Introduction to Linguistics — Class Material

I General Introduction — Nonsense words, spelling and pronunciation

- ***Jabberwocky*** [Lewis Carroll]

  'Twas brillig, and the slithy toves
  Did gyre and gimble in the wabe;
  All mimsy were the borogoves,
  And the mome raths outgrabe.

- three audio fragments on the web (there are plenty more, but these three will do)
  https://www.youtube.com/watch?v=ZpKcqraRdfs
  https://www.youtube.com/watch?v=w313oXM366k
  http://nikolledoolin.com/alo/?p=28 [start at 0:40]

- phonology: native speakers of English usually have clear and often quite uniform intuitions about how to pronounce the nonsense words in this fragment; and where there is variation, it can be easily understood
  - the pronunciation of the first vowel and the dental fricative of *slithy* analogise to *writhy* 'prone to writhing', not to *pithy*, which is derived from a noun (*pith*) and, like *frothy* and *breathy*, a rather unusual case of a voiceless dental fricative in intervocalic position; an analogy with *smithy* (ð or θ), which is a noun, is highly unlikely as well
  - *toves* has /ow/ rather than /ʌ/ on the analogy of *coves*, *cloves*, *droves*, *groves*, despite the existence of *doves*, *gloves*, *loves*, which form a closed set; there will be no analogy with *moves* because of its exceptional form~sound relation (*proves* plays no role because it cannot be a noun); for *borogoves*, rhyme will dictate /ow/ (see also the /ow/ in the name *Michael Gove*, former secretary of state for education, justice)
  - *gyre* could be pronounced either with a voiced velar stop (cf. *gynaecology*) or with a postalveolar affricate (cf. *gyrate*, *gyrations*), but the latter is a more natural choice in isolation because the analogies for /g/ do not involve verbs; the fact that some speakers prefer /g/ to /dʒ/ for *gyre* likely has to do with the desire to have alliteration between *gyre* and *gimble*; for *gimble* speakers will be much more likely to choose a voiced velar stop, despite the existence of words such as *gibberish*, because there is at least one high-frequency verb (*give*) in the set of analogies for *gimble* (but note that the third fragment does actually choose /dʒ/ here)
  - variation in the pronunciation of the first part of *borogoves*, similar to the variation in *borough/boro* (→ speakers seem to parse *borogoves* as bimorphemic); for the second part of *borogoves*, rhyme will dictate /ow/
  - *mome* will feature the diphthong /ow/ (cf. *home*), rather than the central vowel /ʌ/, even though *-ome* can feature the latter, as in *some* and *come*; but *some* is a function word (a quantifier), which is not suitable in the position occupied by *mome* in (1) (the quantifier *some* does not occur to the right of *the*); and *come* is a verb, which is not suitable in that position either; so *mome* will not be analogised to *come* or *some* — i.e., similar words with unrelated morphological properties are not likely to serve as analogies; speakers rely on these properties

– in https://www.youtube.com/watch?v=ZpKcqraRdfs, *mome* is disyllabic: /mowmi/; perhaps for reasons of metre (certainly not by natural analogy: though an unstressed final syllable |C*e*| can feature /i/, this happens only in words of Greek origin (cf. *syncope*, *apocope*, *apostrophe*)
– there is predictable speaker variation regarding the pronunciation of *raths*, on the analogy of *baths* and *paths* (which themselves behave discretely)

- morphosyntax [**begin with this**]: what is interesting about this fragment is that some words are perfectly normal English while others are not; and that the dividing line lies between two identifiable classes of elements in morpho-syntax: the *functional elements* and the *content items* — all the functional elements are English, the rest is 'Jabberwocky'
  → this is very much like what we find in a particular kind of *aphasia* known as '**Wernicke's aphasia**' (after the German neurologist and psychiatrist Carl Wernicke) — Wernicke's aphasics are fluent and produce largely well-formed sentences, structurally, but the words they use make no sense: just as **Alice** said in reaction to Jabberwocky, 'Somehow ..., it seems to fill my head with ideas — only I don't know exactly what they are!'
  → this is precisely the opposite of what we find in a different type of *aphasia*, called '**Broca's aphasia**' (after the French physician, anatomist and anthropologist Pierre Paul Broca) — *agrammatic speech* (patients suffering from Broca's aphasia tend to leave all functional elements out)

- the first linguist to put the study of aphasia on the linguistic (rather than psychological) research agenda was **Roman Jakobson**, in his 1941 monograph on child language, aphasia and phonological universals, *Kindersprache, Aphasie und allgemeine Lautgesetze*

- syntax/semantics interface: the distinction between content words and function words of course correlates with a semantic distinction — the function words have very little descriptive content, and their content is highly constant
→ for the case of *outgrabe*, an interesting question arises about its interpretation: the particle *out* usually occurs to the left of the verb only when it has the interpretation 'more than the usual degree' or 'more/better than someone else' (as in *she outperformed him*, *sometimes the students outshine the professors*)
→ but *out* in this use combines only with <u>transitive</u> verbs: *throughout highschool, she outdid *(her fellow students)*
→ strikingly, *outgrabe* is not transitive

NB1 we can sensibly understand *outgrabe* as a <u>verb</u> (with *the mome raths* as its subject); the alternatives would be *(a)* to take *outgrabe* to be an adjective (like *mimsy*), or *(b)* to take *raths* to be a verb, with *outgrabe* as its object or as a modifier — *(b)* is highly implausible because *raths* would be unambiguously *present tense* (in verbs, the *-s* suffix occurs only in the present tense), whereas the entire stanza is recognisably in past-tense form (*was*, *did*, *were*)

NB2 *outgrabe* qua verb will be parsed as a *past-tense* form — an *irregular* past tense, with /eɪ/ as the vowel (cf. *come~came*, *eat~ate*, *give~gave*, *lie~lay*; note that *forbid~forbade* looks orthographically very much the same, but it has /æ/ as the vowel in the second syllable)

II Phonology — The phoneme, and criteria for the assignment of sounds to phonemes

- phonology is the branch of linguistic analysis that studies the behaviour of speech sounds (**phones**) and structures containing speech sounds within a **sound system**
- → by 'sound system', I do not mean 'stereo/hifi', but a system of regular (i.e., rule-based) alternations involving/making reference to/determined by speech sounds
- → so phonology is different from phonetics, which studies the physical properties of speech sounds (purely a matter of measurement with the right kind of equipment — a branch of linguistics in the sense that it occupies itself with elements exploited by language, but not a branch of *theoretical* linguistics)

- a time-tested ingredient of most every theory of phonology is the **phoneme**
- → a phoneme is a speech sound that is involved in systematic **oppositions** within the system
- → the term 'phonème' was coined by Dufriche Desgenettes, ca. 1870, as the French equivalent of German 'Sprachlaut', i.e., a *physical* entity
- → but the linguists of the 19th century **Kazan School** (Jan Baudouin de Courtenay and Mikolaj Kruszewski, in particular) used the term in a way in which it has been used ever since, as a tool to organise the infinitely varied speech sounds into a finite (and small) inventory of basic elements to which psychological reality is attributed: the phoneme is, in their terms 'the psychological equivalent of a speech sound'

- phoneme inventories are established on the basis of systematic **oppositions** between sounds — replacing one phoneme with another delivers a different word; we create **minimal pairs**

fore	~	*sore*	~	⌀
~		~		~
pore	~	*tore*	~	*core*
~		~		~
bore	~	*door*	~	*gore*
~		~		~
more	~	*nor*	~	⌀

- → the initial consonants of all of the ten words above are phonetically distinct — but that is not a reason to identify them as phonemes
- → what matters for the status of these sounds as *phonemes of English* is that each of these ten words is different from any of the others; replacing the initial consonant of one of these words with the initial consonant of one of the others results in a different word
  [there are two gaps in the system: English has lost its velar fricative over time, some of the other Germanic languages have preserved it, and so has Scots (*loch*); and in English, as in many other languages, the velar nasal does not occur in syllable-initial position — more on this shortly]

- the initial consonants of the three words below are also phonetically distinct in English
- → but this time around, exchanging the initial consonants among these words does not result in a different word — rather, it results in the *same* word pronounced weirdly

key [k̟]
car [k̠]
cool [kʷ]

→ there is a systematic and **automatic alternation** of [k̟], [k̠] and [kʷ]; these are all **allophones** of a single phoneme /k/ [NOTATION]; they are in **complementary distribution** — where one of these sounds can legitimately occur, the others cannot

NB note that in English, [h] (the laryngeal fricative) and [ŋ] (the velar nasal) are in complementary distribution with respect to the positions in the syllable in which they can occur:
– [h] only occurs at the beginning of a syllable (onset)
– [ŋ] only occurs at the end of a syllable (coda)

→ but this is not normally taken to indicate that [h] and [ŋ] are allophones of one phoneme

→ in addition to complementary distribution, we also require a certain degree of **phonetic similarity**: [k̟], [k] and [kʷ] are phonetically similar enough to be mapped into a single phoneme; [h] and [ŋ] are 'just too different' to belong to the same phoneme

→ note, interestingly, that Korean orthography exploits the fact that [ŋ] systematically does not occur syllable-initially to use it as a 'dummy' onset for apparently onsetless syllables — this is a kind of **abstraction** that is like music to a phonologist's ear

• we have just seen that we need **phonetic similarity** to be justified in mapping two sounds that are engaged in a systematic alternation into a single phoneme

→ one would think that in cases of **phonetic identity**, two sounds would *certainly* have to be mapped into a single phoneme

→ but classic phonemic analysis may sometimes be led to the rather paradoxical conclusion that two identical speech sounds belong to different phonemes: we will see this in what follows

• English makes a *vowel-length* distinction between the members of the following kinds of pairs

