5SSEL026 – Language Construction
Lecture 4
Grammar 2

Last week we looked at the two main tools of language, nouns and verbs. This week we look at some of the other features of language: describing and qualifying; deixis and determining; and adpositions. However, we will start with the end of one of the stories begun last week: how and why two-argument forms were not enough, even with hierarchical merging and moving to enhance our grammar.

THE THREE-ARGUMENT FORM

Last week we saw how the two-argument form is far from simplistic and limiting. Using movement and merging we were able to convert three sentences,
Joan saw the man; the man was wearing the hat; Joan had bought the hat
into a single hierarchical sentence,
The man Joan saw was wearing the hat Joan had bought.

This may at first look to be a complex sentence, but it is merely the combination of three two-argument forms, and it is only possible because each of the two nouns in the central sentence are used in the surrounding sentences. If we try to add a fourth sentence, *the man had stolen the hat*, say, we have a problem: the hat and the man have already been merged, they are not available to be merged again. Generativists see this as a definitional limit on language, but you may wish to test those limits in your own language.

We also saw last week that some English verbs do not seem to work in two-argument forms, they require a minimum of three arguments. The list of obligatory three-argument verbs includes: *blame, elect, give, put, send, show*. In all these cases a third argument is either given in the actual sentence or is implied within the discourse: you have to blame someone *for*, elect someone *to* or *as*, give, send or show something *to*, and put something *in*, *on* or *up*. However, as with all English grammar rules, there are exceptions (e.g. *Joan put the book down*).

Three-argument forms where the adposition is *to* can also work as ditransitives – but not all of them: *I gave/sent/showed a book to him* ➔ *I gave/sent/showed him a book*; but not *We elected Parliament an idiot*. The verb *elect* is instead part of a group (e.g. *name, make, declare*) that has its own complications. When used with the adposition *as* it can be turned into a nonstandard ditransitive where there is no movement of the indirect object: *They elected a liar President*. This means that, for *elect*, the *as* ditransitive interferes with the *to* ditransitive, so you can only have one of them. These rule exceptions are littered all over English, giving the impression that we are inventing English as we go along. So if you find an irreconcilable contradiction in your language then feel free to settle it with an arbitrary choice; it's the natural thing to do.

There are many ditransitives which do not involve obligatory three-argument verbs, all of which show the power of (but not the need for) the three-argument form; and even obligatory three-argument forms can be paraphrased to two argument forms (e.g. *Joan dropped the book; the book occupied the table* – although this tends to lose the important semantic link between *Joan* and *the table*). The fact that obligatory three-argument verbs exist, however, shows that this level of complexity is a natural part of many languages. In English, the second argument in a normal ditransitive or the third argument in an adpositional three-argument form is also known as the **indirect object** (e.g. in *I gave the cat a bath* and *I gave a bath to the cat*, the indirect object is *the cat*).

SEGMENTATION, DIFFERENTIATION, HIERARCHY

If we look at language as a mechanical process converting cognitive inputs to uttered outputs (and vice versa), then three structural requirements seem to be paramount.

- **Language needs Segmentation** to allow reuse of components and structures. As we saw last week, Vervet monkey calls are Unsegmented, so every call has a different referent, and they cannot be combined.
- **Language needs Differentiation**: components must allow meaning to be made in different ways. Campbell's monkeys have the "oo" suffix to create four calls using only three sounds; and Blue monkeys use speed of repetition to generate four calls from only two sounds.
- **Language needs Hierarchy**: a combination of components can operate as a meaning separate from the meanings of its components, and it can also operate as if it were itself a component. This means that components (phrases and clauses) can contain components (words); and, because phrases and clauses can also contain phrases and clauses, this makes language a potentially infinite system. The potential is, however, highly constrained by human short-term memory; language can never be used to its infinite potential. Chomsky sees the potential for infinite nesting (or MERGE as Chomsky names it, or recursion as most people call it) as the reason why language differs from all other communication systems. However the fact that it is all potential without actual realisation makes it a rather abstract structural requirement.

ADPOSITIONS

In English, adpositions are used in a majority of three-argument forms (There seem to be only prepositions in English and no postpositions, but I will continue using the term adposition). Adpositions usually occur after the two-argument form to which they are linked (e.g. *Joan saw the man* ***with a dog***); and, because of their role in linking nouns together, they are often described as verb-like. However, as the first sentence of this section shows, unlike verbs, some adpositional phrases can also be moved around in the utterance for emphasis. These mobile adpositional phrases have a similar role to adverbials (see below): they qualify the verb.

