



# Attachments in NL-Soar

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Soar 23



# Recent Work (overview)

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- Syntactic Snips
- Copular verb ('to be')
- Modal verbs (can, do, have, might)
- Ditransitive Verbs (give)
- Complementizers (if, which, whether, that)
- Prepositions with a gerund complement



# Assumptions

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- Humans do not use statistics to decide linguistic attachments—instead we use inference.
- There is explicit subcategorization in the lexicon.



# Subcategorization

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- WordNet™ contains explicit subcategorization information for verbs.
- Use part of speech to determine subcategorization information (ex. prepositions subcategorize for either an NP or a DP).



# Subcategorization

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(2)

- What types of complements a word requires/allows/forbids
  - vanish:  $\emptyset$     The book vanished \_\_\_\_.
  - prove: NP    He proved the theorem.
  - spare: NP NP
  - send: NP PP
  - proof: CP
  - curious: PP or CP
  - toward: NP
- Information not available in most dictionaries (at least not explicitly)



# WordNet™ subcat frames

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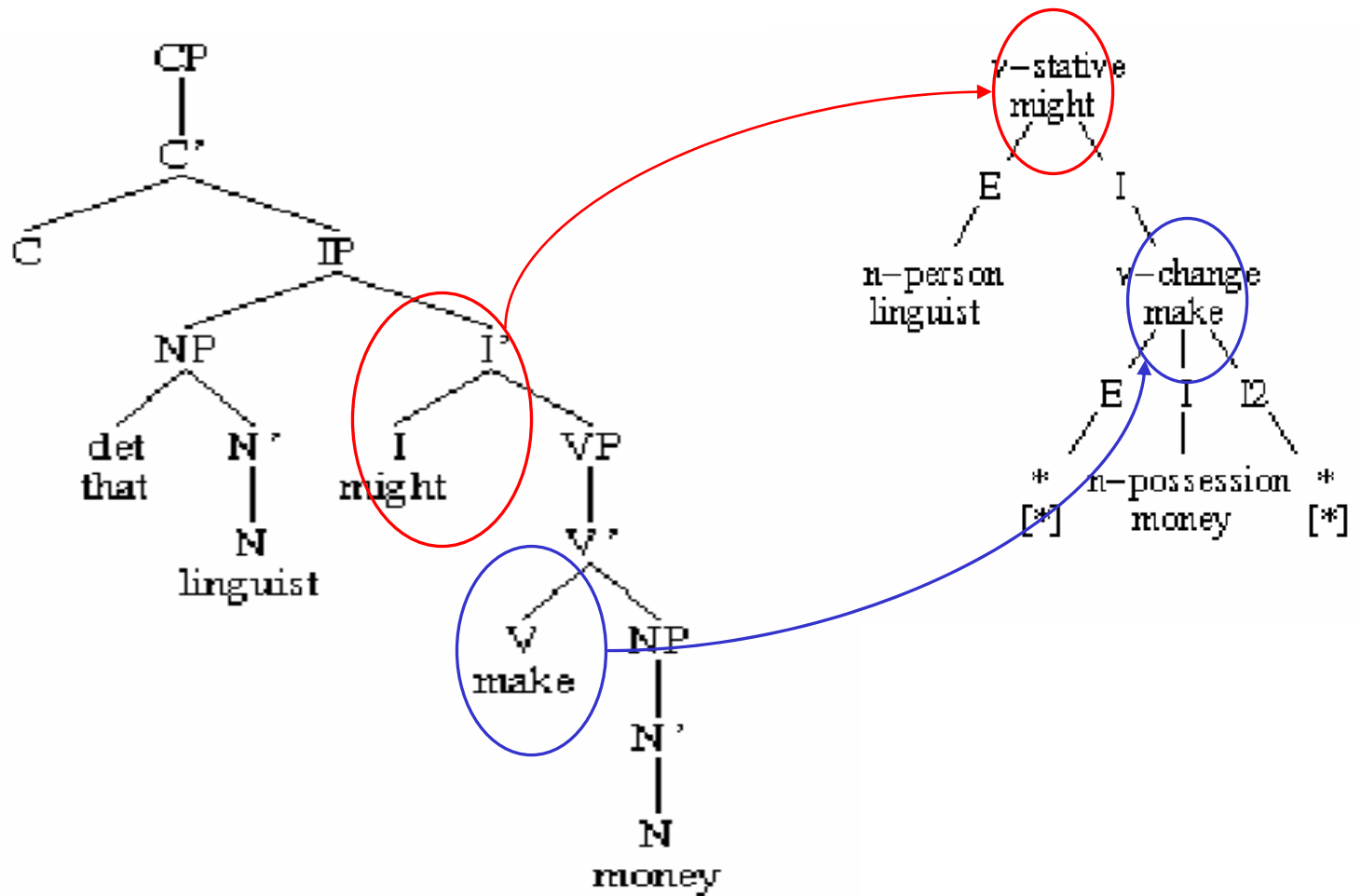
- 1 Something ----s
- 2 Somebody ----s
- 3 It is ----ing
- 4 Something is ----ing PP
- 5 Something ----s something Adjective/Noun
- 6 Something ----s Adjective/Noun
- 7 Somebody ----s Adjective
- 8 Somebody ----s something
- 9 Somebody ----s somebody
- 10 Something ----s somebody
- 11 Something ----s something
- 12 Something ----s to somebody
- 13 Somebody ----s on something
- 14 Somebody ----s somebody something
- 15 Somebody ----s something to somebody
- 16 Somebody ----s something from somebody
- 17 Somebody ----s somebody with something
- 18 Somebody ----s somebody of something
- 19 Somebody ----s something on somebody
- 20 Somebody ----s somebody PP
- 21 Somebody ----s something PP
- 22 Somebody ----s PP
- 23 Somebody's (body part) ----s
- 24 Somebody ----s somebody to INFINITIVE
- 25 Somebody ----s somebody INFINITIVE
- 26 Somebody ----s that CLAUSE
- 27 Somebody ----s to somebody
- 28 Somebody ----s to INFINITIVE
- 29 Somebody ----s whether INFINITIVE
- 30 Somebody ----s somebody into V-ing something
- 31 Somebody ----s something with something
- 32 Somebody ----s INFINITIVE
- 33 Somebody ----s VERB-ing
- 34 It ----s that CLAUSE
- 35 Something ----s INFINITIVE