(1)

a.	bit	bid
b.	bet	bed
c.	bat	bad
d.	but	bud
e.	bite	bide
f.	beat	bead
g.	pot	pod

→ these are **automatic** alternations, hence would typically be thought to be **allophonic** in nature

→ **hypothesis 1**: the vowels in each of the pairs in (1) are allophones representing a single phoneme

• American English also makes a vowel-length distinction between the members of the following pairs (for many AmE speakers, there is no qualitative difference between the vowels of the members of each pair in (2), only a length difference; it is these speakers that we are interested in)

(2)

a.	bomb	balm
b.	bother	father
c.	sorry	starry

→ these are **not automatic** alternations, hence we would not tend to think of these as allophony
→ **hypothesis 2**: the vowels in each of the pairs in (2) are **not** allophones of one single phoneme

• now consider the vowel in *pod* in (3) and the vowel in *Pa'd* in (4)

(3) the *pod* grows
(4) *Pa'd* go (if he could)

→ in the relevant variety of AmE, these two expressions rhyme; their vowels are **identical**
→ for the vowel in *pod*, we would like its length to be determined by **allophonic rule** (cf. the automatic vowel-length alternation between *pot* and *pod*)
→ but for the vowel in *Pa'd*, we cannot say this: this vowel is inherently long, just like the vowel in *balm*, which is in a relationship of **phonemic opposition** with the short(er) vowel in *bomb* — see the opposition in (2a)

!!! this leads to a famous paradox in phonemic analysis: though *pod* and *Pa'd* rhyme (i.e., their vowels have **identical** phonetic quality), the logic of the phonemic principle leads us to assign them to **different phonemes**

→ **but** that leads to **intersection** of two different phonemes, which, as Bloch (1941) puts it, 'is always the result of an error in the analysis' → it violates **biuniqueness** flagrantly

→ this prompts Bloch to conclude that the vowels in the left-hand and right-hand columns in (1), as in (2), belong to **different** phonemes, they are **not allophones** of the same phoneme after all
→ **but** this leads to the loss of a general **rule** of **vowel lengthening** — the forms in the right-hand column of (1) cannot be derived from those in the left-hand column via such a rule since they involve different phonemes in their underlying representations

→ it is really hard to get this perfectly right without ending up in the kinds of paradoxes that we have been talking about

• consider a similar case: English /æ~æ:/ alternation (Lass 1984)
→ many dialects of English lengthen /æ/ in the context given in (5)

(5) /æ/ → [æː] / ___ {fricatives, voiced stops, non-velar nasals}

(6)

a.	half, pass, jazz, cab, cad, man, ham	[æː]
b.	cat, cap, back, hang, pal	[æ]

• but sometimes the lengthening rule in (5) does not apply, and **minimal pairs** such as the ones in (7) result

(7) a. halve [hæːv] have [hæv]
b. can_N [k^hæːn] can_{Aux} [k^hæn]

→ if one and the same sound (here long [æː]) cannot belong to two different phonemes, as **biuniqueness** has it, then two separate phonemes /æ/ and /æː/ have to be distinguished to be able to deal with (7)
→ but then, as in the case of Bloch's famous example, we lose the simple rule of /æ/-lengthening in (5) (which means that we 'miss a generalisation'), and, more seriously, we can no longer guarantee the non-existence of forms like *[bæːt]

• to a significant degree, the distribution of /æ/-lengthening in (7) can be blamed on **morphological** factors: the word-class difference between the two tokens of *can* in (7b); and the fact that *halve* is a lexical verb, itself derived from the adjective *half*, which has a long [æː], while *have* is plausibly a functional verb [we will come back to morphology later in the semester]
→ we can do something interesting for *halve* that allows us to derive vowel length *without* getting into conflict with the phonemic principle:
① make the adjective *half*, and apply the /æ/-lengthening rule: /æ/ → [æː]
② turn *half*, now with a long [æː], into a verb, voicing the final fricative
③ the verb *halve* legitimately forms a minimal pair with *have*, even though its long vowel was derived via the vowel lengthening rule: the rule applied before *halve* had a voiced fricative following the vowel
→ the importance of **rule ordering**

• we can capitalise on **morphological** factors also in the account of a **vowel lengthening** effect in Scots English (part of Aitken's Law; Lass 1984)

(8) a. road [rod] row [roː] rowed [roːd]
b. brood [brud] brew [bruː] brewed [bru:d]

→ what's going on? — the vowel is short before [d] in the left-hand examples, but long before [d] in the right-hand examples; can this be an **allophonic** alternation?
→ no, it cannot be: a rule that says 'lengthen /o, u// before /d/' would capture the right-hand examples but rule out the left-hand ones; the **phonological** environments are the same
→ so far we had cut out the middle man — let us include it in the discussion
→ here we see /o, u/ lengthen at the end of a word — which is a **phonological** environment but also a **morphological** one: the notion 'word' is both relevant in phonology and in morphology
→ reference to the end of the word will not help us for the right-hand examples: *rowed* and *brewed* are by all standard criteria **words**
→ but they are words that are in an important way different from those in the left-hand and middle columns: they are **morphologically derived** words, containing a **stem** and a **suffix**
→ stems and underived words are both **morphemes**
→ so we can now write a unified rule for the facts in (8): lengthen a vowel if it stands right at the end of a morpheme (i.e., before a morpheme boundary, marked by '+'), as in (9)
→ an equivalent way of dealing with this is to apply vowel lengthening before addition of *-ed*

(9) V → Vː/ ___ +

- let us look at two more examples of **vowel lengthening** in different varieties of English

→ Chomsky (1964) famously notes the examples in (10) and (11), for (some) American English

(10)	a.	write	[rait]	/rait/
	b.	ride	[raːid]	/raid/
(11)	a.	writer	[raiɾər]	/raitər/
	b.	rider	[raːiɾər]	/raidər/

→ (10) is a straightforward case of vowel lengthening, purely phonologically conditioned by voicing in the coda

→ the peculiar thing about (11) is that the surface **phonetic** context for the diphthong in the two examples is the same (i.e., it occurs immediately before an alveolar flap, [ɾ]), yet there is still a length distinction made between the two examples, apparently based on the **underlying** phonemic distinction between /t/ and /d/ (which is itself **neutralised**, leading to biuniqueness and linearity problems)

→ we can understand this if, at the point in the derivation at which the vowel lengthening rule applies, we still have /t/ and /d/ in the representations of *writer* and *rider*

→ the rule of vowel lengthening applies before the rule of alveolar flapping — a typical case of **rule ordering**

II Phonology — Binary distinctive features: Nasal assimilation and Old English *i*-umlaut

- so far, we have worked in our phonological analysis just with **phonemes**
- → but there is plenty of reason to believe that phonemes are **not the primitives** of phonological analysis
- → to the early 20th century **Prague School** phonologists (Roman Jakobson and Nikolai Trubetzkoy, in particular), we owe the important insight that the primitives of phonology are **distinctive features**
- → the velar nasal, /ŋ/, is a phoneme of English — but as is already suggested by the way we describe it, the /ŋ/ is a composite thing: it is a *velar* and it is a *nasal*, i.e., it possesses the **features** [+velar] and [+nasal]

- consider the English examples in (1):

(1)

			/d/ deletion	assimilation
a.	hand-picked	/hænd pikt/	/hæn pikt/	[hæːm pikt]
b.	hand-grenade	/hænd grineid/	/hæn grineid/	[hæːŋ grineid]

Q how do we get to a bilabial or velar nasal in these outputs?
- → two processes: /d/ deletion and nasal assimilation
- → /d/ deletion (2a) creates an environment in which the nasal /n/ is immediately adjacent to a consonant with a different place of articulation (/p, g/)
- → the nasal undergoes **place assimilation** to the following consonant (2b)
- → but it does not become identical to the following consonant: it retains its nasality
- → we are dealing with a **feature-changing rule** that affects the nasal's **place** feature but leaves its [+nasal] feature unaffected
- → this suggests that phonological processes/rules can affect individual features or sets of features while leaving others untouched: we want phonological rules to be able to make formal reference to features, so we should give formal recognition to features

(2) a. /d/ → ∅ / C[+nasal] ___ C
b. C[+nasal] → [αplace] / ___ C[αplace]

NB1 the output of (1b) is a *long* /æ/ in front of a velar nasal, [ŋ] — even in dialects in which the rule of /æ/-lengthening normally cannot apply in front of the velar nasal (recall the rule in (5), above); so what's going on?
- → the solution to this problem lies in an **extrinsic ordering** of the rules of /æ/-lengthening and nasal assimilation — the vowel-lengthening rule takes effect when /n/ has not yet assimilated to the following /g/ (i.e., before the application of rule (2b))

NB2 the rule in (2b) (for *homorganic* nasal assimilation) works optimally if it can refer to the place features as a block, so that we do not need to write separate rules for each place feature
- → this suggests that the place features are grouped together into a single class
- → the distinctive features have an organisation to them: a **feature geometry**
[other class nodes: manner, laryngeal; possibly, the class nodes are a reflex of the physiological properties of the speech organ — i.e., they might be 'grounded' outside phonology]

• Old English *i*-umlaut is another good illustration the importance of distinctive features in the analysis of phonological phenomena

→ consider the following Old English forms:

(3)

a.	cuman	'come-INF'	cymþ	'come-3SG'
b.	dohtor	'daughter'	dœhter	'daughter-PL'
c.	faran	'go'	færþ	'go-3SG'

→ there is a vowel quality change in each of these pairs; diachronically, this vowel change can be traced back to historically reconstructed forms featuring an *I*-suffix (here '*' does not mean 'ungrammatical' this time but 'historically reconstructed'):

