Syntactic Relations II

Headedness

The notion of head

- Bloomfield (1935, 195): "In subordinative endocentric constructions, the resultant phrase belongs to the same form-class as one of the constituents, which we call the *head…*"

- The notion of dependency of other constituents on the head is not made explicit, but seems to be more pronounced in X-bar theory.

X-bar syntax

- X-bar syntax (Jackendoff 1977 and earlier publications by Chomsky) were hailed by some as a synthesis between phrase structure syntax and dependency syntax.

- A crucial notion in the formulation of X-bar syntax seems to have been the notion of complementation.

Complementation

- Chomsky 1957: the ambiguity of *the shooting of the hunters* should be accounted for syntactically. Initially this was done with the aid of transformations. Nominalisations derive a structure like this from either *the hunters shot X* or *X shot the hunters.*

- Chomsky 1970: *shooting* is not a nominalisation, but a real noun (figuring as such in the lexicon). How, then, can the ambiguity of *the shooting of the hunters* be accounted for syntactically?

Types of syntactic relation across phrases

- In *John shot the hunters*, the hunters is a complement, whereas John is a subject. These types of syntactic relation are formulated with respect to the verb, but perhaps they are not restricted to the verb? Cf.
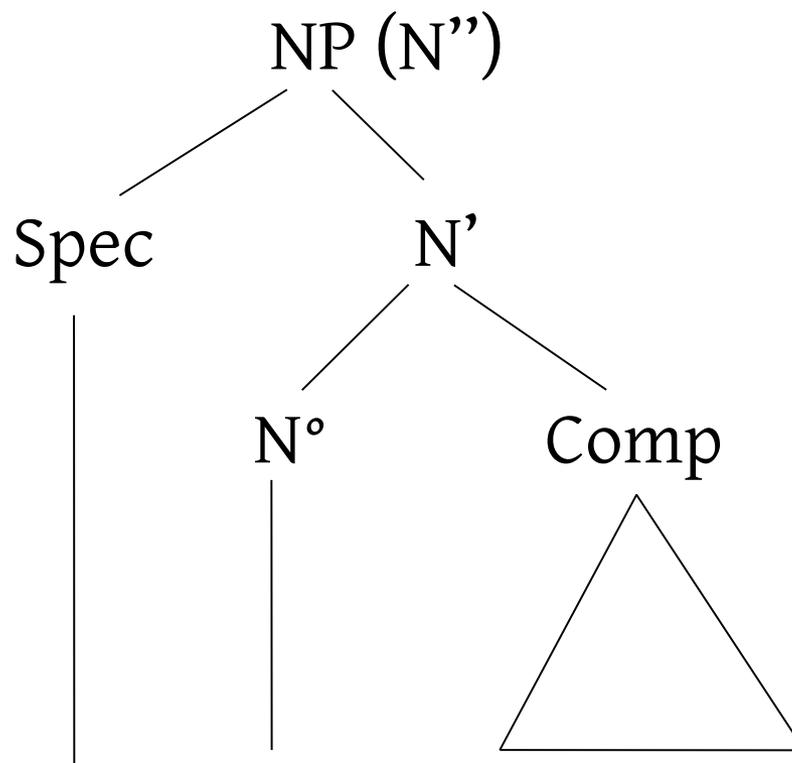
  shot the hunters

