Relative clauses - Basics

"Relative clauses are NP modifiers involving extraction of an argument or an adjunct" (XTAG manual)

(38) a. the dog [which ate the cake] (wh-relatives)
b. the export exhibition [Muriel planned] (wh-less relatives)
c. [What$_i$ Sandy loves __$_i$] is Kim. (free wh-relatives)
d. the girl [reading the magazine] (gerunds ???)

(39) Somebody$_i$ lives nearby [who has a CD-burner]$_i$. (extraposition)

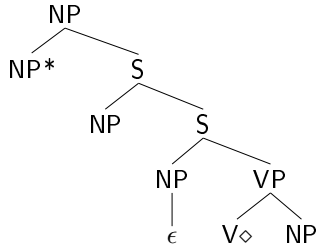
⇒ **internal vs. external syntax**

Relative clauses - XTAG-analysis (1) - Wh/that-relatives

(40) a. The dog$_i$ [that$_i$ ate the cake] (subject extraction)
b. The person$_i$ [who$_i$ I talked to __$_i$]. (preposition stranding)

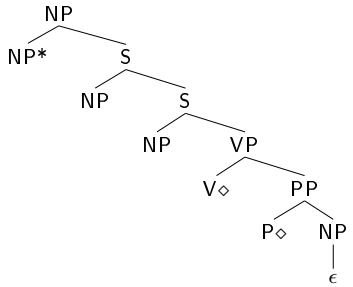
internal syntax: same as wh-extraction
external syntax: adjunction at a NP-node

βN0nx0Vnx1:



subject extraction

βN1nx0VPnx1:



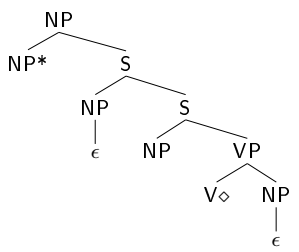
preposition stranding

Relative clauses - XTAG-analysis (2) - Wh-less relatives

(41) a. the export exhibition [Muriel planned/is planning]
b. the export exhibition [(being) planned by Muriel]

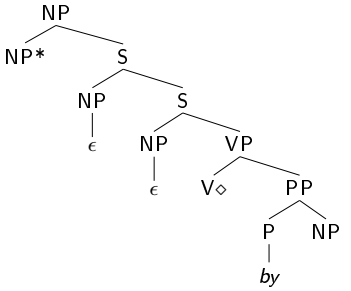
internal syntax: same as wh-extraction, but missing wh-pronoun
external syntax: adjunction at a NP-node

βNc1nx0Vnx1:



missing wh-object

βNc1nx1Vbynx0:



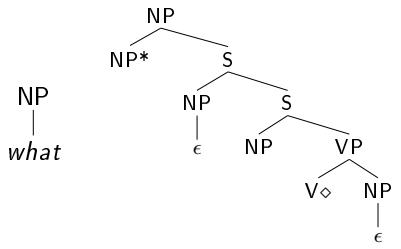
missing wh-subject in passive

Relative clauses - XTAG-analysis (3) - Free wh-relatives

Also known as **Pseudoclefts** !

(42) [What$_i$ Sandy loves __$_i$] is Kim$_i$.

internal syntax: same as wh-less relative clause
external syntax: adjunction at a wh-pronoun

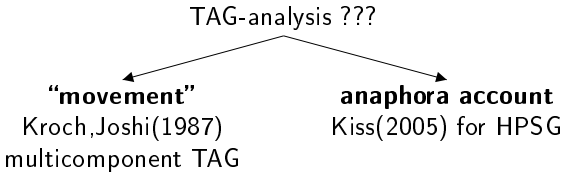


⇒ XTAG covers only free wh-relatives in object position!

Extraposed relative clauses

(43) a. Somebody$_i$ lives nearby [who$_i$ has a CD-burner].
b. Karl hat mir [von der Kopie [einer Fälschung [eines Bildes [einer Frau __$_i$]]]] erzählt, [die schon lange tot ist]$_i$.

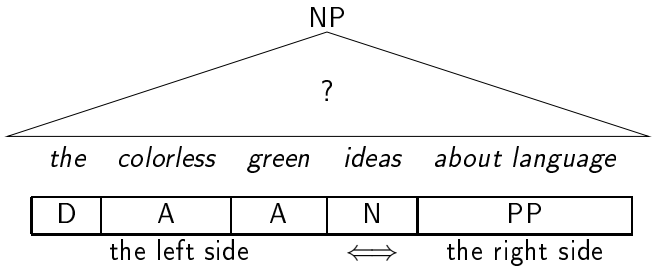
internal syntax: same as wh-extraction
external syntax: no adjunction at a NP-node, but to the right periphery of the sentence



Extraction - Summary

- Topicalization and wh-extraction obtain a uniform analysis.
- Account for unbounded dependency via extended domain of locality + factoring of recursion
- Island constraints can be modelled rather naturally (wrt. TAG).
- Relative clauses are realized as auxiliary trees. Their internal structure is analysed as ordinary wh-extraction.