(4)

a.	cymþ	<	*cumiði
b.	dœhter	<	*dohtori
c.	færþ	<	*fariði

→ we can describe this change with the aid of the following rules:

(5)

a.	/u/	→	[y]	/ ___ *i
b.	/o/	→	[œ]	/ ___ *i
c.	/a/	→	[æ]	/ ___ *i

→ but clearly we are **missing a generalisation** here; the three rules in (5) prevent us from *understanding* what is going on; what unites these three processes is that the underlying back vowel is *fronted* under the influence of the high front vowel /i/

(6) *the Old English vowel system in terms of binary distinctive features*

[– back]		[+back]		
i	y	u		[+high, –low]
e	œ	o		[–high, –low]
æ			a	[–high, +low]
[–round]		[+round]	[–round]	

→ (6) allows for a reappraisal of the *i*-umlaut phenomena in Old English as in (7):

(7) [+back] → [– back] / ___ *[– back, +high]

• note that with the aid of two **binary** features for height, [±high] and [±low], we can describe a three-height vowel system of the Old English type

NB1 the fourth logically possible combination of the binary features [±high] and [±low], viz., [+high, +low], is a contradiction

NB2 unlike the height dimension, the front/back dimension is classified with just a single binary feature, [±back]; for vowel systems with central vowels (such as Modern English /ʌ/), it may be advantageous to employ two features, making a [–front, –back] specification possible

II Phonology — Nonsense words and English syllable structure constraints

[based on Sapir 1933]

- a general restriction on English syllable structure: stressed syllables are either closed or, if open, must have a long/tense vowel or diphthong (cf. the English pronunciation of French expressions like *prix fixe* or *café au lait*)
- → note that 'checked' vowels (the ones in (2)) do not just want there to be a consonant near them: they specifically want that consonant to *follow* them
- → this suggests a major distinction within the **syllable** between an **onset** and a **coda**: 'checked' vowels want there to be a consonant in coda position; no vowel cares whether or not there is an onset

(1) a. /iːt/ *eat* /tiː/ *tea*
b. /ɑːt/ *art* /tɑː/ *tar*
c. /autʃ/ *ouch* /tʃau/ *chow*

(2) a. /ɪf/ *if* */fɪ/
b. /æt/ *at* */tæ/
c. /ʌp/ *up* */pʌ/

- there is an asymmetry between the prevocalic and postvocalic positions when it comes to making a syllable 'heavy': prevocalic consonants do not contribute to syllable weight; postvocalic ones do
- → this can be understood if postvocalic consonants form a *constituent* with the vowel, to the exclusion of any prevocalic consonants, and syllable weight is defined for that constituent
- → in the syllable (for which the symbol is 'σ'), **coda** consonants (postvocalic) form a unit (called the **rhyme**) with the **nucleus**
- → a syllable is 'heavy' if it has a branching rhyme — i.e., a long vowel/diphthong or a short vowel plus a coda consonant

[$_{\sigma}$ Onset [$_{\text{Rhyme}}$ [Nucleus] [Coda]]]

English obstruents (stops and fricatives)

p	t	k	ʔ	f	θ	s	ʃ
b	d	g		v	ð	z	ʒ

Nonsense words

(3) [ʃpu]
(4) [skɪ]
(5) [ðʊ]
(6) [ʒi]

- → (4) and (5) tend to be transcribed, by speakers who have been taught the glottal stop, with a [ʔ] at the end (Sapir)
- → this follows from the general restriction on English syllable structure mentioned above
- → for Sapir, this demonstrates the psychological reality of the syllable

II Phonology — Sylllables, quantity and the mora

- there is a well-known difference between British and American English with respect to the pronunciation of words such as those in (1):

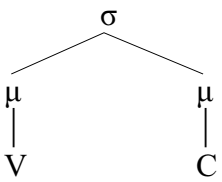
(1) a. fur
b. far

→ where AmE produces a vowel–consonant sequence (with [ɹ] as the consonant), BrE produces just a vowel
→ but it has been observed that the duration of the vowel in the BrE forms is longer than that of the corresponding vowel in the AmE forms — apparently to *compensate* for the non-pronuciation of the [ɹ]
→ this may instantiate a process found in many languages, called **compensatory lengthening**

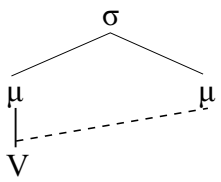
Q how can we understand compensatory lengthening?
→ we cannot understand it very well in traditional syllabic theory: in what sense can the length of the syllable nucleus be seen to be a reflex of the presence or absence of a coda consonant?
→ we would like the structure of the syllable to give formal recognition to the concept of **syllable weight** in such a way that compensatory lengthening can be understood

- **mora theory** (going back to Trubetzkoy) does this

(2) a.



b.



– /VC/ and /V:/ are *heavy* syllables
– heavy syllables are represented in terms of *two weight units* or *morae*
[so it is still true that a syllable is heavy if it branches; but now the branches are called 'morae', no longer intrinsically associated with vocalic or consonantal matter]
– loss of the final consonant ([ɹ] in the English examples), with preservation of mora structure, leads to vowel lengthening (representable as *spreading*, as in (2b))

NB1 note that morae are not 'privileged' for consonantal or vocalic material: anything that contributes to the weight of a syllable can associate with a mora
→ in (2a), the coda consonant is what makes the syllable heavy; in (2b), where there is no such consonant, the vowel 'makes up' for it by associating with the second mora

NB2 **mora theory** dispenses with the nucleus/coda distinction
→ but it keeps the distinction between onsets and the rest of the syllable: onsets never contribute to syllable weight
→ apparently, consonantal material cannot be mapped into a mora if it precedes a vowel that belongs to the same syllable

III Morphology — What is it?

(i) 'In linguistics *morphology* refers to the mental system involved in word formation or to the branch of linguistics that deals with words, their internal structure, and how they are formed.' (Aronoff & Fudeman 2005:1–2)

(ii) 'Knowledge of a language includes knowledge of the systematicity in the relationship between form and meaning of words. ... The subdiscipline of linguistics that deals with such patterns is called **morphology**.' (Booij 2005:4; original boldface)

→ but how do we decide that something is a **word**? what *is* a word?
a word is a **minimal free form** (Bloomfield 1933:178: 'a free form that is not a phrase')

- defined in terms of *syntax*: minimal input to syntactic operations (Q: does syntax ever 'look inside' words? — inflection; incorporation and excorporation)
- defined in terms of *semantics*: referentially opaque; anaphoric island (**a pastry$_i$ chef who eats it$_i$ every day*); non-compositionality (Q: what about phrasal idioms?)
- defined in terms of *phonology*: domain for phonotactic constraints, stress, harmony (Q: which criterion to choose? — cf. Spencer 1991:42 on Finnish/Hungarian compounding: vowel harmony and stress, both bounded by the word, give conflicting results in *Budapest*)

Q how many words are there in *to everyone I'm gonna hand out two handouts today*?

(iii) 'By the *morphology* of a language we mean the constructions in which bound forms appear among the constituents. By definition, the resultant forms are either bound forms or words, but never phrases.' (Bloomfield 1933:207; see also Hockett 1958:178: 'one IC is less than a word')

→ so morphology concerns itself only with the internal structure of complex forms that contain at least one bound form?

- *door bell, door frame, door knob, door man, door mat, door post,* etc. all contain no bound forms, yet they are not phrases but words — so-called **compound** words
- *eye doctor*, *ear doctor*, *brain doctor*, *heart doctor*, etc. are all compound words, but *idiot doctor* supports two possible analyses, each corresponding to a different interpretation, and on one these analyses (the salient one), it is arguably not a word but a phrase; the two versions of *idiot doctor* are prosodically distinct
- *I'm* in the above example contains a bound form *'m* but is *I'm* a word?

(iv) 'Morphology is the study of word structure, that is, the study of the way words are formed, how the parts of words relate to each other, and how words themselves relate to each other. It is also the study of the way that word structure relates to other areas of grammar, for instance, pronunciation (phonology) and sentence structure (syntax). Finally, an important aspect of morphology which is becoming increasingly important is the study of how the structure of words is related to the meanings of words.' (Spencer, n.d.:Ch. 1, p. 1; http://privatewww.essex.ac.uk/~spena/472/572ch1.pdf)

→ this is perhaps the most inclusive definition of linguistic morphology ever given — it is so inclusive that it actually subsumes syntax (cf. 'how words themselves relate to each other')!

(v) 'Morphology is at the conceptual centre of linguistics. This is not because it is the dominant subdiscipline, but because morphology is the study of word structure, and words are at the interface between phonology, syntax and semantics. ... For this reason, morphology is something all linguists have to know about. The centrality of the word brings with it two important challenges. First, there is the question of what governs morphological form: how is allomorphy to be described? The second is the question of what governs the syntactic and semantic function of morphological units, and how these interact with syntax and semantics proper.' (Spencer & Zwicky 1998:1)

→ morphology as a hub, the quintessential **interface**

Q does morphology even exist as a component of grammar?

(vi) 'Traditionally, the grammar of most languages is discussed under two heads, *syntax* and *morphology*. The sentence-types ... are placed under the former heading, ... but grammatical *constructions* ... are dealt with partly under the heading of morphology. There has been considerable debate as to the usefulness of this division, and as to the scope of the two headings.' (Bloomfield 1933:184)

(viia) 'linguistiquement, la morphologie n'a pas d'objet réel et autonome; elle ne peut constituer une discipline distincte de la syntaxe' (Saussure 1916:181)

(viib) 'there are within the word dependencies completely analogous to those of the sentence, and susceptible, *mutatis mutandis*, of the same kind of analysis and description' (Hjelmslev 1943/63:27; NB: *mutatis mutandis*!]

