# MSc Introduction to Syntax

## Lecture 3: Predicates and arguments

1. *Semantic predicates and arguments*
In the previous lectures we have seen that sentences have an internal structure and we discussed some ways in which we can try to determine what the structure of a sentence is. A question on which we remained silent so far is why some sentence has the particular syntactic structure that it has. Although many aspects of the syntax of a particular language are determined by purely syntactic principles, clause structure is intimately connected to the meaning of a sentence. The distribution of constituents is not random. Rather, the constituents are ordered in particular ways and, at least up to a point, this ordering has a semantic underpinning. To see how this works, we must first introduce some semantic notions (which we will keep informal here).

A sentence expresses some event, situation or state:

(1)         Mary laughs
(2)         The tree stands in the garden
(3)         John is reading the paper
(4)         Harriet knows French
(5)         John sold me a copy

In these sentences, there is an element that describes what kind of event, state or situation we are dealing with, and there are elements that describe which things are involved as participants in the event or situation. A thing that refers to the type of event or state we are dealing with is termed a *predicate*, while the things that refer to the participants in the event/state are called the *arguments* of the predicate. From the sentences above we can infer that predicates are often expressed by means of a verb, in (1)-(5) by forms of *laugh, stand, read, know* and *sell*. (However, predicates can also be expressed by other lexical categories: in *John is ill*, for example, the adjective *ill* describes which state we are dealing with).

From the meaning of the predicate, we can infer how many arguments are involved in the event or state, as illustrated by (6). (Note that an argument can be a plural entity: *the women laughed, the girls read the books*. Such plural entitities still count as one participant in the event/state.)

(6)    a.    *laugh, weep, fall, walk, ascend, …* → event with one argument
       b.    *stand, glow, stink, blossom, …* → state with one argument
       c.    *read, kiss, kick, build, …* → event with two arguments
       d.    *know, love, despise, fear, …* → state with two arguments
       e.    *sell, give, send, lend, …* → event with three arguments

We can thus distinguish so-called *one-place predicates* ((6a) and (6b)), *two-place predicates* ((6c) and (6d)), and *three-place predicates* (6e)). The property of a predicate that determines how many arguments it takes is called its *valency*.

We can classify the arguments a predicate takes in terms of their semantic content. Thus, we can at distinguish at least the following types of arguments:

(7)  a.  Agents: the 'doer' of the action, the causer of the event.
         *John kicked the ball*; *Mary laughed*; *The key opened the door*
     b.  Themes: the thing undergoing the action, thing in motion, the 'causee'
         *John kicked the ball*; *Mary read the paper*; *The key opened the door*
     c.  Goals: the thing towards which the action is directed
         *He sold me a copy*; *She gave her brother a present*

2. *The relation between semantic arguments and syntactic arguments*
Returning to the syntax of sentences now, we can observe that certain verbs go together with just a subject (so-called *intransitive verbs*), some go together with both a subject and a direct object (so-called *transitive verbs*) and some take a subject, a direct object and an indirect object (*ditransitive verbs*), as shown in (8)-(10). (An indirect object is an object that can be introduced by a preposition such as *to*; (10c), for example, has the variant *Mary gave a book to Bill*, indicating that *Bill* is an indirect object here).

(8)  a.  Mary laughed
     b.  *Mary laughed Bill
     c.  *Mary laughed Bill a funny book

(9)  a.  *Mary destroyed
     b.  Mary destroyed the book
     c.  *Mary destroyed Bill the book

(10) a.  *Mary gave
     b.  Mary gave a book
     c.  Mary gave Bill a book

Let us call the constituents that appear in the subject, direct object, and indirect object positions the *syntactic arguments* of the verb – to be distinguished from the semantic arguments as discussed above. Thus, the *syntactic valency* of a verb is the property that determines how many syntactic arguments the verb takes, as opposed to the semantic valency of a predicate, which says how many semantic arguments the predicate takes.

One very straightforward way in which semantics determines syntactic structure is that the number of syntactic arguments a verb can take is determined by the number of semantic arguments that the predicate expressed by the verb takes. Consider the predicates in (6) above, for example. It is easy to check that the verbs in (6a)-(6b) are intransitives, the verbs in (6c)-(6d) are transitives, and the verbs in (6e) are ditransitives.

