Robust Parsing in ACE

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June 18th, 2016

Achilles Heel?

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Unedited English or edited un-English (e.g. spontaneous speech, Twitter, headlines): lower

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- errors in the grammar
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- playful language
- etc.

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- 000fe10: 2d36 2d32 3031 3320 3134 3a32 383a 3234

Yi Zhang's *jigsaw*

Induce a PCFG from...

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Output: a derivation tree

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Output: a derivation tree . . . that usually doesn't unify successfully.

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Output: a feature structure

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Output: a feature structure . . . that may not be formally well-formed

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- Allow cyclic feature structures by fiat

Output: a feature structure . . . that may not be formally well-formed . . . but generally contains a comprehensible MRS

jigsaw + robust unification

Putting those together . . .

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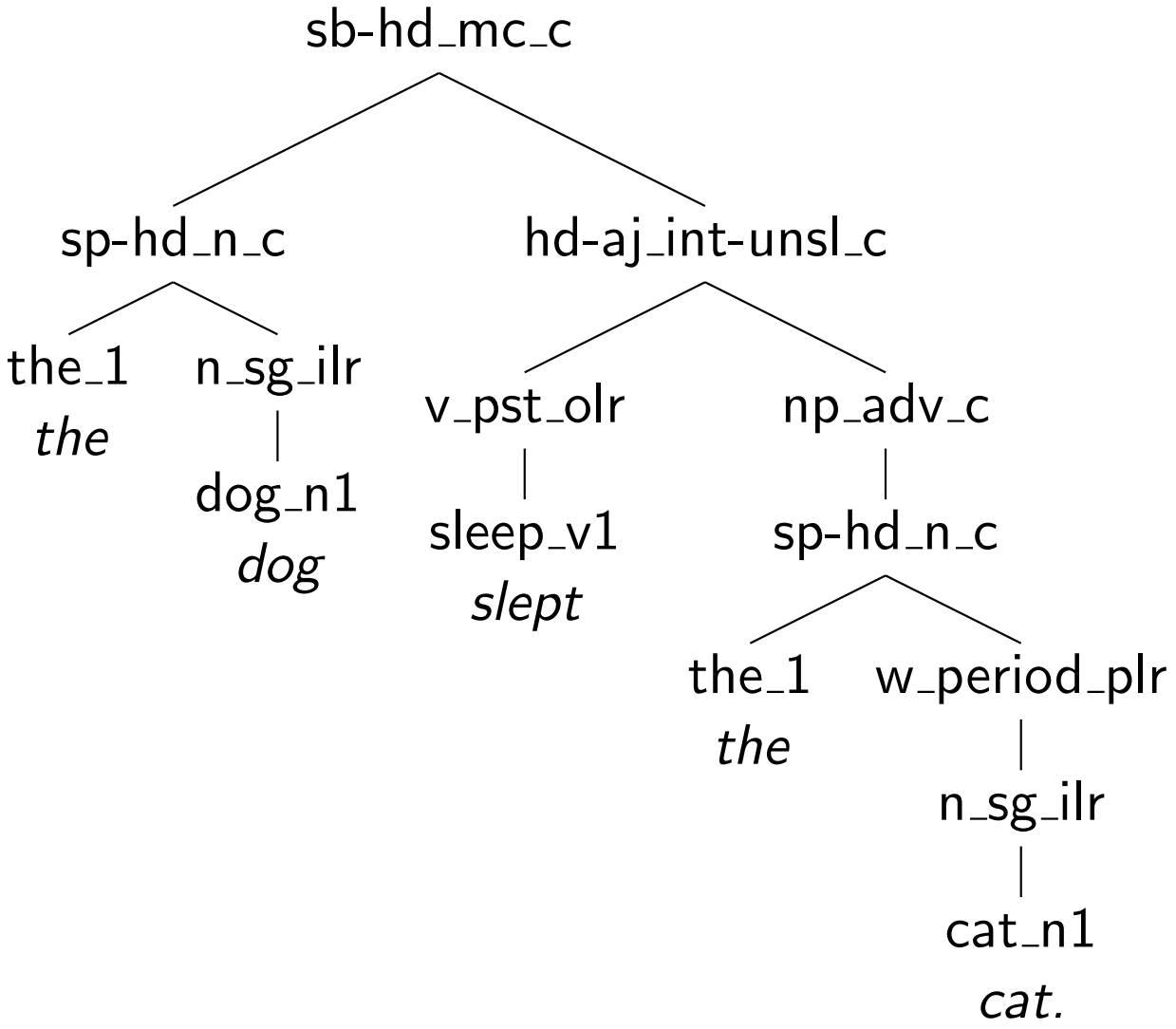
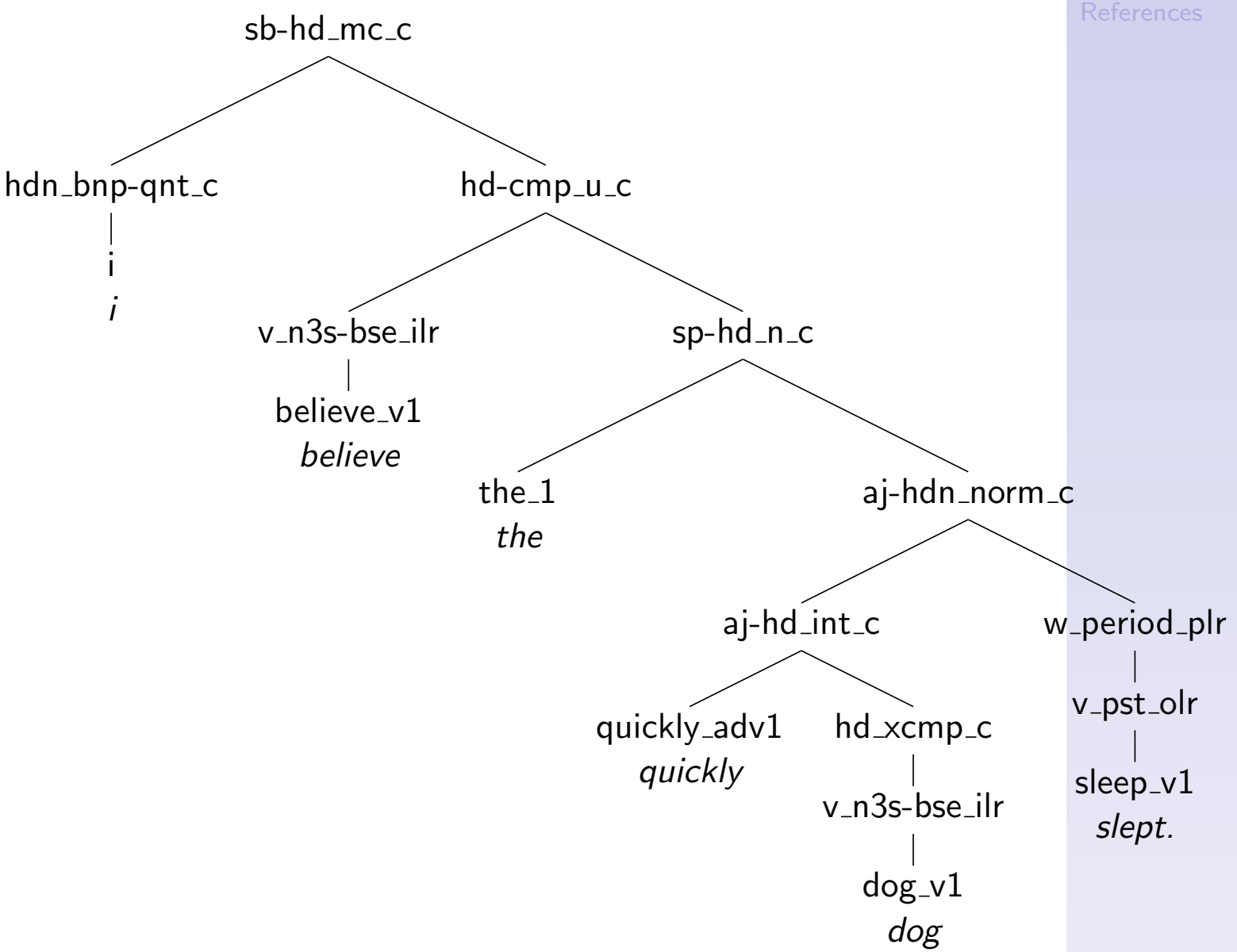