Unlike adverbials, however, an adpositional argument can link to the subject noun, the object noun, the verb, or the whole two-argument form (subject plus verb plus object). This is particularly noticeable when the adposition *with* is used, as the following four sentences show:

- *[**I** [saw a cottage]* ***with Snow White****]* – Snow White is with me;
- *[I [saw [**a cottage with chimneys**]]]* – the chimneys are with the cottage;
- *[I [**saw** [a cottage]* ***with binoculars****]]* – the binoculars are part of the act of seeing;
- *[**[I saw a cottage] with surprise**]* – the surprise is my surprise at seeing the cottage.

Other adpositions are less versatile, and tend to link the third argument only to the object noun (e.g. *to, into, up, on*). *By* has an extra role marking the passive, so it can also link the logical subject of an utterance to the verb-plus-remaining-two-arguments by merging the verb-plus-adposition into a phrasal verb, e.g. *[Joan] [put] [the book] [on] [the table]* ➔ *[the book] [was put on] [the table] [by Joan]*. This is not the only way to reinsert the logical subject back into a passive; and not every language has a passive form, anyway. You might wish to consider alternatives in your own language.

Of also has an extra role, as a marker of possession; e.g. *the master of the school* becomes, using moving, merging and mutation, *the school's master*. It can also, by a similar process, become *the school master*, a noun compound. Not every language tracks possession in these ways, and you may wish to consider an alternative in your language.

Adpositional phrases can also be used to qualify the subject noun, and any other nouns in an utterance. In this role they act like adjectives, but in English they are placed after the noun and not before. So we can generate forms like:

*[The King **[of Siam]**] danced [a gavotte [to the tune **[of a polka]**]] with [the Secretary [to the Treasury **[of the United States]**]]*.

This short foray into three-argument forms and adpositions shows that there are a lot of grammatical issues in how English utilises adpositions. In your own language, therefore, you have a wide range of options for how you can treat these language features. As adpositions are important features of any English text, and you have to translate an English text, it is worth applying some thought to how your language deals with three-argument and multi-argument adpositional forms.

ADJECTIVALS: DESCRIBING NOUNS

While it may be useful to have a novel lexico-semantic unit (or noun) to describe every individual object in our experience, we do not have the memory capacity to do so. Fortunately, the similarity of many objects allows us to group them together, using the same word for all of them. This gives us a hierarchy of terms, so that a **Vespula germanica** is a type of **wasp**, which is a type of **insect**, which is a type of **arthropod**, which is a type of **animal**. Using this method we can place any object relative to any other object in a tree of relationships. However, this hierarchy by itself can only place objects, it cannot compare or describe them. We need to be able to describe the objects (e.g. black and yellow, winged, stinging) if we are to convey their difference through language.

Having a set of words to describe objects also helps us to cut down on the nouns we need. For instance, when screwdrivers were invented in the late 15th century in Europe, they were all similar because screws were all similar. In the 20th century we began experimenting with different screwheads (e.g. Phillips, Robertson) and different screwdriving mechanisms (e.g. ratchet, torque), and the term screwdriver moved up the "meaning hierarchy" from specific tool to functional tool-type. To identify a specific tool we attached extra words to the noun to create different instantiations of what used to be the same thing. Adjectives were not invented in the 20th century, but they certainly made our sudden leap forward in technology easier.

As we have seen, nouns can work perfectly well in an adjectival role, and your language can easily get by without an adjectival class. However, having a group of words dedicated to describing nouns is a feature of many languages. Commonly, adjectives are used to represent sensed features of objects: visual (colour, reflectivity, shape transparency, etc.); auditory (tone, pitch, loudness, etc.); tactile (temperature, smoothness, wetness, hardness, etc); gustatory (sweetness, sourness, saltiness, bitterness, and savouriness); and olfactory (fragrant, resinous, fruity, pungent, chemical, minty, sweet, popcorn, sickening and lemon).

Some adjectives can also describe other adjectives, just as nouns can describe other nouns. An example would be *light red paint*, where *light* modifies *red*, not *paint*. *Senile decrepit lecturer* would not be an example, because both adjectives modify the noun *lecturer*. We usually put a comma between *senile* and *decrepit* to indicate their common hierarchical level, but we leave it out where the first adjective modifies the second.

For some reason, adjectives are also a rich source of metaphor. This is possibly because the senses are seldom engaged singly: vision is often accompanied by sound and scent; and tasting is also touching and smelling. One of the reasons babies put things in their mouth is because it is generalised adjectival detector system.