However, we cannot simply equate the number of semantic arguments with the number of syntactic arguments a verb appears with. This was already apparent from the example in (10b). Next to the case of (10c), where it appears with three syntactic arguments, the verb *give* can also appear with just two syntactic arguments. In (10b), the semantic Goal argument is left *syntactically unexpressed*. It is still part of the

meaning of *give* (it is still implicit in (10b) that there is a person or entity to whom Mary gave the book), but there is no syntactic constituent expressing it. This is actually a rather typical property of Goal arguments: usually, you can but need not express them syntactically (compare *he sent (me) a letter, they sold (us) a lot of books*). The same can be observed for the Theme arguments of many transitive verbs:

(11) a. Leo was eating Brussels sprouts
     b. Leo was eating

(12) a. Heather was reading the paper
     b. Heather was reading

(13) a. David is painting the shed
     b. David is painting

Interestingly, if you take a ditransitive verb of which both the Goal argument and the Theme argument need not be syntactically expressed in principle, it turns out that it is possible to leave out the Goal from syntax while realizing the Theme, but most often it is not possible to leave out the Theme while realizing the Goal:

(14) a. They finally sold me the house
     b. After months of hesitation, they finally sold
     c. They finally sold the house
     d. *They finally sold me   (on a Goal reading of *me*)

(15) a. Banks in the UK are lending their customers more and more money
     b. Banks in the UK are lending like mad
     c. Banks in the UK are lending more and more money
     d. *Banks in the UK are lending their customers

Exceptions to this are possible, however, as is shown by example (4) in exercise 3.6 of SK.

The influence of semantics on sentence structure goes further than its role in determining the maximum number of syntactic arguments that can appear, at least in a language like English. Consider the examples in (16)-(17).

(16) a. Mary saw Bill
     b. Bill saw Mary

(17) a. The fox sold the bear the wolf
     b. The bear sold the wolf the fox
     c. The wolf sold the fox the bear

In both (16a) and (16b) there are two arguments, in accordance with the fact that the verb *see* expresses a two-place predicate. But not only do we know that *Mary* and *Bill* express the arguments of this predicate, we also know for sure which syntactic argument expresses which semantic argument. In (16a) *Mary* is necessarily interpreted as the Agent and *Bill* as the Theme, while in (16b) this is the other way around. Similar considerations hold for the sentences with ditransitive *sell* in (17). We

know exactly what the distribution of Agent, Theme and Goal roles across the three syntactic arguments is in these sentences. Apparently, there are systematic *correspondences* between semantic arguments and syntactic arguments. Examples (16) and (17) illustrate the following basic correspondences:

(18)         Agent ↔ Subject
             Theme ↔ Direct object
             Goal   ↔ Indirect object

If (18) would always hold, we could simply equate syntactic arguments with semantic arguments. But we have already seen that this neat 1-to-1 correspondence does *not* always hold: a semantic argument need not always correspond to any syntactic argument. And there are other ways in which deviations from (18) can arise as well. It turns out that the grammar of a language can provide various ways of manipulating the correspondences between semantic and syntactic arguments, so that semantic arguments can come to be associated with different syntactic arguments. Some examples of such grammatical processes that change the so-called 'argument structure' of a verb in English are the following.

- *Passivization*. This has the effect that the Theme becomes the subject, and the Agent need not be expressed syntactically anymore (although it can optionally appear in a *by*-phrase):

(19)    a.      active: Flora has fed the tigers.
        b.      passive: The tigers have been fed (by Flora)

(20)    a.      active: The Romans destroyed the city
        b.      passive: The city was destroyed (by the Romans)

- *Middle formation*. A 'middle' sentence resembles a passive in that the Theme argument corresponds to the subject. Passives and middles differ in their meaning, however, and also in the fact that it is not felicitous to express the Agent argument as a *by*-phrase in a middle. Moreover, in contrast to passivization, middle formation does not express itself morphologically in English; instead, the verb keeps the same form as in an active sentence. (This is why the term 'middle' is used for such sentences: they are 'in between' active and passive sentences, in that formally they look like actives, but in their distribution of semantic arguments across syntactic constituents they are more like passives).  Some examples of middles in English are given in (21b) and (22b).

