Parts of Speech

0. WORDS AND WHY THEY MATTER TO SYNTAX

It goes without saying that sentences are made up of words, so before we get into the meat of this book, it's worth looking carefully at different kinds of words.

What is most important to us here is the word's **part of speech** (also known as **syntactic category**). The most common parts of speech are **nouns**, **verbs**, **adjectives**, **adverbs**, and **prepositions** (we will also look at some other less familiar parts of speech below). Parts of speech tell us how a word is going to function in the sentence. Consider the sentences in (1). Notice that we can substitute various words that are of the type *noun* for the second word in the sentence:

1) a) The *man* loved peanut butter cookies.
   b) The *puppy* loved peanut butter cookies.
   c) The *king* loved peanut butter cookies.

However, we cannot substitute words that aren't nouns:[1]

2) a) *The *green* loved peanut butter cookies.
   b) *The *in* loved peanut butter cookies.
   c) *The *sing* loved peanut butter cookies.

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[1] Remember, the * symbol means that a sentence is syntactically ill-formed.

The same holds true for larger groups of words (the square brackets […] mark off the relevant groups of words).

3) a) *[John]* went to the store.
    b) *[The man]* went to the store.
    c) **[Quickly walks]* went to the store.

4) a) *[Norvel]* kissed the blarney stone.
    b) **[To the washroom]* kissed the blarney stone.

If we have categories for words that can appear in certain positions and categories for those that don't we can make generalizations (scientific ones) about the behavior of different word types. This is why we need parts of speech in syntactic theory.

1. DETERMINING PART OF SPEECH

1.1 The Problem of Traditional Definitions

If you were taught any grammar in school, you may have been told that a noun is a "person, place, or thing," or that a verb is "an action, state, or state of being." Alas, this is a very over-simplistic way to characterize various parts of speech. It also isn't terribly scientific or accurate. The first thing to notice about definitions like this is that they are based on semantic criteria. It doesn't take much effort to find counterexamples to these semantic definitions. Consider the following:

5) The *destruction* of the city bothered the Mongols.

The meaning of *destruction* is *not* a "person, place, or thing." It is an action. By semantic criteria, this word should be a verb. But in fact, native speakers unanimously identify it as a noun. Similar cases are seen in (6):

6) a) *Sincerity* is an important quality.
    b) The *assassination* of the president.
    c) *Tucson* is a great place to live.

Sincerity is an attribute, a property normally associated with adjectives. Yet in (6a), *sincerity* is a noun. Similarly in (6b) *assassination*, an action, is functioning as a noun. (6c) is more subtle. The semantic property of identifying a location is usually attributed to a preposition; in (6c) however, the noun *Tucson*, refers to a location, but isn't itself a preposition. It thus seems difficult (if not impossible) to rigorously define the parts of speech based solely on se-

mantic criteria. This is made even clearer when we see that a word can change its part of speech depending upon where it appears in a sentence:

7) a) Gabrielle's *mother* is an axe-murderer.   (N)
    b) Anteaters *mother* attractive offspring.   (V)
    c) Wendy's *mother* country is Iceland.   (Adj)

The situation gets even muddier when we consider languages other than English. Consider the following data from Warlpiri:

8) Wita-ngku ka   maliki wajilipinyi.
    small-SUBJ AUX dog   chase.PRES
    "The small (one) is chasing the dog."

In this sentence, we have a thing we'd normally call an adjective (the word *wita* "small") functioning like a noun (e.g., taking subject marking). Is this a noun or an adjective?

It's worth noting that some parts of speech don't lend themselves to semantic definitions at all. Consider the sentence in (9). What is the meaning of the word *that*?

9) Mikaela said that parts of speech intrigued her.

If parts of speech are based on the meaning of the word, how can we assign a part of speech to word for which the meaning isn't clear.[2]

Perhaps the most striking evidence that we can't use semantic definitions for parts of speech comes from the fact that you can know the part of speech of a word without even knowing what it means:

10) The yinkish dripner blorked quastofically into the nindin with the pidibs.

Every native speaker of English will tell you that *yinkish* is an adjective, *dripner* a noun, *blorked* a verb, *quastofically* an adverb, and *nindin* and *pidibs* both nouns, but they'd be very hard pressed to tell you what these words actually mean. How then can you know the part of speech of a word without knowing its meaning? The answer is simple: The definitions for the various parts of speech are not semantically defined. Instead they depend on where the words appear in the sentence and what kinds of affixes they take. Nouns are things that that appear in "noun positions" and take "noun suffixes" (end-

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[2] Be careful here: the *function* of the word is clear (it is used to subordinate clauses inside of sentences) but it doesn't have an obvious *meaning* with respect to the real world.

ings). The same is true for verbs, adjectives, etc. Here are the criteria that we used to determine the parts of speech in sentence (10):

11) a) yinkish   between *the* and a noun
                      takes *-ish* adjective ending
    b) dripner   after an adjective (and *the*)
                      takes *-er* noun ending
                      subject of the sentence
    c) blorked   after subject noun
                      takes *-ed* verb ending
    d) quastofically after a verb
                      takes *-ly* adverb ending
    e) nindin   after *the* and after a preposition
    f) pidibs   after *the* and after a preposition
                      takes *-s* noun plural ending

The part of speech of a word is determined by its place in the sentence and by its morphology, *not* by its meaning. In the next section, there is a list of rules and distributional criteria that you can use to determine the part of speech of a word.

1.2 Distributional Criteria

The criteria we use for determining part of speech then aren't based on the meanings of the word, but on its **distribution**. We will use two kinds of distributional tests for determining part of speech: morphological distribution and syntactic distribution.