  afraid of the hunters

  from the hunters

The structure of the noun phrase

```
            S                                      NP (N'')
          /   \                                   /      \
        NP     VP                              Spec       N'
        |     /  \                              |        /  \
        N    V    NP                            |      N°    Comp
        |    |   /  \                           |      |      /\
        |    |  D    N                          |      |     /  \
        |    |  |    |                          |      |    /    \
        |    |  |    |                          |      |   /_____\
      John shot the hunters                  John's shooting of the hunters
```
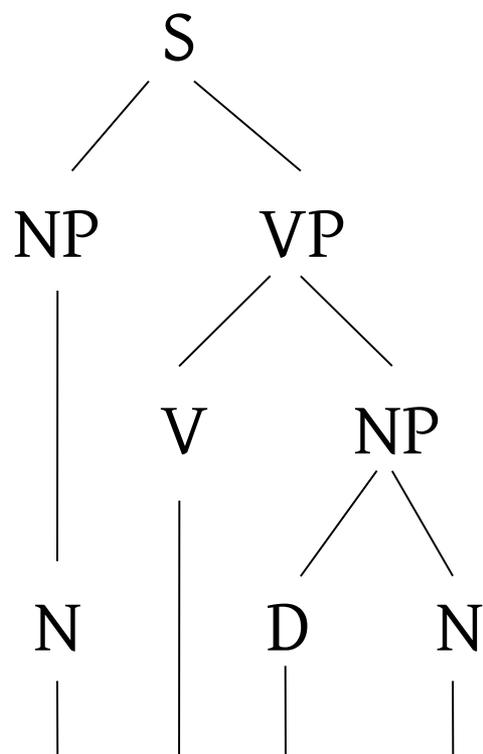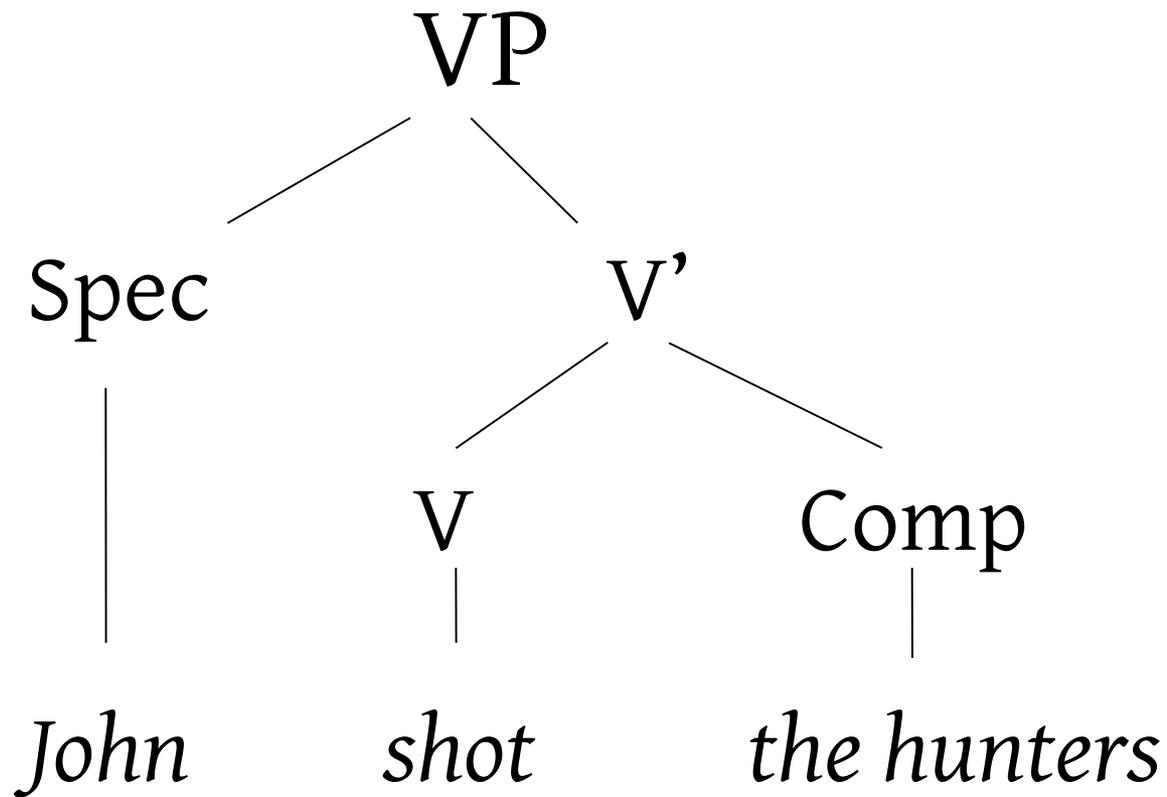
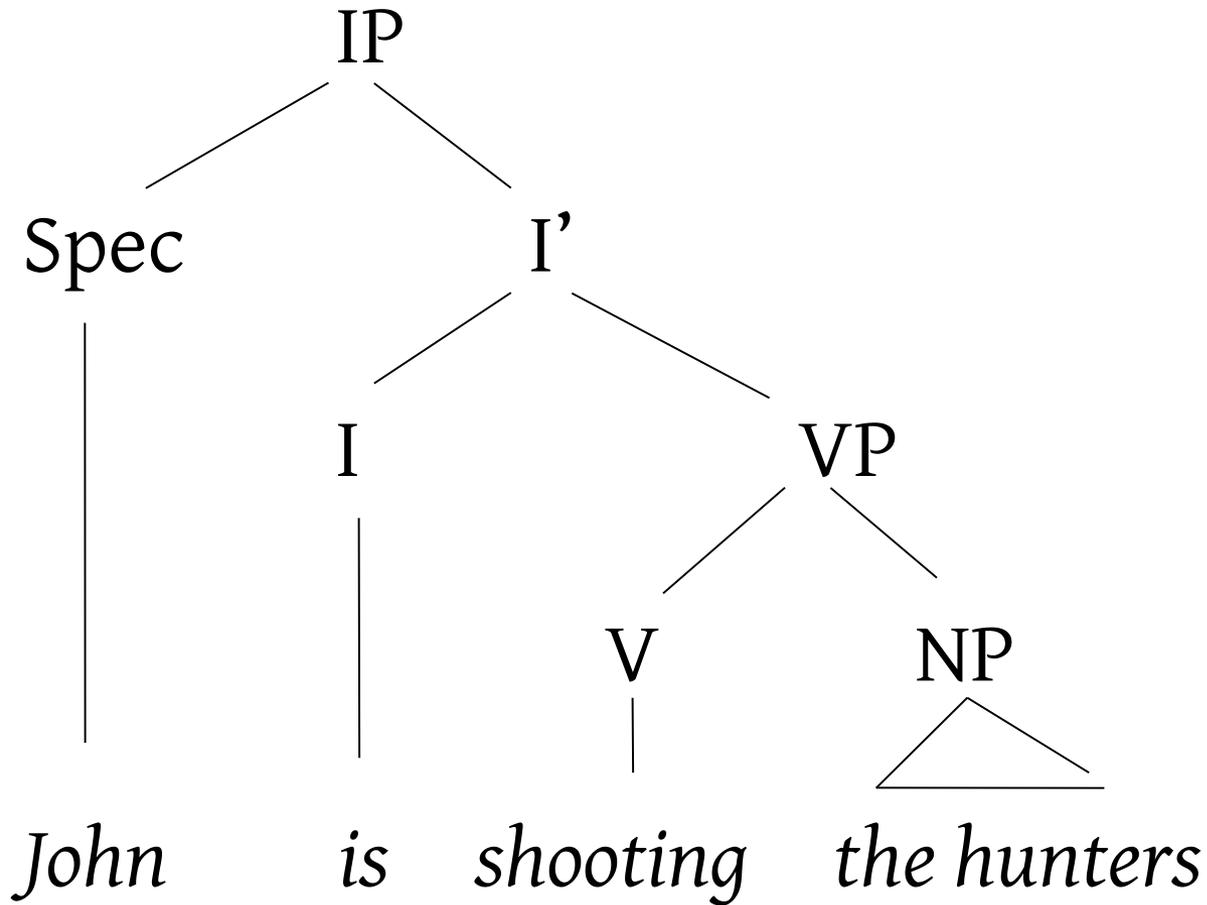*John shot the hunters*   *John's shooting of the hunters*

