October 7, 2022

1   Noun phrases

Noun phrases can be subjects.

(1)   They frightened me.

(2)   The monsters frightened me.

(3)   The scary monsters frightened me.

(4)   The big scary monsters frightened me.

(5)   Pat's ferret frightened me.

(6)   The big scary monster's ferret frightened me.

(7)   Pat's yodeling frightened me.

Note/alert/comment: There are a few things that are not noun phrases that can be subjects. We're generally going to ignore them here.

(8)   That Pat yodeled joyfully frightened me.

(9)   In the corner lurked a scary ferret.

Noun phrases can be basically as complicated as sentences can be. Simply because you can generally turn a sentence into a noun phrase.

(10)   Pat quickly claimed that Chris yodels regularly.

(11)   Pat's quick claim that Chris yodels regularly frightened me.

So, let's look at the internal structure of noun phrases.

There are some parallels between noun phrases and verb phrases.

The "content" part: noun, verb. Arguments of the verb are generally also arguments of the noun. Adverbs modfify verbs, adjectives modify nouns. Maybe the determiner's a little bit like tense?

2   Constituency inside noun phrases

2.1   Coordination

(12)   The students of linguistics from Kazakhstan

(13)   The students of physics and linguistics from Kazakhstan

(14)   The professors of physics and students of linguistics from Kazakhstan

2.2   Replacement

(15)   This student of linguistics with the long hair in the hall

(16)   That one with the long hair in the hall

(17)   That one in the hall

(18)   That one

(19)   * That one of physics

(20)   This happy student of linguistics

(21)   That drunk one

(22)   * That drunk one of physics

What is *one* able to replace, according to what we've seen here?

3   Complements and adjuncts

	Complements	Adjuncts
	May be obligatory	Are always optional
	Cannot be iterated	Can be iterated
	Display lexical sensitivity	Are not lexically sensitive
	Are sisters to the head	Same label for mother and sister nodes

3.1   Iterability

(23)   The monster

(24)   The scary monster

(25)   The big scary monster

(26)   The big green scary monster

(27)   The monster with a party hat

(28)   The monster with a party hat by the door

(29)   The monster by the door with a party hat

(30)   The student of linguistics with a party hat

(31)   * The student of linguistics of physics with a party hat

3.2   Lexical sensitivity

(32)   Pat gave a book to Chris

(33)   * Pat gave a book near Chris

(34)   * Pat gave a book at Chris

(35)   * Pat gave a book for Chris

(36)   The student of linguistics

(37)   * The student near linguistics

(38)   * The student at linguistics

(39)   ?* The student in linguistics

(40)   The sake {of / *on / *at / *for} politeness

(41)   Homer's loss {of / *on / *at / *for} the uranium

Heuristic: PPs headed by *of* inside noun phrases are almost always complements. (Exceptions: *of X's*, *picture of Chris*)

(42)   Speaking of students of ours, that one of Pat's isn't doing so well.

(43)   Speaking of photos, I like this one of you from 1992.

Some other examples of lexical selection of complements.

(44)   Pat's interest {in / *of / *with / *near} linguistics

(45)   The question {whether / *that} Pat is an idiot

(46)   The claim {*whether / that} Pat is an idiot

3.3   Word order

Complements are closer to the head than adjuncts. Also, adjuncts can often be permuted. (This is less true of adjectives and adverbs than PPs.)

(47)   That student of lingusitics from Kazakhstan with the long hair.

(48)   That student of lingusitics with the long hair from Kazakhstan.

(49)   * That student from Kazakhstan of lingusitics with the long hair.

(50)   * That student with the long hair of lingusitics from Kazakhstan.

3.4   Optionality

This I saved for last because it's a bit tricky / unreliable. It wasn't great with verb phrases anyway, but it's extra not great for noun phrases.

(51)   Pat discussed *(the problem). [. . . It took a lot of time.]

(52)   Pat's discussion (of the problem) [. . . took a lot of time.]

(53)   Pat claimed *(that he could fly). [. . . It was far-fetched.]

