

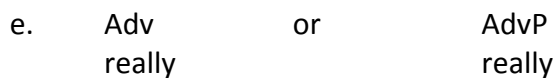
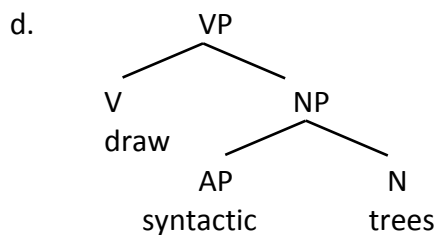
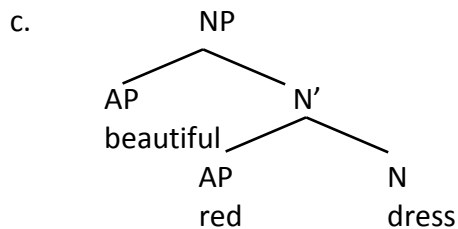
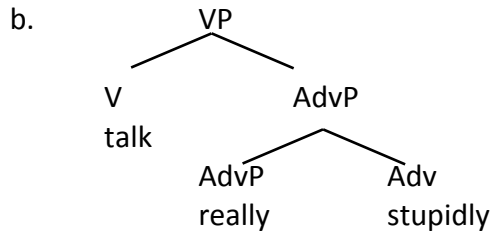
2 Merge

2.1 The insight: syntax creates hierarchies

- A1
- Happy* is the head, as *happy* can appear in all environments in which *very happy with this news* can appear: *John is (very) happy (with this news)*.
 - The same is true for *women*. Additionally, *most intelligent women on the planet* can be replaced by *they*, showing us that something nominal must be the head. This could be *women* or *planet*. Note, however, that when we make this constituent the subject of the sentence, *women* determines the agreement on the verb, not *planet*: *Most intelligent women on the planet know/*knows this*.
 - The whole string can be replaced by *does*: *Tom probably likes such nonsense. Yes, Tom does*. Since *does* is verbal, *probably likes such nonsense* must be verbal too. Therefore, *likes* is the head, since it is the only verbal element in there. In addition, you can replace *probably likes such nonsense* by *sleeps*, underscoring the same analysis.
 - Ridiculously* is the head, as you can leave out *rather* more easily than *ridiculously* in the following example: *John talks ridiculously*, versus **John talks rather*.
 - Men* is the head, as you can leave out *that don't know how to shave*. In addition, the whole constituent can be replaced by *they*, showing you it has to share a categorial feature with the pronoun.
 - Is* is the head since the rest can be left out. Remember: *Fatima* should be ignored. As in c, the whole string can be replaced by *sleeps*.
 - In* is the head. This is a tricky one because it is not the case that everything but *in* can be left out. *Right* can be left out, but not *the middle*: *John sat (right) in *(the middle)*. This is generally the case with prepositions: they need something nominal following it. The 'leaving stuff out test' therefore does not work flawlessly. Finally, note that the constituent cannot be nominal, as it cannot be combined with a determiner: **the right in the middle*.
- B2
- You can leave out either adverb and check if the result is still grammatical. This worked for *rather ridiculously* in the previous exercise: *John talks ridiculously/*John talks rather*. It also works for *really stupidly*: *John talks stupidly/?*really*. This does not always work. Take the sentence *Aaron is quite seriously attached to his cat*. Here you can leave out either *quite* or *seriously*. You have to go by meaning. If Aaron is quite seriously attached to his cat, the attachment is serious, not quite. *Quite* modifies *seriously*, denoting the degree of seriousness, and not vice versa. This makes *seriously* the head of *quite seriously*.

2.2 The implementation: the operation Merge

- A3
- ```
graph TD
 AdvP1[AdvP] --- AdvP2[AdvP]
 AdvP1 --- Adv[Adv]
 AdvP2 --- really[really]
 AdvP2 --- stupidly[stupidly]
```



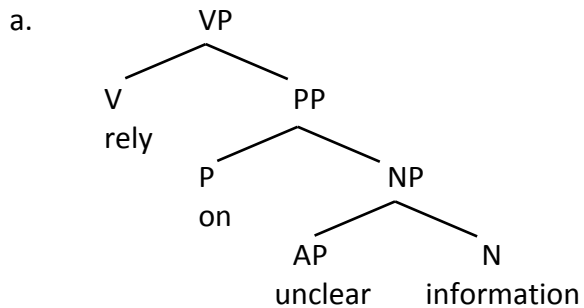
In isolation, there is no tree, just a word with a categorial feature. It is also possible to think of *really* as a syntactic structure, ready to be included in a bigger structure. In that case, it is an AdvP.