Phrase and sentence

- The phrase becomes similar to a sentence in having syntactic positions corresponding to those of subjects and objects;

- The sentence, in its turn, ceases to be a unit of a different kind than a phrase: whereas Bloomfield described the sentence as exocentric (neither the subject nor the object can represent the whole phrase), it now conforms to the universal endocentric phrase model

- No exocentric phrases are left (Jackendoff's endocentricity constraint).

Sentences as VP's?

```
              VP
          /        \
      Spec          V'
        |         /     \
        |        V       Comp
        |        |         |
      John     shot    the hunters
```

Sentences as IP's?

```
              IP
             /  \
          Spec   I'
           |    /  \
           |   I    VP
           |   |   /  \
           |   |  V    NP
           |   |  |    /\
           |   |  |   /  \
        John  is shooting  the hunters
```

Complementation and modification

- The distinction between complements and other types of dependents is now widely recognised; it is formulated as one between
  - complements and modifiers
  - complements and adjuncts

Types of modifiers

- In the generative literature, the term "modifier" is used informally; non-complements are characterised as
  - specifiers if preceding the head (**big** *houses*)
  - adjuncts if following the head (*the house* ***on the hill***)

Adjuncts

- In generative grammar, as specifier is syntactically closer to its head that an adjunct, which is a sister to XP:

NP

NP   PP

Spec   N'

N

big   house   on the hill
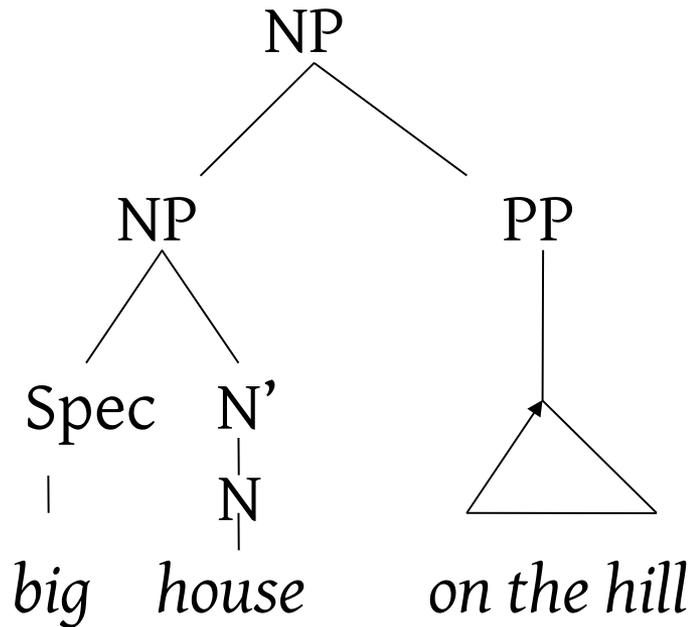
Minimalism: merger!

Andrew Radford, *Minimalist Syntax* , CUP 2004, p. 68:

"Since our goal in developing a theory of Universal Grammar is to uncover general structural principles governing the formation of phrases and sentences, let's […] hypothesise that all phrases are formed in essentially the same way […], namely by a binary (i.e., pairwise) merger operation which combines two constituents together to form a larger constituent."

... and adjunction

Ibid., p. 341

"Let's suppose that adverbs like *gently* are **adjuncts**, and that adjunction is a different kind of operation from **merger**. Merger extends a constituent into a larger type of projection [...] By contrast, adjunction extends a constituent into a larger projection of the same type..."

Modifiers and adjuncts

- In the non-generative literature, the term 'adjunct' is often used loosely as denoting dependents that are not complements;

- In the generative literature, adjuncts have a more restricted meaning as they differ from specifiers, which are also opposed to complements;

- The term 'modifier' is therefore preferable outside a generative framework (cf. Matthews 1981, Mal'čuk 1998, Huddleston & Pullum 2002).

Headedness

- The question whether a dependent is a complement or a modifier presuppose that we know where the head is.

- Sometimes this is obvious:

  tall **houses**, **walked** *slowly*

- In other cases this is not obvious:

  in London (adposition or noun?)

  (he says) that he is coming (complementiser or clause?)

  Lith. *dešimt namų* 'ten houses' (quantifier or noun?)

Headedness criteria

- Arnold Zwicky, Heads, *Journal of Linguistics* 21, 1985, 1–30: the notion of head is heterogeneous – when linguists talk about heads, they may have in mind quite different things. This make the notion of head virtually unfit for use.