Putting those together . . .

- get an MRS for any input in the scope of the PCFG
- easy to pick PCFG settings leading to 100% coverage*
- . . . harder to get good quality and coverage simultaneously

csaw: The dog slept the cat.



csaw: I believe the quickly dog slept.



Integrating

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- Large code overlap with ACE for preprocessing, lexical parsing, token mapping

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- Typical usage pattern: run ACE, then CSAW on out-of-coverage subset
- Large code overlap with ACE for preprocessing, lexical parsing, token mapping
- ... not optimal

Integrating: ACE 0.9.23

PCFGs for ERG-1214:
`http://sweaglesw.org/linguistics/csaw/download/`

- `--pcfg=something.pcfg` command-line option
- Parse with CSAW and ERG, and some hybrid edges
- Maxent model picks winner

Integrating: ACE 0.9.23

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- ... evaluation soon

Thank You!

References:

Dan Flickinger. On building a more efficient grammar by exploiting types. *Natural Language Engineering*, 6(01): 15–28, 2000.

Dan Flickinger. Accuracy v. Robustness in grammar engineering. In Emily M. Bender and Jennifer E. Arnold, editors, *Language from a Cognitive Perspective: Grammar, Usage and Processing*, pages 31–50. CSLI Publications, Stanford, CA, USA, 2011.