

5SSEL026 – Language Construction

Lecture 3

Grammar 1

THE DILEMMAS OF LANGUAGE

Language as a signalling system is very versatile – some say it has a logically infinite capacity to create new messages. However, there is a problem with this versatility: where are the truth-values in language? If language is to convey honest (rather than deceptive) information then the truth-values of an utterance should be testable by the receiver; but this creates two related problems with language as a natural signalling system.

- **The Sender's Dilemma: why speak?** When I speak I am not just making sounds, I am offering you information. If I offer you true information you do not currently have then I am increasing your relative fitness and decreasing mine. So why should I give away valuable information?
- **The Receiver's Dilemma: why listen?** When you speak you have full control over what you say; you can tell me truths or you can tell me lies. If you tell me truths then you increase my relative fitness and decrease yours; if you tell me lies and I believe them, you decrease my relative fitness and increase yours. So why should I believe you?

These are dilemmas in any communication system where there is volition over the production and interpretation of signals. In theory, the conflict between the receiver's need for an honest signal and the sender's advantage in lying should make language impossible. In practice, however, this is clearly not the case. Language works because it is a natural communication system with a novel twist: it is mostly not about truth. This does not place it outside of natural communication, but it does mean that the explicit truth of a language signal is not what makes it valuable to the sender and the receiver; and sometimes it is not even an implicit truth which gives value; something else is making language valuable to us. That something else may be language structure itself, because we can exchange complex thoughts only with a communication system of equal complexity; and it is certainly true that we need complexity in our communicative interactions to allow us to signal the complexities of our social interactions.

WHAT IS GRAMMAR? ONE VIEW

One explanation for grammar is that it is two different things. In one definition it is "what we're a-doin' aroun' these here parts": the complexity is imposed superficially by local culture. In another definition it is what humans are able to do in terms of language structure: complexity is fundamentally delimited by the cognitive capacities of humans. Chomsky used to differentiate between these two types of grammar as surface and deep grammar, and it remains a useful explanation of the different complexity mechanisms at work in language. However, this differentiation was officially dropped by Generativism in 1995. In *The Minimalist Program*, Chomsky says:

A linguistic expression of L is at least a pair (π, λ) meeting this condition [capable of "full interpretation"] – and under minimalist assumptions, at most such a pair, meaning that there are no levels of linguistic structure apart from the two interface levels PF and LF [Phonetic Form and Logical Form]; specifically, no levels of D-Structure or S-Structure. (1995, p219.)

Where this leaves the interpretation of Deep and Surface Structure is uncertain. In the new Minimalist Universe, all language appears to be just language; but the difference between, say, French and English remains a linguistic issue that needs to be addressed, even by Generativism.

WHAT IS GRAMMAR? ANOTHER VIEW

Another explanation for grammar is that it is signal complexity. Most signalling systems rely on a serial transmission of a single stream of information, and most signals fit comfortably into this form. Single-component utterances, like vervet alarm calls (Price et al, 2015)¹, require no syntax (signal order) or grammar (conventionalised structure). Double-component utterances, where the two components are of different types (one-argument constructs), like the affixational warning call system of Campbell's monkeys (Ouattara et al, 2009)², still require no syntax – although the Campbell's monkey calls do actually have a fixed syntax. Multiple-component calls which reference and qualify a single object, like blue monkey warning calls (Murphy et al, 2013)³, also require no syntax.

It is only when you need to communicate about more than one object and the relation between them that syntax is required; and you only need grammar when you have to communicate about three or more objects and the relations between them. It is this definition of syntax and grammar we will address in this module, under the umbrella term of grammar.

THE BASIC COMPONENTS OF GRAMMAR

This week we look at the most basic components of language: nouns (representations of objects, people and states, and summaries of events); and verbs (representations of processes which can be initiated by nouns or that can act upon nouns, and can therefore link nouns together into a two-argument form). A two-argument form can be simply described as: **[a-thing] [does-something-to] [a-thing]**, or **[initiator-noun (subject)] [verbs] [acted-upon-noun (Object)]**. The two-argument form is the minimal process that your language needs to work.

NOUNS, COMPOUNDS AND NOUN PHRASES

Last week we saw how languages can divide up the range of nouns into gendered groups, and how different languages make that division. Your language can use one of the systems given, or you can create your own (e.g. Neuter animated nouns in one group, all other nouns in another group). This, however, is only one effect your language can have on nouns.

