Seminar 7
Syntactic change

Contents

A   Syntactic knowledge and parameters

§1   Of the following pair of sentences, a speaker of (Modern) English will find the first one acceptable and the second one unacceptable:

(1)   Does a cat like cakes?

(2)   *Likes a cat cakes?

How is this knowledge represented in the brain/mind of the speaker?

Naively, one might suggest that (1) is grammatical for the speaker because the speaker has heard it before and has stored it in his mind, while the speaker has never heard (2). This view must be false, for a couple of reasons:

- First, our speaker would make the following grammaticality judgements even though he or she had never heard the words *fundoplication* or *oesophagitis* and thus never heard the two sentences:

    (3)   Does a fundoplication cure oesophagitis?

    (4)   *Cures a fundoplication oesophagitis?

- Secondly, our speaker would make the following grammaticality judgements even though none of the lexical words in the following sentences are actually words of English:

    (5)   Does a triplistiphism woal wugs?

(6) *Woals a triplistiphism wugs?

Linguists say that language is **productive**: a theoretically infinite number of sentences can be produced by some kind of finite system.

§2 So, speakers cannot store sentences. Rather, syntactic knowledge is embodied in some other form, which then allows the construction or **generation** of sentences. There are a few competing theories about the nature of syntactic representation; I will here focus on the theory of Principles and Parameters (Chomsky and Lasnik, 1993), according to which syntactic knowledge consists of the setting of a finite number of **parameters** subject to universal principles.

§3 Syntactic parameters are…

- innate: they are specified by Universal Grammar and are available to every language learner
- usually thought to have two possible **values**: the parameter is "on" or "off" (parameters are **binary**)
- finite in number: there are only finitely many parameters (though no one knows exactly how many there are!)

Some examples:

- The null subject parameter: Can a subject pronoun be dropped?

  (7) Spanish: Habla italiano.

  (8) German: *Spricht Italienisch.

  Spanish has the "on" setting, German has the "off" setting.
- The wh-in-situ parameter: Do wh-words remain in place in question formation (or are they moved instead)?

  (9) Chinese: Zhangsan kangjian-le shei? 'John saw who?'

  (10) Finnish: Kenet John näki? 'Who John saw?'

  Chinese has the "on" setting, Finnish has the "off" setting.
- The head-directionality parameter: Is the head (e.g. V) to the left of the complement (e.g. DP)?

  (11) English: eat an apple

  (12) Japanese: ringoo tabe 'apple eat'

  English has the "on" setting, Japanese has the "off" setting.

B The relation between syntactic acquisition and syntactic change

§4 If speakers do not store sentences in their minds, then the **transmission** of syntactic knowledge also cannot consist of the transmission of sentences from one

generation to another. Recall the Z-model from our first seminar (Figure 1). There is no direct link from grammar G_t to grammar G_{t+1}. Rather, G_t generates language which is heard by the children who are in the process of acquiring G_{t+1} — this is referred to as the "Primary Linguistic Data", or PLD. Essentially, the children need to *guess* what the parameter settings of G_t are. Sometimes this is an easy task, and G_{t+1} ends up the same as G_t. Other times the task is harder, the children **mislearn**, and G_{t+1} ends up different from G_t.

Syntactic change can thus often be understood as **parameter resetting**: generation $t + 1$ adopts a different value for some parameter than generation t.
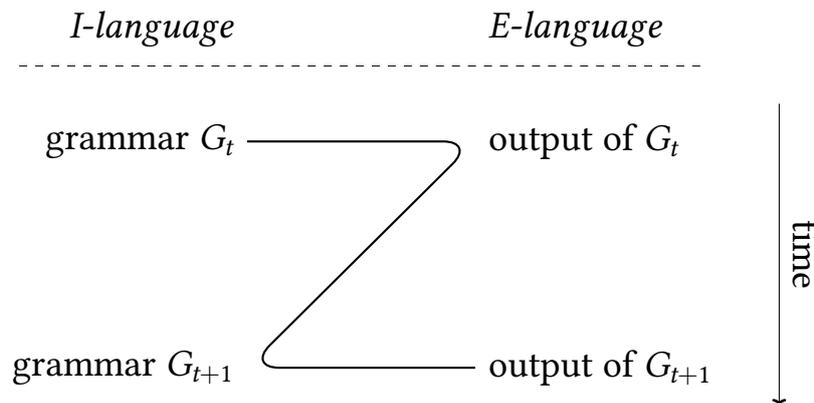
I-language *E-language*

grammar G_t ——⟩ output of G_t

grammar G_{t+1} ⟨—— output of G_{t+1}

time

Figure 1: The "Z-model" of language change.