(viic) 'The syntactic and morphological results are obtained by the same procedure, so that no distinction is drawn between them.' (Harris 1951:262)

• some funny quotes from morphologists that give you a sense of how they feel about themselves and their discipline:

(viiia) 'Morphology has been called "the Poland of linguistics" — at the mercy of imperialistically minded neighbours.' (Spencer & Zwicky 1998:1)

(viiib) 'morphology is inherently unnatural. It's a disease, a pathology of language', 'an unnatural mapping between components' (Aronoff 1998:413, 417)

(viiic) 'no one listens to morphologists ... when morphologists talk, linguists nap' (Marantz 1997)

→ but the stuff that morphologists (or morphology) deals with is far from boring; we will discuss some illustrative cases in what follows

III Morphology — English prefixes

- ‘oppositive *pu-*’?

(1)

a.	shy	‘*x*’	~	pushy	‘opposite of *x*’
b.	shover		~	pushover	
c.	rebred		~	purebred	

- negative *un-*

(2)

a.	pleasant	‘*x*’	~	unpleasant	‘not *x*’
b.	nice		~	%unnice	
c.	%kempt		~	unkempt	
d.	pale		~	*unpale	

(2′)

a.	unhappy	*vs* *unsad
b.	untrue	*vs* *unfalse
c.	unwise	*vs* *unstupid, *unfoolish
d.	unclean	*vs* *undirty
e.	unhealthy	*vs* *unsick

→ generalisation (apparently already noted by Jespersen): *un-* attaches to **positive** gradable adjectives but not to **negative** ones

→ a simple consequence of the fact that *un-* does not combine with negative hosts is that *un-* also does not stack: *unhappy* ~ **ununhappy*

→ this is **not** because negation cannot combine with *unhappy* to negate the negation: *he is not unhappy* is perfectly fine (and does not actually mean that he is happy)

→ an interesting case:

(3) yellow ~ %unyellow

– ‘not yellow’ (A)
[‘good, clean, unyellow paper’ — here *yellow* seems to denote a negative property of paper, but it is *un-*able!]

– ‘remove yellowness’ (V)
[‘how to unyellow midsoles’]

- reversative *un-*

(4)

a.	do		~	undo	
b.	cover		~	uncover	
c.	send		~	unsend	(as in ‘unsend an E-mail’)
d.	say		~	unsay	(‘to make as if not said’)

- note that unlike negative *un*-, reversative *un*- DOES stack

(5) to un-undo the changes

→ though the two prefixes (negative *un*- and reversative *un*-) may be related, they must be included in the lexicon separately because they have different properties

→ note that in the other Germanic languages, negative *un*- and reversative *un*- are not identical

(6) a. German: *un-* ~ *ent-*
b. Dutch: *on-* ~ *ont-*

→ it often helps to look beyond the boundaries of a single language and do comparative work — not just in morphology but in all subdisciplines of linguistics

III Morphology — Some terminology

- morphology deals with bits of words, called **morphs**

→ many of these have the status of a **morpheme** — conventionally (albeit worrisomely) defined as the smallest meaning-bearing unit

(i) 'a linguistic form which bears no partial phonetic-semantic resemblance to any other form' (Bloomfield 1933:161); 'the smallest linguistic pieces with a grammatical function' (Aronoff & Fudeman 2005:2), OR:

(ii) 'smallest meaningful unit' (Bloomfield 1993:264; Hockett 1958:123); 'the smallest indivisible meaningful unit of a word' (Spencer, n.d.:Ch. 2, p. 1); 'a pairing between sound and meaning' (Aronoff & Fudeman 2005:2 — NB: they do *not* adopt this definition!); 'the minimal linguistic units with a lexical or grammatical meaning' (Booij 2005:8–9)

NB: the distinction between *(i)* and *(ii)* hinges on whether reference to *meaning* is made in the definition of a morpheme (cf. the structuralists' desire to eschew reference to meaning) — see (1c.*ii*), below

(1) a. *free* morpheme

b. *bound* morpheme (prefix, suffix, infix, circumfix, interfix [linker], suprafix [tone] or clitic)

c. *morph* (smallest grammatically significant part of a word; surface form)

(i) may be zero *qua* phonological form — 'zero morph' (< Pānini); cf. conversion (*to drive ~ a drive*: $[_N\ [_V\ drive]\ [_N\ \text{-}\varnothing]]$)

(ii) may be zero *qua* semantic form

(a) linking morphs (a.k.a. interfix/intermorph), such as Dutch *-en* and *-s* in *Koningin-e-dag* 'Queen's Day' and *Koning-s-dag* 'King's Day' (interesting pair: *waternood/watersnood*)

(b) *cranberry morph(eme)s* (< E *cranberry*, for which we plainly want to identify *berry* as a morpheme that is a constituent of the complex word, with *cran* as the 'leftover', apparently meaningless; but 'its meaning is constant' – Bloomfield 1933:160; English has a few cranberry morphemes of Latin origin, whose ancestors were not cranberries at all: *-mit* as in *ad/com/re/sub/trans-mit*, *-ceive* as in *con/per/re-ceive*)

[there is disagreement in the literature as to whether these should be called 'cranberry *morph*s' or a 'cranberry *morpheme*s'; this depends to a non-trivial extent on one's definition of 'morpheme' — cf. above]

d. *portmanteau morph* ('cumulative exponence': several morphemes mapped to single morph — e.g. English *-s* on verbs, the single surface exponent of 3SG and PRESENT TENSE)

e. *allomorphs* of a morpheme (e.g., {/-s/, /-z/, /-əz/, /-ən/ (*oxen, children*), ∅ (*sheep, buffalo*)} as allomorphs of English PLURAL; Q: is *-im* (*cherubim, Hasidim*) an allomorph of E PLURAL?

(2) **allomorphy**

a. phonologically conditioned allomorphy (English plural endings; Hungarian present-tense second person singular indefinite *-sz ~ -l — mond-(a)sz* ‘you say’ *~ olvas-ol* ‘you read’; NB: past-tense 2SG.INDEF is systematically *-l*: *mond-t-ál*, *olvas-t-ál*)

b. morphologically conditioned allomorphy (plural of *-heit/keit* nouns in German is always *-en*)

c. root/stem allomorphy (*house ~ houses*: /s/ ~ /z/; *wife ~ wives*: /f/ ~ /v/)

d. suppletion: no (complete) phonological similarity between the forms of a lexeme (partial — *France/French*, *mouse/mice* [see umlaut]; total — *go/went*, *am/was*, *good/best*, *one/first*)

III Morphology — Rule ordering, blocking

- rule ordering and the Elsewhere Condition; **blocking**
  - Pāninian rule ordering: in case of competition, the more specific rule wins (*Elsewhere Condition*)
  - Aronoff (1976): *blocking*
    - → *glorious* and *glory* are both word listed in the lexicon; **gloriosity* cannot be derived from *glorious* (even though *curiosity* can be derived from *curious*) since the output of *-ity* affixation is also listed in the lexicon, and the lexicon blocks complete synonymy
      (for *curiosity* there is no competitor blocking this form: **cury*)
    - → *gloriousness*, derived via a **fully productive** Word Formation Rule (WFR), is not blocked by *glory* since the output of fully productive WFRs **does not get listed** in the lexicon, hence cannot 'compete' with listed items

		X-*ous*	NOUN	+-*ity*	#-*ness*
(1)	a.	*acrimonious*	*acrimony*	**acrimoniosity*	*acrimoniousness*
	b.	*bilious*	*bile*	**biliosity*	*biliousness*
	c.	*curious*	**cury*/‖*cure*[1]	*curiosity*	*curiousness*
	d.	*furious*	*fury*	**furiosity*	*furiousness*
	e.	*glorious*	*glory*	**gloriosity*	*gloriousness*
	f.	*precious*	**precy*/**prece*[2]	*preciosity*	*preciousness*
	g.	*spacious*	*space*	**spaciosity*	*spaciousness*
	h.	*specious*	**specy*/**spece*	*speciosity*	*speciousness*

[1] *cure* could in principle be input to the formation of *curious*; but such would be semantically abstruse

[2] *price* of course exists, and historically, *price* goes back to the same Latin word (*pretium*) that *precious* also goes back to; but there is no synchronic morphophonological process whereby *precious* is derivable from *price* (cf. *vice→vicious* [aj]→[ɪ], which, applied to *price*, would yield **pricious*)

- a different kind of blocking: a *phrase* is 'blocked' by a *word*, under certain specified circumstances

(2)	a.	*smart*	*smarter*	**more smart*[3]
	b.	*smart*	*[*amazingly smart*]-*er*	*more* [*amazingly smart*]
	c.	*intelligent*	**intelligenter*	*more intelligent*

[3] the phrase *more smart* is not actually non-existent *per se* — it occurs in so-called *metalinguistic* comparatives (*he is more smart/clever than intelligent*), and it is also grammatical when the comparative is itself degree-modified (*quite a bit* {*smarter/more smart*}); also, low-frequency monosyllables (*sly*) prefer a periphrastic CPR

(3)	a.	*walk*	*walked*	**did walk*
	b.	*walk*	**walkedn't*	*didn't walk*

(4)	a.	*hest* 'horse'	*hest-en*	**den hest*	'the horse'	[Danish]
	b.	*hest*	**gamle hest-en*	*den gamle hest*	'the old horse'	

III Morphology — Level ordering; morphology/phonology interaction

- level-ordered morphology and phonology (cf. Siegel 1979, Allen 1978, Selkirk 1982, Kiparsky 1982)
  - Siegel: two affix classes, identified on the basis of morphological boundaries types:
    - → Class I ('+', morpheme-level) e.g.: *+ity*
    - → Class II ('#', word-level) e.g.: *#ness*
  - Allen: extension of Siegel's system to include (besides derivational affixation) also compounding and inflection:
    - → Level I (+ affixation)
    - → Level II (# affixation)
    - → Level III (compounding)
    - → Level IV (inflection)