Nouns are often seen as single words (*stamp, collection, album*, etc.), but they can also be aggregated into noun compounds, linked chains of nouns which together constitute a single meaning different from the component meanings. For instance, *stamp collection* combines two nouns to create a new meaning. While *stamp* appears to be acting as an adjective in this compound, qualifying the noun *collection*, it does not have all the attributes of an adjective: *green pen* can be paraphrased as *the pen is green*, but *the collection is stamp* does not work. Job titles are often noun compounds (*business manager, garden planner, farm hand*), and it is possible to chain more than two nouns into a noun compound (e.g. *debt collection agency*). These noun compounds can sometimes be regularised by turning them into an adpositional phrase (e.g. *manager of the business*, or *agency for the collection of debt* – see **Adpositions** next week) or by converting the dependent nouns into adjectives (e.g. *farming hand*). They can also be regularised by treating them as a single word (e.g. *farmhand*). These are some of the ways that your language can mitigate or remove the need for noun compounds, should you wish to do so.

Nouns can also be qualified by **determiners, adjectives** and **deictic markers**, all of which we will look at next week. Their effect on the noun is, like compounds, to modify the specific meaning of the noun. This semantic mutation is a common feature of languages because nouns, like all other words, do not have absolute meaning, only contextual meaning: change the

surrounding words (the lexical context) and you change the meaning. These noun constructs, whether composed of single words or multiple words, are usually known as **noun phrases**.

NOUN CLAUSES

The fact that a noun can be a summary of an event means that a noun construct can also be a clause. For instance, the two semantically linked sentences:

Joan saw the man; the man was wearing the hat

Can, in English be re-parsed as:

Joan saw the man was wearing the hat, where the fact that the object of the first sentence is the same as the subject of the second sentence has allowed them to be telescoped together. English also allows us to reanalyse the hat-wearing event in the sentence:

the man Joan saw was wearing the hat.

In this case, the change in word order of the first sentence (from SVO to OSV) has reframed the sentence in the minds of English speakers as a sentence fragment – it is not complete by itself.

This changed word order can occur in the second argument, too:

Joan saw the hat the man was wearing.

What makes this work is cultural convention, it is not a deep grammatical feature of language, as the similar construct *the man was wearing a hat, Joan saw* shows. You may well decide to use another system for your language, or other features of your language may make this reordering impossible.

What these merged sentences do show is that languages can have grammatical rules of hierarchy, where two-argument forms can be expressed in such a way that the word groupings create subtle differences of meaning and topicality. English tends to place most emphasis on the early part of a construct, but this is not a universal feature of all languages.

This hierarchy can be used to merge more than two sentences. For instance:

Joan saw the man; the man was wearing the hat; Joan had bought the hat.

Joan saw [the man] was wearing the hat; Joan had bought the hat.

[The man Joan saw] was wearing the hat; Joan had bought the hat.

The man Joan saw was wearing the hat; [the hat Joan had bought].

The man Joan saw was wearing [the hat] Joan had bought.

You can decide how your language handles hierarchical merging and moving of constructs.

NOUNS AND NUMBER

One feature of nouns is the capacity to indicate number. This is only marginally realised in English, with a simple distinction between one and more than one (*bird, birds*), but it is possible to be more adventurous in your own language. For instance, if **brid** means *bird*, the number of birds involved could, up to a reasonable limit, be expressed by affixes; e.g. **bridi** = *two birds*; **bridig** = *three birds*; **bridiga** = *four birds*; **bridigas** = *five or more birds*. Ordinal numbers could also be expressed in this way, e.g. **briden** = *first bird*; **brideni** = *second bird*; **bridenig** = *third bird*; **brideniga** = *fourth bird*; **bridenigas** = *unranked birds(?)*. English does have this counting in a minor way, e.g. *trilogy* = set of three books, but usage is far from generalised throughout the language.

English also has non-count words (e.g. *sand, happiness*); but, once again, usage is not methodical. Phrases like *sands of time* use the plural form, and phrases like *inn of the sixth happiness* indicate that there is more than one happiness – even though Word™ marks *happinesses* as a spelling error.

In your own language you can play with numbers as much as you like. You may even wish to include a count of zero as a form of negation; English uses the prefix *non-* in this way.

VERBS AND VERB TYPES

A verb is the glue that binds together the two arguments in a two-argument form. In English we have some verbs which can take only one argument (e.g. *Joan stood*), and we have a limited number of verbs which must take three arguments (e.g. *Joan put the book on the table; Joan put the book* does not feel like a complete sentence). A language does not need to reserve certain verb forms to a particular number of arguments, instead it can treat all verbs as able to take one, two, or more than two arguments. English uses adpositions to create three-argument forms, so they will be covered next week; and no language can work with only one-argument forms, so here we will stick to two-argument forms.