First we look at **morphological distribution**; this refers to the kinds of affixes (prefixes and suffixes) and other morphology that appear on a word. Let's consider two different types of affixes. First, we have affixes that make words out of other words. We call these affixes **derivational morphemes**. These suffixes usually result in a particular part of speech. For example, if we take the word *distribute* we can add the derivational suffix *-(t)ion* and we get the noun *distribution*. The *-(t)ion* affix thus creates nouns. Any word ending in *-(t)ion* is a noun. This is an example of a morphological distribution. A similar example is found with the affix *-al*, which creates adjectives. If we take *distribution*, and add *-al* to it, we get the adjective *distributional*. The *-al* ending is a test for being an adjective. Derivational affixes make a word a particular category; by contrast **inflectional morphemes** don't *make* a word into a particular category, but instead only *attach* to certain categories. Take for example the superlative suffix *-est*. This affix only attaches to words that are already adjectives: *big, biggest,* (cf. *dog, *doggest*). Because they are sensi-

tive to what category they attach to, inflectional suffixes can also serve as a test for determining part of speech category.

> **A Warning: Homophony in English Affixes**
> Compared to other languages with much richer morphological systems, English morphology is rather poor. In many cases, the same affix can be used in very different ways. For example, the inflectional suffix *-s* is found both as a marker of present tense in the third person, *he walks* and as the plural marker, *peanuts*. In fact, leaving aside the difference in punctuation (the apostrophe), it is also used to mark possessors: *John's backpack; its cover*. A similar effect is seen with many other suffixes. For example -er is used both derivationally to form nouns: *dancer*, and as a comparative inflectional marker on adjectives: *bigger*. Because so many suffixes in English are homophonous (sound the same, but have different usages), be very careful when using them for morphological distribution tests.

The other kind of test we use for determining part of speech uses ***syntactic distribution***. Syntactic distribution refers to what other words appear near the word. For example, in nouns typically appear after determiners (articles) such as *the*, although they need not do so to be nouns. We can thus take appearance after *the* to be a test for noun-hood.

> **Something to think about: Circularity**
> In section 1 of this chapter, it was claimed that we needed parts of speech to help us determine where in the sentence a word appeared. So for example, we know that verbs and adjectives in English don't function as the subjects of sentences. Above we have given one test for part of speech category in terms of the words distribution in the sentence. Here's something to think about. Have we created a circular argument: category determines position in the sentence and the position in the sentence determines category? Is this really circular? Does it matter?

2. THE MAJOR PARTS OF SPEECH: N, V, ADJ, AND ADV

Having determined that we are going to use distributional criteria for determining the part of speech of a word, we'll now turn to some tests for particular lexical items. We'll limit ourselves to the major classes of noun

(N), verb (V), adjective (Adj), and adverb (Adv). We'll look at other parts of speech in later sections.

One thing that you'll notice is that these are specific to English. Every language will have its own distributional criteria. For each language linguists have to develop lists like the ones below.[3]

A final word of qualification is in order, not every test will work in every situation, so it is usually best to use multiple morphological and syntactic tests for any given word if you can.

2.1 Nouns

Derivational Suffixes: In English, nouns often end in derivational endings such as *-ment (basement), -ness (friendliness), -ity (sincerity), -ty (certainty), -(t)ion (devotion), -ation (expectation), -ist (specialist), -ant (attendant), -ery (shrubbery), -ee (employee), -ship (hardship), -aire (billionaire), -acy(advocacy) , -let (piglet), -ling (underling), -hood (neighborhood), -ism (socialism), -ing (fencing).*

Inflectional Suffixes: Nouns in English don't show much inflection, but when pluralized can take suffixes such as *-s (cats), -es (glasses), -en (oxen), -ren (children), -i (cacti), -a (addenda).*

Note that the following endings have homophonous usage with other parts of speech: *-ing, -s, 's, -er, -en.*

Syntactic Distribution: Nouns often appear after determiners such as *the, those, these*, (e.g., *these peanuts*) and can appear after adjectives (*the big peanut*). Nouns can also follow prepositions (*in school*). All of these conditions can happen together: *in the big gymnasium*). Nouns can appear as the subject of the sentence (we will define subject rigorously in a later chapter): <u>*The syntax paper*</u> *was incomprehensible*; or as the direct object: *I read* <u>*the syntax paper*</u>. Nouns can be negated by *no* (as opposed to *not* or *un-*): *No apples were eaten*.

One easy way to see if something is a noun is to see if you can replace it with another word that is clearly a noun. So if we want to see if the word *people* is a noun or not, we can substitute another word we know for sure to be a noun, e.g., *John (I saw people running all over the place* vs. *I saw John running all over the place).*

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[3] The lists in this section are based on the discussions of English morphology found in Katamba (1994) and Harley (2006).

2.2 Verbs

Derivational Suffixes: Verbs often end in derivational endings such as *-ate (dissipate)*, and *-ize/-ise (regularize)*.

Inflectional Suffixes: In the past tense, verbs usually take an *-ed* or *-t* ending. In the present tense, third person singular (he, she, it), they take the *-s* ending. Verbs can also take an *-ing* ending in some aspectual constructions, (she was walking) and take either an *-en* or an *-ed* suffix when they are passivized (more on passivization in later chapters): *the ice-cream was eaten*.

Note that the following endings have homophonous usage with other parts of speech: *ate, -ing, -s, -er, -en, -ed*.

Syntactic Distribution: Verbs can follow auxiliaries and modals such as *will, have, having, had, has, am, be, been, being, is, are, were, was, would, can, could, shall, should,* and the special infinitive marker *to*. Verbs follow subjects, and can follow adverbs such as *often* and *frequently*. Verbs can be negated with *not* (as opposed to *no* and *un-*[4]).

2.3 Adjectives

Derivational Suffixes: Adjectives often end in derivational endings such as *-ing (the dancing cat), -ive (indicative), -able (readable), -al (traditional), -ate (intimate), -ish (childish), -some (tiresome), -(i)an (reptilian), -ful (wishful), -less (selfless), -ly (friendly)*.