    → NB: Romance compounds (*lavapiatti*)
  - phonological rules interleaved with morphological processes:
    - → Allen: stress rules apply between Level I and Level II

(1) a. démonstrate
b. demónstrative
→ *+ive* is a stress shifter
c. demónstrativeness
→ *#ness* leaves the stress of its input intact
(even though this causes stress to be farther to the left than what the antepenultimate stress rule would like; re: the antepenultimate stress rule: *aristrocrat*, *hospitable*)

(2) a. démonstrate

b. demónstrable
→ *+able* is a stress shifter;
it also truncates its host
(AmE also has *démonstrable*)
c. demònstrabílity
→ *+ity* is a stress shifter
stress at (2b) becomes *secondary*

b′. démonstratable
#able is not a stress shifter;
it also does not truncate its host

c′. dèmonstratabílity
→ *+ity* is a stress shifter
stress at (2b′) becomes *secondary*

III Morphology — Bracketing paradoxes: Where morphology, phonology and semantics meet

- *ungrammaticality* and *unhappier* type 'bracketing paradoxes' — the intersection of morpho-phonological and interpretive properties

(1) *unhappier*
- *un-* is a 'Level II' (or #) affix
- *-er* is a 'Level I' (or +) affix which, moreover, has a phonologically restricted distribution (recall the discussion of *smarter* v. **intelligenter*)
- *unhappier* does not mean 'not more happy'; it means 'more not happy'

(2) *ungrammaticality*
- *un-* is a 'Level II' (or #) affix which, moreover, does not normally attach to nouns (**unstudent*)
- *-ity* is a 'Level I' (or +) affix (cf. stress attraction)
- *ungrammaticality* is the nominalisation of *ungrammatical*: 'the state of not being grammatical'; not 'negation of grammaticality'

- heated debate in the literature (esp. on *Linguist List* in 1992) focused on *unhappier*

  – Sproat (1992) (cf. also Stump 1991): [*un-* [*happi-er*]] will suffice; the *meaning* of *unhappier* is not 'more unhappy' but instead the *contrary* of 'happier' ('less happy') — 'contrary negation' (cf. Horn, Jespersen), resulting from the attachment of *un-* to a SCALAR adjective

  → but do *unhappier* and *less happy* really mean the same thing? → Kang (1993): NO — cf. (10a,b)

(3) a. John is happy but less happy than Bill
b. ??John is happy but unhappier than Bill

  – Beard (1992): [[*un-happi*]-*er*] will suffice; the fact that *-er* does not otherwise go onto trisyllables can be handled by putting *un-* in the list of affixes for which the restrictions on *-er* affixation are softened (*ricket-i-er*, *hand-som-er*, *friend-li-er*)

  → this begs the question of why there are affixes that soften the restrictions on *-er* affixation in the first place, and why the ones that do so are the *only* ones that do

NB recall the observation re: *un-* that it does not attach to negative hosts (*unhappy* versus **unsad*), and hence cannot stack (**un-unhappy*)

→ De Clerq & Vanden Wyngaerd (2016, at SinFonIJA) note that the ban on stacking negative morphemes seems to be contradicted by cases like:

(4) a. undisheartened
b. undisputed
c. undiscoverable

→ they argue that these are not counterexamples to the generalisation that *un-* does not attach to negative hosts because *un-* does not *directly* combine with something that has negation attached to it here:

(5) dis+hearten > dishearten+ed > un+disheartened

→ the *-ed* here breaks the adjacency between *un-* and the negation in *disheartened*

→ now consider what this entails for the structure of *unhappier*
- – if *-er* attaches to *unhappy*, it should be possible for another *un-* to combine with the output
- – if *un-* attaches to *happier*, adding a second *un-* will be impossible due to the ban on negation stacking
- → the latter is confirmed: **un-unhappier*

IV Syntax — What is it?

- syntax is the branch of linguistic analysis that addresses the internal **structure** of **sentences** and the **phrases** out of which they are composed
- → the way **phrases** are arranged to form **sentences**
- → from Greek *συν* 'together' and *ταξις* 'arrangement'

- syntax is a surprisingly young branch of systematic linguistic inquiry

→ recognition of the sentence as a linguistic unit dates back, in the Western philosophical tradition, to the **Stoics**, but they had no notion of syntactic **structure**

→ **Aristotle** (in *De Poetica*) introduces the distinction between **subjects** and **predicates**, the intellectual mother of modern **semantics** (more on which later in the semester); he also introduces a set of metaphysical categories (substance, quantity, quality, relation, place, time, position, state, action, affection), the ancestors of the familiar **word classes** (noun, verb, etc.) — later formalised (in the 6th c.) by Priscian ('partes orationis')

→ words are generally the centre of attention in the Western tradition, though **Apollonius Dyscolus** (2nd c. A.D.) is an interesting exception — his four extant works are noteworthy for the attention paid to syntax; cf. the discussion of *Accusativus cum Infinitivo*, as in Cato's *ceterum censeo Carthaginem esse delendam*

→ the first significant discussion of syntax arises in **Thomas of Erfurt**'s *Grammatica Speculativa* (pres. early 14th c.; rediscovered only in the 20th c., hence had no influence on post-medieval work) — **Immediate Constituent Analysis** and **binary branching**: 'in any one construction there are not several but no more than two constructibles ... as the result of the dependency of one constructible on another'

(1) a. homo albus currit bene (Thomas of Erfurt)
b. lean horses run fast (Bloomfield 1933)

→ **Franciscus Sanctius**' *Minerva seu De Causis Linguae Latinae* (1587) (where 'causa' ≈ 'origin') is devoted entirely to syntax: 'oratio [i.e., the sentence] sive syntax est finis grammaticae' — a recognition of the *vernacular*, and with it a recognition of the need for a **universal grammar** and a notion of **surface structure *vs* deep/semantic structure**: Sanctius countenances the *variety* of languages and concludes that surface structure cannot be the level at which language mirrors thought, so a deeper level is required

→ the 17th c. grammarians of **Port Royal** Abbey (esp. Arnauld, Lancelot, inspired by René Descartes' work), exalted by Chomsky (the father of generative linguistic theory) as the source of the idea that the language faculty is innate, were familiar with Sanctius' work, and like Sanctius take a **universalist** perspective (Beauzée 1767: 'la grammaire générale est donc la science raisonnée des principes immuables et généraux du Langage prononcé ou écrit, dans quelque langue que ce soit') and assume a **deep/surface structure** distinction

(2) Dieu invisible a créé le monde visible
→ composed out of three 'kernel sentences' (in Harris' 20th c. terms)
a. Dieu est invisible
b. Dieu a créé le monde
c. le monde est visible

→ interrupted by the 18th and 19th centuries, in which the pendulum swings back to phonology (see esp. the **Neogrammarian** movement and its obsession with the absoluteness of sound laws; but see Jespersen's work on historical syntax, in one of the problem sets below), there is a straight line from the **Port Royal** grammarians to 20th century work in the **American Structuralist** approach — especially in **Zellig Harris**' work: even though Harris' (1951) *Structural Linguistics* contains only chapter (chapter 19, peculiarly entitled 'Morphological structure') devoted to syntax, there and esp. in his subsequent work (1952–1957) an important foundation for the **generative** approach to syntax is laid
– 'statements which enable anyone to synthesize or predict utterances in the language', statements (cf. PS rules) which 'form a deductive system with axiomatically defined initial elements and with theorems concerning the relations among them' (1951:372–73)
– 'statements' which 'transform certain sentences of the text into grammaticality equivalent sentences': nominalisation, particle placement, VP–deletion, question formation
– the idea of a **kernel sentence**: sentences 'consist of a sequence of one or more *underlying* sentences' (cf. Port Royal's approach to (2), above)

→ though the approach is profoundly non-derivational in nature (cf. 'statements' rather than 'rules'; contrast this with Humboldt's 'Regeln der Redefügung' and 'Regeln der Wortbildung'), there are the beginnings of an awareness that derivation might be needed: cf. Harris' use of the verb 'transform'

→ in Harris' later work (esp. his 1955 LSA–address 'Co-occurrence and transformation', published in *Language* in 1957), there is much more syntax — several transformations, incl. *nominalisation* and *particle displacement*)

• the formal study of the structure of phrases and sentences starts for real in the second half of the 1950s, with the arrival of **generative syntax**, the brainchild of **Noam Chomsky**

→ we will pick a few case studies from the early days of formal syntax to illustrate the workings of the approach and to give you a sense of what it means to 'do syntax'

IV Syntax — Structural ambiguity and disambiguation, take #1

- consider the sentence in (1)

(1) John watched the man with binoculars
  a. 'John used binoculars as an instrument in watching the man'
  b. 'John watched the man who had binoculars'

→ this sentence is famously ambiguous between a reading in which the binoculars are in John's possession (see (1a)) and one in which they are in the man's possession (see (1b))
→ interestingly, this ambiguity disappears when we **passivise** the sentence, as in (2)

(2) a. the man was watched (by John) with binoculars → (1a) only
  b. the man with binoculars was watched (by John) → (1b) only

→ similarly, turning (1) into a **constituent question** in which *the man* is turned into *which man* disambiguates the sentence, as shown in (3)

(3) a. which man did John watch with binoculars → (1a) only
  b. which man with binoculars did John watch → (1b) only

→ this tells us something important about **constituency**: only in reading (1b) does *with the binoculars* form a constituent with *man*