### 2.3 Consequences: testing the predictions of Merge

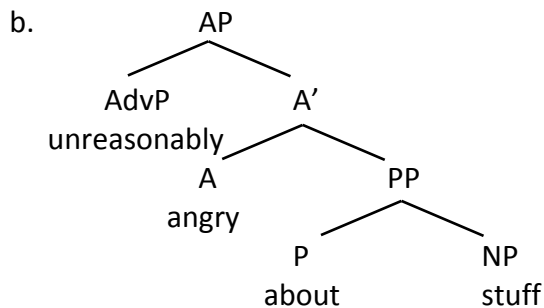
- A4
- No. If you substitute the string by *them* (*Esther bought them*), the way of paying is no longer part of the meaning. In addition, the string cannot be fronted: *\*Three bottles with her credit card, Esther bought*.
  - No, the string cannot be fronted: *\*Endlessly about his uncle, Peter talked* (whereas both *Endlessly, Peter talked about his uncle* and *About his uncle, Peter talked endlessly* are fine).
  - Yes: *About his uncle Peter talked endlessly*.
  - Yes: *His uncle, Peter talked endlessly about*. It can also be substituted by *him*: *About him*.
  - No: *\*Me a new computer, Santa Clause sent*.
  - Yes: you can substitute it for *it* or *that*. *It/That was E.T.*
  - Yes, it can be substituted by *did*: *Tommy read this book last month and I did last week*.

- h. No, as fronting fails: *\*This book last week, I read* (whereas both *This book, I read last week* and *Last week, I read this book* are fine).

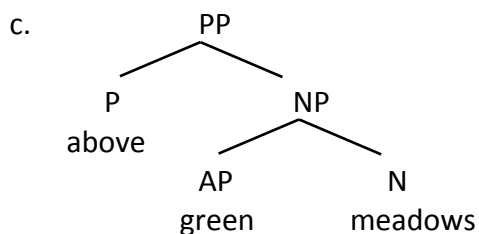
B5

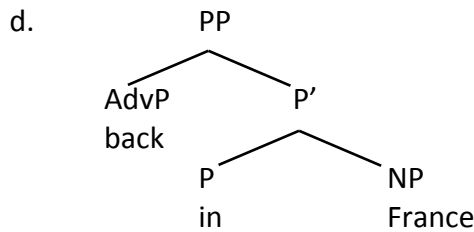


Note that *on unclear information* forms a constituent, as it can be fronted: *On unclear information one should never rely*. The fact that you can also front *unclear information* (*Unclear information, one should never rely on*) only shows that *unclear information* is a constituent (as is the case in the tree above), but crucially does not show that *rely on* is a constituent. Therefore, a tree in which *rely on* forms a constituent to the exclusion of *unclear information* is ill-motivated.

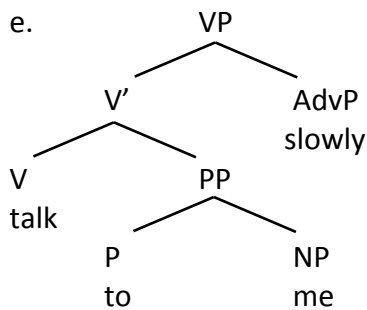


*Angry about stuff* forms a constituent to the exclusion of *unreasonably* because you can substitute it with *so*: *John is moderately angry about stuff, but Mary is unreasonably so*. The same test does not really produce a good outcome when we try to substitute for *unreasonably angry*: *\*John is unreasonably angry about politicians, and Mary is so about stuff* (where *so* refers back to *unreasonably angry*). This motivates a structure in which AdvP sits higher than PP, and not the other way round.

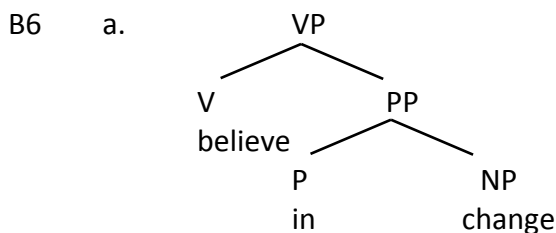




*In France* is a constituent to the exclusion of *back*, because you can substitute *in France* with *there*: *This happened back in France/This happened back there*. Substitution by *there* only works with locational PPs (just like substitution by *then* only works for temporal PPs). We generally conclude from these facts that the structure of PPs like *almost in doubt* and *clearly under suspicion* is similar, despite the fact that for these cases substitution by *there* and *then* is useless for semantic reasons: *in doubt* and *under suspicion* are not locational or temporal PPs.



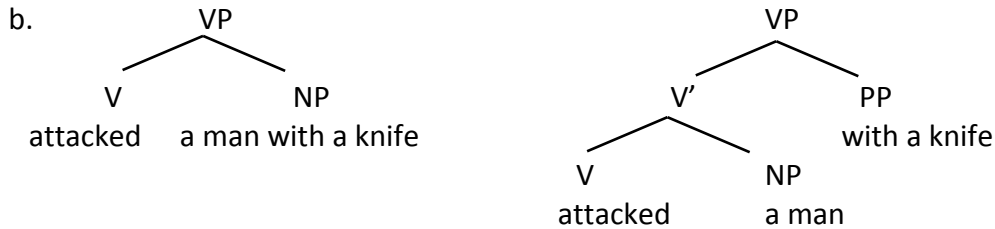
*To me slowly* cannot be fronted (*\*To me slowly, he talked*) so that cannot be a constituent. *Talk to me* is a constituent, which can be motivated by *do*-substitution: *At that time, John hardly talked to me slowly but Harry did constantly*. Also fronting works: *Talk to me, he did slowly*.