Inflectional Suffixes: Adjectives can be inflected into a comparative form using *-er* (alternately they follow the word *more*). They can also be inflected into their superlative form using *-est* (alternately they follow the word *most*). Adjectives are typically negated using the prefix *un-* (in its sense meaning "not", not in its sense meaning "undo").

Note that the following affixes have homophonous usage with other parts of speech: *-ing, -er, -en, -ed, un-, -ly*.

Syntactic Distribution: Adjectives can appear between determiners such as *the, a, these* etc. and nouns: (the <u>big</u> peanut). They also can follow the auxiliary *am/is/are/was/were/be/been/being* (warning: this distribution overlaps with verbs). Frequently, adjectives can be modified by the adverb *very* (warning: this distribution overlaps with adverbs).

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[4] There are verbs that begin with *un-*, but in these circumstances *un-* usually means "reverse" not negation.

You now have enough information to try Challenge Problem Sets 1 & 2

Adjectives and Adverbs: Part of the Same Category?

Look carefully at the distributions of Adjectives and Adverbs. There is a great deal of overlap between them. Adverbs typically take *-ly*; however, there are also a number of clear adjectives that take this suffix too (e.g., *the friendly cub)*. Both Adj and Adv can be modified by the word *very*, and they both have the same basic function in the grammar – to attribute properties to the items they modify. In fact the only major distinction between them is syntactic: Adjectives appear inside NPs, Adverbs appear elsewhere. This kind of phenomenon is called ***Complementary Distribution***. (Where you get an adjective vs. an adverb is entirely predictable.) When two elements are in complementary distribution in linguistics, we normally think of them as variants of the same basic category. For example, when two sounds in phonology are in complementary distribution, we say they are allophones of the same phoneme. We might extend this analysis to parts of speech: there is one "supercategory" labeled "A" that has two subcategories in it (allo-parts-of-speech if you will): Adj and Adv. In this book we'll stick with the traditional Adj and Adv categories, simply because they are familiar to most people. But you should keep in mind that the category A (including both Adjectives and Adverbs) might provide a better analysis and might be better motivated scientifically

2.4 Adverbs

Derivational Suffixes: Many adverbs end in *-ly*: *quickly*, *frequently,* etc.

Inflectional Suffixes: Adverbs generally don't take any inflectional suffixes. However, on rare occasions they can be used comparatively and follow the word *more*: *She went <u>more quickly</u> than he did.* Adverbs typically don't take the prefix *un-* unless the adjective they are derived from does first (e.g. *unhelpfully* from *unhelpful*, but **unquickly, *unquick*).

Syntactic Distribution: The syntactic distribution of adverbs is most easily described by stating where they can't appear. Adverbs can't appear between a determiner and a noun (**the quickly fox*) or after the verb *is* and its variants.[5]

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[5] In some prescriptive variants of English, there are a limited set of adverbs that can appear after *is*. For example, the *well* is prescriptively preferred over *good*, in such constructions as *I am well* vs. *I am good* (referring to your state of being rather than the

They can really appear pretty much anywhere else in the sentence, although typically they either appear at the beginning or end of the clause/sentence. Frequently, like adjectives, they can be modified by the adverb *very*.

You now have enough information to answer General Problem Sets 1 & 2

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3. OPEN VS. CLOSED; LEXICAL VS. FUNCTIONAL

3.1 Open vs. Closed Parts of Speech

Some parts of speech allow you to add neologisms (new words). For example, imagine I invented a new tool especially for the purpose of removing spines from cacti, and I called this tool a *pulfice*. This kind of word is easily learned and adopted by speakers of English. In fact, we might even predict that speakers would take *pulfice* and develop a verb *pulficize*, which means to remove cacti spines using a *pulfice*. New words may be coined at any time, if they are open class (e.g., *fax, internet, grody*). By contrast there are some parts of speech that don't allow new forms. Suppose I wanted to describe a situation where one arm is under the table and another is over the table, and I called this new preposition *uvder*: *My arms are uvder the table.* It's fairly unlikely that my new preposition, no matter how useful it is, will be adopted into the language. Parts of speech that allow new members are said to be **open class**. Those that don't (or where coinages are very rare) are **closed class**. All of the cases that we've looked at so far have been open class parts of speech.

3.2 Lexical vs. Functional

The open/closed distinction is similar to (but not identical to) another useful distinction in parts of speech. This is the distinction between lexical and functional parts of speech. **Lexical** parts of speech provide the "content" of the sentence. Nouns, verbs, adjectives and adverbs are all lexical parts of speech. **Functional** parts of speech by contrast provide the grammatical information. Functional items are the "glue" that holds a sentence together. One way to tell if a lexical item is functional or lexical is to see if it is left behind in "telegraphic speech" (that is, the way a telegram would be written; e.g., *Brian bring computer! Disaster looms!*). Functional categories include De-

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acceptability of your behavior). Most speakers of American English don't allow any adverbs after *is*.

terminers, Prepositions, Complementizers, Conjunctions, Negation, Auxiliaries and Modals. We will detail some of these below in section 3.3.

A Closed Lexical Subclass

You may have noticed that the open class and lexical class correspond to exactly the same categories; similarly all of the cases of functional categories I've mentioned are pretty clearly closed class items. So you might be wondering why we have both the notions open and lexical and both the notions closed and functional. There are two cases where we have a mismatch between the terms: Pronouns and Anaphors. These are lexical (they are a subtype of N), but they are closed classes.

You now have enough information to answer Challenge Problem Set 3

3.3 Some Functional (Closed) Categories of English

We'll survey here some of the main functional categories of English. This list is by no means complete. While it is possible to provide distributional definitions for various functional parts of speech, because they are closed, there are relatively few members of each class; so it's possible to simply list most of them.

