc.

- Scientific Motivation:
  Investigate the relationship between formalisms

- Engineering Motivation:
  Create a useful conversion tool



CCGbank and PTB

labeled his death a suicide

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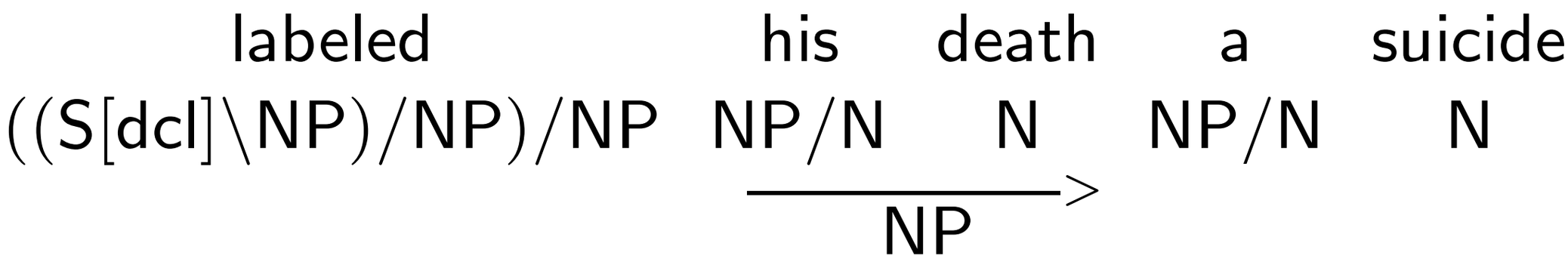
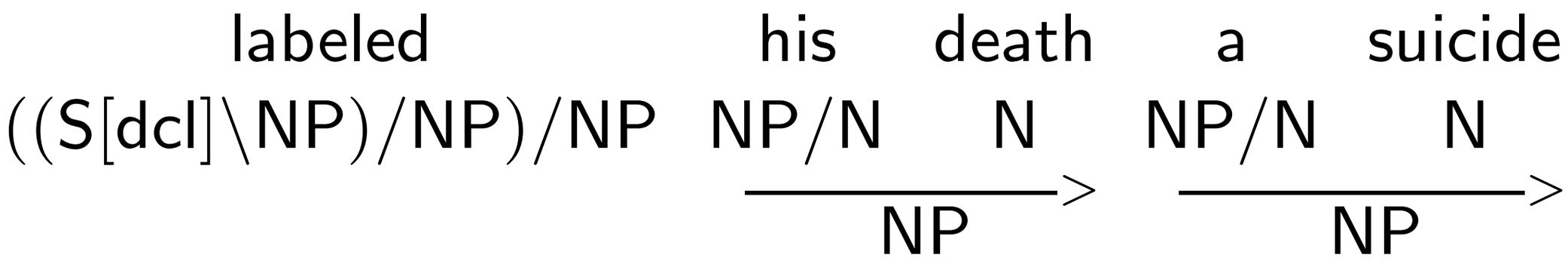
labeled		his	death	a	suicide
((S[dcl]\NP)/NP)/NP	NP/N	N	NP/N	N	

CCGbank and PTB



CCGbank and PTB



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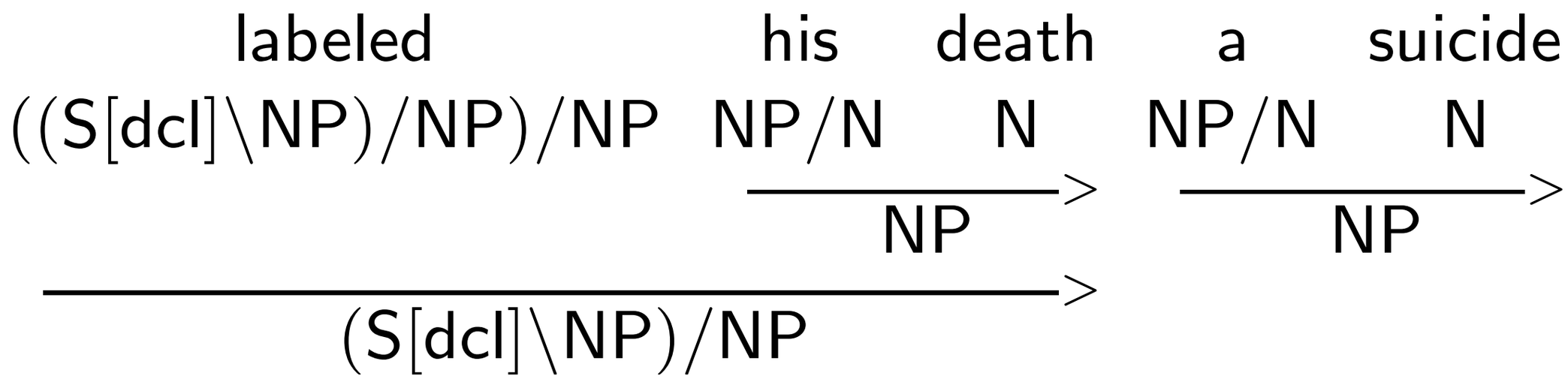

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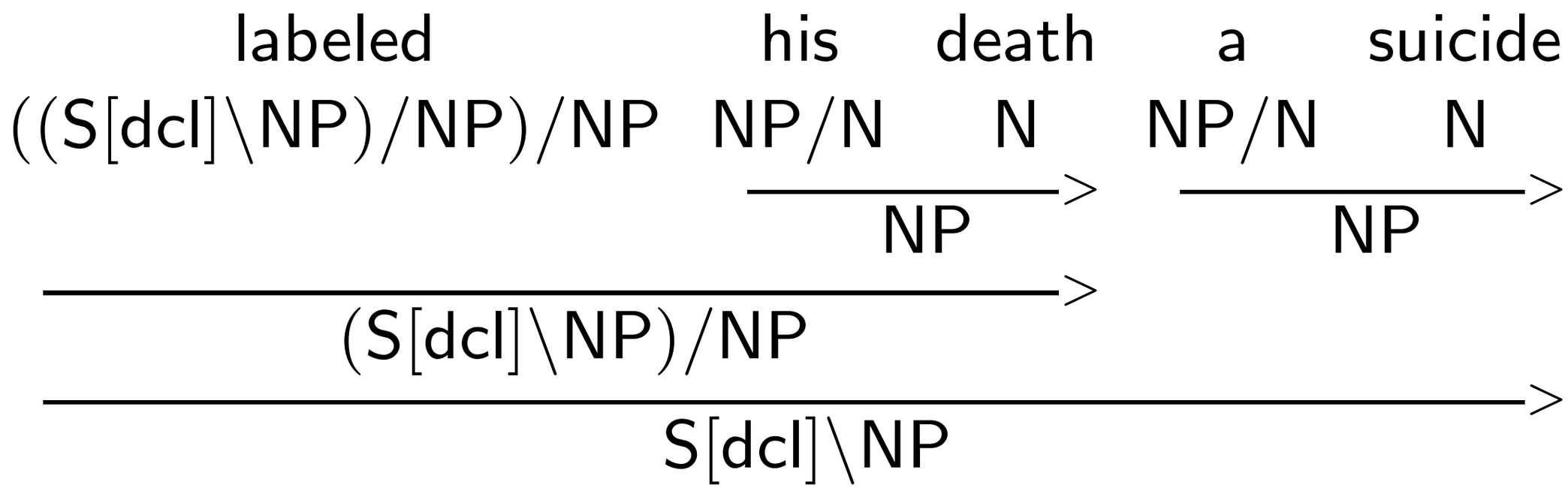

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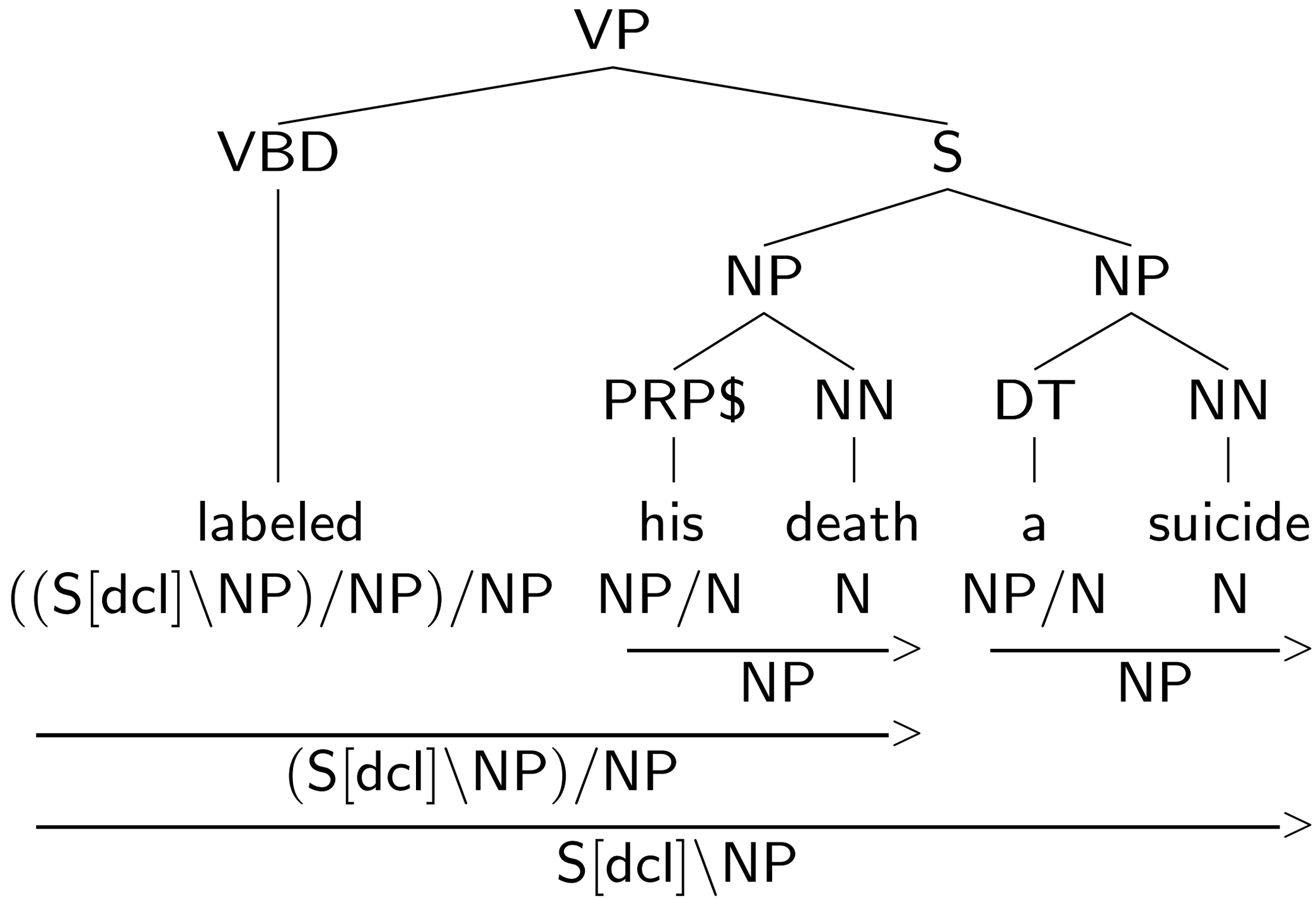