(54)   Pat's claim (that he could fly) [. . . was far-fetched.]

3.5   So

So, what do we have?

1. Sister of head noun is a phrase to which (iterated) adjunct can be attached.

2. There is a different constituent containing the head noun and complement.

Tree 1:

```
                    noun phrase
              ┌──────────┴──────────┐
             Det                    XX
              │            ┌─────────┴─────────┐
             the          XX                   PP
                     ┌─────┴─────┐             │
                     N          PP             P′
                     │           │       ┌─────┴─────┐
                  student        P′       P      noun phrase
                            ┌────┴────┐   │    ┌──────┴──────┐
                            P    noun phrase with Det         XX
                            │        │              │    ┌────┴────┐
                            of   linguistics       the  AdjP      XX
                                                         │         │
                                                        Adj′       N
                                                         │         │
                                                        Adj       hair
                                                         │
                                                        long
```
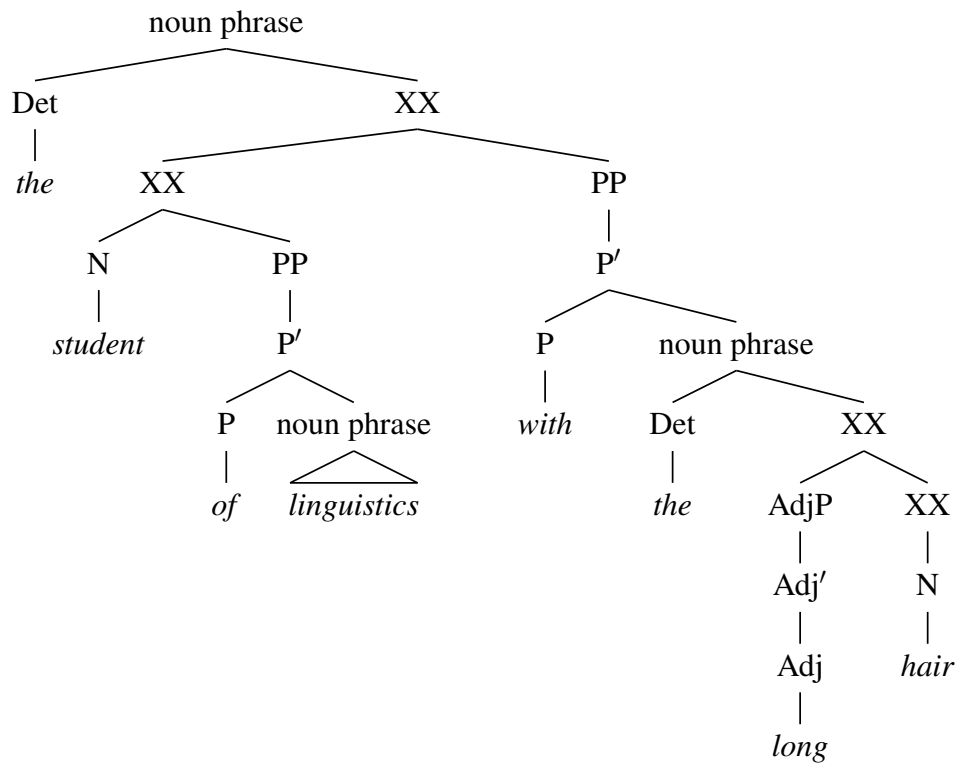
What should XX be?

Earlier, I'd have just said "N" to make the rules work, but that doesn't feel right. Surely there's some distinction between the head noun and the phrase containing the noun and adjuncts.