     We'll start our categorization with **Prepositions** (abbreviated P). Prepositions appear before nouns (or more precisely noun phrases). English prepositions include the following:

12) *Prepositions of English* (P): to, from, under, over, with, by, at, above, before, after, through, near, on, off, for, in, into, of, during, across, without, since, until.

     The class of **determiners** (D) is a little broader. It contains a number of subcategories including articles, quantifiers, numerals, deictics, and possessive pronouns. Determiners appear at the very beginning of English noun phrases.

13) *Determiners of English* (D)
     a) *Articles:* the, a, an
     b) *Deictic articles:* this, that, these, those, yon

    c)   *Quantifiers*[6]: every, some, many, most, few, all, each, any, less, fewer, no
    d)   *(Cardinal) numerals:* one, two, three, four, etc.
    e)   *Possessive pronouns*[7]*:* my, your, his, her, its, our, their
    f)   *Some wh-question words:* which, whose

Conjunctions (Conj) are words that connect two or more phrases together on an equal level:

14) *Conjunctions of English* (Conj): and, or, nor, neither … nor, either … or

The class of **complementizers** (C) also connects structures together, but they embed one clause inside of another instead of keeping them on an equal level:

15) *Complementizers of English* (C): that, for, if, whether

One of the most important categories that we'll use is the category of **Tense** (T). For the moment we will *not* include tense suffixes such as *-ed* and *-s* in this class, and treat those as parts of verbs (we will revisit this issue in chapter 8). Instead the category T consists of auxiliaries, modals and the non-finite clause marker. In the older syntactic literature, the category T is sometimes called Infl (inflection) or Aux (Auxiliary). We'll use the more modern T.

16) *Tense categories of English* (T)
    Auxiliaries: have/has/had, am/is/are/was/were, do
    Modals: will, would, shall, should, can, could
    Non-finite Tense marker: to

There is one special category containing only one word: *not* which we'll call **negation** (Neg). There are other categories that express negation (e.g., the determiners *no, any,* and the noun *none*). We'll reserve the category Neg for the word *not*, however.

You now have enough information to answer General Problem Sets 4 & 5 and Challenge Problem Set 4

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[6] Not all quantifiers can be determiners, for example, the quantifiers *lot* and *least* cannot function in this capacity (and are a noun and adjective respectively).

[7] The possessive forms *mine, yours, hers, theirs,* and *ours* are nouns, as are some uses of *his* and *its* (when there is no other noun in the NP).

3.4 Summary

This concludes our discussion of the major classes of words. We've looked at the distributional criteria for the open/lexical categories of N, V, Adj, and Adv, and we've listed the main functional/closed categories of P, D, Conj, Neg, C, and T.

4. SUBCATEGORIES AND FEATURES

You may have noticed that in sections 2 and 3, I hinted that each major part of speech category may have sub-types. For example, we listed six different kinds of D (articles, deictics, quantifiers, numerals, possessive pronouns, *wh-*pronouns) and three kinds of T (auxiliaries, modals, and the non-finite marker). The technical term for these subtypes is ***subcategories***. For the most part, we are going to be interested in the main Parts of Speech Categories (N, V, Adj, Adv, P, D, Conj, C, T, and Neg), but sometimes we will want to refer to the subcategories.

   One way to mark subcategories is through the use of ***features***. Consider the case of T. To distinguish among the subcategories we can appeal to the features [±modal] and ±non-finite]:

17) Auxiliary $T_{[-\text{Modal}, -\text{Nonfinite}]}$
      Modal $T_{[+\text{modal}, -\text{Nonfinite}]}$
      to $T_{[-\text{modal}, +\text{Nonfinite}]}$

There is, of course, one set of possible values of these features which is missing ([+Modal, +Nonfinite]). We might similarly distinguish among tense forms using features like [±past] etc.

   Similarly we can distinguish among the various kinds of determiner using features like [±wh], [±quantifier], [±deictic], etc. The details of this kind of analysis aren't crucial to the grammar fragments you are given in this book, as long as you understand the basic concept behind using features to mark subcategories. In the rest of this section, we look at some of the subcategories of N, V and P that will be of use to us in the rest of the book.

   I'm not going to discuss subcategories of Adj and Adv, although they exist. In a grey textbox above, I've suggested that Adj and Adv are themselves subcategories of a larger category A. We also find many subcategories *within* the Adj and Adv categories. These distinctions are explored in problem sets at the end of the chapter.

4.1 Subcategories of Nouns

We can slice the pie of English nouns apart along several dimensions including plural vs. singular, proper vs. common, pronoun vs. lexical noun, and count vs. mass noun.

First let's distinguish along the line of **plurality**. English nouns can be either singular or plural. The distinction between singular and plural is usually morphologically marked with one of the plural endings (although it need not be: *mice, deer*). Singular nouns in English require a D; plural ones do not require a D, although they allow one:

18) a)   *Cat ate the spider
    b)   The cat ate the spider
    c)   Cats ate the spider
    d)   The Cats ate the spider

We mark this distinction with the feature [±plural]

Closely related to the plural/singular distinction is the **count** vs. **mass** noun distinction. Count nouns represent individual, "countable" elements. For example, *apple* is a count noun. "Mass nouns" usually can't be counted in the same way. For example *sincerity* and *air* are mass nouns. There are two easy distributional tests to distinguish between mass and count nouns. Mass nouns take the quantifier *much*, count nouns take the quantifier *many*.

19) a)   many apples
    b)   *much apples/apple[8]
    c)   *many sincerity
    d)   *many air
    e)   much sincerity
    f)   much air.