- note that (1) is also disambiguated in the constituent question in (4), in which *binoculars* is turned into *what*

(4) what did John watch the man with? → (1a) only

→ this tells us something important about the **impermeability** of a noun phrase introduced by the definite article — the **specificity condition**

IV Syntax — Structural ambiguity and disambiguation, take #2

[based on Chomsky 1962/4, *LBLT/Current Issues*]

- a very similar set of cases can be constructed involving **gerunds**

→ consider the examples in (1)–(3)

(1) Mary saw the boy walk towards the station
(2) Mary saw the boy who was walking towards the station
(3) Mary saw the boy walking towards the station
  a. 'Mary witnessed the event of the boy walking towards the station' (cf. (1))
  b. 'Mary saw the boy who was walking towards the station' (cf. (2))
  c. 'Mary saw the boy as he was walking towards the station'
  d. 'Mary saw the boy as she was walking towards the station'

→ (1) and (2) are both unambiguous but (3) is, quite stunningly, four-ways ambiguous — see the paraphrases below (3)

- **passivisation** renders (3) unambiguous (in the ways indicated in (4)–(6))

(4) the boy was seen walking towards the station by Mary → (3a) or (3c)
(5) the boy walking towards the station was seen by Mary → (3b)
(6) the boy was seen by Mary walking towards the station → (3d)

- **relativisation** of *station* also serves as a disambiguator ('A–over–A', later recast as Ross's CNPC)

(7) which station did Mary see the boy walking towards? → (3a)

IV Syntax — Rules and exceptions; the role played by 'counterexamples'

(1) a. Mary kissed John
b. John was kissed (by Mary)

(2) *Passive Transformation*
$NP_1 - V - NP_2 \quad \Rightarrow \quad NP_2 - be - V+\text{-}en - (by\ NP_1)$

(3) a. Mary weighed 120 pounds
b. 120 pounds was weighed (by Mary)

- (3a) is ambiguous between a salient reading (Mary's weight is 120 pounds) and an activity on Mary's part (viz., an act of weighing something); (3b) is unambiguous, lacking the former reading

→ response 1: 'the passive transformation is wrong since it doesn't work in (3) on the salient reading'
→ response 2: 'the passive transformation is right and there is an independent reason why it doesn't work in (3) on the salient reading'

(4) a. how many pounds did Mary weigh?
b. how many pounds did Mary wonder how to weigh?

- (4a) is once again ambiguous, and (4b) (which is marginal to begin with) is not, lacking the salient reading of (3a) and (4a), on a par with (3b)

→ so we see that there is *more than one way* in which the 'physical weight' reading of (3a) is special; to say that the passive transformation in (2) is wrong because (3b) lacks that reading would miss the point, therefore: there is something about the 'physical weight' reading that restricts its syntactic versatility, but it is *not* something about passivisation

- in general, lists of exceptions never refute an analysis; as Chomsky (1962/4) puts it, 'Until incorporated in an explicit generative grammar, such examples simply stand as exceptions, no more relevant to the correctness of the already formulated rules than strong verbs and irregular plurals. Listing of innumerable examples is neither difficult nor very interesting; it is quite another matter to find rules that account for them, or a general theory of such rules.'

IV Syntax — Coordinate Structure Constraint and linguistic explanation

[based on Chomsky 2000:55–56]

- the sentences in (1) and (2) are semantically quite close; yet they behave syntactically quite differently: though (3) and (4), with *who* in the same position as *Mary*, are both good (as so-called echo questions), (5) is grammatical while (6) is bad

(1) John saw Bill with Mary
(2) John saw Bill and Mary
(3) John saw Bill with *who*?
(4) John saw Bill and *who*?
(5) *who* did John see Bill with?
(6) **who* did John see Bill and?

→ since Ross (1967), the ungrammaticality of (6) has been known as an instance of the Coordinate Structure Constraint
→ for the philosopher Quine (1986), however, the 'striking uniformity' when it comes to the ungrammaticality of (6) across languages is not 'a hint of a trait of all language' but instead 'a hint of genetic kinship of the languages that seem most readily grammaticized in these terms'
→ but this seriously misrepresents the case: language learners obviously do not have conscious access to the 'genetic kinship' between their language and other languages; in fact, language learners do not even come across the fact that (6) is ungrammatical at all: there is no *negative evidence → poverty of the stimulus*

- more coordinate structure cases, and refinements of the Coordinate Structure Constraint:

(7) a. I borrowed a book about Chomsky from the library and returned it two weeks later
b. *what* did you borrow from the library and return two weeks later?

→ ATB extraction

(8) a. millions of people can walk into a bookstore and buy this book
b. this is a book *which* millions of people can walk into a bookstore and buy
(9) a. a person can have ten dogs and still stay sane
b. *how many dogs* can a person have and still stay sane?
(10) a. athletes take this drug and become quite strong
b. that is the drug *which* athletes take and become quite strong

→ pseudo-coordinations — close semantic dependencies: temporal connection (8); 2nd conjunct as unexpected/surprising consequence of first (9); 2nd conjunct as expected consequence of first (10)
→ uncharacteristic coordinations: they disallow *or* and *both ... and* (Postal)

IV Syntax — *easy/eager to please*

(1) John is easy to please
(2) John is eager to please

→ the rewrite/PS–rules for these two sentences are the same, including:

(3) $AP \rightarrow A + S_{inf}$
(4) $S_{inf} \rightarrow$ *to* + VP

→ yet, (1) and (2) are not just 'the same' — interpretively, *John* is the object of *please* in (1) but the subject of *please* in (2); and syntactically there are important differences between the two, too:

(5) a. *John's easiness to please
b. John's eagerness to please
(6) a. to please John is easy
b. *to please John is eager
(7) a. John is an easy fellow to please
b. *John is an eager fellow to please
(8) a. John is easy for us to please
b. *John is eager for us to please
(9) a. it is easy to please John
b. *it is eager to please John

→ discuss ways of making a distinction between (1) and (2) (your analysis will need to make reference to a more abstract level of representation)

IV Syntax and semantics — Subject and predicate

[discussion based on Seuren 1998:120ff.]

- the origin of the terms 'subject' and 'predicate' lies in Aristotle's work (*De Poetica*); hence, the original terms were Greek:

Latin	Greek
subiectum	*hypokeimenon* (Aristotle)
praedicatum	*kategoroumenon/kategorema*

- for Aristotle, 'subject' and 'predicate' were defined as follows:

(1)
a. *subject* = an entity having a property ascribed to it by the predicate
b. *predicate* = the constituent which assigns a certain property to the subject
c. *accidens* (*symbebekos*) = the property assigned to the subject

→ notice that Aristotle makes a terminological distinction between the constituent assigning a property (the predicate) and the property assigned (the accidens); he makes no similar terminological distinction between the constituent to which a certain property is ascribed by the predicate and the referent of that constituent

→ it is this terminological gap which has raised considerable confusion concerning the application of the term *subject*

- the classical tradition took 'subject' to be 'the entity which the sentence is about' — the original Aristotelian sense of the term (cf. e.g. Appolonius Dyscolus, 2nd century AD)
  - → the problem with this interpretation of 'subject' is that it leaves us empty-handed when it comes to sentences like *nobody here speaks Tübatulabal* — what does it mean to say that the predicate 'speaks Tübatulabal' is about 'nobody'? who is 'nobody'?
  - → in other words, the Aristotelian notion of 'subject' has a problem with sentences with **quantificational** subjects; quantifiers are themselves predicates in the logical sense of the term (see the next section)

- as early as the 5th century AD, the term started to be used in the sense of what we would now call 'grammatical subject' — the constituent in subject position, determining agreement with the finite verb, undergoing inversion with the finite verb in inversion constructions (like questions), droppable in subject-drop languages, etc.
  - → for 'subject' as 'entity having a certain property ascribed to it by the predicate', the term *suppositum* was introduced sporadically in work from the 6th century AD, but this term never caught on; moreover, confusion persisted due to the fact that the new term *suppositum* was not used consistently: a late medieval Italian grammarian by the name of Giovanni da San Ginesio used *suppositum* to refer to *either* 'what the sentence is about' *or* 'what precedes the main verb'

- the difference between *logical* (or *psychological*) and *grammatical* notions of subject and predicate was stressed most emphatically in 19th century work by Steinthal, Wegener, Lipps and others
  - → Steinthal (1855:199) argues, for instance, that in (2), *the patient* is the grammatical subject and *sleeps well* the grammatical predicate; but 'what one wants to say is that the patient's sleep was good' — so at a deeper level, we might want to say that *the patient's sleep* is the subject and *well* is the predicate

(2) the patient slept well

- the notions 'psychological subject' and 'psychological predicate', in their reincarnated forms *theme* and *rheme*, respectively, made it to the front of the stage in Prague School sentence analysis: the *Functional Sentence Perspective* (we will talk about this more in a few weeks' time); *theme* and *rheme* are also known as *topic* and *comment*, respectively
  - → in principle, 'grammatical subject' and 'grammatical predicate' have nothing to do with 'theme' and 'rheme': in both sentences in (3), *Marilyn* is the grammatical subject, but only in (3a) is it also the psychological subject or theme; in (3b) *Marilyn* is the psychological predicate or rheme — cf. also the *(pseudo)cleft* paraphrases of these examples, in (4)/(5)

(3) a. Marilyn wrote A SHORT STORY
b. MARILYN wrote a short story
(4) a. it is *a short story* that Marilyn wrote
b. it is *Marilyn* who wrote a short story
(5) a. what Marilyn wrote was *a short story*
b. who wrote a short story was *Marilyn*

- a *third* way of interpreting 'subject': the *semantic* approach, in terms of so-called *thematic roles* — 'subject' as 'agent/actor'
  - → then the grammatical subject of (6) is also a semantic subject, but the grammatical subject of (7) is not (it is a 'patient/theme'); but syntactically, the preverbal constituent of (6) and (7) behaves the same way: as a grammatical subject; so the term *thematic subject* cannot be conflated with *grammatical subject*

(6) John was walking
(7) John was falling

  - → see Bloomfield's (1914) use of the term in the following quote, where the term *attribute* is introduced alongside *predicate*: 'Thus in the sentence *Lean horses run fast* the subject is *lean horses* and the horses' action, *run fast*, is the predicate. Within the subject there is the further analysis into a subject *horses* and its attribute *lean*, expressing the horses' quality. In the predicate *fast* is an attribute of the subject *run*.'