Syntactic acquisition — and language acquisition more generally — is a so-called **inverse problem**. The child needs to figure out what underlying mechanism gave rise to the PLD, even though the PLD in the strictest sense is just an auditory stream. (Or in other words: a sentence as heard by the child does not contain a representation of the syntactic knowledge that generated the sentence; rather, the child must infer that knowledge.) This can be compared with other inverse problems. In CT (computer tomography) scanning of the brain, for example, the scanning equipment needs to reconstruct the shape of the brain from the signal that reaches the sensors of the equipment; the equipment does not "see" the brain directly.

C   Reanalysis

§5   Let's now look at how this (syntactic change through mislearning) can happen. One classical way is known as **reanalysis**, defined as "a mechanism which changes the underlying structure of a syntactic pattern and which does not involve any modification of its surface manifestation" (Harris and Campbell, 1995, 50). Let's look at some examples.

§6 Middle English had the following kind of construction (spelling modernized):

(13) (It is better for me) (to slay myself)

The bracketing indicates that the preposition phrase (PP) *for me* goes together with the *it is better*.

   In Modern English, however, we have the following:

(14) (It is better) (for me to slay myself)

I.e. the PP goes with *to slay myself*. This can be shown by a simple movement test:

(15) (For me to slay myself) (is better)

The crucial point is that the string of words is **ambiguous** between two possible bracketings — it is "easy" to mislearn.

   Note also that with this reanalysis, the word *for* undergoes change from a preposition to a complementizer.

§7 Sometimes reanalysis has a phonetic cause. Colloquial French has developed a question particle through reanalysis. Standard French has (examples from Roberts, 2007):

(16) Jean a-t-il   fait   cela?
      John has-he done that
      'Has John done that?'

where the /t/ is epenthetic. In rapid speech, the /l/ often drops. The learner then hears [ati] instead of [atil] and assumes the following syntax:

(17) Jean a   ti fait   cela?
      John has Q done that
      'Has John done that?'

That this really is a question particle is shown by its appearance with subjects which are not 3SG masculine:

(18) Elle t'écrit   ti souvent?
      she you-writes Q often
      'Does she write to you often?'

(19) On t'a   ti demandé ton   adresse?
      one you-has Q asked   your address
      'Have you been asked for your address?'

§8 Sometimes both the original structure and the innovative structure coexist after reanalysis. Finnish has an adessive case whose meaning corresponds to that of the English preposition *on*. So:

(20) miehe-n   pää-llä
      man-GEN head-ADE
      'On the man's head'

At some point in the evolution of Finnish, the noun *päällä* was reanalysed as a postposition:

(21) miehe-n   päällä
      man-GEN on

      'On (top of) the man'

This is shown by the fact that *päällä* in Modern Finnish can attach to genitives which literally have no heads:

(22) pöydä-n   päällä
      table-GEN on

      'On the table'

The following kind of structure is also possible:

(23) miehe-n pää-n   päällä
      man-GEN head-GEN on
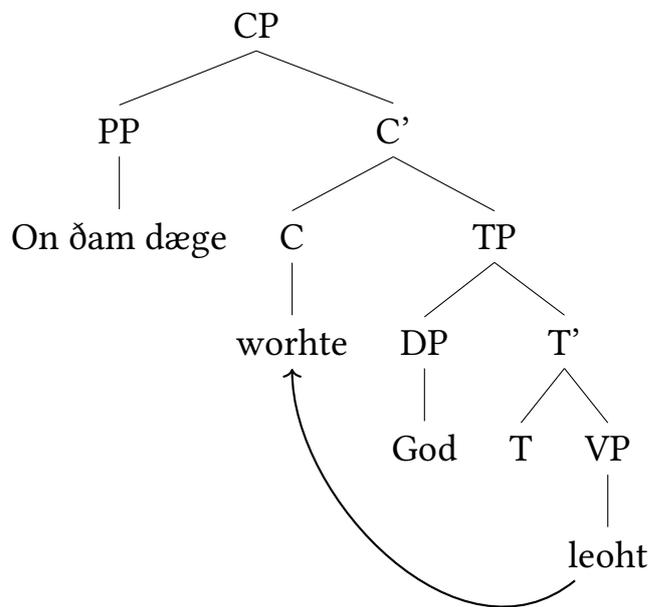
      'On the man's head'

Note that this would've sounded rather weird in early Finnish (before the reanalysis of *päällä* as a postposition): 'on the head of the man's head'.