Tree 2:

```
                    TP
          ┌──────────┴──────────┐
     noun phrase               T′
          │              ┌──────┴──────┐
        Chris            T             VP
                         │        ┌─────┴─────┐
                        will      VP          PP
                              ┌────┴────┐      │
                            AdvP       VP      P′
                              │         │   ┌──┴──┐
                            Adv′       V′   P   noun phrase
                              │     ┌───┴───┐ │      │
                            Adv     V   noun phrase with  care
                              │     │      │
                          quietly cook  lunch
```
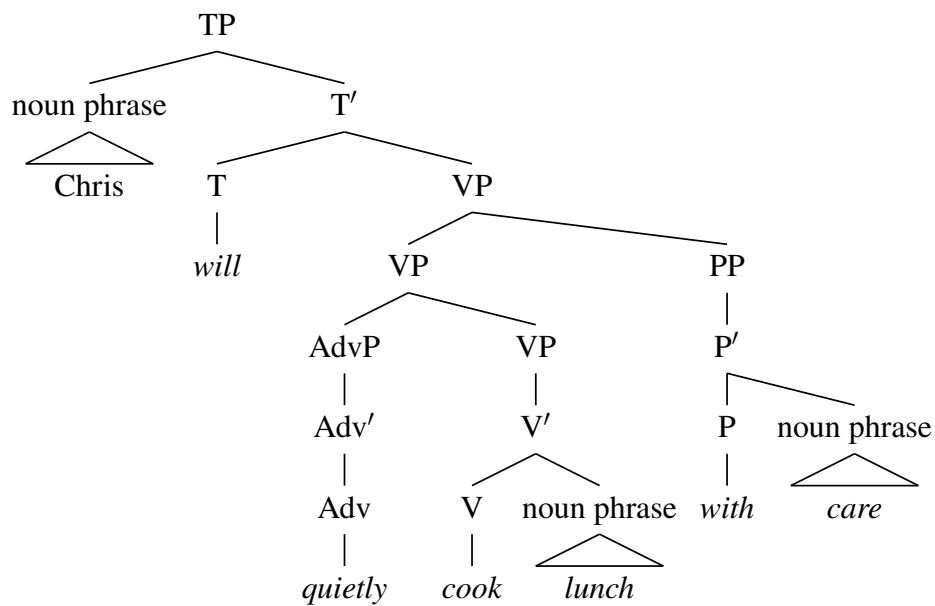
Check it out:

(55)　　　the chocolate

(56)　　　the fattening chocolate

(57)　　　the fattening tasty chocolate

(58)　* the that chocolate

(59)　* this the chocolate

(60)　　　Pat will leave.

(61)　* Pat should will leave.

(62)　* Pat will should leave.

We can't have two Ts. We can't have two Dets. XX and "noun phrase" need to be different kinds of things, since we can't attach adjectives outside.

(63)　　　the fattening chocolate

(64)　* fattening the chocolate

Also, in a PP, you can only have one P.

(65)　　　Over the hills

(66)　* Over through the hills

(67)　* Through over the hills

Ok.
So.
The most parallel thing we can do here is to say that XX is N' (inside NP). But then what is "noun phrase" such that we have exactly one Det and an NP in it?
Of course, it is:
DP.