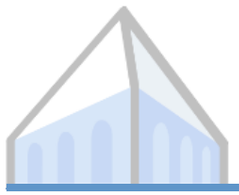

Naive Solution

Naive Solution

Categories ⟶ Labels

Naive Solution

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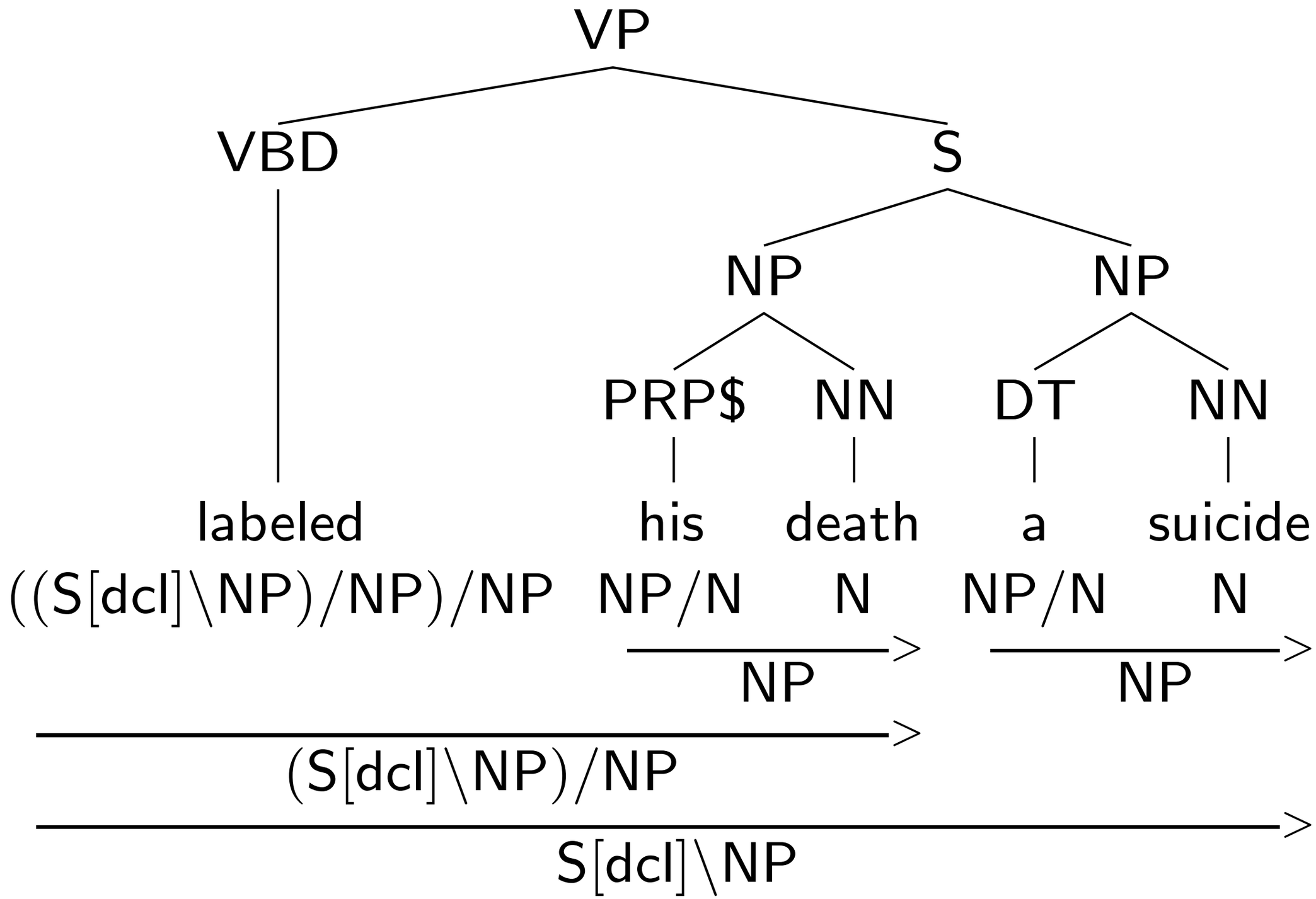
Combinator Applications ⟶ Brackets

CCGbank and PTB



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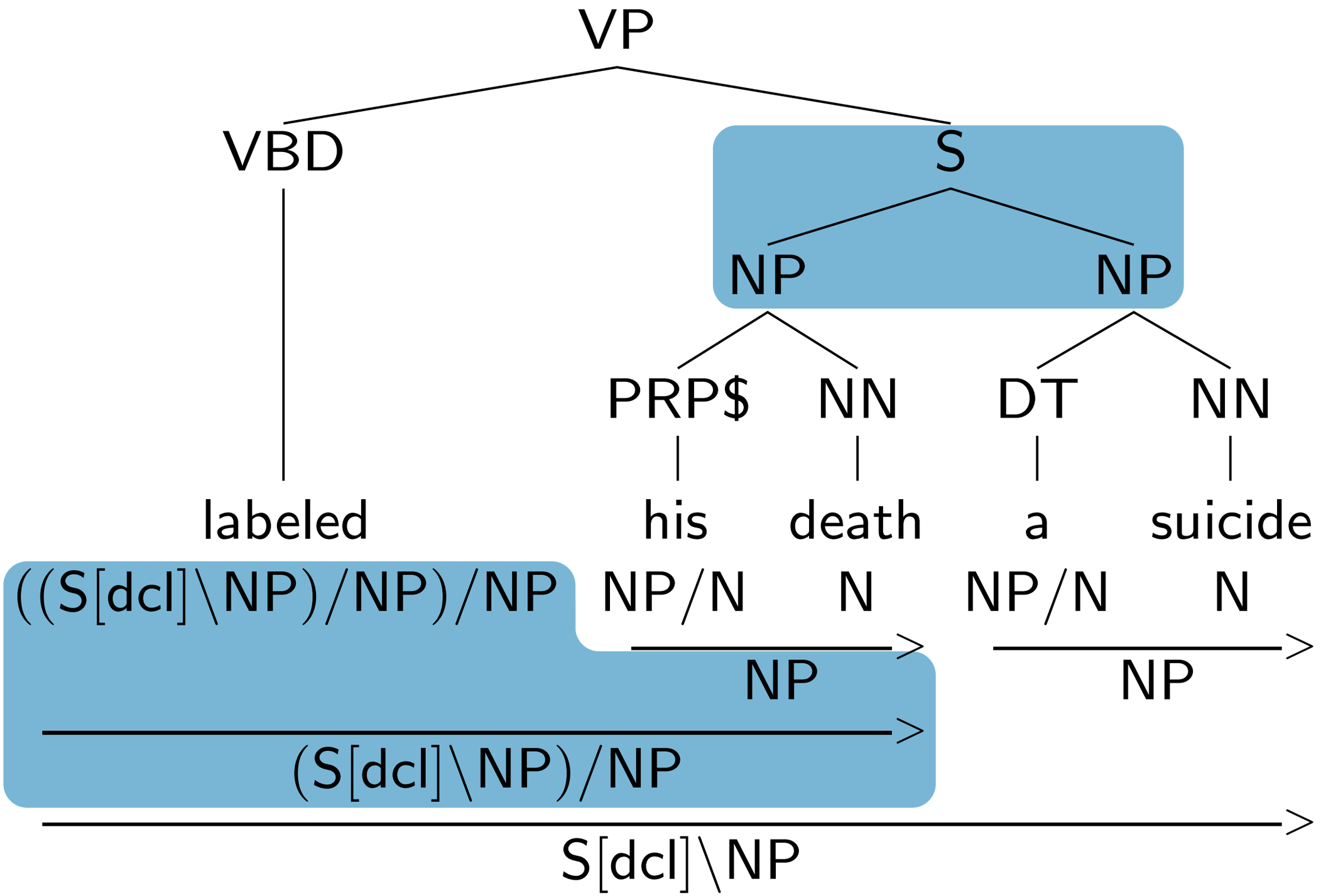
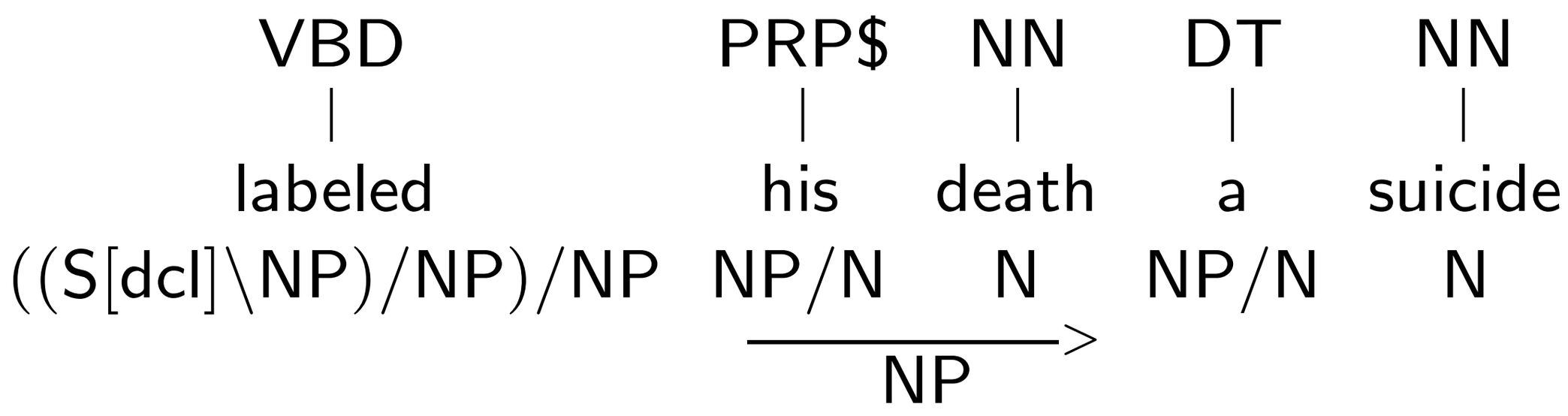