Like plurals mass nouns generally don't require a determiner, but count nouns do:

20) a)   *I ate apple
    b)   I ate the apple
    c)   I ate sugar
    d)   I ate the sugar
    e)   He is filled with sincerity

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[8] Many native speakers of English will be able to "force" a reading onto *much apple*. But what they are doing is using *apple* as a mass noun (referring to the state of being an apple or the totality of apples in the universe). It is often possible to force a mass reading on count nouns, and a count reading on mass nouns (e.g. the water).

    f)   I doubt his sincerity

We distinguish between count and mass nouns using the feature [±count]

    Next, let us distinguish between ***proper names*** and ***common nouns***. Proper Names are nouns like *Andrew Carnie*. Common nouns are all other nouns. For the most part proper names resist taking determiners:

21) a)   Andrew Carnie
    b) *the Andrew Carnie

There are some exceptions to this generalization. For example, when referring to a family it's common to say *the Smiths*. In other languages, proper names can take determiners. For example, in Spanish, it is perfectly acceptable to say *La Rosamaria* "the Rosemary". If necessary, we can distinguish proper names from common nouns using the feature [±common], although this feature is less useful than the others.

    Finally let's look at the subcategories of ***pronouns*** and ***anaphors***. These classes differ from the others in that they are closed. They never allow determiners or adjectival modification.

22) a)   he
    b)   himself
    c) *the he
    d) *the himself
    e) *big he
    f) *big himself

Pronouns belong to the class [+pronoun, –anaphor]. Anaphors are [+pronoun, +anaphor]. All other nouns are [–pronoun, –anaphor]. For the purposes of this book we are treating possessive pronouns as determiners, not as a subcategory of nouns.

You now have enough information to do General Problem Set 6

4.2 Subcategories of Verbs

There are really two major ways in which we can divide up verbs into subcategories. One is along the lines of tense/finiteness (i.e., whether the verb is *left*, *leaves*, (*will*) *leave* or (*to*) *leave*. We're going to leave these distinctions aside until chapter 8, although hopefully it is obvious by now how we'd use features to distinguish among them, even if the precise features we'd use aren't defined yet. The other way to divvy up verbs is in terms of the number of Noun Phrases (NPs) and Prepositional Phrases (PPs) or clauses (CPs) they require. This second kind of division is known as ***argument structure***.

In order to discuss argument structure, we first need to define some basic terms. If you took grammar in school, you probably learned that "every sentence has a subject and a predicate." Under your schoolroom definitions, the subject is usually the first noun phrase (that is, the first noun and all things that go along with it), and the predicate is everything else. So for example, in (23) the subject is *the dastardly phonologist*, and the predicate would be *stole the syntactician's lunch*.

23) [The dastardly phonologist][stole the syntactician's lunch].
    subject   *predicate*   (traditional definitions)

The definition of subject isn't too bad (we'll refine it later though), but syntacticians use the term "predicate" <u>entirely differently</u>. The syntactician's definition of predicate is based on the mathematical notion of a "relation." The **predicate** defines the relation between the individuals being talked about and the real world – as well as with each other. The entities (which can be abstract) participating in the relation are called **arguments**. To see how this works, look at the following example:

24) Gwen hit the baseball.

There are two arguments in this example, *Gwen* and *the baseball*. These are elements in the world that are participants in the action described by the sentence. The predicate here is *hit*. *Hit* expresses a relation between the two arguments: more precisely, it indicates that the first argument (*Gwen*) is applying some force to the second argument (*the baseball*). This may seem patently self-evident, but it's important to understand what is going on here on an abstract level. This usage of the terms predicate and argument is identical to how they are used in formal logic.

We can speak about any particular predicate's **argument structure**. This refers to the number of arguments that a particular predicate requires. Another name for argument structure is **valency**. Take, for example, predicates that take only one argument (i.e., they have a valency of 1). These are predicates like *smile, arrive, sit, run,* etc. The property of transitivity refers to how many arguments follow the verb. In predicates with a valency of 1, no arguments follow the verb (the single argument *precedes* the verb), so these predicates are said to be **intransitive**. Predicates that take two obligatory arguments have a valency of 2; some examples are *hit, love, see, kiss, admire,* etc. These predicates are said to be **transitive**, because they have a single argument after the noun (the other argument precedes the verb). Finally predicates that take three arguments have a valency of 3. *Put* and *give* are the best examples of this class. These predicates have two arguments after the verb so are said to be **ditransitive**.

25)

Transitivity	Valency	Example
Intransitive	1 argument	smile, arrive
Transitive	2 arguments	hit, love, kiss
Ditransitive	3 arguments	give, put

In determining how many arguments a predicate has, we only consider the obligatory NPs and PPs. Optional ones are never counted in the list of arguments. Only obligatory elements are considered arguments.

Did You Run the Race?

The claim that only obligatory arguments are found in argument structure is not as straightforward as it sounds. Consider the verb *run*. It has both an intransitive use *(I ran)* and a transitive use *(I ran the race)*. A similar problem is raised by languages that can drop the subject argument (e.g. Spanish and Italian) and by imperative sentences in English (*Go home now!*). The subject is still an argument in these constructions, even though you can't hear it. In situations like the verb *run*, we'll simply claim that there are two verbs *to run*: one that takes an object and one that doesn't.

Predicates impose other restrictions on their arguments too. For example, they also place restrictions on the categories of the things that go with them. A verb like *ask* can take either an NP or a clause (embedded sentence = CP) as a complement:

26) a) I asked [$_{NP}$ the question].
    b) I asked [$_{CP}$ if you knew the answer].

But a verb like *hit* can only take an NP complement:

27) a) I hit [$_{NP}$ the ball].
    b)*I hit [$_{CP}$ that you knew the answer].

With these basics in mind, we can set up a series of features based on how many and what kind of arguments a verb takes.