There is a sixth sense which is also heavily engaged, namely the attentional interpretation system itself: we have conscious reactions to our senses, adding new values and meanings – and adjectivals – to our language. A fish is no longer just *cold* and *wet*, it is *clammy*; and an unripe fruit is not just *hard* and *sour* and *fibrous* and *resinous*, it is *horrible*. From a prelinguistic sensory reaction to unripe fruit we generated a sense of distaste which we were able to metaphorically apply to any distasteful situation or object.

When creating your adjectival system, you may wish to consider:

- The senses available to your language-speakers;
- The aspects of those senses they can detect;
- The way they relate to those aspects, both biologically and culturally;
- The metaphorical associations they draw from those relations.

ADVERBS: QUALIFYING AND MODIFYING

The English class of adverbs is a motley collection of word forms. In your language you may wish to convert some of them into their own separate categories. The forms include:

- **Verb modifiers**, e.g. *Joan put the book on the table **quietly***. In this form the English adverb is highly mobile: In *[1] Joan [2] put the book [3] on the table [4]*, ***quietly*** can occupy any of the numbered positions. Verb modifiers are traditionally seen as modifying manner, place, time, frequency and certainty – the last three of which you will have encountered in relation to verb tense. This is why the tense system of a language can be run completely with adverbials, as in BSL. The first two (manner and place) add meanings to the verb that are not already present in the verb; so you can *sneak loudly*; but *sneak quietly* is treated stylistically as a tautology.
- **Adjective modifiers**, e.g. *really **red***. These adverbs are often emphatics or markers of degree. The Queen of adjective modifiers used to be *quite*, then *very*, and it is now *extremely*. It's not just money that suffers from hyperinflation.
- **Noun modifiers**, e.g. *is it **really** a rose?* Officially, adverbs can also modify noun phrases and clauses, which, in English, puts them on fuzzy ground. For instance, Wikipedia treats *I bought only the fruit* as *[I] [bought] [**only** the fruit]*; but it can also be seen as *[I] [bought **only**] [the fruit]*, making it a verb modifier. Similarly, they treat the adverb in ***Certainly** we need to act* as a sentence modifier; but once again it can be seen as a modifier of the verb *need*, as in *we **certainly** need to act*. Interestingly, attaching *certainly* to the main verb changes the meaning (*we need to act certainly*); but it's still a verb modifier.

DEIXIS AND DETERMINING

Deixis (pointing, either with gestures or with words) is another area where adverbs play a role. Words like *here, there, everywhere, yesterday, today, tomorrow, now*, etc. are treated as adverbs because, in English, we don't know where else to put them. However, nouns are often described as including places, and *here* and *there* are definitely places. Your language can dispose of these awkward little words by converting them into noun phrases: the here-place, the there-place, the all-places, the previous-day, the now-day, the morrow, etc. Many English terms for space and time are already nouns (*mile, bus-stop, home* (also an adverb – they get everywhere), *week, minute, day, year*, etc.), so converting the remaining non-specific adverbial locations to nouns would be a reasonable choice.

Other words for time and space are adjectives (e.g. *leading, following, full, empty, open, closed, square, circular, early, late*, etc). Adjectives for time are fewer than for space because time tends to be a feature of verbs rather than nouns; so you will probably need to keep some kind of verb modifier adverb system for time adverbs; but other than that, you could remove all deixis from the grasp of adverbs – or you can extend that grasp, should you so wish; it's your language.

Determiners (*a, the, some, many, this, that, yon, these, those*, etc.) are another aspect of deixis, and work very like adjectives. In English there is a rule that determiners precede all other noun qualifiers in a noun phrase, but this is convention, not a universal grammatical rule. English has a weird system where indefinite articles have singular and plural forms, but definite articles do not. Some languages (e.g. Russian, Latin) do not require articles (*a, the, some*), so they are not needed at all in your language if you don't want them.

A SIMPLER SYSTEM

Instead of nouns being modified by nouns, adjectives, adverbs and determiners, adjectives modified by adjectives and adverbs, and adverbs modified by other adverbs, you could design your language around terms like nominal modifier 1 (anything that modifies a noun), nominal modifier 2 (anything that modifies a noun modifier), and nominal modifier 3 (anything that modifies a noun modifier modifier). It may simplify things for you. For example:

Really quaint old building ➔ [Really [quaint [old [building] = [nm3 [nm2 [nm1 [n]]]].

Similarly, verb-modifying adverbs become verb modifiers, a separate class of words from other adverbials. Don't forget that the English order of modifiers is a convention that your language does not have to follow. You can also impose limits on the number of modifiers allowed at each level (one is a good number; I still remember an old friend telling me, "one adjective is literature, two is pornography".)