Clark and Curran (2009)

VBD	PRP$	NN	DT	NN
|	|	|	|	|
labeled	his	death	a	suicide
((S[dcl]\NP)/NP)/NP	NP/N	N	NP/N	N

Clark and Curran (2009)



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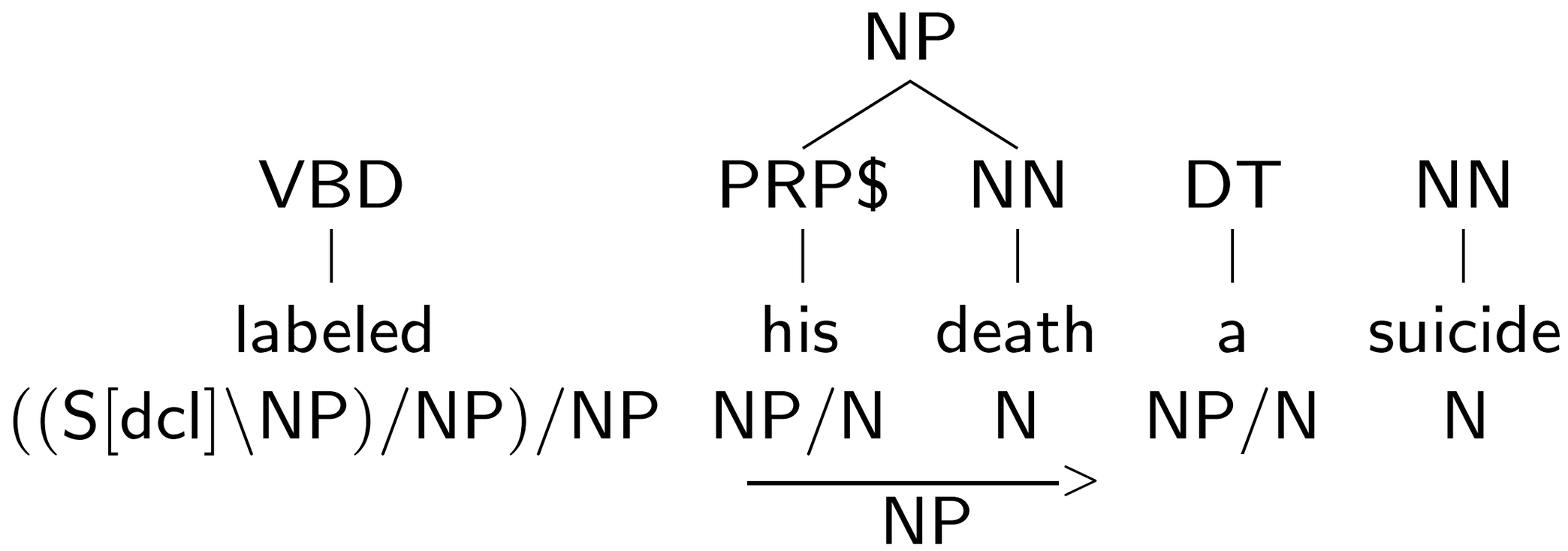

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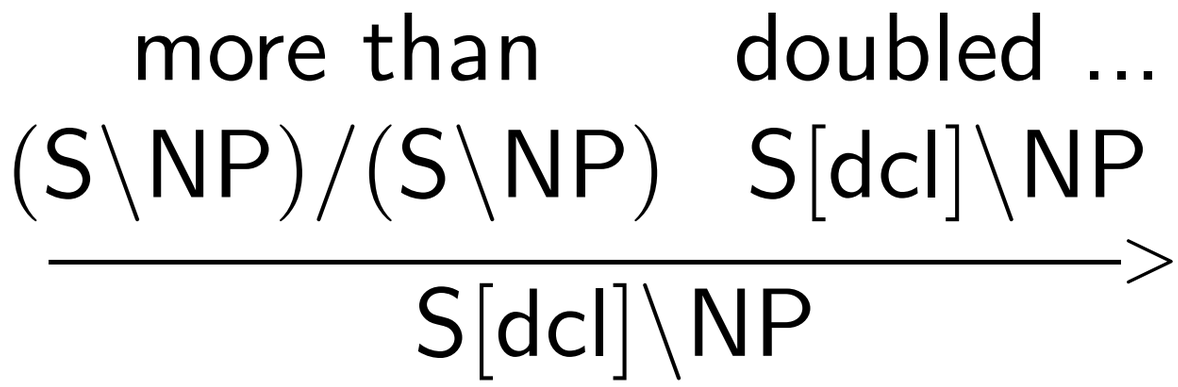

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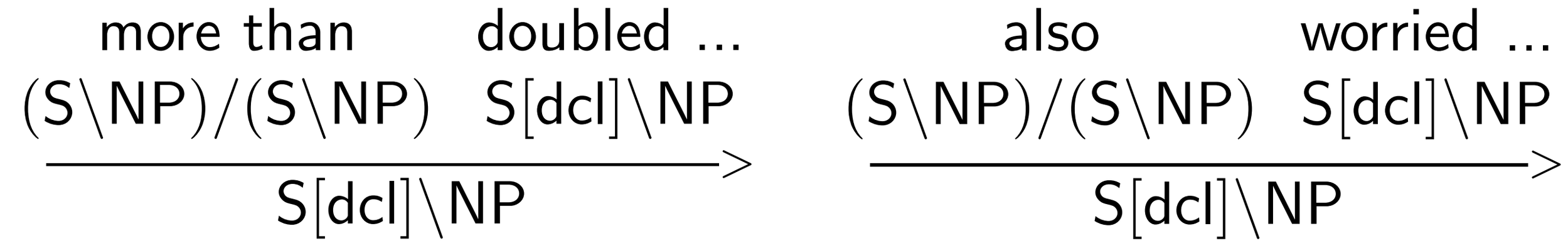