A syntactic tree diagram:

```
                              DP
                              |
                              D′
                  _____/ _____
                 D                          NP
                 |              _____/ _____
               the            NP                         PP
                              |                           |
                              N′                          P′
                      _____/ _____            _____/ \_____
                     N                 PP         P             DP
                     |                 |          |             |
                  student             P′        with           D′
                             _____/ _____          ____/ \____
                            P                  DP        Det         NP
                            |                  |          |      ____/ \____
                           of                 D′        the   AdjP       NP
                                        _____/ \_____            |         |
                                       D             NP        Adj′       N′
                                       |             |          |          |
                                    Ømass           N′        Adj         N
                                                    |          |          |
                                                    N        long       hair
                                                    |
                                               linguistics
```
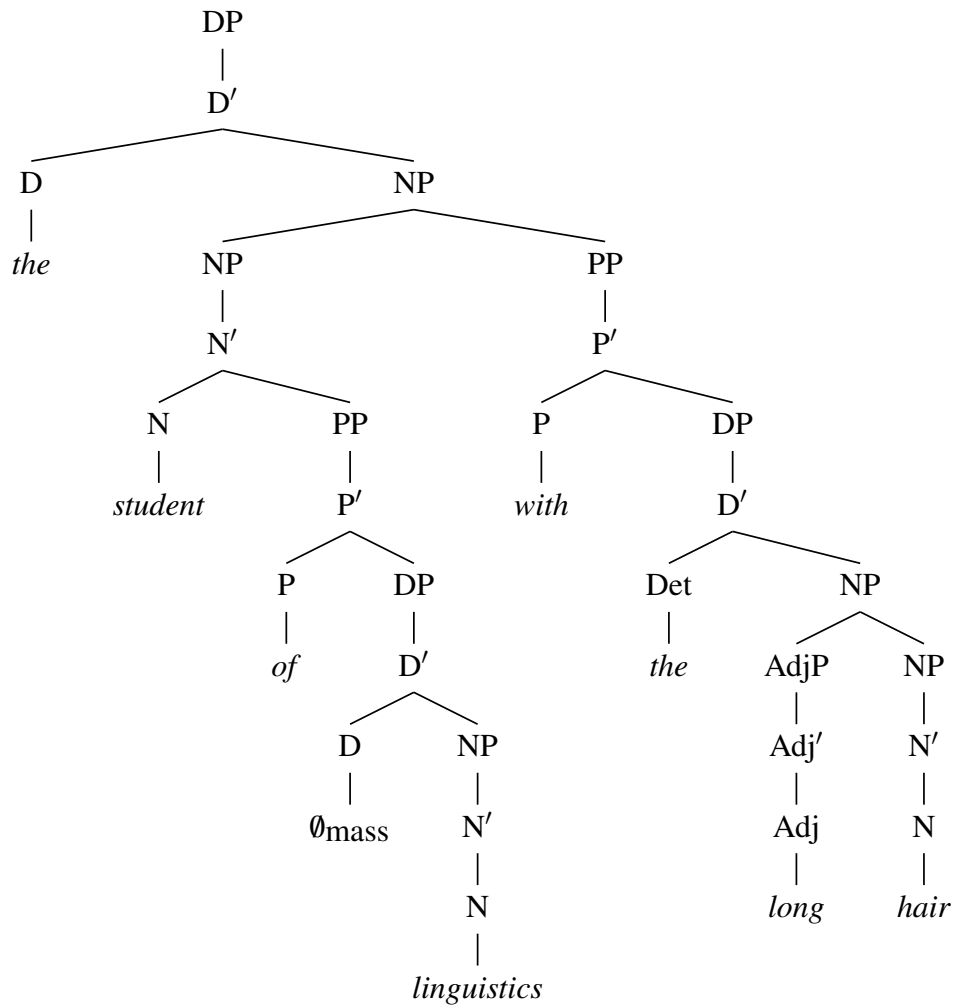
What can *one* replace?

4   Possessors

(68)   Pat's book

(69)   the happy student of linguistics in the hall's book

(70)   Pat's roommate's book

(71)   * Pat's the book

(72)   * Pat's this book

(73)   * the Pat's book

(74)   * this Pat's book

1. Genitive marking (used for possessor) is incompatible with D.

2. Entire DPs can be possessors.

Before we quite get to possessors, consider this:

(75)   Pat should violently destroy the TV

(76)   Pat's violent destruction of the TV

(77)   Pat should quietly study linguistics

(78)   Pat's quiet study of linguistics

Noun phrases can be used to describe the same events that sentences can. The structure of sentences and noun phrases are really very parallel. So, what should we put the "subject" of the DP? Why not in basically the same place as in TP? *Should* comes between the subject and VP. And it is T. And you can only have one. What comes between the subject and NP? *'s* does. You can't also have a D like *the*. So:

Suppose *'s* is a D as well. This works quite well.

```
                          DP
              _____/  _____
            DP                          D′
            |                    _____/  _____
            D′                  D                 NP
        ___/ \___               |          _____/  _____
       D         NP             's        AdjP             NP
       |         |              |          |                |
     ∅prop       N′            Adj′        N′
                 |              |           |
                 N             Adj          N        PP
                 |              |           |         |
                Pat          violent   destruction   P′
                                                  ___/ \___
                                                 P         DP
                                                 |         |
                                                of         D′
                                                       ___/ \___
                                                      D         NP
                                                      |         |
                                                     the        N′
                                                               |
                                                               N
                                                               |
                                                               TV
```