That said, the Finnish case system remains productive and so 'head-ADE' is still a possible analysis of *päällä* in certain cases. Only the context will tell, but the point is that both analyses are possible in Modern Finnish.

§9   To recap: in reanalysis the learner's input is **structurally ambiguous** between at least two different underlying structures. Change happens when the learner assumes a structure that differs from that of the parental generation. Reanalysis may be a simple case of rebracketing (English *for to*) or may be motivated for other (e.g. phonetic) reasons and result in the innovation of new items such as a question particle (French *ti*). Moreover, sometimes after reanalysis *both* the earlier analysis and the new analysis coexist (Finnish *päällä*).
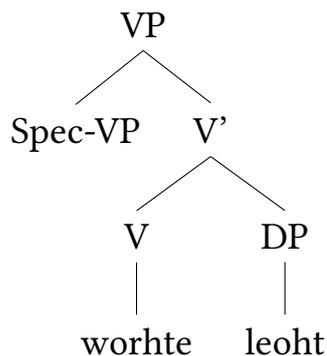
D   Word order change: OV > VO in English

§10   As an example of word order change, we will take a look at how Old English OV (object–verb) order turned into VO in Modern English. First of all, it is important to notice that OE was a V2 (verb-second) language, i.e. the finite verb (the verb with person inflection) of a main clause had to occur as the second constituent of the clause. The standard analysis of a sentence like *On ðam dæge worhte God leoht* 'On that day, God created light' is as follows:

```
                              CP
                      ┌───────┴───────┐
                     PP              C'
                      │         ┌─────┴─────┐
                On ðam dæge     C          TP
                                │      ┌────┴────┐
                             worhte   DP        T'
                                       │     ┌───┴───┐
                                      God    T      VP
                                                     │
                                                   leoht
```
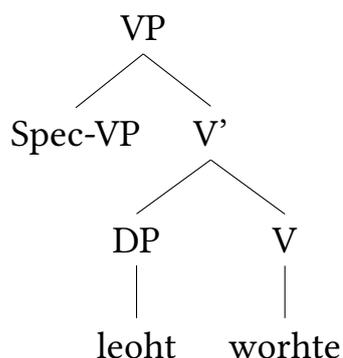
I.e. the finite verb has moved out of the VP and into the head of CP. But what was the order of object and verb within the VP? In other words, when the object *didn't* move from the VP, did it go before the verb or after it? Thus there are two possible structures for the VP:

(24)   VO (head-initial):

```
                  VP
            ┌─────┴─────┐
        Spec-VP        V'
                    ┌───┴───┐
                    V      DP
                    │       │
                 worhte   leoht
```

(25)   OV (head-final):

```
                VP
          ┌─────┴─────┐
      Spec-VP        V'
                  ┌───┴───┐
                 DP       V
                  │       │
                leoht   worhte
```

Which one is the right analysis for OE? We need to look at subordinate clauses and clauses with non-finite verbs (which are not subject to the V2-rule).

Subordinate clauses in OE are mostly OV:

(26)   …þæt he his stefne up-ahof
       …that he his voice up-raised

'…that he raised up his voice'

And so are clauses with non-finite verb forms:

(27)　He mæg ða synfullan sawle geliffæstan
　　　he may the sinful　　soul enliven
　　　'He may endow the sinful soul with life'

❓

The specific form of all these syntactic trees follows from so-called X-bar theory, which you may or may not have heard of before. Don't worry — for the purposes of this course, what matters is that syntactic structures exist and that sometimes constituents move from one place to another. That's all you need to know for now. For completeness, though, here's the basic idea of X-bar theory: all projections have universally the same form, irrespective of category. So VPs (verb phrases) have the same structure as DPs (determiner phrases) and TPs (tense phrases) and CPs (complementizer phrases) and so on… The basic template (where X, Y and Z are category variables) is:

```
        XP
       /  \
     YP    X'
          /  \
         X    ZP
```
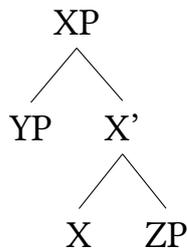
The different nodes of this tree have dedicated names:

- the XP is called the **maximal projection**
- the YP is the **specifier**
- the X is the **head**
- the ZP is the **complement**

The specifier and the complement are optional, and the linear order of the elements can also vary (i.e. X' can be to the left of YP, and ZP can be to the left of X).

Additionally, the X'-element (read: "X-bar") may hold further instances of X' within itself, branching into X' and another phrase. I.e. this is possible:

```
        XP
       /  \
     YP    X'
          /  \
        WP    X'
             /  \
            X    ZP
```
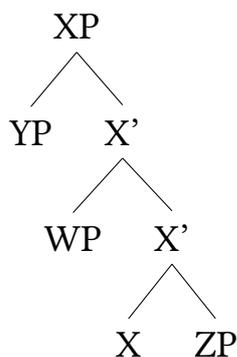
In this case, the WP is known as an **adjunct**.

§11 So we conclude that OE was underlyingly OV with a verb-movement rule that gave rise to the V2 pattern in main clauses. (In fact, OE was very much like Modern German in this respect.) However,

- by the 13th century (late OE / early ME), VO starts to outnumber OV;
- by the 15th century, OV is already very rare;
- by the 16th century (late ME), OV is lost altogether.

Why did this development happen?

§12 According to one hypothesis, the **loss of case marking** in ME led to the establishment of VO order. The argument is that without case marking, it is impossible to tell which constituent is the subject and which the object unless the verb intervenes between them. So (S)VO is "better than" (S)OV, if you don't have case.

This hypothesis has been put forward many times in the literature. It has its problems, however:
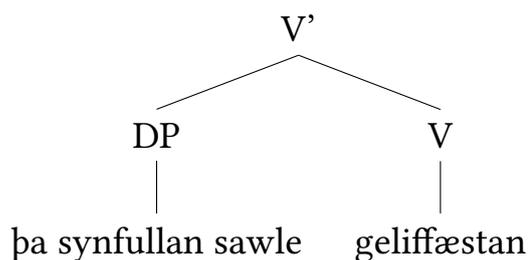
- Loss of case actually happened long before OV turned into VO.
- Languages often go OV > VO without a loss of case marking (e.g. Icelandic). Why would these languages "want" to undergo the change, if there was no need for it (because the case marking was always there to differentiate subject from object)?
- What are the grounds for believing that in a structure of the form XVY it is easier to know which of X and Y is the subject and which the object, than in a structure of the form XYV? Is this supported by any empirical evidence?

§13 Another hypothesis is that OV > VO in English was caused by **contact** with speakers of early Scandinavian. This hypothesis, too, has big problems:
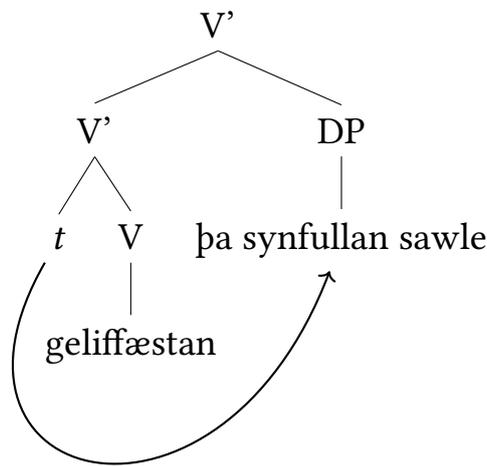
- OV > VO in English began to happen even before there was intensive contact with Scandinavian. It also went on until long after intensive contact with Scandinavian had stopped.
- Scandinavian itself wasn't a pure VO language at the time (it has been estimated that 14th-century Old Norse was 40–70% OV).