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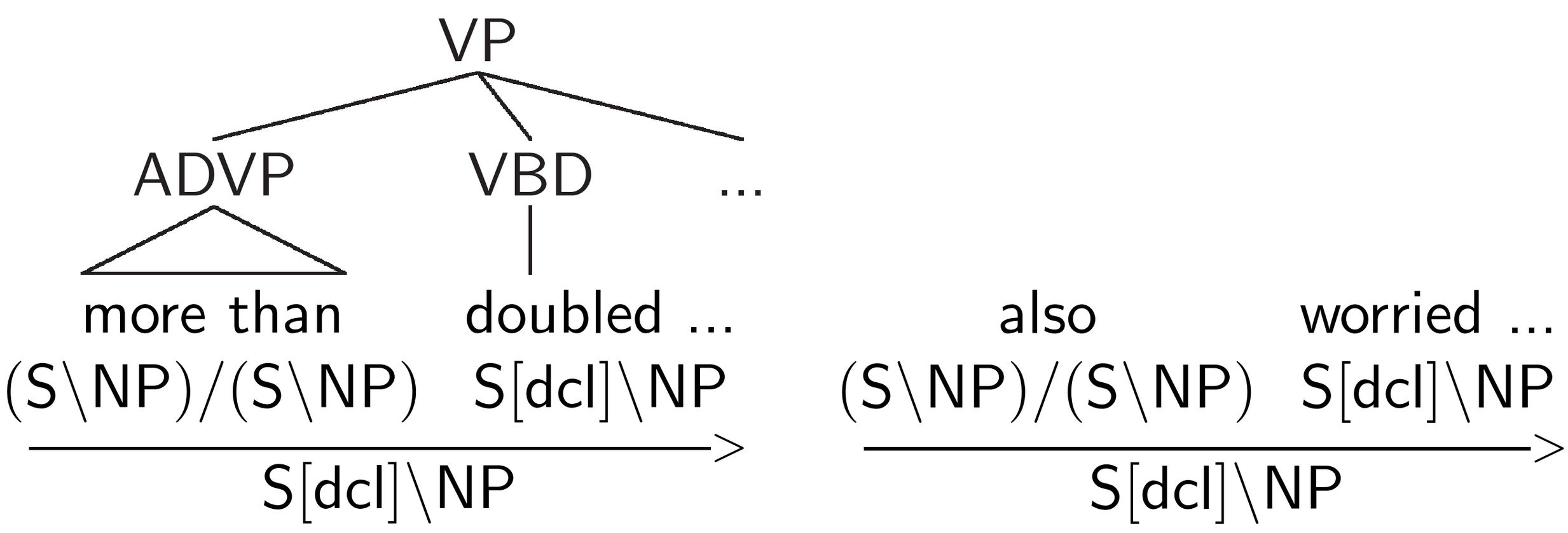

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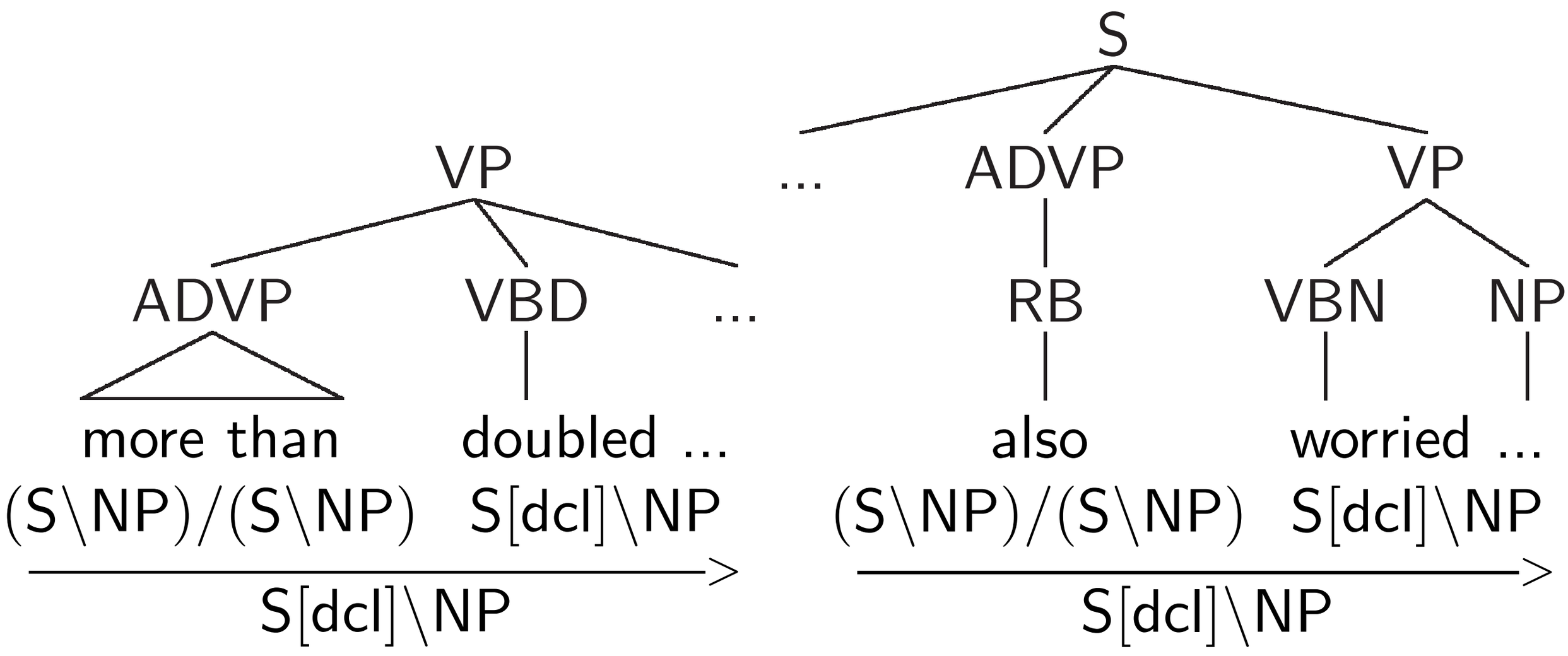

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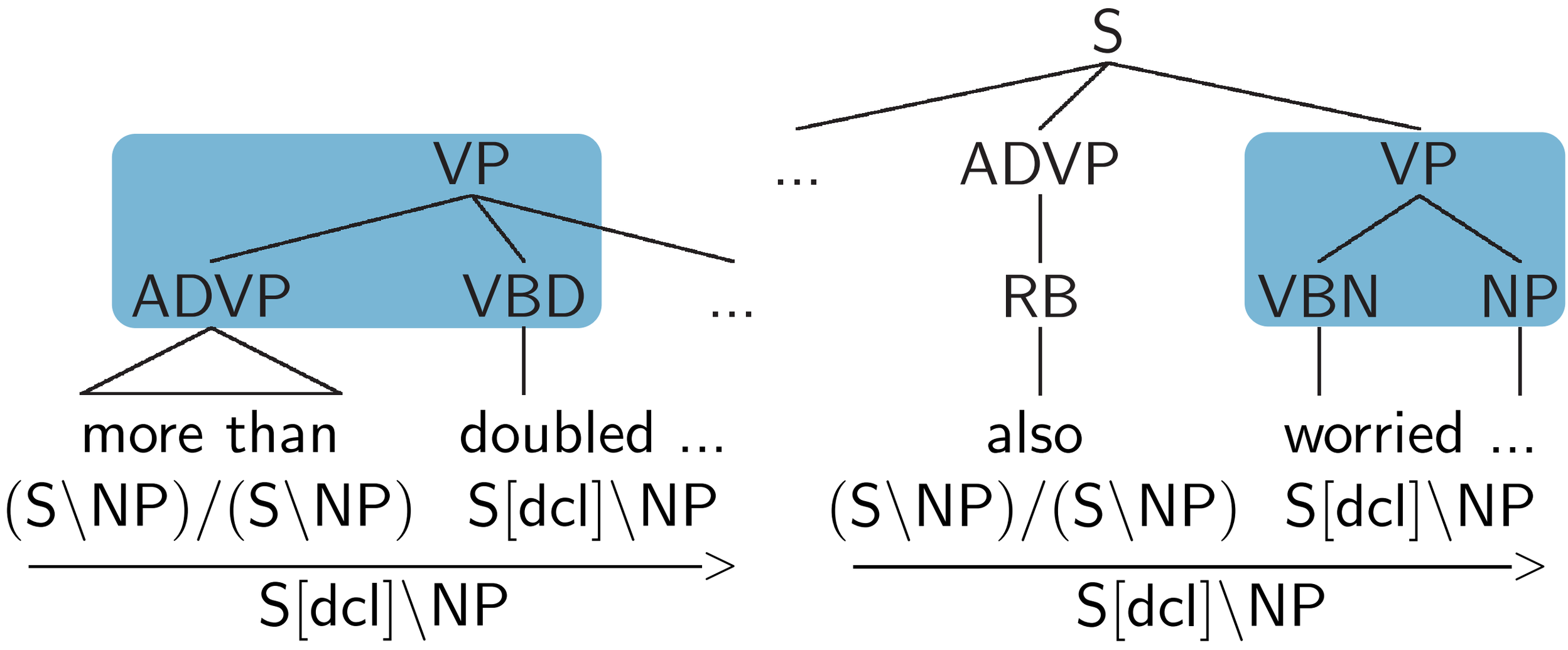