In English, verbs are divided into **main, linking, auxiliary** and **modal** verbs. None of these is a universal category in all languages, but they do illustrate four ways that verbs can work.

Main verbs contain the core meaning of the process they describe. They are traditionally divided into **action verbs** (*Joan dropped the book*), **event verbs** (*Joan read the book*), and **state verbs** (*Joan has the book*). However, this traditional division is more descriptive than prescriptive – *Joan reads the book* is an action, an event and a state.

Linking verbs are verbs that treat the two arguments around the verb as instantiations of the same thing. Verbs of being are classic examples: *Joan is a linguist* links *Joan* to a particular career, establishing the career as an aspect of Joan and Joan as a member of the linguist group. Linking verbs form an open group (new words can be added), but a small group. Apart from *be*, most linking verbs are only linking verbs if they are followed by an adjectival. For instance, *Joan feels happy* and *Joan smells nice* are linking verbs, but *Joan feels a tree* or *Joan smells a flower* are not. Examples of linking verbs are: *appear, be, become, feel, get, look, remain, seem, smell, sound, taste*. One effect of linking verbs is to link an observer-subject to a verb process that does not directly involve them, e.g. *Joan feels that [the day is cold]*.

Auxiliary verbs form a closed set in English: *be, do, have, will* and *going to*. They act as grammatical markers rather than core meanings. *Do* can act as an emphatic marker (*I DO know you*) or in a negative or question construct (*I do not know you; do I know you?*), and they all act as tense markers (*I am/was making a pie; I will be making a pie; I have/had been making a pie; I will have been going to make a pie*). This is one way of forming tenses in your language, but by no means an obligatory one; a language can work perfectly well without auxiliaries.

Modal verbs are another closed set, but larger than auxiliaries: *can, could, may, might, must, shall, should, would* (and some add *will*). Modals introduce a level of uncertainty to a verb process, and they act in a similar way to auxiliaries. This is why *will* exists in both sets: every future process is subject to uncertainty. Like auxiliaries, modal verbs are not obligatory in a language; conditionality can be produced in other ways. See Pravic website and essay on Mandubza for modality by affixation, and **L3 - Extra - Tenses** for adverbial modality.

CONJUGATION OF VERBS

Conjugation is the process by which the person and number of the subject in an utterance, and the tense and modality of the verb, can be marked on the verb. This is a common feature of

many of the World's languages; for instance, Latin-based languages like French, Spanish and Italian conjugate person, number, tense and modality, as does Latin itself. English, in contrast, only marks the third person and some present and past tenses; other tenses and modality are marked by auxiliary verbs, and person and number are mostly indicated on the subject itself. A typical conjugation system has a different verb form for each person, in singular and plural. An example would be the Latin conjugation of **Have**, part of which is given below:

I have	Habeo	I had	habui
You (singular) have	Habes	I will have	habebo
He/she/it has	Habet	I may have	habeam
We have	Habemus	He had	habebat
You (plural) have	Habetis	He will have	habebit
They have	Habent	He may have	habeat

¹ Tabitha Price, Philip Wadewitz, Dorothy Cheney, Robert Seyfarth, Kurt Hammerschmidt & Julia Fischer (2015). Vervets revisited: A quantitative analysis of alarm call structure and context specificity. In *Nature Scientific Reports* 5:13220.

Conjugation can be quite restricting, and often gets overlaid with pragmatic features. For instance, the Spanish polite second person form (*you*, or **usted**) takes the third-person conjugation forms.

TENSE, CONTINUITY, IMMINENCE, CONNECTIVENESS, MODALITY

These are important features of any language, and they have important roles in establishing semantic complexity. They locate the event (or verb) which links the arguments in a construct in terms of time, duration, proximity to the present, relation to other events, and level of certainty. The ways that a language allows placement of events on the vectors of time and modality have considerable effects on the what that language can express; so the importance of these factors is considerable. They are discussed in **L3 - Extra - Tenses**, which is available on KEATS. It is the longest handout in this module, but it is a key document.

² Karim Ouattara, Alban Lemasson & Klaus Zuberbühler (2009). Campbell's Monkeys Use Affixation to Alter Call Meaning. In *PLoS ONE* 4:11, e7808.

³ Derek Murphy, Stephen E. G. Lea & Klaus Zuberbühler (2013). Male blue monkey alarm calls encode predator type and distance. In *Animal Behaviour* 85, 119-125.