§14 Yet another (and better?) hypothesis: OE was underlyingly OV, but there was a process of **extraposition** that could move objects from the left to the right. So sometimes speakers would end up producing OV orders and other times VO orders:

(28)   Underlying (OV) order:

(29) Extraposed (VO) order:

```
                      V’
                     /  \
                   V’    DP
                  / \     |
                 t   V   þa synfullan sawle
                     |
                  geliffæstan
```

Now, if speakers started using extraposition more, then a following generation might simply assume underlying VO structure (30) instead of (29), on the general assumption that language learners tend to postulate the simplest possible structural analysis.

(30) Underlying VO order:

```
               V’
              /  \
             V    DP
             |     |
         geliffæstan  þa synfullan sawle
```
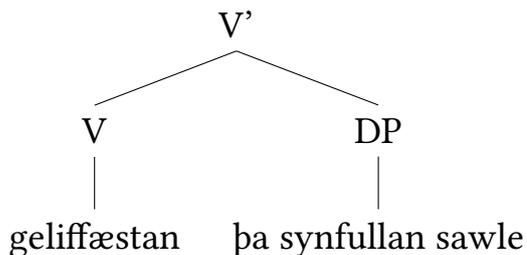
Note that this is a case of reanalysis — same surface order, different underlying structure!

  Problems for this approach:

- What is the evidence for an extraposition operation in OE?
- What was the trigger of the reanalysis? If it was an increase in the frequency of extraposition, then what explains *that*?

§15 To summarize, English underwent the change OV > VO. This change is documented in a number of written sources. A number of hypotheses have been put forward to explain the change, but none of them are entirely unproblematic. (There are many more in the literature than the three accounts briefly summarized above.) More work is needed!

E Gradualness

§16   The Z-model and the notion of parameter resetting suggest that syntactic change should be **abrupt**: one generation has value V_1 for some parameter, and then the following generation suddenly has value V_2. But now look at Figure 2, showing the rise of so-called ***do*-support** or **periphrastic *do*** in English. This change doesn't look abrupt at all − on the contrary, it looks very **gradual**.
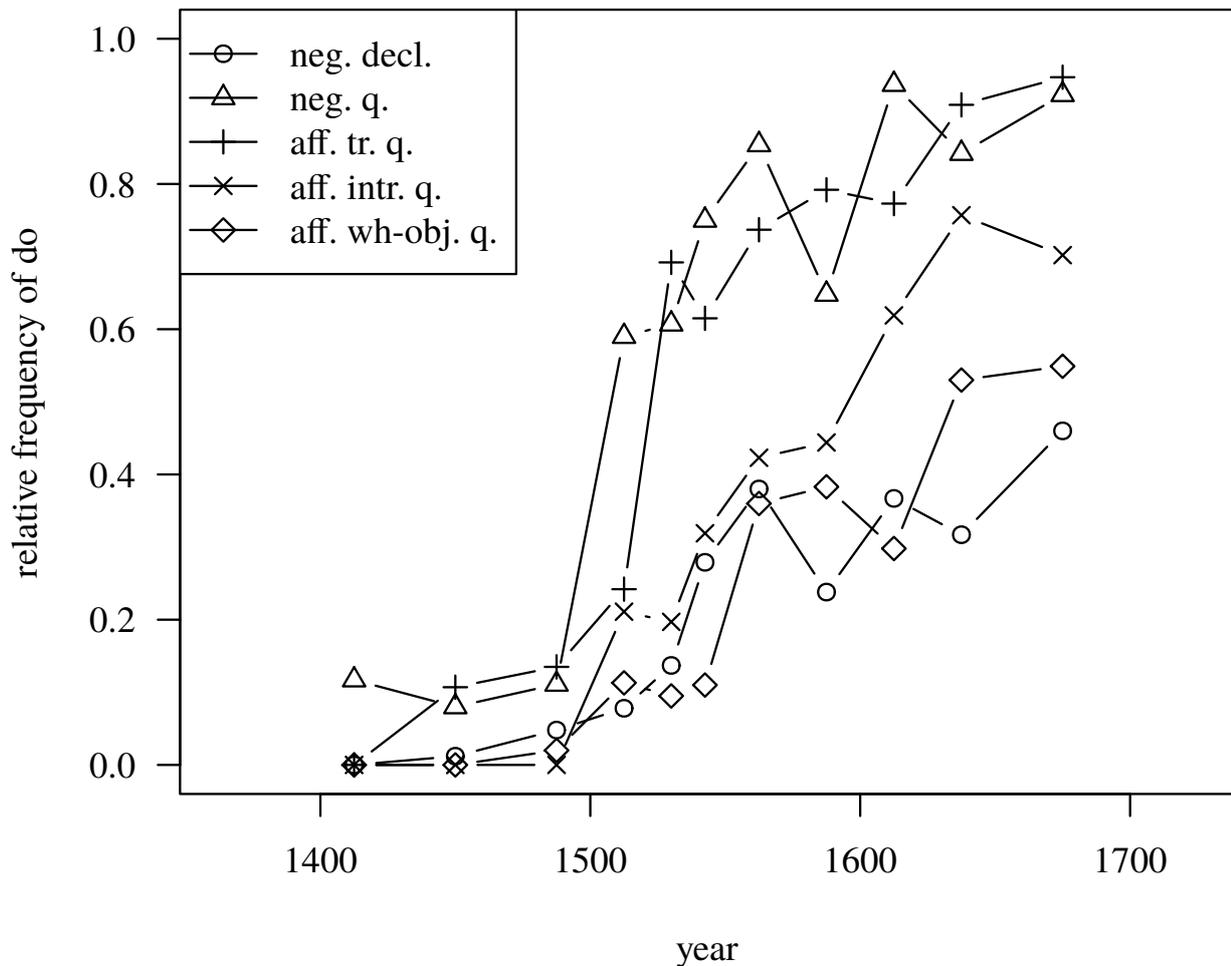