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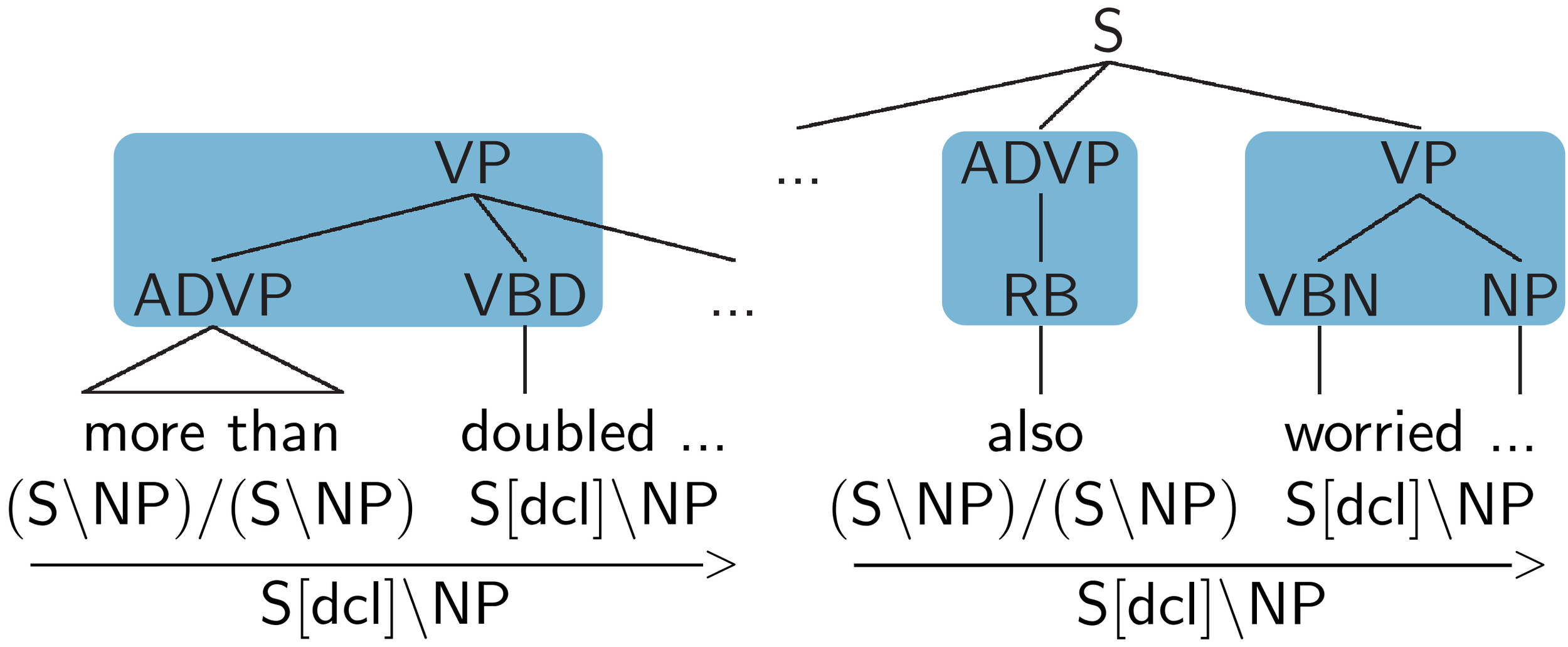
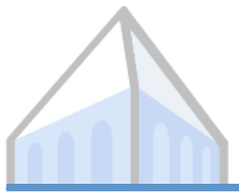
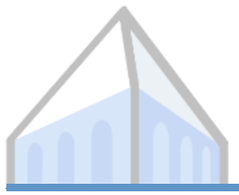