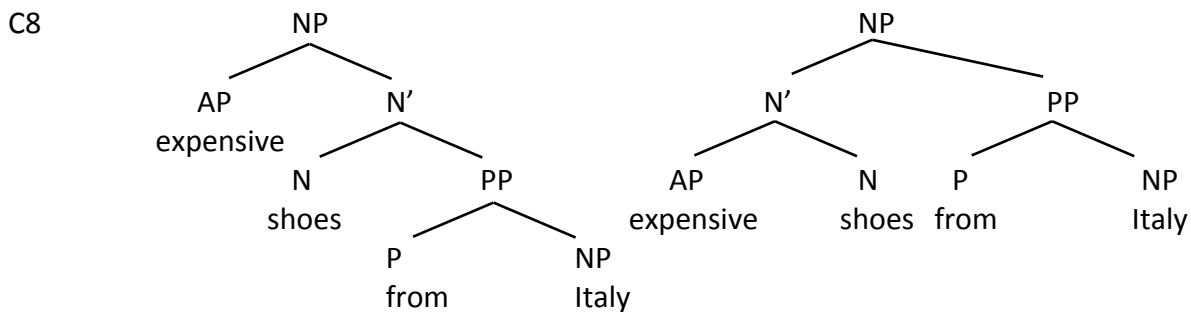
- b. VP (*believe in change*), PP (*in change*), V (*believe*), P (*in*) and NP (*change*).
- c. It looks like there is one constituent less, namely the PP *in change*. At the same time, the sentence means the same and the NP *change* is merged with the preposition *in*; it is just fronted. So, despite appearances, the PP *in change* is still a constituent of this sentence.
- d. It is a constituent of which the parts are not linearly next to each other. *In change* is a continuous constituent in (i) but a discontinuous constituent in (ii) as it is broken up by *you*.

- e. Yes, the VP *believe in change* is a constituent and its parts are not next to each other, because *in change* has been fronted.

- B7 a. Either the man that is attacked is carrying a knife, or the knife is the instrument with which our neighbour attacks a man.



- c. If you front *a man with a knife*, then you lose the interpretation in which the knife is the weapon of the neighbour, as for that meaning (corresponding to the second tree), *a man with a knife* is not a constituent, and fronted elements must always be constituents.



*One-substitution* tells us that *shoes from Italy* is a constituent (*Tommy loves cheap shoes from Italy, and Andrew loves expensive ones* (where *ones* can refer back to *shoes from Italy*). This is an argument for the existence of the tree on the left because *shoes from Italy* needs to be a constituent for substitution with *ones* to work, and *shoes from Italy* is not a constituent in the tree on the right. The same test reveals that a tree in which the PP is hierarchically higher than the AP should also exist: *My wife likes expensive shoes from Spain, but I like ones from Italy*. This is an argument for the existence of the tree on the right. So this example is compatible with two different trees.

### 3 Theta theory

#### 3.1 The insight: Merge and the meaning of verbs and nouns

- A1
- a. *To fall* has one argument (*John fell*).
  - b. *To give* has three (*Ali gave Mary the book*).
  - c. *To call* has two (*I called her*).
  - d. *To eat* has two (*she ate a sandwich*).
  - e. *To cry* has one (*Bill cried*).
  - f. *To send* has three (*I sent Peter the bill*).
  - g. *To marry* has two (*Peter married Charles*, but also: *the priest married Bill and Suzanne*).
  - h. *To promise* has three (*I promised her a better life*).
- A2
- a. Intransitive.
  - b. Ditransitive.
  - c. Transitive.
  - d. Transitive.
  - e. Intransitive.
  - f. Ditransitive.
  - g. Transitive.
  - h. Ditransitive.

(Note: every verb with one argument is intransitive; every verb with two arguments is transitive; and every verb with three arguments is ditransitive).

- B3
- Every intransitive verb (a, e) does. Some transitive verbs (c, d) may easily drop one argument (*I call*, *I eat*), for others (g) it is harder (*I marry* sounds weird). Ditransitive verbs (b, f, h) can generally also drop one argument (*I gave a book*, *I sent a message*, *I promised a better life*). Realise, though, that when a verb does not take one of its arguments (or two: “But you promised!”) we still mentally reconstruct the missing arguments, and verbs with missing arguments usually occur in contexts in which the missing arguments can be reconstructed. You cannot start a conversation with “You promised” or “You promised me”. There are some verbs, however, that can leave an argument unrealised and they can occur at the start of a conversation. *Eat* is an example, discussed in 3.2.2.

#### 3.2 The implementation: Theta theory

- A4
- Arguments: a, b, c, e, g, h. Adverbials: d, f, i. All the adverbials can easily be removed (*John read*, *Mary sleeps*, *Peter ate*). The other arguments can only be removed if the verb allows argument drop in the first place. For a, b, c, g this is possible, for e not (*\*I want to know* is weird to say out of the blue). Hence we need to establish independently that a, b, c and g involve arguments. But the verb meanings come to help here: a meal is what is cooked (a);