Let's start with intransitives. These require a single NP subject. We'll mark this with the feature [NP ___] where the underscore represents where the verb would go in the sentence. An example of such a verb would be *leave*.

Most transitive verbs require an NP object, so we can mark these with the feature [NP ___ NP], an example of this is the verb *hit*, seen above in (27). Verbs like *ask* (see 26 above), *think, say*, etc. allow either an NP object or a CP (embedded clause) object. We can mark this using curly brackets {} and a

slash. {NP/CP} means "a choice of NP or CP." So the feature structure for predicates like this is [NP __ {NP/CP}].

Ditransitive verbs come of several major types. Some ditransitives require two NP objects (the first is an indirect object the other a direct object.) The verb *spare* is of this category. It does not allow an NP and a PP:

28) a) I spared [$_{NP}$ him] [$_{NP}$ the trouble].
    b) *I spared [$_{NP}$ the trouble] [$_{PP}$ to him].

This category of ditransitive is marked with the feature [NP __ NP NP]. The opposite kind of ditransitive is found with the verb put. Put requires an NP and a PP:

29) a) *I put [$_{NP}$ the box] [$_{NP}$ the book].
    b) I put [$_{NP}$ the book] [$_{PP}$ in the box].

This kind of ditransitive takes the feature [NP __ NP PP]. We also have ditransitives that appear to be a combination of these two types and allow either an NP or a PP in the second position:

30) a) I gave [$_{NP}$ the box] [$_{PP}$ to Leah].
    b) I gave [$_{NP}$ Leah] [$_{NP}$ the box].

These have the feature [NP ___ NP {NP/PP}]. Finally we have ditranstives that take either two NPs, or one NP and one CP, or an NP and a PP:

31) a) I told [$_{NP}$ Daniel] [$_{NP}$ the story].
    b) I told [$_{NP}$ Daniel] [$_{CP}$ that the exam was cancelled].
    c) I told [$_{NP}$ the story] [$_{PP}$ to Daniel].

Verbs like *tell* have the feature [NP __ NP {NP/PP/CP}].

The following chart summarizes all the different subcategories of verb we've discussed here:

32)

Subcategory	Example
V$_{[NP\_]}$ (intransitive)	*Leave*
V$_{[NP\_\_\_NP]}$ (transitive type 1)	*Hit*
V$_{[NP\_\_\_\{NP/CP\}]}$ (transitive type 2)	*Ask*
V$_{[NP\_\_\_NP\ NP]}$ (ditransitive type 1)	*Spare*
V$_{[NP\_\_\_NP\ PP]}$ (ditransitive type 2)	*Put*
V$_{[NP\_\_\_NP\ \{NP/PP\}]}$ (ditransitive type 3)	*Give*
V$_{[NP\_\_\_NP\ \{NP/PP/CP\}]}$ (ditransitive type 4)	*Tell*

There are other types of verbs that we haven't listed here. We'll introduce the features, as we need them.

You can now try General Problem Set 7 and Challenge Problem Sets 5 & 6

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5. SUMMARY

In this chapter, we've surveyed the parts of speech categories that we will use in this book. We have the Lexical parts of speech N, V, Adj, Adv, and the functional categories D, P, C, Conj, Neg, and T. Determining part of speech is done not by traditional semantic criteria, but by using morphological and syntactic distribution tests. We also looked at distributional evidence for various subcategories of Nouns and Verbs, and represented these distinctions as feature notations on the major categories.

IDEAS, RULES, AND CONSTRAINTS INTRODUCED IN THIS CHAPTER

i)   ***Parts of Speech*** *(a.k.a. **word class**, **syntactic categories**)*: The labels we give to constituents (N, V, Adj, Adv, D, P, C, T, Neg, Conj). These determine the position of the word in the sentence

ii)   ***Distribution***: Parts of Speech are determined based on their distribution. We have both ***morphological distribution*** (what affixes are found on the word) and ***syntactic distribution*** (what other words are nearby).

iii) ***Complementary Distribution***: When you have two categories and they never appear in the same environment (context), you have complementary distribution. Typically Complementary Distribution means that the two categories are subtypes of a larger class.

iv)   Parts of speech that are ***open class*** can take new members or coinages: N, V, Adj, Adv.

v)   Parts of speech that are ***closed class*** don't allow new coinages: D, P, Conj, C, T, Neg, and the pronoun subcategory of N.

vi)   ***Lexical Categories*** express the content of the sentence. N (including pronouns), V, Adj, Adv.

vii) ***Functional Categories*** contain the grammatical information in a sentence: D, P, Conj, T, Neg, C.

viii)   *Subcategories*: The major parts of speech can often be divided up into subtypes, these are called subcategories.

ix)   *Feature notations* on major categories are a mechanism for indicating subcategories.

x)   *Plurality* refers to the number of nouns. It is usually indicated in English with an *-s* suffix. Plural nouns in English do not require a determiner.

xi)   *Count vs. Mass*: Count nouns can appear with determiners and the quantifier *many*. Mass nouns appear with *much* and usually don't have articles.

xii)   The *predicate* defines the relation between the individuals being talked about and some fact about them – as well as relations among the arguments.

xiii)   *Argument Structure*: The number of arguments that a predicate takes.

xiv)   The *arguments* are the entities who are participating in the predicate relation.

xv)   *Intransitive*: A predicate that takes only one argument.

xvi)   *Transitive*: A predicate that takes two arguments.

xvii)   *Ditransitive*: A predicate that takes three arguments.

FURTHER READING

Grimshaw, Jane (1990) *Argument Structure.* Cambridge: MIT Press.

Harley, Heidi (2006) *English Words: A Linguistic Introduction*. Oxford. Blackwell.

Katamba, Francis (2004) *English Words.* New York: Routledge.

Levin, Beth (1993) *English Verb Classes and Alternations: A Preliminary Investigation*. Chicago: University of Chicago Press.