Resolving the Issue



Resolving the Issue

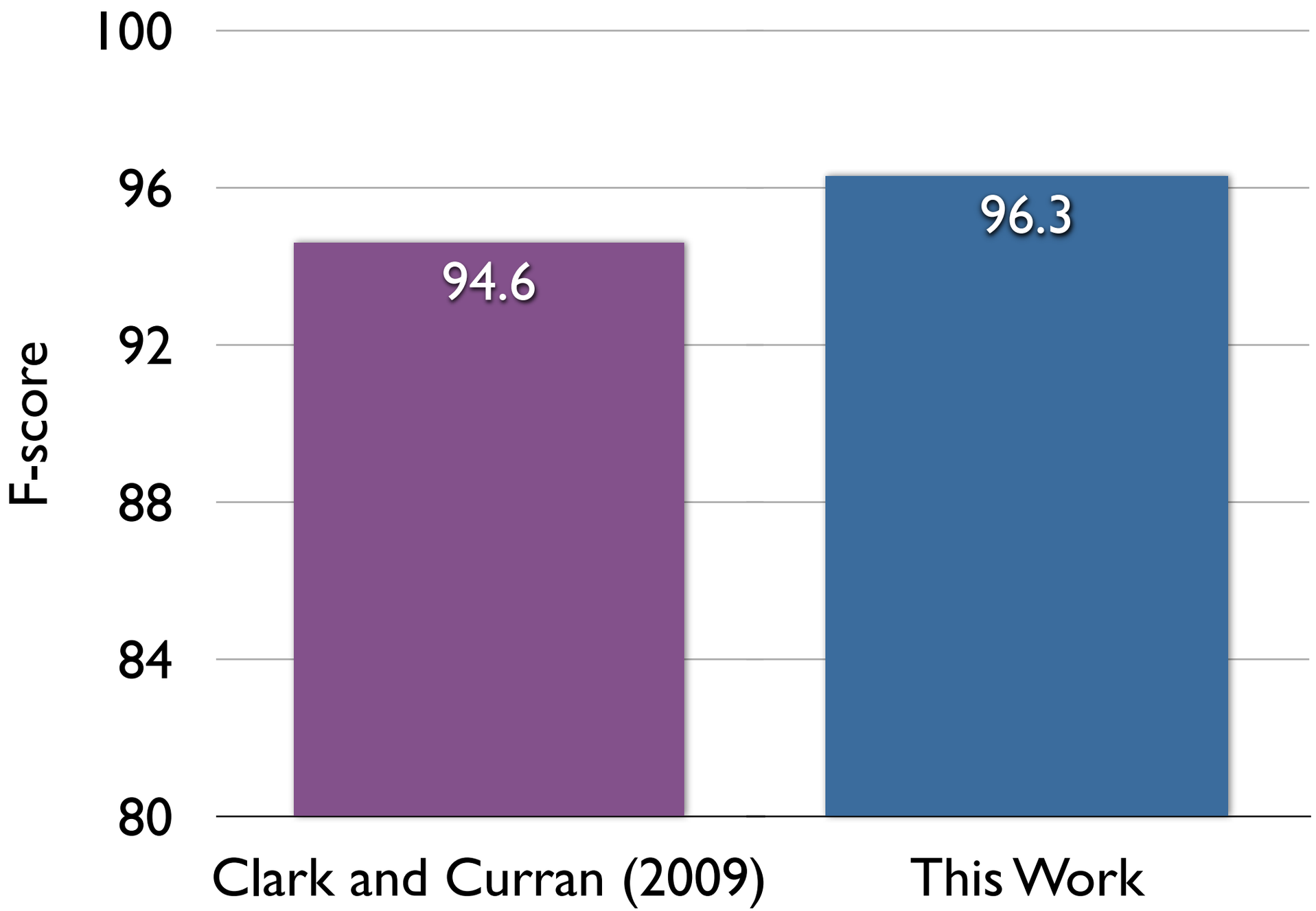
also

$(S\backslash NP)/(S\backslash NP)$

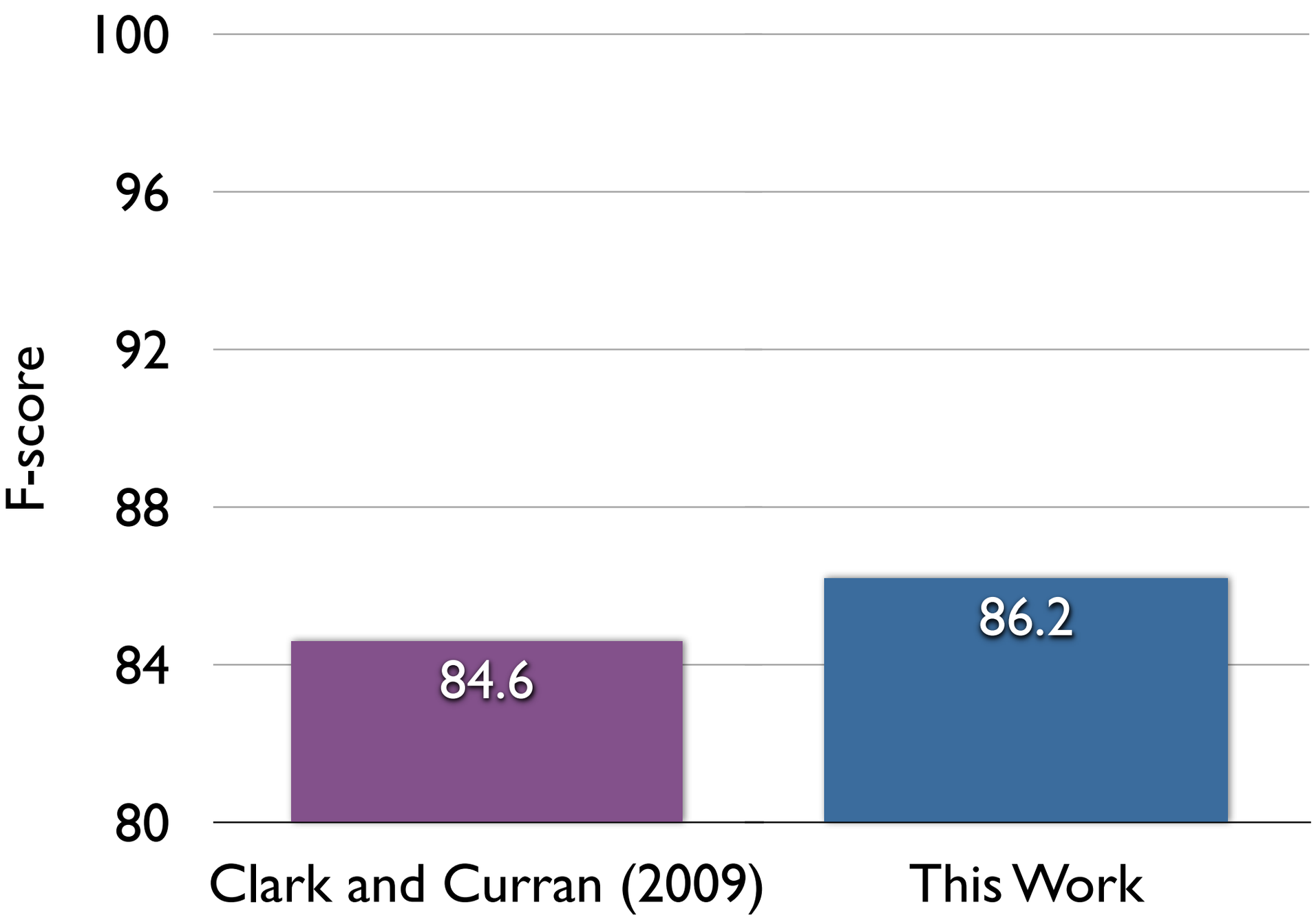
than

$((S\backslash NP)/(S\backslash NP))\backslash(S[adj]\backslash NP)$

Conversion from Gold



Conversion from Parsed



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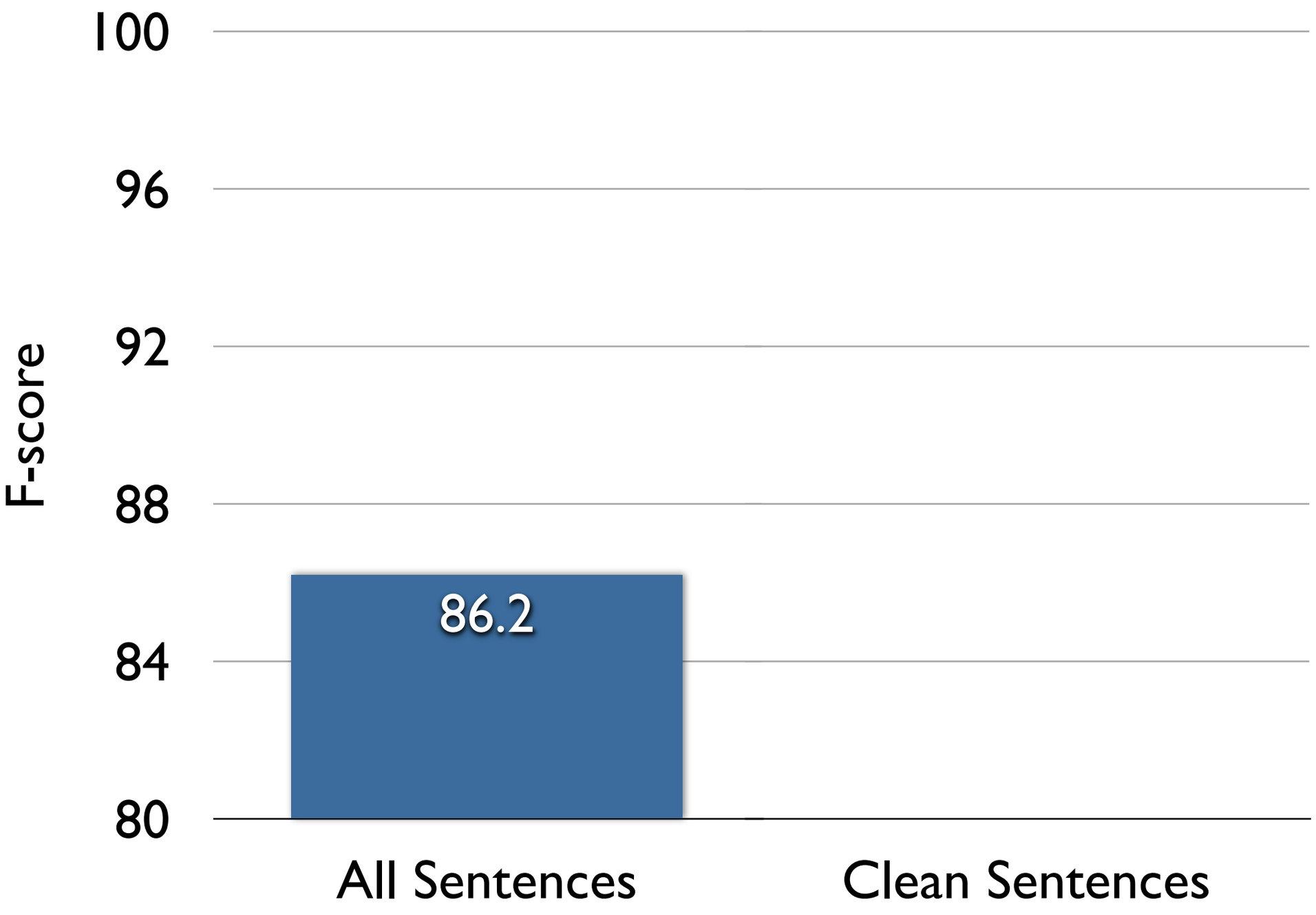

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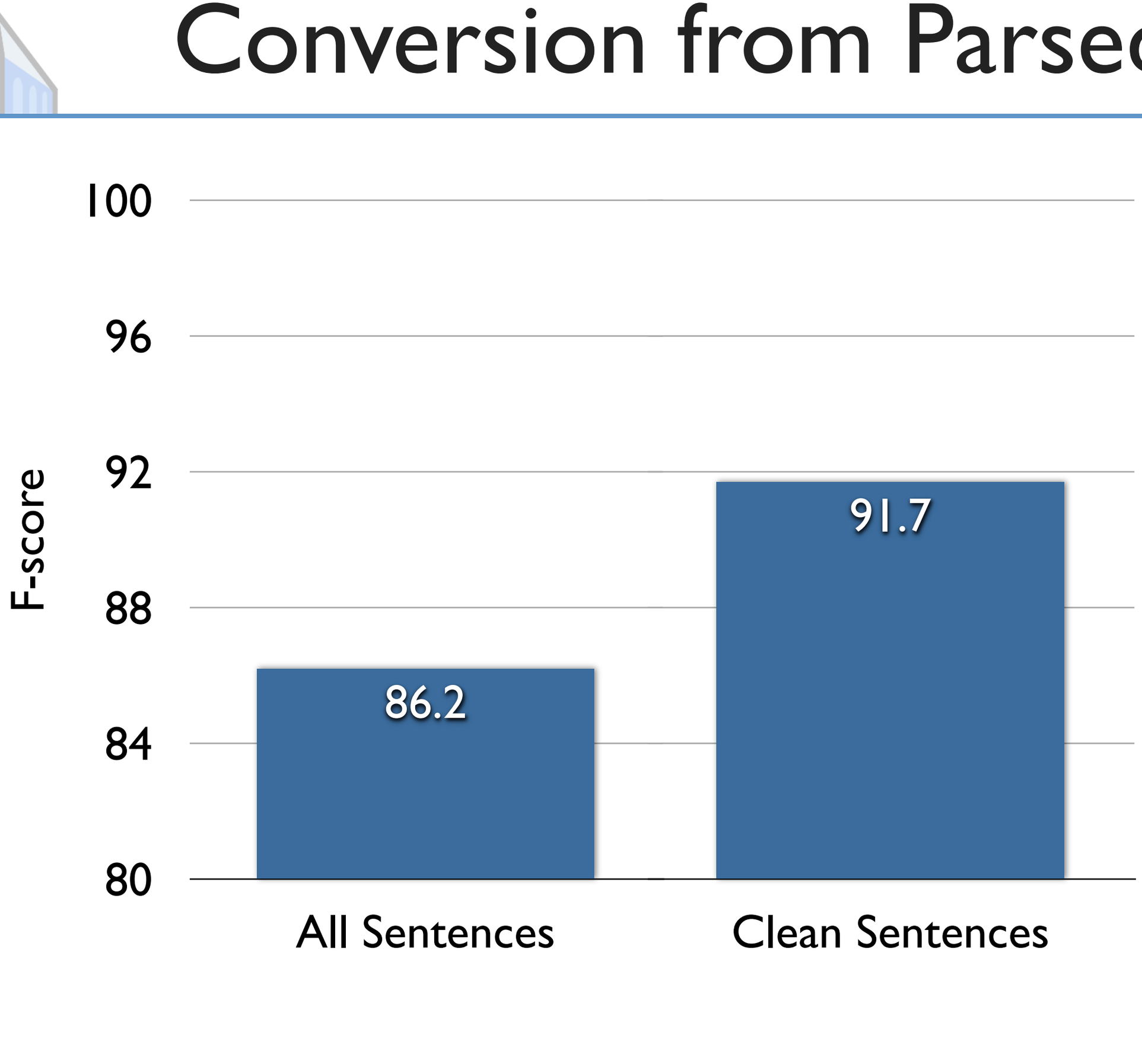

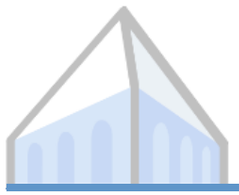

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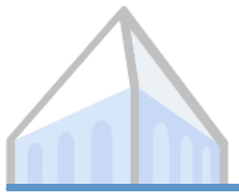
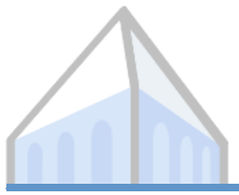


Conclusion

- A more robust and accurate conversion method



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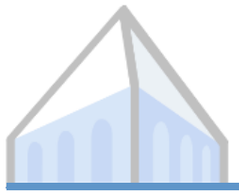

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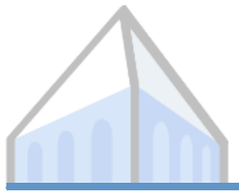