Figure 2: Appearance of *do*-support in English in various kinds of sentence. Corpus data from Ellegård (1953) and Kroch (1989): the y-axis gives the relative frequency of sentences with periphrastic *do* per year.

§17   To understand what *do*-support means, let's look at a few example sentences. Now, all of the following were grammatical in Middle English (I've just invented these example sentences, but one can easily find their equivalents in ME corpora):

(31) John drinks tea. *(an affirmative declarative sentence)*

(32) John drinks not tea. *(a negative declarative sentence)*

(33) Drinks John tea? *(an affirmative transitive question)*

(34)   Drinks John not tea? *(a negative transitive question)*

(35)   Drinks John? *(an intransitive question)*

(36)   What drinks John? *(a wh-object question)*

With the exception of (31), these are ungrammatical in Modern English, which has instead:

(37)   John does not drink tea. *(a negative declarative sentence)*

(38)   Does John drink tea? *(an affirmative transitive question)*

(39)   Doesn't John drink tea? *(a negative transitive question)*

(40)   Does John drink? *(an intransitive question)*

(41)   What does John drink? *(a wh-object question)*

§18   What I want to stress with this example is how long the change took to go from 0% use of *do* to 100% use of *do*. Look at Figure 2 again. According to these data, the change began in the 15th century. Use of periphrastic *do* reaches 90% in affirmative transitive questions and negative questions at around 1700. This is more than 200 years! More importantly, in negative declarative sentences the percentage reached by 1700 is only about 50%, yet we know that it eventually went to almost 100%, since in Modern English sentences like *John drinks not tea* are practically never used — so in these sentences, the change took even longer to go to completion. There is no point at which *do* changes from being totally absent to being totally obligatory; instead, we see a slow change that takes the form of an **S-curve** (Denison, 2003).

So the question: if this is parameter resetting, why does it take hundreds of years? (By the way, the example of English periphrastic *do* is by no means the only occurrence of slow syntactic change — examples are easily multiplied. In fact, seeing an S-curve in empirical data is the norm, not the exception!) A couple of possibilities:

- Human populations do not follow each other neatly in successive, non-overlapping generations. Instead, generations are overlapping, and people are parts of social networks. Change is abrupt at the level of individuals, but appears gradual at the population level, because it needs to **spread** or **propagate** from speaker to speaker. "50% usage of *do*-support" means that 50% of the population have adopted *do*-support, and so on.
- Speakers are, during periods of change, "bilingual in their own language", i.e. they have both the old and the new parameter settings and use both options with some probability. "50% usage of *do*-support" means that any given speaker uses *do*-support 50% of the time. This is known as the **competing grammars** hypothesis: two grammars (one with the parameter "on" and the other with the parameter "off") are "in competition" within individual speakers.