- in modern linguistics, the term 'subject' is generally used with reference to the grammatical function 'subject'

V Semantics — Type theory and quantifier raising

- linguistic semantics is the study of those aspects of meaning that are **conditioned by syntactic structure**
  - NOT **lexical** meaning ('what is the meaning of *tree*?')
  - NOT **logic**
  - NOT **pragmatics**

- a theory of semantic inquiry that is very popular in theoretical-linguistic circles is one called **type-theoretic semantics**

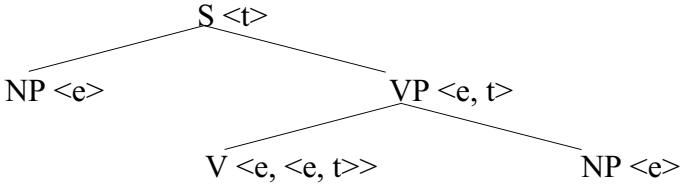
(1) John smokes

a. a sentence represents a statement that is either true (1) or false (0)
→ the sentence must be of semantic type <t> (short for 'truth condition'):
b. *John* denotes an entity in the extralinguistic universe
→ its semantic type is <e> (where 'e' stands for 'entity')
c. the verb *smokes* constitutes the predicate of the sentence; that predicate combines with *John* to deliver the sentence as a whole, whose semantic type is <t>
→ the predicate must be of type <e, t> (read: 'wants something of type <e> to deliver something of type <t> (i.e., a sentence)') — a function of individuals to truth values
→ the intransitive verb *smokes* by itself constitutes the predicate, hence is of type <e, t>

(2) John likes Mary

a. a sentence represents a statement that is either true (1) or false (0)
→ the sentence must be of semantic type <t> (short for 'truth condition'):
b. *John* and *Mary* denote individuals, entities in the extralinguistic universe
→ their semantic type is <e> (where 'e' stands for 'entity')
c. the verb *likes* combines with *Mary* to deliver the predicate of the sentence; that predicate in turn combines with *John* to deliver the sentence as a whole, whose semantic type is <t>
→ the predicate must be of type <e, t> (read: 'wants something of type <e> to deliver something that is of type <t> (i.e., a sentence)'
→ the transitive verb is the head of the predicate; it must be of type <e, <e, t>> (read: 'wants something of type <e> to deliver something of type <e, t> (i.e., a predicate)')

→ for any branching node in the structure, we **compose** the two daughters
→ this is what **compositionality** amounts to: the semantics of a complex whole is transparently composed of the meanings of its parts



- importantly, not all noun phrases denote entities — put differently, not all noun phrases are **referential expressions**

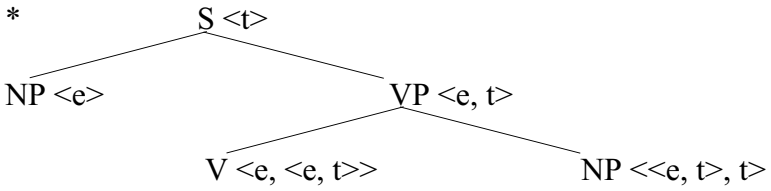
→ as we already saw in the discussion of subjects and predicates, there are **quantificational** noun phrases that have no (fixed) referent: *nobody*, *everybody*

(3) a. nobody likes Mary — a′. Mary likes nobody
b. everybody likes Mary — b′. Mary likes everybody
   – everybody in this room
   – everybody in Hungary
   – everybody in Europe
   – everybody in the set of people I know (about)
   – ...

- a quantified noun phrase such as *everybody* is of type <<e, t>, t>, a function of sets to truth values

→ it does not itself denote an entity (i.e., it is not of type <e>), but in combination with a predicate (of type <e, t>) it can deliver a truth condition

- now note that when a quantifier of type <<e, t>, t> serves as the object of a transitive verb (which is of type <e, <e, t>>), as in (3a′,b′), we cannot compose the two:



→ the verb says ‘give me something that is of type <e> so that I can deliver a predicate’, but the object is not of the type that allows the verb to compose with it

→ so what to do?

(i) creating different types of transitive verbs, each of which is suitable for combination with a particular type of object
   – <e, <e, t>> for a transitive verb that takes a referential object
   – <<e, t>, t>, <e, t>> for a transitive verb that takes a quantificational object

→ this amounts to listing every verb compatible both with referential and with quantificational objects (i.e., every transitive verb, in principle) more than once in the lexicon

(ii) performing an *operation* on the *verb* that ‘shifts’ its type, in the course of the derivation, to one appropriate for combination with a quantificational object — in the particular case of a quantificational object, we can shift its type from <<e, t>, t> to the more complex <<e, t>, t>, <e, t>>: the object can now combine with the transitive verb (of type <e, <e, t>>) to form a predicate of type <e, t>

→ **type shifting**

(iii) performing an *operation* on the *object* that removes it from the object position within the predicate, and leaves behind something of a type that an ordinary transitive verb of type <e, <e, t>> can compose with, i.e., a variable of type <e>

→ **quantifier raising** (QR)

- we will not discuss QR in any technical detail here, but will draw attention to an important consideration that shows the usefulness of *(iii)* as the response to the problem posed by quantificational objects: **scope inversion**

(4) someone loves everyone
a. 'there is someone such that (s)he loves everyone'
b. 'for everyone, there is someone who loves him/her'

→ famously, English (4) can mean *either* what (4a) expresses *or* what (4b) expresses
→ the fact that (4) can be paraphrased as in (4b) is surprising: it turns the syntax upside down, giving the object quantifier a **scope** that is *wider* than that of the subject quantifier

- in Hungarian, the string in (5) only has the paraphrase in (4a), not (4b)

(5) valaki mindenkit szeret
= 'there is somebody such that (s)he loves everyone'
≠ 'for everyone, there is someone who loves him/her'

→ the Hungarian sentence in (5) has the quantifiers interpreted in their surface positions
→ already in the syntax of Hungarian (5), the quantifiers are in positions outside the 'core sentence'; the core sentence only contains the variables bound by these quantifiers

(6) [x=valaki [y=mindenkit [x szeret y]]

→ the quantified noun phrases *valaki* and *mindenkit* are in positions that directly indicate their scope *vis-à-vis* one another: *valaki* comes first, so it takes scope over *mindenkit*
→ suppose now that English can also produce structures of the type involved in Hungarian (5), at a point *after* the sentence in (4) has already been pronounced, via the application of **QR**
→ then, although we do not notice on the sound side the effect of the operations that place the quantifiers outside the core sentence, we do notice their effect on the meaning side of the grammar: the 'inverse scope' reading of English (4) (i.e., (4b)) will have the structure in (6) on the meaning side of the grammar
→ we have, in (4b), a surface form corresponding to a rather different representation in the semantics — a mismatch between overt form and semantic interpretation

- it is these kinds of form/meaning mismatches that linguistic semantics is very much interested in; they involve aspects of meaning which are conditioned by syntactic structure
→ we see this clearly from the fact that quantifier-scope ambiguities of the type seen in (4) do not arise just any time we have two quantifiers: they arise only if the two quantifiers are in the same clause together (the 'clausemate restriction' on QR)
→ this is a syntactic fact: it makes reference to syntactic locality (albeit of a very strict kind)

(7) someone hopes that everyone will get a 5 for this course
a. 'there is someone (viz., me) who hopes that everyone will get a 5 for this course'
b. *'for everyone, there is (a potentially different) someone who hopes that they will get a 5 for this course'

V Semantics — Anaphora: Reflexives and locality

• the sentence in (1) is grammatical, and forces *himself* and *he* to be coreferent
→ because of this coreference requirement, (2) is not well-formed

(1) he shaved himself
(2) *she shaved himself

• the requirement that *himself* (a **reflexive anaphor**) have an **antecedent** may be a property of the anaphor itself or of the predicate containing the anaphor; if the latter is the right approach, we immediately understand why in (3) it is impossible for *himself* to take *John* as its antecedent: *shave himself* is the predicate of *Bill*, so *Bill* is the only possible antecedent

(3) a. John thinks that Bill should shave himself
b. John wants (for) Bill to shave himself

• the sentences in (4) and (5) look very much alike, on the surface; yet their interpretations are sharply different when it comes to the referent picked out by the reflexive

(4) does John want to shave himself?
(5) who does John want to shave himself?

→ in (4) *himself* must pick out *John* as its referent; in (5) (which contains the entire string *John want to shave himself* also found in (4)) *himself* cannot pick out *John* as its referent
Q what's going on?
→ from the point of view of the predicate-based analysis, the answer to this question is simple: *shave himself* is predicated of *John* in (4) but not in (5)

• notice now one other difference between (4) and (5): in the former, *want* and *to* can be contracted to *wanna*; in the latter, they cannot:

(6) does John wanna shave himself?
(7) *who does John wanna shave himself?

→ it looks as though 'there is something in between *want* and *to*' in (7), something which blocks the contraction of these two elements to *wanna*
→ what could that something be? — consider the 'echo question' in (8)

(8) John wants who to shave himself?