Williams, Edwin (1983) Semantic vs. syntactic categories. *Linguistics and Philosophy* 6, 423–46.

GENERAL PROBLEM SETS

1. PART OF SPEECH 1[9]

[Application of Skills; Basic]

Identify the main parts of speech (i.e., <u>N</u>ouns, <u>V</u>erbs, <u>Adj</u>ectives/<u>Adv</u>erbs, and <u>P</u>repositions) in the following sentences. Treat hyphenated words as single words:

a)   The old rusty pot-belly stove has been replaced.
b)   The red-haired assistant put the vital documents through the new efficient shredder.
c)   The large evil leathery alligator complained to his aging keeper about his extremely unattractive description.
d)   I've just eaten the last piece of chocolate cake.

Reading Foreign Language Examples

There are three parts to most foreign language examples used in syntax. Look at the sentences above. The first line is the sentence or phrase in the language under consideration. The second line, which is the most important for our purposes, contains a word-by-word translation of the sentence. Finally, there is a colloquial English translation. The second line, called the *gloss*, is the most useful if you don't speak the language. It shows you the order of elements in the sentence. ***When reading about the syntax of foreign languages, concentrate on the order of elements in this second line.***

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2. NOOTKA

[Application of Skills; Intermediate]

Consider the following data from Nootka (data from Sapir and Swadesh 1939), a language spoken in British Columbia, Canada and answer the questions that follow the grey text box.

a)   Mamu:k-ma   qu:ʔas-ʔi.
      working-PRES   man-DEF
      "The man is working."

---

[9] Problem set contributed by Sheila Dooley-Collberg.

b) Qu:ʔas-ma   mamu:k-ʔi.
     man-PRES   working-DEF
     "The working one is a man."

(The : mark indicates a long vowel. ʔ is a glottal stop. *PRES* in the second line means "present tense," *DEF* means "definite determiner" (the).)

Questions about Nootka:
1) In sentence a, is *Qu:ʔas* functioning as a verb or a noun?
2) In sentence a, is *Mamu:k* functioning as a verb or a noun?
3) In sentence b, is *Qu:ʔas* a verb or a noun?
4) In sentence b, is *Mamu:k* a verb or a noun?
5) What criteria did you use to tell what is a noun in Nootka and what is a verb?
6) How does this data support the idea that there are no semantic criteria involved in determining the part of speech?

3. GENDER NEUTRAL PRONOUNS
[Creative and Critical Thinking; Basic]
Most standard varieties of English don't have a gender-neutral singular pronoun that can refer to humans (other than the very awkward "one"). There have been numerous attempts to introduce gender-neutral singular human pronouns into English. The following list is a subset of the ones found on John Chao's gender neutral pronoun FAQ:

> *ae, ar, co, e, em, ems, en, es, et, ey, fm, ha, hann, he'er, heesh, heir, hem, her'n,*
> *herim, herm, hes, hesh, heshe, hey, hez, hi, himer, hir, hirem, hires, hirm, his'er,*
> *his'n, hisher, hizer, ho, hom, hse, hymer, im, ip, ir, iro, jhe, le, lem, na, ne, ner, nim,*
> *on, per, po, rim, s/he, sap, se, sem, ser, sheehy, shem, shey, shim, sie, sim, ta, tem,*
> *term, tey, thim, thon, uh, ve, vim, vir, vis, xe, z, ze, zie, zim, zir.*
> (http://www.aetherlumina.com/gnp/index.html)

None of these have caught on. Instead, the otherwise plural *they/them/their/themselves* is usually felt to be more natural by native speakers. Why have the above forms not caught on, but instead we have co-opted a plural pronoun for this usage?

4. FUNCTIONAL CATEGORIES
[Application of Skills; Basic]
The following is an extract from the preface to Captain Grose's *Dictionary of the Vulgar Tongue* (1811) (from the open source Gutenberg project):

> The propriety of introducing the university slang will be readily admitted; it is not less curious than that of the College in the Old Bailey,

and is less generally understood. When the number and accuracy of
our additions are compared with the price of the volume, we have no
doubt that its editors will meet with the encouragement that is due to
learning, modesty, and virtue.

For every word in this paragraph identify its part of speech, and mark
whether part of speech is a lexical or functional part of speech and whether
the part of speech is open or closed.

5. PART OF SPEECH 2
[Application of Skills; Intermediate]
Consider the following selection from *Jabberwocky*, a poem by Lewis Carroll
(From *Through the Looking-Glass and What Alice Found There*, 1872):

> Twas brillig and the slithy toves
> Did gyre and gimble in the <u>wabe</u>;
> All mimsy <u>were</u> the borogoves,
> And the <u>mome</u> raths <u>outgrabe</u>.
>
> "Beware the Jabberwock, my son!
> The jaws that bite, the claws that catch!
> Beware the <u>Jubjub </u>bird, and shun
> The <u>frumious</u> <u>bandersnatch</u>!"
>
> He took his <u>vorpal</u> sword in hand:
> Long time the <u>manxome</u> foe he sought –
> So rested he by the <u>tumtum</u> tree
> <u>And</u> stood a while <u>in</u> <u>thought</u>.
>
> And as in <u>uffish</u> thought <u>he</u> stood
> The <u>Jabberwock</u> with eyes of flame,
> Came <u>whiffling</u> through <u>the</u> <u>tulgey</u> wood,
> and <u>burbled</u> as it came.

For each underlined word, indicate its part of speech (word class), and for
Ns, Vs, Adjs, Advs, explain the *distributional* criteria by which you came up
with that classification. If the item is a closed class part of speech, indicate
that. Do not try to use a dictionary. Most of these words are nonsense words.
You will need to figure out what part of speech they are based upon what
suffixes and prefixes they take, along with where they appear relative to
other words. Capitalization and punctuation should *not* be used as a guide to
part of speech.