Meanings of 'head' according to Zwicky

- Semantic argument: the phrase denotes a subtype of what the head denotes:

  tall house: tall houses are a subtype of houses etc.

- We could also speak of 'semantic representative', but Zwicky uses a term from categorial grammar (semantic argument : semantic functor)

Subcategorisand

- The head is subcategorised for the dependent:

  reads books (verbs are subcategorised for the type of objects they may take)

  tall houses (adjectives are lexically subcategorised as to the type of nouns they may combine with)

Morphosyntactic locus

- The head is the unit on which morphosyntactic features applying to the phrase are marked:

  tall houses (number is marked on the noun)
  walked to the pub (tense is marked on the verb)

Governor

- The head determines the morphosyntactic features of the dependent:

  nori ledų 'wants an ice-cream" (*norėti* requires a genitive on the noun)

  į Salas 'to Salos' (į requires an accusative on the noun)

Distributional equivalent

- The head has the same distribution as the phrase as a whole:
  - *big houses* in *builds big houses* has the same dstribution as *houses*

Obligatory constituent

- The head cannot be as easilt dropped as the dependent:

    (builds) big houses: the adjective can be omitted (*builds houses* but **builds big*)

    John cooked meals: if the object is omitted the sentences is often elliptical; if the verb is omitted, no sentence is left

Ruler

- The head is the ruler (*governor, regent...*) of dependency grammar: this notion is said to correspond to that of obligatory constituent and distributional equivalent in endocentric constructions and to that of governor in exocentric constructions)
  - *big houses* (obligatory constituent and distributional equivalent
  - *į Vilnių* 'to Vilnius' (governer in an exocentric construction)

Syntactic determinant

- If Z consists of X and Y, and Y occurs (almost) only in Z whereas X freely occurs elsewhere, then X is the head:

  the house (determiners occur only with nouns, whereas nouns are not dependent on determiners for their occurrence)

Hudson: semantic functors!

- Richard Hudson (Zwicky on Head, *Journal of Linguistics* 23, 109-132): Zwicky's criteria either coincide with that of semantic functor, or they are irrelevant.
- 'X is a subtype of Y' actually points to the semantic functor:
  - *in London: London* is the semantic argument, but the phrase denotes a subtype of 'being in', not a subtype of 'London''.

A coherent notion of head?

Headedness criteria for *in London:*

   in is the semantic functor

   in is the semantic representative

   in is the governor (*in urbe*)

   in is the distributional equivalent and the

      obligatory constituent (*they are in/out...*)

Semantic functors as heads?

The semantic functor criterion works for verbs and prepositions, but less well for adjectives:

tall houses – adjectival phrase headed by

tall?

Here the semantic functor does not coincide with the distributional equivalent and the obligatory constituent.

Heads, bases and functors

Zwicky 1993 (Heads, Bases and Functors, in: Corbett, Fraser & McGlashan, eds., Heads in Grammatical Theory, 1993, 292–315) adopts Hudson's semantic functor criterion but in order to account for distributional equivalence he introduces a further notion: that of **base**.

Bases and functors

The base is the constituent responsible for external representation:

– in *reads books* the verb is the semantic functor, and it accounts for external representation (*reads books* is a 'verb phrase')

– in *tall houses* the adjective is the semantic functor but the noun accounts for external representation (*tall houses* is a 'noun phrase')

What's left of heads?

- A few properties from Zwicky's list are not necessarily associated with the status of semantic functor or base:

  - morphosyntactic locus
  - morphosyntactic governor

What's left of heads?

E.g.   *dideli namai* 'big houses'
           F   B

    dešimt namų 'ten houses(GEN)'
           F   B

The numeral *dešimt* 'governs' the noun (cf. *desjat' domov, dziesięć domów*), and in

   dešimt namų stovi 'ten houses stand'

the numeral seems to be the morphosyntactic locus, if we interpret it as NOM. The numeral thus has head properties which the adjective dideli does not seem to have.