7

```
                          DP
                 _____/  _____
                DP                   D′
                |              _____/ _____
                D′            D              NP
           ____/ \____        |        _____/ \_____
          D          NP       's     AdjP           NP
          |          |               |              |
        ∅prop        N′             Adj′            N′
                     |               |         ____/ \____
                     N              Adj        N          PP
                     |               |         |          |
                   John           fervent  admiration     P′
                                                      ____/ \____
                                                     P          DP
                                                     |          |
                                                     of         D′
                                                                |
                                                                D
                                                                |
                                                             himself
```
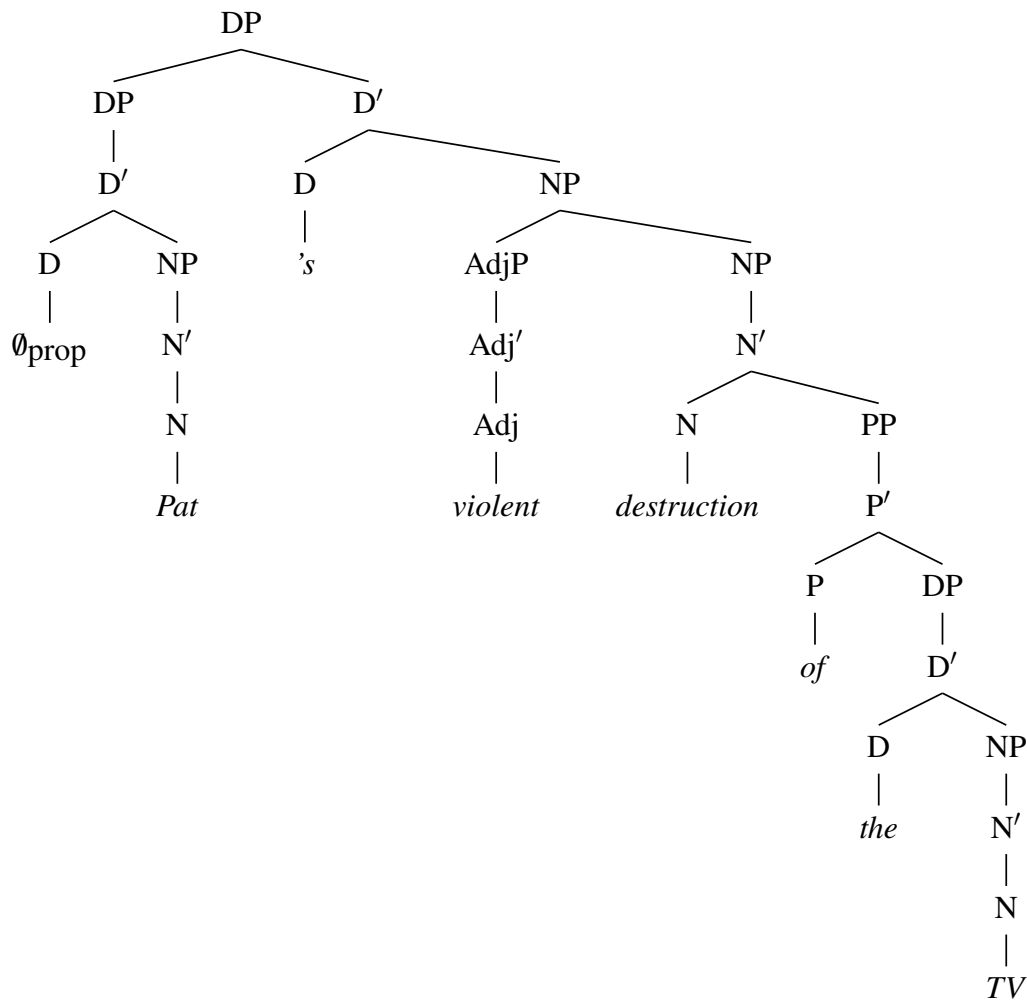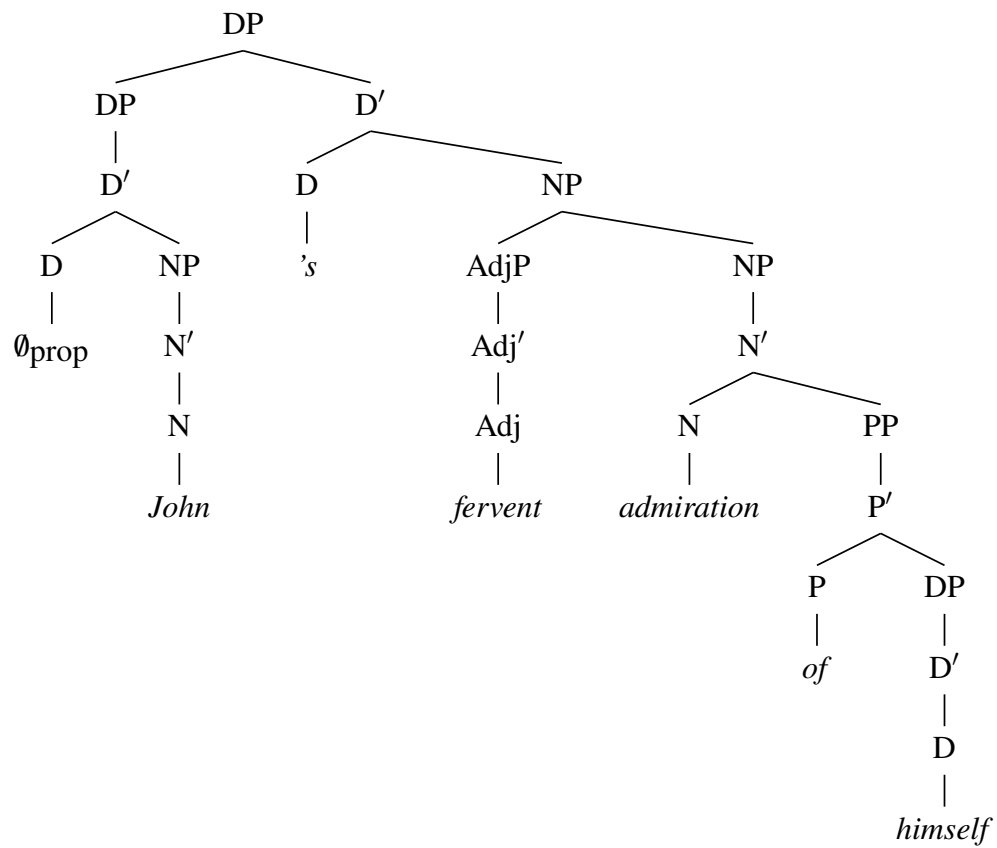
Now that we have this set up, putting possessors in the same place is trivial enough.

```
                              DP
                   ┌───────────┴───────────┐
                  DP                        D′
                   │              ┌──────────┴──────────┐
                  D′              D                     NP
             ┌─────┴─────┐        │          ┌───────────┴───────────┐
             D           NP       's        AdjP                      NP
             │           │         │         │                        │
            ∅prop        N′                 Adj′                       N′
                         │                   │              ┌──────────┴──────────┐
                         N                  Adj             N                      PP
                         │                   │              │                      │
                        Pat                thick           book                    P′
                                                                        ┌──────────┴──────────┐
                                                                        P                      DP
                                                                        │                      │
                                                                       of                      D′
                                                                                    ┌──────────┴──────────┐
                                                                                    D                      NP
                                                                                    │                      │
                                                                                  ∅mass                    N
                                                                                                           │
                                                                                                         poetry
```