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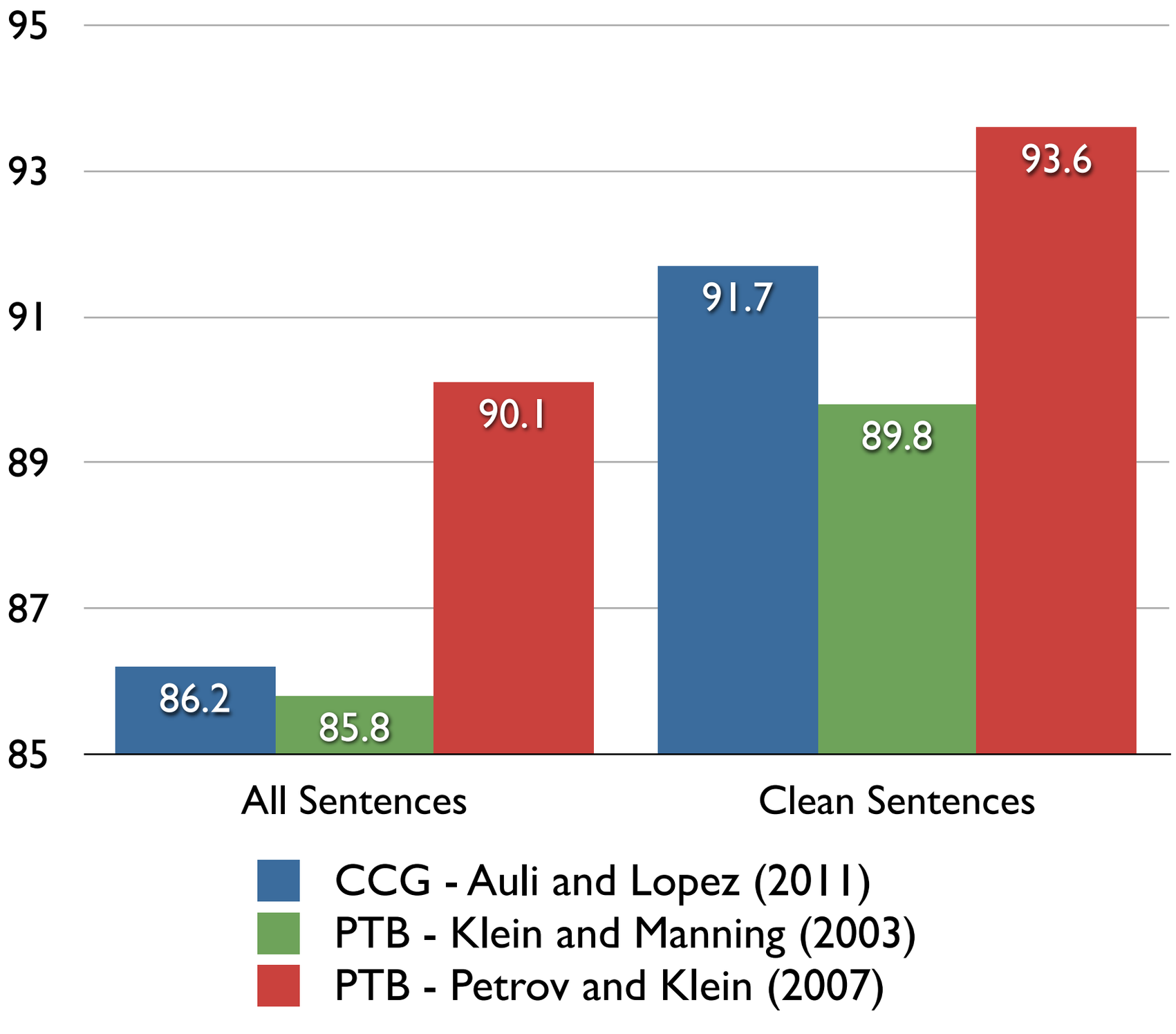
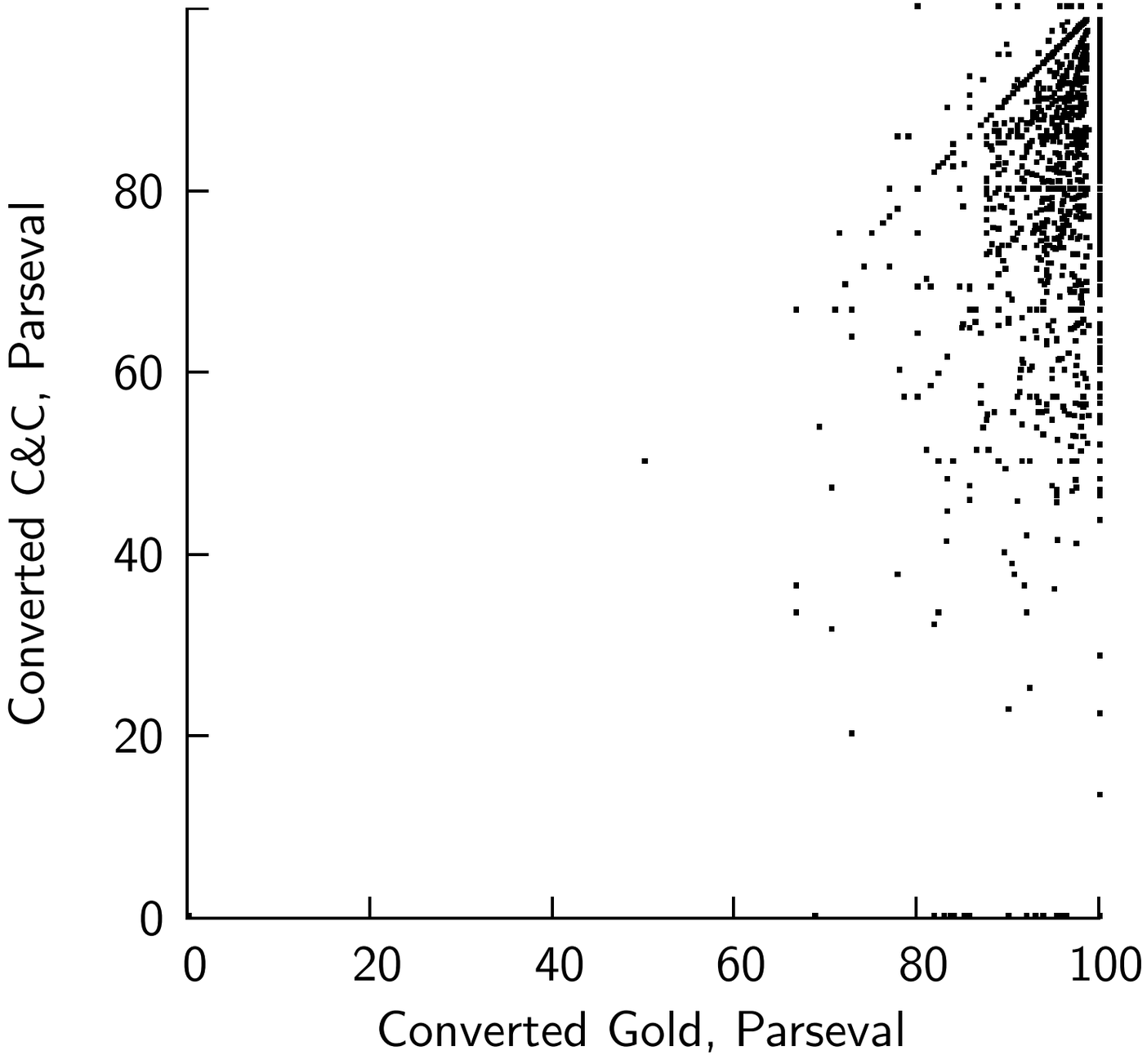
Thank you!

Comparison with PTB Parsers



Parsing vs. Converting



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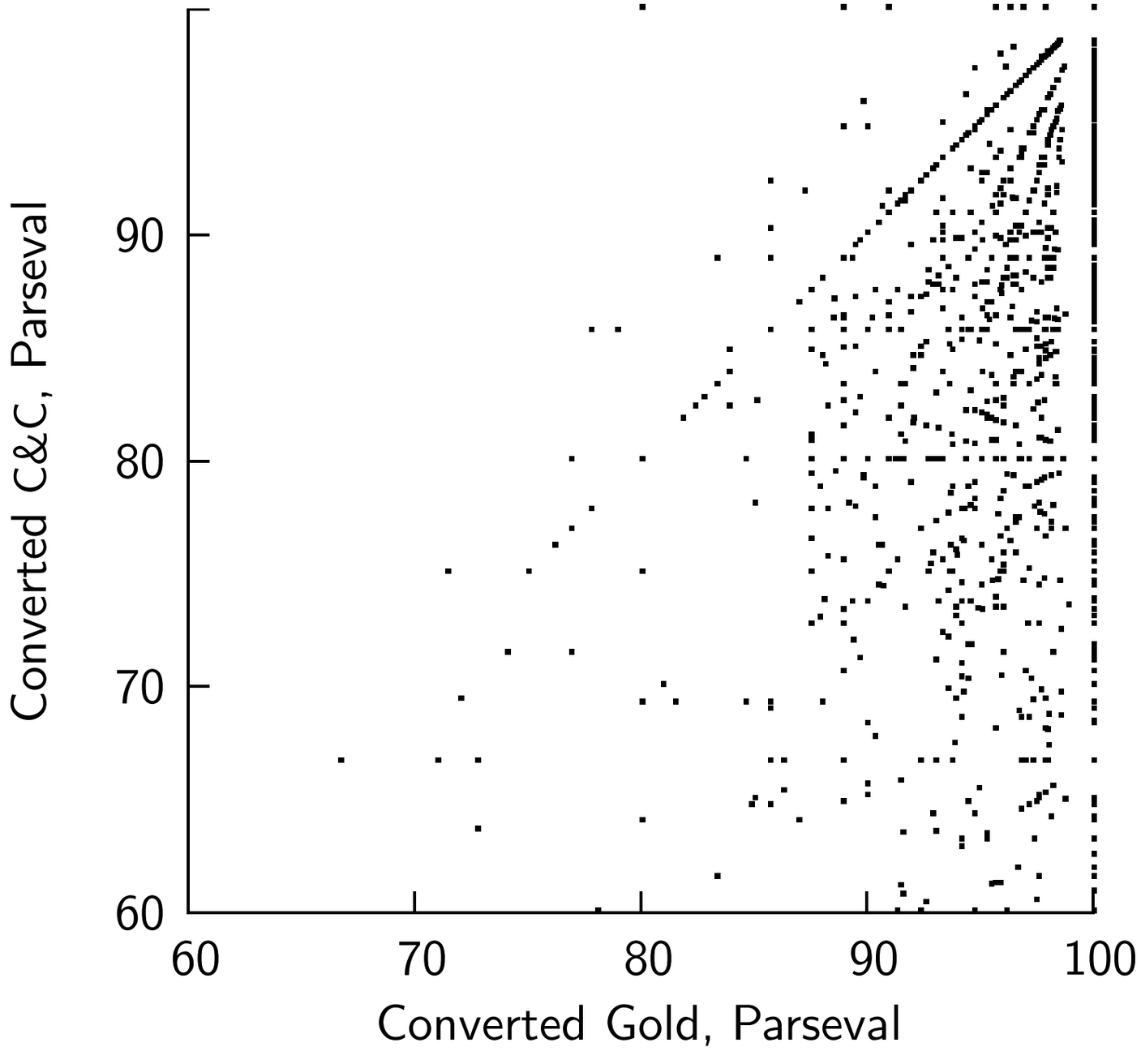