Subsidiary words and syntactic relations

However, the 'governing' properties of *dešimt* still seem to be connected with its status as a semantic functor: a numeral, as a quantifier is a complement-taking word and may also govern its complement morphosyntactically.

Dešimt is not a head distributionally because its is a subsidiary word – just like articles, auxiliary verbs etc.

Grammaticalisation

Auxiliaries illustrate the case of complement-taking words (heads) becoming subsidiary words (and therefore, in a way, non-heads):

sie lernt Klavier spielen

(*lernen* is a main verb taking a propositional complement expressed by the infinitive)

sie wird Klavier spielen

(*werden* is a tense auxiliary)

Grammaticalisation

- Grammaticalisation involves a process of semantic bleaching which causes 'base' properties to shift from the head to its complement:

will   *come* ——————————→ *will*   *come*

  F, B   F   B

Complements, modifiers and...

- Zwicky 1993 introduces the notion of specifier (a notion borrowed from Generative Grammar) to refer to consituents which

  - are complement-taking heads internally
  - are not heads for purposes of external representation

  This notion could be applied to

  - auxiliary verbs
  - quantifiers
  - determiners

Difficult instances of headedness

- Prepositions and nouns
- Subordinators and subordinate clauses
- Quantifiers and nouns
- Determiners and nouns
- Auxiliaries and main verbs

Prepositions I

- Prepositional or, more generally, adpositional phrases (the first to be introduced after the 'major categories') are well established in English grammar;

- prepositions as heads are now standard in Dependency Grammar as well, though Tesnière did not originally recognise them as autonomous syntactic units; he characterised them as 'translatives' transferring nouns to another category, e. g. that of (adjectival) modifiers: *le livre de Pierre = liber Petri.*

Preposition and case

- What is disturbing about prepositions is that they perform functions similar to those of case endings.

- In historically oriented works 'nouns with prepositions' are dealt with in the same way as 'nouns with case endings'.

- The only attempt to account for the functional similarity between case endings and prepositions was that of Kuryowicz, who described prepositions as constituting discontinuous morphemes together with case endings:

  in *urb-* *e*

Preposition and case

- Kuryłowicz's proposal has never been popular: in the practice of syntactic description, case endings can easily be ignored because the information they carry is, to a large extent, redundant. Case endings mat express predications but these are usually expressed elsewhere:
  - *in urbe* (locative meaning expressed by adposition)
  - *gladio uti* (instrumental meaning expressed by verb)
- In Generative Grammar as well, case endings are never syntactic terminal nodes.

Subordinators

- The relation between subordinators and subordinate clauses is similar to that between prepositions and nouns; subordinators were also 'translatives' in Tesnière's terminology.

- In the generative literature, complementisers (i. e. subordinators introducing complement clauses) have been extensively discussed. A complementiser projection CP is now recognised in every clause.

Determiners

- Unlike adpositions, determiners as heads do not enjoy universal approval. They can be considered heads for a number of reasons:
  - Every functional category is assumed to have its phrasal projection
  - In D + NP, D is a word level and NP a phrase level category;
  - They can be recognised as obligatory constituents if we regard pronouns as a subtype of determiners; French *je vois le garçon* : *je le vois*; if this is granted, then both *the Lithuanians* and *we Lithuanians* are DPs.

Determiners

- But externally, *the boys* behaves like a noun phrase, just as *boys*; in this respect, determiners differ from prepositions (a PP does not behave as an NP)

- As a solution to this problem, the notions of *immediate head* and *ultimate head* have been proposed (Radford, Huddleston & Pullum); the determiner is a head selecting an NP as its complement, but the phrase, once formed, functions as if it were headed by N, so that N is the ultimate head. This solution could also be extended to adjectives.

- Alternatively, cf. Zwicky's notion of 'specifier'.

Typology

- Typological data sometimes lend empirical support to speculations concerning headedness: some languages prefer the order 'head – dependent', other languages have the order 'dependent – head'.
  - Hebrew: verb – object, noun – adjective, preposition – noun
  - Hungarian: object – verb, adjective – noun, noun – postposition.
- This works nicely for adpositions but not for determiners.