→ in both (8) and (5), *who* is the one who is shaving himself
→ in (8) *who* is in the same position that *John* is in in the variant of (3) lacking *for*
→ but in (5), *who* appears at the beginning of the sentence, which is where question words usually find themselves in information questions in English
→ in (8), *who* clearly intervenes between *want* and *to* and thereby blocks *wanna* contraction (**you wan-who-na shave himself?* or any variant thereof)

→ we may now say that, in some relevant sense, (5) is like (8): though *who* is not physically in between *want* and *to* in (5), there is something about it which still manages to block contraction: *who* is represented between *want* and *to* in (5)

→ let us assume that there is a silent 'copy' of *who* in between *want* and *to*, as in (9), so that (5) really is equivalent to (8), except in the phonology

(9) who does John want ~~who~~ to shave himself?

- this silent copy of *who* allows us to state in purely structural terms that the antecedent of *himself* must be local to the anaphor

→ that is, we are not required to phrase anaphor–antecedent relations with reference to **semantically reflexive** predicates — we can state the generalisation in **syntactic** terms

- whether a syntactic approach to anaphor–antecedent relations is superior to a semantic one is a question that is not entirely straightforward

→ but one kind of construction that suggests that the semantic approach runs up against a major hurdle is the one exemplified by (10a), which is equivalent not to (10b) but to (10c)

(10) a. the theory proved itself wrong
b. the theory proved itself
c. the theory was wrong

→ since *itself* in (10a) is the subject of the predicate *wrong*, and not the object of the predicate *prove*, there is no obvious sense in which (10a) can be dealt with on an approach to antecedent choice for anaphors couched in terms of semantic predicates

→ a syntactic approach to antecedent choice for anaphors encounters some difficulty in (10a) as well, but this can be overcome in a relatively straightforward way; it is not clear that a semantic approach can be fixed equally 'innocuously'

V Semantics — Compositionality and idioms

- famously, Frege's compositionality principle, which formal semantics has based itself on for decades, is flouted flagrantly by a particular interpretation of the sentence in (1)

(1) he kicked the bucket

→ the compositional reading is one in which the lower extremity of the referent of *he* performed an act that brought it into violent contact with a particular pail
→ but there is also a reading for (1) in which the sentence expresses that the referent of *he* died

- on its non-compositional interpretation, *kick the bucket* is called an **idiom**

- for the particular case of *kick the bucket*, a popular approach evading the compositionality problem is to say that it is listed in the English lexicon as a complex expression with a particular interpretation ('die')
→ that is, alongside the lexical entries in (2a–c), out of which the predicate *kick the bucket* can be compositionally constructed, English also has the lexical entry in (2d)

(2)
a.	*kick*	'strike forcibly with the foot'
b.	*the*	'definite article'
c.	*bucket*	'pail'
d.	*kick the bucket*	'die'

- while this is basically unproblematic (albeit not perhaps tremendously economical) as an approach to this particular idiom, there are plenty of idioms for which lexical listing leads to complications

(3)
a. he gave her a piece of his mind
b. he gave me a piece of his mind
c. she gave him a piece of her mind

- in (3a), the verb and the direct object form the idiom but the indirect object, which is sandwiched between the verb and the direct object, is not (see (3b)); moreover, it is not the case that the *entire* direct object is 'frozen' as part of the idiom: *his* is not a part of the idiom because, if we choose a different subject, the form of the pronoun will change accordingly (see (3c))
→ so how do we lexically list the idiom, then?
→ the only option seems to be (4) — but this is obviously a peculiar kind of lexical entry, with two variables, one of which is linked to a special instruction

(4) *give x a piece of y's mind* (where '*y*' is linked to the subject)

- an even more serious complication arises for idioms such as the ones in (5a) and (6a)

(5) a. he doesn't have a leg to stand on
b. he doesn't (have to) stand on a leg

(6) a. he has his work cut out for him
b. he has cut out his work for him

→ in (5a), *a leg* is the object of *on*; but we only get an idiom when *a leg* is not actually in the position which the object of *on* would normally occupy: (5b) is not an idiom; it only supports a literal, compositional interpretation (which is rather awkward)

→ similarly, in (6a), *his work* is the object of *cut out*; but again, when we place *his work* in the object position of *cut out*, as in (6b), we lose the idiomatic interpretation — and interestingly, we also lose the ability to interpret *him* as coreferent with *he* (while such coreference is not only possible but obligatory on the idiomatic interpretation of (6a))

• for idioms of the type in (3a), (5a) and (6a), lexical listing is not a feasible strategy

→ so we have to face the compositionality problem in earnest: we cannot evade the problem by 'dumping' the non-compositional idioms into the lexicon

• there is no simple solution to the compositionality problem raised by idioms of the type in (3a), (5a) and (6a)

→ but note that whatever the solution, the *problem* is clearly quite different from the problem for compositionality that we faced in the case of quantifiers: there, a syntactic solution is possible that actually solves the problem *and* makes interesting (and correct) predictions about quantifier-scope interaction; but in the idioms case, it is not obvious at all what the solution should be

VI Information structure — On the threshold of semantics and pragmatics

- a hot topic in research in syntax for the past 25 years has been the relationship between syntax and information structure — the question of what the role of the referent of a particular syntactic constituent is in the discourse of which the sentence in which it occurs is a part
  - → topic
    - – familiarity topic ('old information')
    - – contrastive topic
    - – hanging topic
  - → focus
    - – information topic ('new information')
    - – contrastive/exhaustive/identificational focus

- Hungarian was a major catalyst of the research in this area, thanks to the fact that, for a while, Hungarian syntax was thought to 'wear information structure on its sleeve': topics and foci are in positions in what is nowadays called 'the left periphery of the clause', outside the minimal clause
- → it has since become apparent that it is not strictly the case that topics and foci must be placed in the left periphery in Hungarian: at least for information foci, it is clear that they can occur to the right of the finite verb as well
- → a major claim defended for Hungarian in work by Horvath is that fronted foci are always of a particular quantificational type: *exhaustive* foci
- → this is thought to tie in with the fact that quantifiers are generally placed in the left periphery as well in Hungarian

- for Italian, in particular, but the other Romance languages as well, there is a veritable cottage industry devoted to the study of its left periphery and the interface between syntax and information structure
- → for French, it had been pointed out many years ago already that the language finds it difficult to narrowly focus a subject when it is placed in the structural subject position: while English can easily say *YOU did it (not ME)*, French insists on the use of a so-called cleft sentence in cases of narrow subject focus (cf. English *it was YOU (not ME) who did it* or *who did it was YOU (not ME)*, the latter called the pseudocleft)
- → the pseudocleft construction (a strongly information-structural device) has generated a lot of work, both in syntax and in pragmatics; for details, see my *SynCom* chapter
- → the *it*-cleft is (even) less well understood than the pseudocleft; much about its syntax remains subject to debate

- the English syntax/information-structure interface is rather less 'exciting' than its counterparts in Hungarian and Italian
- → English does have (pseudo)cleft constructions, but it tends not to front constituents into the left periphery for information-structural purposes in simple clauses — sentences such as *HER I like, not HIM* (contrastive focus fronting) and *her, I like; him, I don't* (contrastive topic fronting) are relatively uncommon in English (though they are indubitably grammatical); information topics front naturally only in the presence of an identificational focus (as in *all the oil in the Middle East, even THEY wouldn't be able to use up in a year*)

- one systematic exception to the fact that English does not generally front constituents with a particular information-structural signature is the set of *wh*-phrases: these MUST front (at least, in single *wh*-questions), and in so doing bring about subject–auxiliary inversion in root contexts (though not in non-root clauses)
- subject–auxiliary inversion is also triggered when negative constituents are fronted in a finite clause, as in *not a single word has he spoken so far*
- with the exception of *wh*-fronting (which is obligatory, hence unmarked), all these fronting constructions are quite marked in English; but they are very helpful for the syntactician: they furnish invaluable diagnostics for syntactic analysis ('constituency tests')

VI Semantics and pragmatics — Grice's Cooperative Principle; implicatures

- the British philosopher of language Paul Grice is known in linguistics for introducing *implicatures*, and making a key distinction between two types of them:
  - conventional implicature
  - conversational implicature

→ these have become mainstays of work in semantics and pragmatics

→ *conventional* implicatures are *semantic* in nature; they cannot be 'cancelled'
→ *conversational* implicatures are *pragmatic*, and are 'cancellable'

(1) a. among the first-year students, only John (*among others) likes syntax
b. among the first-year students, it is John (#among others) who likes syntax

→ for (1a), which uses the focus particle *only*, the implicature of EXHAUSTIVITY is *conventional* (conventionally associated with the lexical item *only*), hence not cancellable: insertion of *among others* is semantically incongruous
→ for (1b), which expresses exhaustive/identificational focus with the aid of a so-called cleft construction, there is also an implicature of EXHAUSTIVITY, but this time around, the implicature is merely *conversational* (in a typical conversation, the interlocutor would indeed expect the focus of (1b) to identify exhaustively the relevant argument of the predicate of the relative clause), and hence cancellable: insertion of *among others* is pragmatically awkward but not ungrammatical

- Grice is also credited with (2) and the four maxims based on it given in (3)–(6)

(2) *Cooperative Principle*
'make your contribution such as it is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged'

(3) Maxim of Quality
make your contribution one that is true
a. do not say what you believe to be false
b. do not say that for which you lack adequate evidence

(4) Maxim of Quantity
a. make your contribution as informative as is required (for the current purposes of the exchange)
b. do not make your contribution more informative than is required

(5) Maxim of Relevance
be relevant

(6) Maxim of Manner
be perspicacious