The inner structure of NPs



1. The left side of nouns
   - Determiners
   - Adjectives
2. The right side of nouns
   - PP-complements/-adjuncts of nouns
   - Relative clauses

The left side of nouns - Determiners

'Determiners' labels a rather heterogenous set of items:

- articles (*the*, *a*)
- demonstratives (*this*, *that*)
- genitives (*my*, *Bill's*, *that man's*)
- quantifiers (*all*, *some*, *every*, *most*, *many*)

Determiners can be stacked:

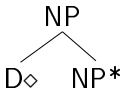
(44) all these many ideas

⇒ The pattern of determiner stacking is very complex!

The left side of nouns - Determiners - XTAG-analysis

XTAG uses β**Dnx** for all determiners:

βDnx:



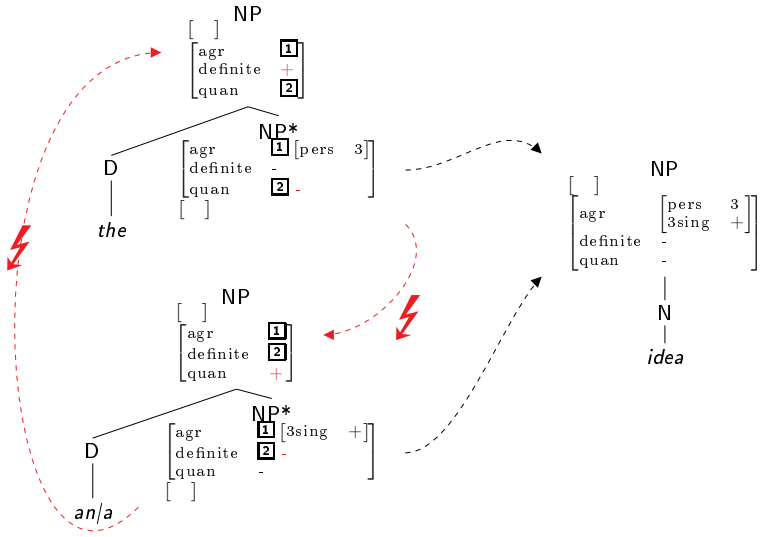
XTAG uses a set of **9 features** to handle determiner stacking:

- definite:= $\{+,-\}$ marks definite determiners (*the*, *this*, *that*, ...)
- quant:= $\{+,-\}$ marks quantifiers and non-definite articles (*a*, *all*, *some*, *every*, ...)
- plus: card(inality), gen(itive), wh, decreas(ing), const(ancy), compl(ement), and arg

⇒ We only consider definite and quan in what follows.

The left side of nouns - Determiners - XTAG-example

⇒ The feature structures are considerably simplified!



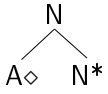
The left side of nouns - Adjectives

XTAG assumes that adjectives can appear in any order:

(45) a. the colorless green ideas
b. the green colorless ideas

In XTAG, adjective trees adjoin to N, where no special feature is required:

βAn:



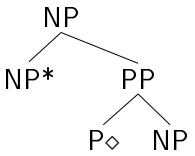
The right side of nouns - PP-complements/adjuncts

XTAG assumes that PP-complements/adjuncts can appear in any order.

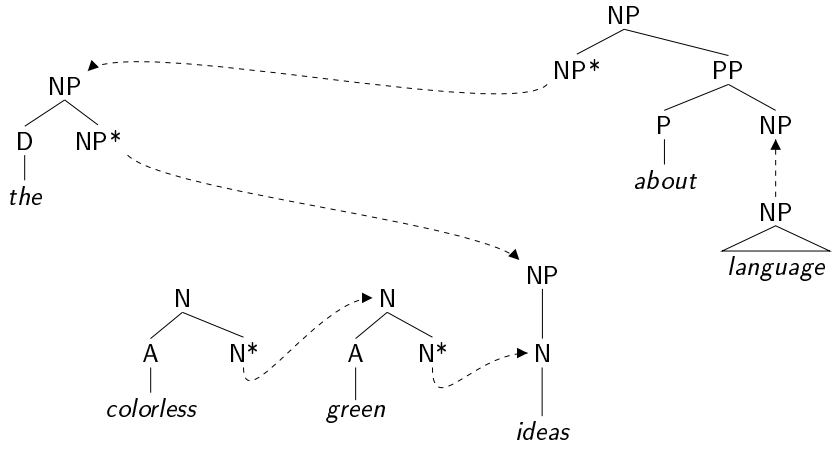
(46) a. the ideas about language from Germany
b. the ideas from Germany about language

In XTAG, PP-complements/adjuncts adjoin to NP, and no special feature is required:

βnxPnx:



The inner structure of NPs - Putting the pieces together



⇒ The order of adjunction of determiners and PPs is not fixed!

Gerund NPs

NPs made from gerunds basically fall into two groups:

1. The gerund verb is treated like a regular noun.
2. The gerund verb and its complements/adjuncts preserve a sentential structure, but are treated as regular NP.

Determiner gerunds (aka derived nominalizations):

(47) a. [The proving of the theorem] succeeds.
b. *[The proving the theorem] succeeds.

NP gerunds (aka sentential gerunds):

(48) a. [Proving the theorem] succeeds.
b. [John proving the theorem] succeeds.
c. *[The Proving the theorem] succeeds.

Gerund NPs - XTAG-analysis of NP gerunds