§19   It turns out that *both* of these things appear to be true. It is certainly true that human generations are non-overlapping and that changes need some time to

propagate through a population. However, there is also support for the competing grammars position. The relevant evidence comes from cases where one and the same individual uses the two different options, sometimes even in one and the same sentence.

Example: earlier forms of English had a so-called **passival** form corresponding to the modern progressive passive 'is/are being X-ed':

(42) Early Modern English (passival): the house is building

(43) Modern English (progressive passive): the house is being built

At the time when the passival was being replaced by the progressive passive, people seem to have used both options (= competing grammars). Here's one example:

(44) While the goats **are being milked**, and such other refreshments **are preparing** for us as the place affords (Landor, *Imaginary Conversations*, 1829, quoted in Denison, 1999, 153)

§20 A problem for the competing grammars framework: if there is no radical reanalysis (and, instead, both options are in use by all speakers), why should the change happen in the first place? Remember that reanalysis is motivated by ambiguity. According to the reanalysis explanation of English OV > VO, for example, the change happened because language learners are biased towards assuming the simplest possible syntactic structure — thus (30) rather than (29). But if speakers have access to both options, then why should they suddenly start favouring one over the other?

In the second half of this course (after the Christmas break), we will see some proposed answers to this problem within the competing grammars framework.

F   Grammaticalization

§21 **Grammaticalization** is a change whereby lexical material develops a grammatical function, or grammatical material develops a more grammatical function. Examples:

- English *going to / gonna* future marker, developed from the lexical verb *go*:

  (45) I'm going to die!

  This doesn't involve any physical movement!
- French negator *pas* from noun *pas* meaning 'step'. Was originally used as an intensifier:

  (46) Je ne   vais pas à la   bibliothèque
       I NEG go   step to the library
       'I am not going to the library at all'

  In Modern French, *pas* no longer has this function; it is purely grammatical and simply marks negation:

(47) Je ne   vais pas à la bibliothèque
      I NEG go   NEG to the library

      'I am not going to the library'

In Modern Colloquial French, *pas* in fact takes over the role of negation from *ne* (the historically original negation word):

(48) Je vais pas à la bibliothèque
      I go   NEG to the library

      'I am not going to the library'

- German indefinite pronoun *man* 'one' from noun *Mann* 'man':

(49) Kann man hier rauchen?
      can   one here smoke

      'Can one smoke here?' (not: 'Can a man smoke here?')

- English indefinite article *a/an* from the numeral *one* (*ane* in OE).

§22 Grammaticalization is extremely widespread: one can find instances of it in practically every language. Moreover, it tends to occur in similar ways: e.g. indefinite articles tend to be developed from numerals meaning 'one', definite articles tend to grammaticalize from demonstrative pronouns, futures tend to develop from verbs of motion, and so on.

§23 However, it is important to note that grammaticalization is not a separate mechanism of change, but is rather driven by reanalysis and parameter resetting. For example, English *let's* (as in *Let's go!*) is a straightforward reanalysis of the full imperative phrase *let us X*.

§24 Grammaticalization has certain distinctive features:

- **Phonological reduction** is the norm in grammaticalized material, but not in the original input to grammaticalization:

(50) I'm going to die

(51) I'm gonna die

(52) I'm going to the library

(53) *I'm gonna the library

- **Semantic bleaching**: grammaticalized material loses some of its original meaning. *Going to* loses the notion of movement, *man* loses the notion of masculine, *pas* loses its literal meaning, and so on.
- **Directionality**: grammaticalization is a directional process, always in the direction more lexical > more grammatical. (There are some cases of degrammaticalization or lexicalization, which works in the other direction, but this is much rarer: e.g. English verb *up* (as in *to up the ante* 'to raise stakes in a game of poker') from preposition *up*).

The directionality of grammaticalization is useful, as it can help us in syntactic reconstruction (cp. directionality in sound change, e.g. lenition)!

G Review

§25 After this seminar, you should be able to explain what the following terms mean:

productivity	extraposition	grammaticalization
syntactic parameter	gradualness	phonological reduction
parameter resetting	*do*-support	semantic bleaching
inverse problem	S-curve	directionality
reanalysis	propagation	
structural ambiguity	competing grammars	

H Further reading

§26 For a comprehensive treatment of most aspects of syntactic change in a generative framework, consult Roberts (2007).

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