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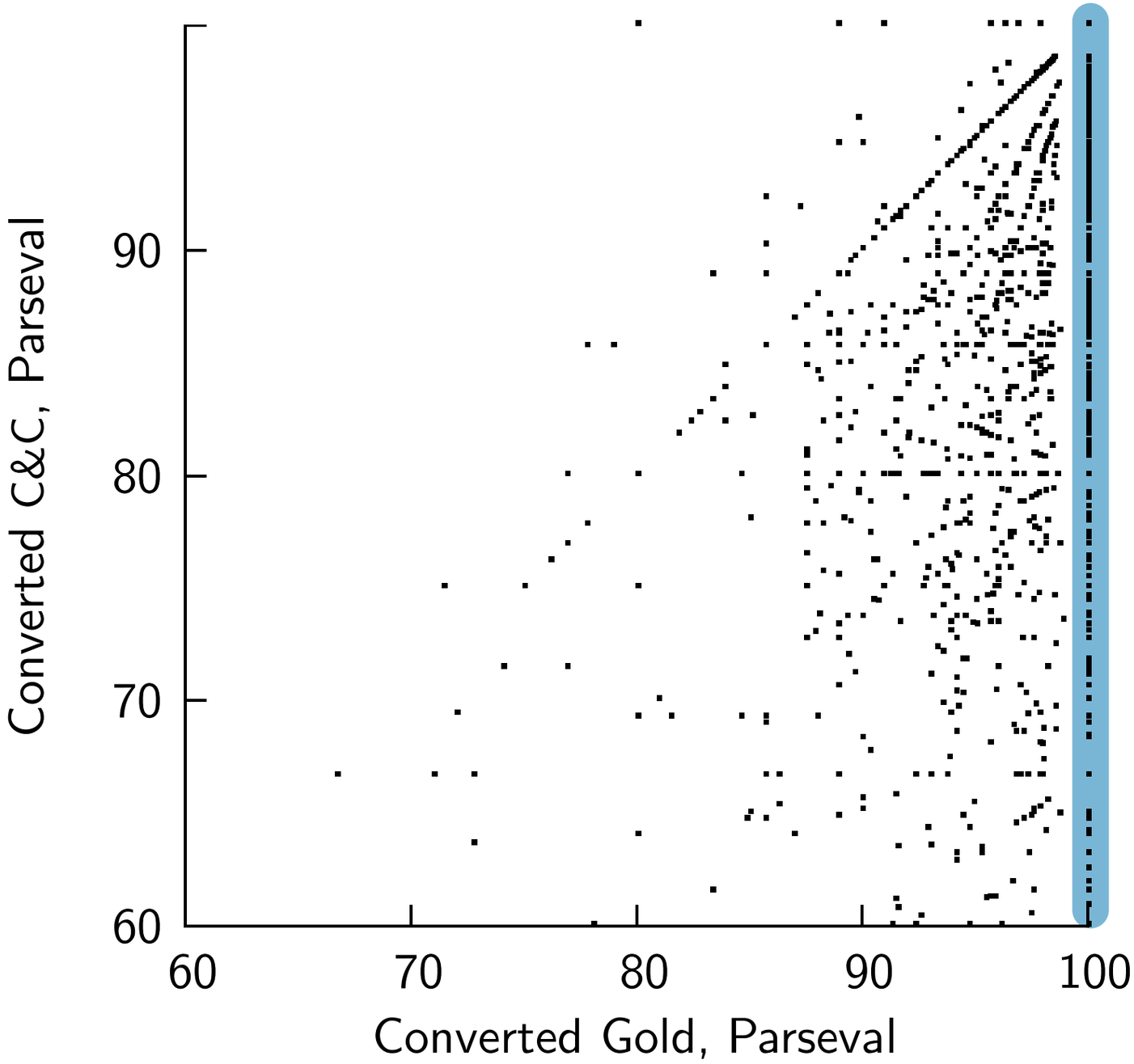
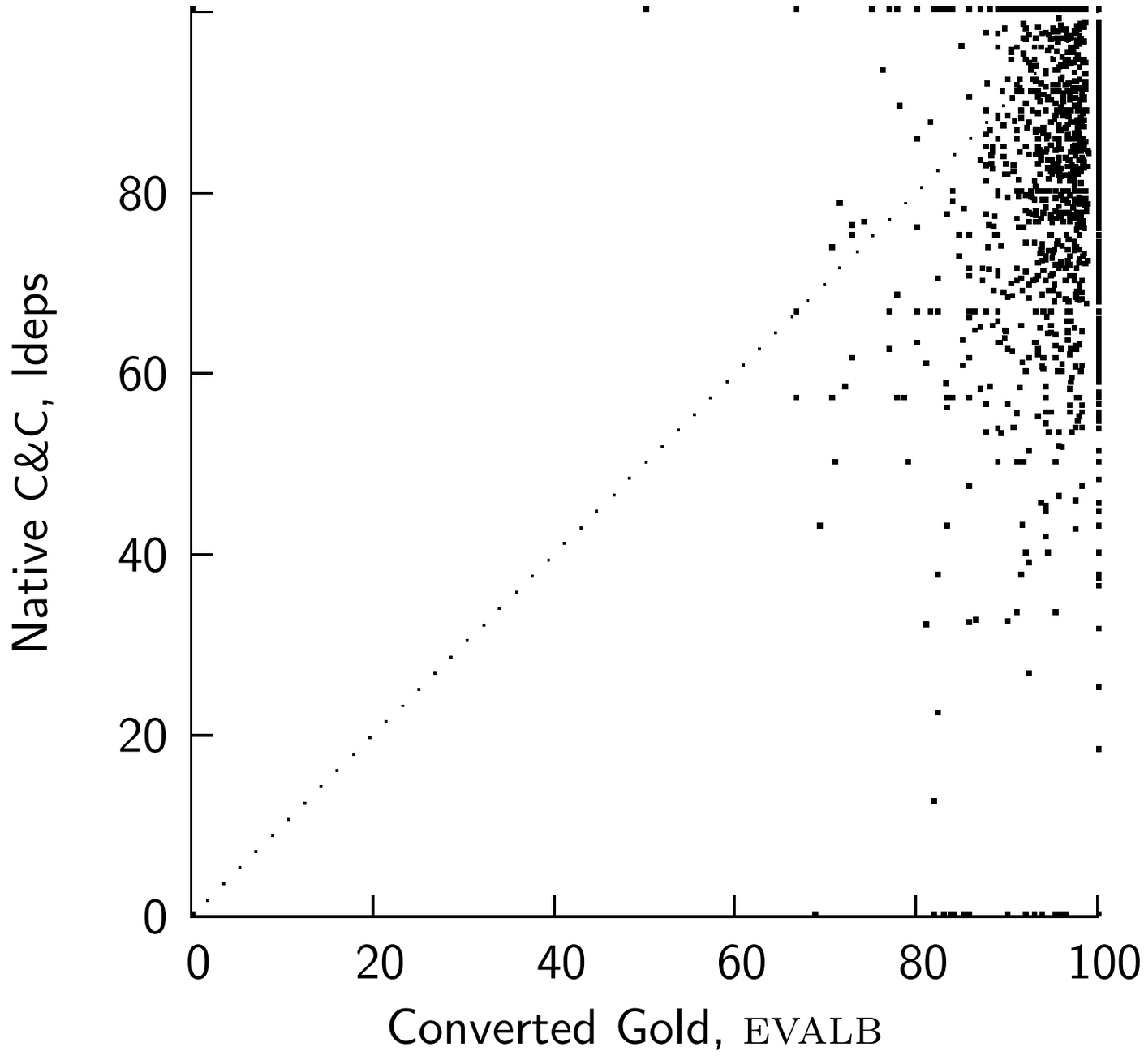
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