9

CP
                                    |
                                    C′
                          ┌─────────┴─────────┐
                          C   TP
                          | ┌─────────┴─────────┐
                        ∅_decl   DP   T′
                          ┌──────────┴──────┐   ┌────┴────┐
                         DP   D′   T   VP
                    ┌─────┴─────┐   ┌────┴────┐ | |
                   DP   D′   D   NP PAST   V′
                   | ┌───┴───┐ | ┌────┴────┐   ┌───┴───┐
                   D′   D   NP 's   AdjP   NP   V   DP
              ┌────┴────┐ | | | | | |
              D   NP   's   N′   Adj′   N′ frighten D′
              | | | | | |
            ∅_prop   N′   N   Adj   ┌───┴───┐   D
                       | | | N   PP |
                       N   roommate   thick | | me
                       | book   P′
                      Pat   ┌────┴────┐
                                                       P   DP
                                                       | |
                                                       of   D′
                                                            ┌────┴────┐
                                                            D   NP
                                                            | |
                                                         ∅_mass   N′
                                                                      |
                                                                      N
                                                                      |
                                                                    poetry
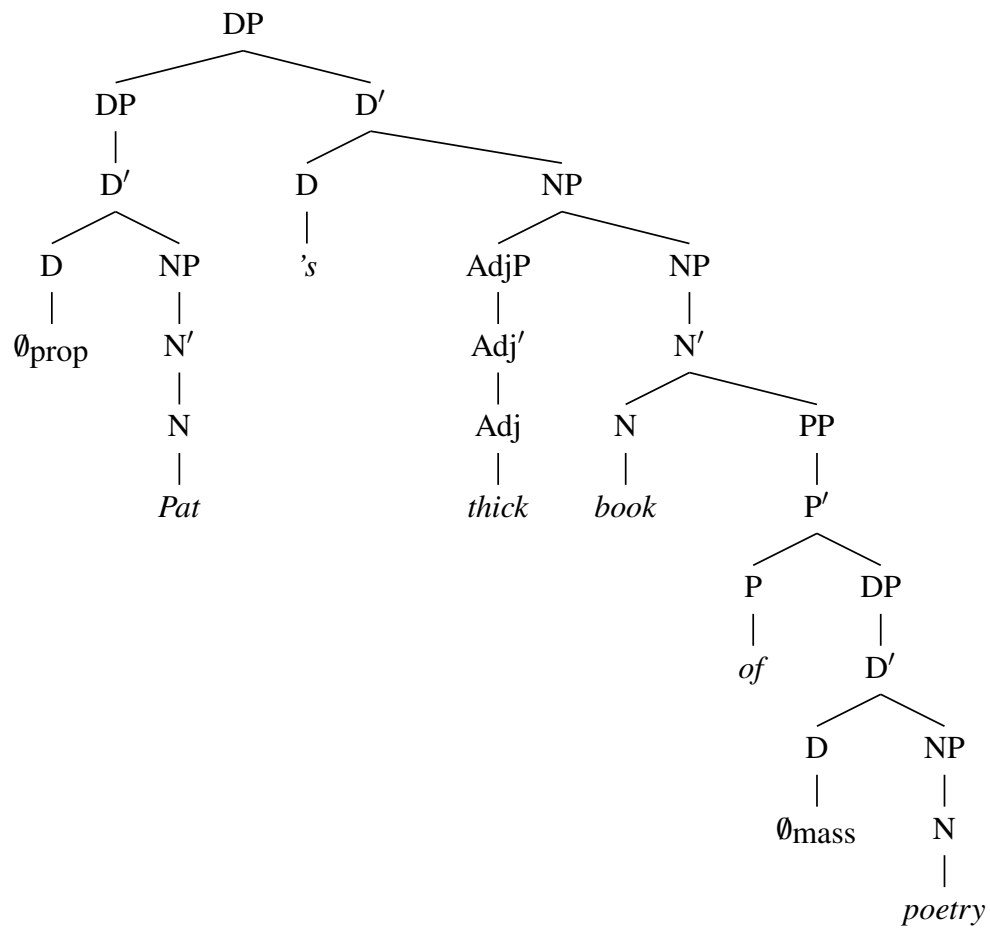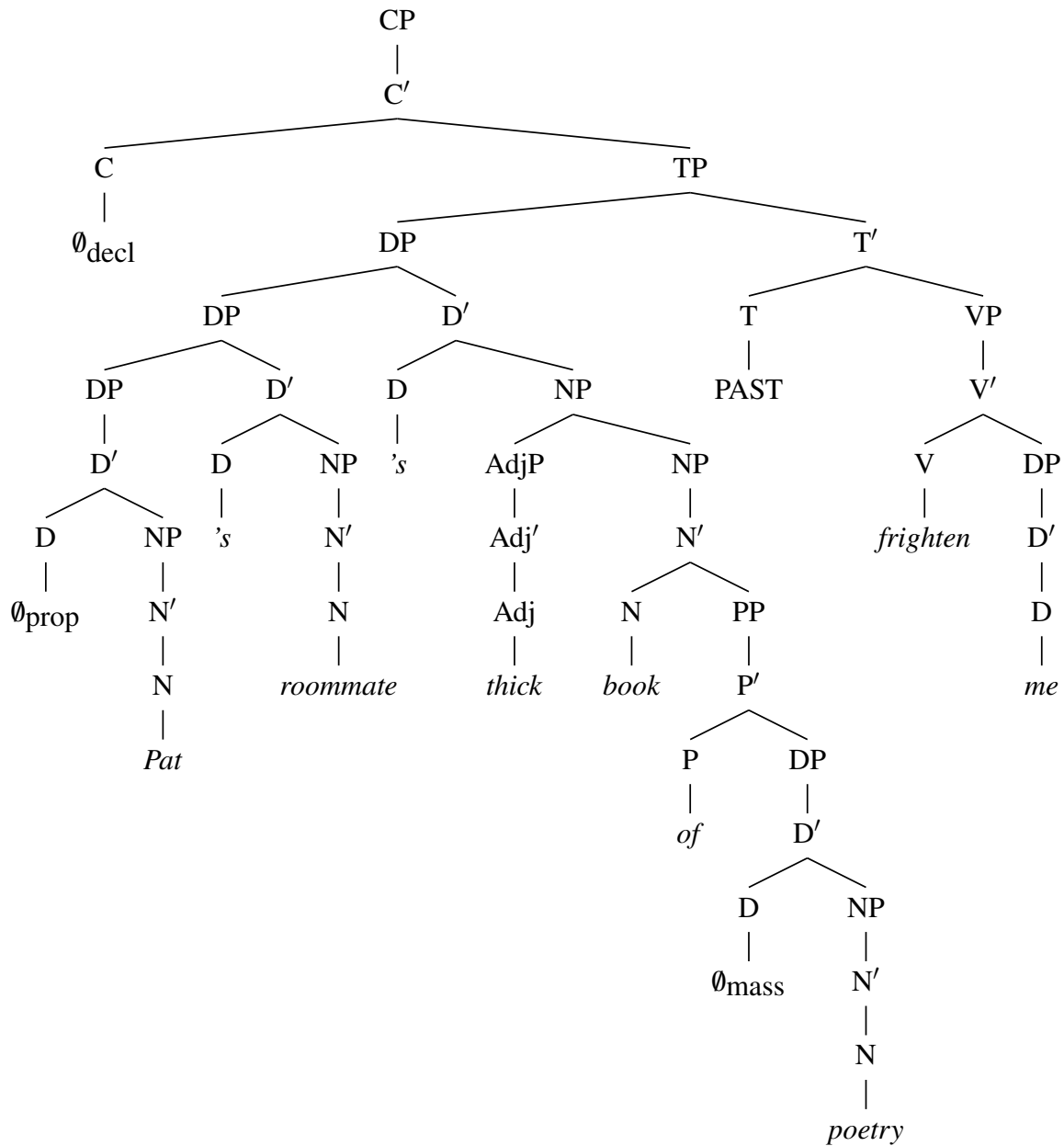
We're now seeing even more of the reasoning behind "X-bar theory"—there is a maybe surprisingly tight correlation between the structures of noun phrases (NPs) and verb phrases (VPs), between sentences (TPs) and arguments (DPs), there seem to be adjunct/complement distinctions across categories.