(21)    a.      active: Barry read this book.
        b.      middle: This book reads well  (*by intelligent readers)

(22)    a.      active: The mafia bribed the bureaucrats
        b.      middle: Bureaucrats bribe easily  (*by the mafia)

- The *causative-inchoative alternation*. Some causative verbs (verbs that have a subject argument that expresses the causer of the event or state) allow their Theme argument to become the subject. The Agent/Cause argument seems to disappear altogether in that case, even semantically. The version of the verb which has the

Theme as its subject is called an inchoative verb, which means that the verb expresses a change of state of this argument.

(23)   a.   causative: Zoilo opened the door
       b.   inchoative: The door opened   (no Agent implied – the door opened 'by
                                                                       itself')


(24)   a.   causative: The sun ripened the tomatoes
       b.   inchoative: The tomatoes ripened   (no Agent implied)


- *Reflexivization*. The Theme argument of some verbs that are otherwise obligatorily transitive can remain syntactically unexpressed if this argument refers to the same entity as the Agent argument:

(25)   a.   John dresses     (can only mean: 'John dresses himself')
       b.   Mary washes     (can only mean 'Mary washes herself')


In some other languages there are yet other possibilities of manipulating a verb's argument structure.


*3. Modifiers*
We have seen now how the central participants in an event or state can be expressed by syntactic arguments. However, it is also possible to syntactically express additional information about the event/state, such as when it took place, where it took place, the reason for it taking place, the likelihood of its occurring or not, the manner in which it took place, the emotional state of the participants, and so on. Such information is expressed syntactically by what are called *modifiers*. Examples of modifiers are the italicized phrases in (26).

(26)   a.   Gerald bought a cd *in the megastore*
       b.   Gerald bought a cd *before noon*
       c.   Gerald bought a cd *without realizing he already had it*
       d.   Gerald *quickly* bought a cd
       e.   Gerald bought a cd *to impress his friends*


Syntactic modifiers can be distinguished from syntactic arguments in a number of ways.

First, arguments can be obligatory (although they certainly need not always be, as was discussed above), whereas the presence of modifiers is always optional:

(27)   a.   Gerald bought a cd in the megastore
       b.   *Bought a cd in the megastore
       c.   *Gerald bought in the megastore
       d.   Gerald bought a cd


Second, as we have seen the maximum number of arguments a particular verb can take is fixed. But there is no limit to the number of modifiers that can be added to a sentence:

(28)        Gerald quickly bought a cd in the megastore before noon to impress his friends without realizing he already had it (...)

Third, arguments typically take the form of noun phrases, whereas modifiers typically take the form of prepositional phrases, adverbial phrases, or adjective phrases – although it must be noted that there are exceptions to both these generalizations. This is illustrated by most of the examples above.

*4. Syntactic predication*
Consider the following pairs of sentences. In each pair, the (b) sentence is a paraphrase of the (a) sentence.

(29)    a.    That Iris wants to go parasailing frightens Fiona
        b.    It frightens Fiona that Iris wants to go parasailing

(30)    a.    No proof of this conjecture exists
        b.    There exists no proof of this conjecture

Given that in the (a) sentences all arguments of the predicate are syntactically expressed, and given that the (b) sentences are paraphrases of the (a) sentences, it must be concluded that the elements that appear in subject position in the (b) sentences, *it* and *there* respectively, do not correspond to a semantic argument of the predicate. They are meaningless elements, usually referred to as *expletives*. What these sentences seem to indicate, then, is that a predicate always wants to be combined with a subject in syntax *even if the latter is not semantically motivated*. SK call this the *subject requirement*. It should be noted that it is doubtftul whether (31) holds universally, as many languages have constructions involving what seem to be genuinely subjectless sentences. English, however, is one of the languages in which (31) seems to hold.

(31)        *Subject requirement*
            All clauses must have a subject

(31) is in fact a rather old hypothesis: it goes back to Aristotle, who said that each sentence can be divided into a subject and a rest-of-the-clause that says something about that subject. This rest he called the predicate. Consequently, the relation between the syntactic subject and the rest of the clause is known as 'predication'. Note that this use of the term 'predicate' is a purely syntactic one (it refers to a sentence minus its subject), hence it differs from the semantic use of the term as it was outlined in section 1 above (where it referred to an element that expresses some situation or event involving a certain number of participants). SK refer to the syntactic notion as 'Aristotelean predicates' and to the semantic notion as 'Fregean predicates', after the philosopher Frege.

Exercises
SK  Exercise 3.1, 3.6, Problem 3.1