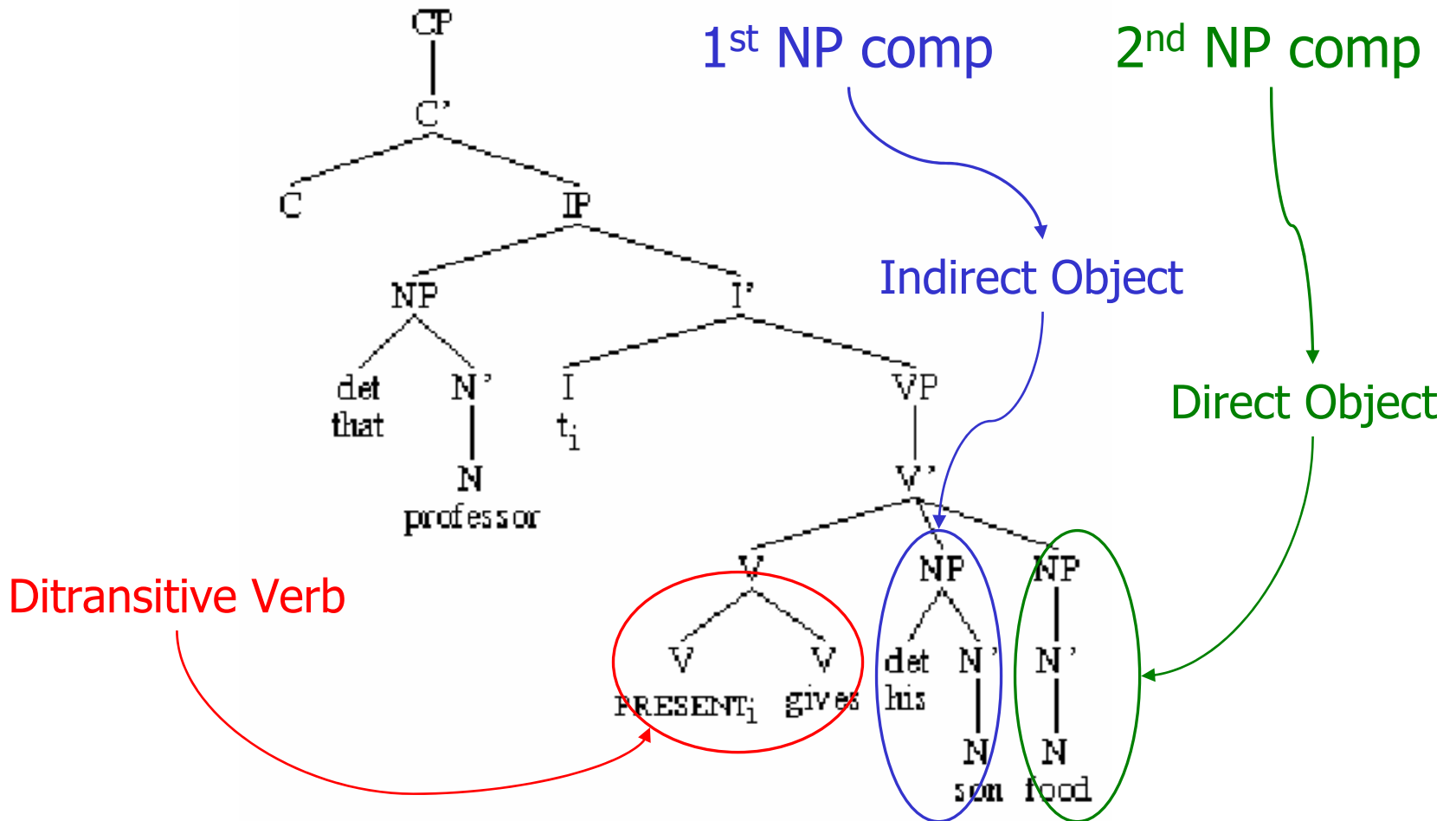




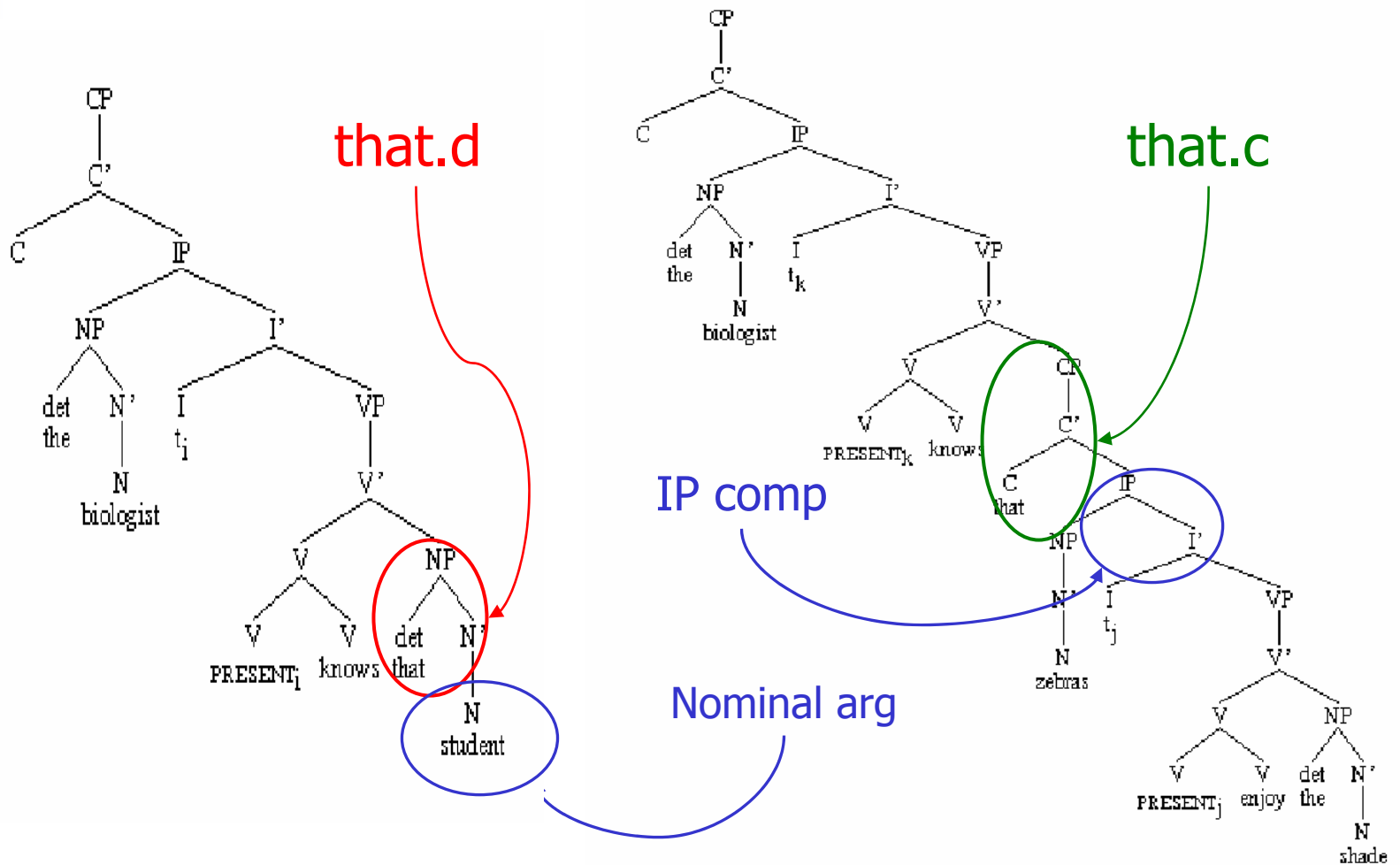
# Modal Verbs



# Ditransitive Verbs

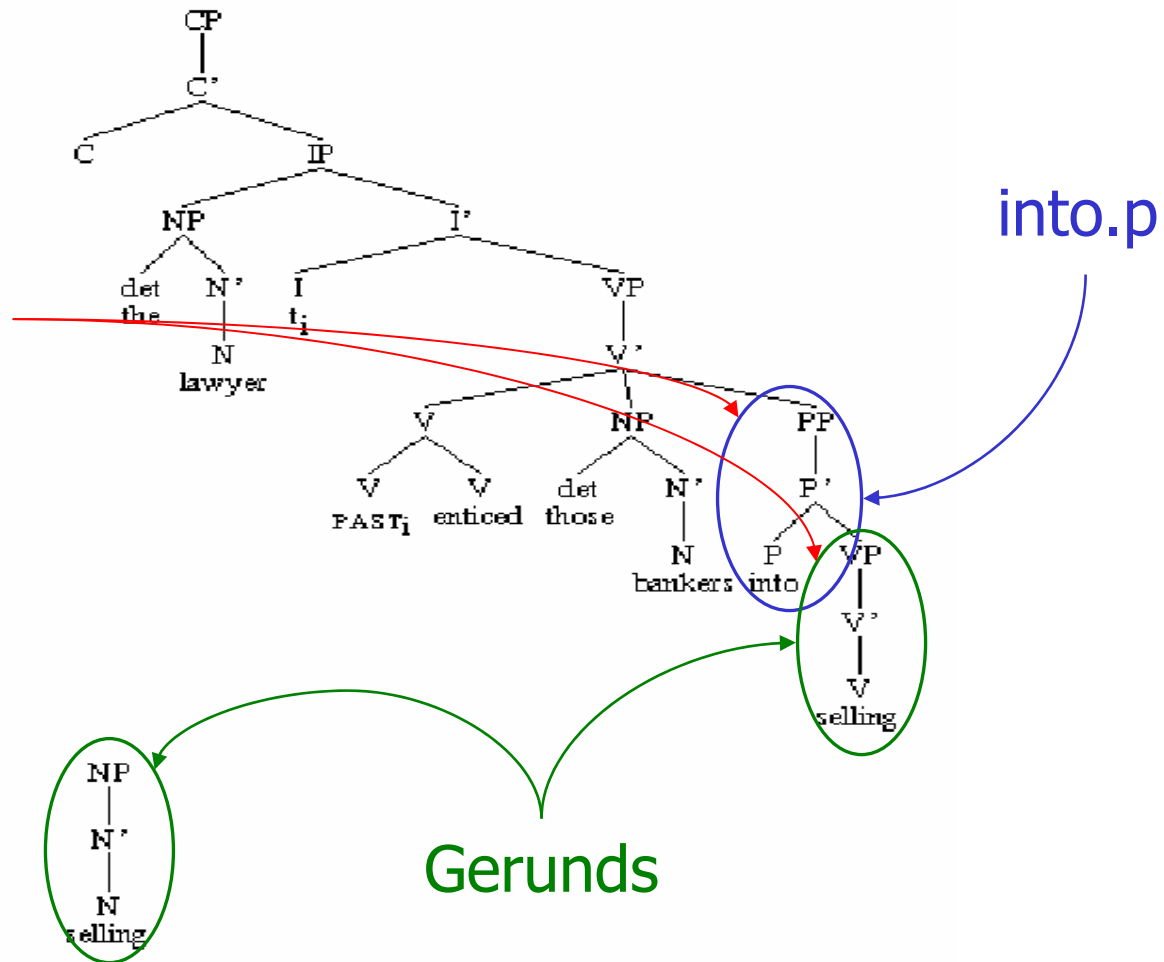


# Complementizers



# Gerund Comp of a Preposition

if PP, then  
prefer verbal  
gerund



Gerunds



# My Future Work

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- Generate adjectival gerund (transitivity?)
- Gerund semantics
- be.i (ex. 'they are running to the store.')
- Fix the infinitival 'to'
- Improve constraint chunking
- Patch holes in semantic processing
- Regression testing to find and fix what I've broken