6. SUBCATEGORIES OF NOUNS
[Application of Knowledge; Basic]
For each of the nouns below put a + sign in the box under the features that they have. Note that some nouns might have a plus value for more than one feature. The first one is done for you. Do not mark the minus (–) values, or the values for which the word is not specified; mark only the plus values!

Noun	Plural	Count	Proper	Pronoun	Anaphor
Cats	+	+			
Milk					
New York					
They					
People					
Language					
Printer					
Himself					
Wind					
Lightbulb					

7. SUBCATEGORIES OF VERBS
[Application of Knowledge; intermediate]
For each of the verbs below, list whether they are intransitive, transitive or ditransitive and list which features they take (see the list in (32) as an example). In some cases they may allow more than one feature. E.g., the verb *eat* is both [NP __ NP] and [NP ___]. Give an example for each feature:

> *spray, sleep, escape, throw, wipe, say, think, grudge, thank,*
> *pour, send, promise, kiss, arrive*

CHALLENGE PROBLEM SETS

CHALLENGE PROBLEM SET 1: -IAN AND -ISH
[Critical and Creative Thinking; Challenge]
In the text we claimed that the suffixes *-ian* and *-ish* mark adjectives. Consider the following sentences:

a) The Canadian government uses a parliamentary system of democracy.
b) The Canadian bought himself a barbeque.
c) The prudish linguist didn't enjoy looking at the internet.
d) We keep those censored copies of the book available to protect the sensibilities of the prudish.

What should we make the words ending in *-ish* and *-ian* in sentences (b) and (d)? Are they adjectives. If not, how can we account for the fact that these words end in *-ish* and *-ian*. There are many possible answers to this question.

CHALLENGE PROBLEM SET 2: NOMINAL PRENOMINAL MODIFIERS[10]
[Critical and Creative Thinking; Challenge]
Part 1: By the syntactic criteria given to you in section, what part of speech should the underlined words in the following examples be?

a)   the <u>leather</u> couch
b)   the <u>water</u> spout

Part 2: By contrast what do the following facts tell us about the parts of speech of leather and water:

a)   the leather
b)   the water
c)   ?the very leather couch   (cf. the very red couch)
d)   ?the very water spout (cf. the very big spout)
e)   *The more leather couch / *The leatherer couch (cf. the bigger couch)
f)   *The more water spout.

CHALLENGE PROBLEM SET 3: INTENSIFIERS
[Application of Knowledge; Challenge]
English has a subcategory of Adverbs called ***intensifiers***. This class includes *very, rather, too* (when used before an adjective), *quite*, *less*, *nearly, partly, fully, mostly,* and *sometimes*.

Question 1: Is this subcategory an open class part of speech or a closed class part of speech? Explain your answer.
Question 2: Describe the distribution of this subcategory. In particular describe where it can appear relative to other adverbs (and adjectives). Can other adverbs appear in this environment?

CHALLENGE PROBLEM SET 4: COMPLEMENTARY DISTRIBUTION
[Critical Thinking; Challenge]
In a grey textbox in section 2.4, it's argued that Adjectives and Adverbs are in complementary distribution and thus might be part of the same supercategory A. Are N and V in complementary distribution? What about Adv and

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[10] Thanks to Jack Martin for suggesting this problem set.

V? What about N and Adj? Create examples to show whether these categories are in complementary distribution. If any are in complementary distribution with the others what does this tell us about the parts of speech? Next consider whether any functional categories are in complementary distribution with lexical categories.

CHALLENGE PROBLEM SET 5: SUBCATEGORIES OF ADVERBS

[Application of Skills and Knowledge; Challenge]

Your goal in this problem set is to set up a set of subcategories for Adverbs. Consider the following adverbs:

> *luckily, earnestly, intently, hopefully, probably, certainly, frequently, patiently, always, completely, almost, again, evidently, frankly, demandingly, yesterday, necessarily*

Part 1: For each adverb determine:

1) Can it appear before the subject? (e.g., <u>Unbelievably</u>, I don't know any pixies).
2) Can it appear between the T (e.g., *will, have, is, can,* etc.) and the verb? (e.g., *I have <u>often</u> wondered about the existence of pixies.*)
3) Can it appear after the object? Or at the end of the sentence? (e.g., *Pixies eat mushrooms <u>vigorously</u>.*)
4) Can it appear between an object and a PP in a ditransitive (e.g., I put the book *carefully* on the table.)

(Note, these adverbs may appear in several of these positions)

Part 2: Group the adverbs together into subcategories based on your answers to part 1.

Part 3: Within each group you may find more subtle orderings. For example, within the subcategory of adverbs that can appear between auxiliaries and verbs there may be an ordering of adverbs. Try putting multiple adverbs in each position. What are the orderings you find?

CHALLENGE PROBLEM SET 6: SUBCATEGORIES OF ADJECTIVES

[Application of Knowledge; Challenge]

Just as there are positional differences among adverbs (see Challenge set 3), we find an ordering of adjectives with respect to each other. Below is a list of adjectives. Pair each adjective with every other adjective and see which must come first in a noun phrase. Try to come up with a general ordering among these adjectives. (Although in the text I've told you to include numerals with the class of determiners, I've listed them here as adjectives, for the rest of the book treat them as determiners.)

deep, big, young, blue, desperate, two, scaly, thick

One word of caution: it is sometimes possible to put some adjectives in any order. However, many of these orders are only possible if you are using the adjective contrastively or emphatically. For example, you can say *the old rubber sneaker* with a normal non-contrastive meaning, but *the rubber old sneaker* is only possible when it has a contrastive emphatic meaning (*the RUBBER old sneaker as opposed to the leather one*). Don't let these contrastive readings interfere with your subcategorization.