Psych 131
Fall 2015
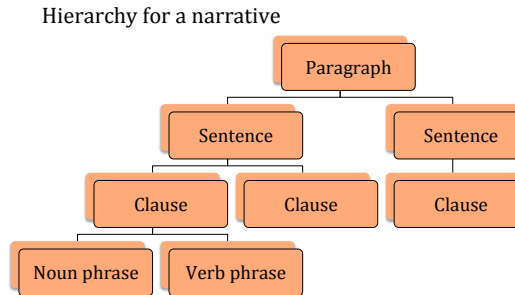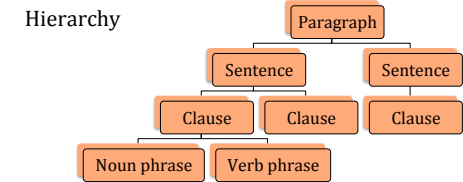
Presentation 7: Production of utterances

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Every utterance belongs to a hierarchy of units

Hierarchy for a narrative

What are the main units of planning?

Hierarchy

How can we tell? Look for …

Planning of a **single intonation contour**
Pauses **between** planning units
Fluency **within** planning units

Example of "intonation units" (marked by #)

"intonation unit"		unit type
well	when I was . doing freelance advertising#	clause
-	dhi: advertising agency#	NP
	that I . sometimes did some work for#	clause
.	rang me#	VP
and	said um - we've got a client#	VP
	who wants um - - a leaflet designed##	clause
.	to go to s uh instructions how to use a sewing-machine#	clause
and	I said I haven't used a sewing-machine for years#	clause
- and	he said well . go along and talk to them##	clause

Example of "intonation units"

"intonation unit"		unit type
(.85) A--nd (.15)	he (.35) sees this three pear (.20) these three baskets of pears,	clause
and then	sees this man up in the (.50) tree,	VP
and	decides (.45) that he'd like some pears.	VP
And	at first looks like he's going to take one or two.	VP
(.60) Then	decides that he'd (.15) much rather take a whole basket,	VP
(.55)	puts the basket on the bike,	VP

Example of "intonation units"

"intonation unit"		unit type
(.90) tsk a--nd ..	kind of struggles	VP
	cause it's much too big for him.	clause
And	the bike is much too big for him.	clause
(.80) A--nd ..	gets on the bike,	VP
and (.20)	rides off.	VP

Example of "intonation units"

| "intonation unit"		unit type
(1.85) The--n (.20)	he's riding .. across this .. great (.25) expanse,	clause
and (1.15)	a girl comes,	clause
(.40)	riding a bike in the opposite direction,	clause
(.55) and (.40)	you can see them riding (.65) towards each other,	clause
and	you wonder if there's going to be a collision.	clause

Major planning units

Three major units

1. **Clauses**   "well when I was doing freelance advertising"

2. **Noun phrases**   "the advertising agency"

3. **Verb phrases**   "and then sees this man up in the tree"

Criteria applied:

1. **Single intonation contour** (planned from beginning of unit)

2. **Start-up problems** at the beginning of unit

3. **Fluency after beginning** to end of unit

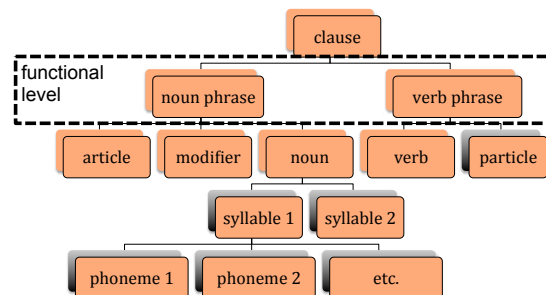## But what about units within clauses?
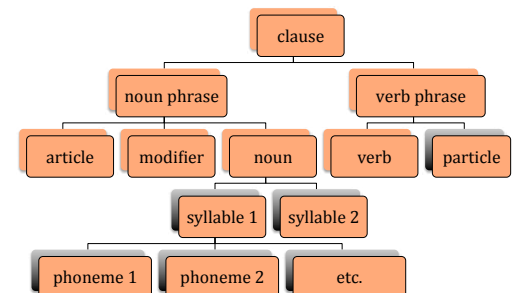
Levels of formulation *within* clauses

Level	Object of formulation
Functional	choice of subject, object, indirect object
Positional	order of constituents
	spell-out of prefixes, suffixes
Phonological	spell-out of phonetic segments

Levels of formulation *within* clauses

1. Complexity: "Put lighter constituent first"

Heavy direct object
John gave [**to Mary**] [the book he had just read about Greece]
John gave [**Mary**] [the book he had just read about Greece]
John gave [the book he had just read about Greece] [**to Mary**]

Heavy indirect object
John gave [**the book**] [to the woman he had just met on the subway]
John gave [to the woman he had just met on the subway] [**the book**]
John gave [the woman he had just met on the subway] [**the book**]

Red sentences violate "Put lighter constituent first"

Behagel's law

Pronouns

Sentence	lighter	heavier
John gave her the book	her	the book
John gave the book to her	the book	to her
*John gave the woman it	the book	it
John gave it to the woman	it	to the woman
John gave it to her	it	to her
*John gave her it	her	it
*John gave it her	it	her

Red sentences violate "Put lighter constituent first"

Pronouns

| Sentence	lighter	heavier
John figured out the problem	out	the problem
John figured the problem out	the problem	out
John figured out the problem he had been assigned	out	the problem he had been assigned
*John figured the problem he had been assigned out	the problem he had been assigned	out
John figured it out	it	out
*John figured out it	out	it

Red sentences violate "Put lighter constituent first"

Verb + particle "John <u>figured</u> the problem <u>out</u>"

How often **NP ("the problem")** is placed after **particle ("out")**

Length vs. complexity: verb-particle construction
(spoken corpus)
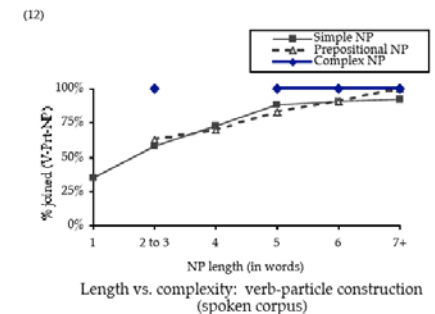
What happens with very complex constituents?

Example
1. the first European conference on astronomy at Leicester, . reported
2. [**yesterday morning**], -
3. [on overnight observations of the behaviour of the object, - . known as A six uhu two one one zero],

Not
1. the first European conference on astronomy at Leicester, . reported
2. [on overnight observations of the behaviour of the object, - . known as A six uhu two one one zero],
3. [**yesterday morning**],

2. Functional vs. positional levels

Participant in experiment …
- gets spoken "study list" of words
- then describes a picture

In study list:
- a conceptual prime: ***worship vs. thunder***
- or a sound-alike prime: ***search vs. frightening***

Which sentence will participants produce?
- The church was struck by lightning
- The lightning struck the church

Bock

Results

Conceptual primes affect **functional** level
You choose primed concept as subject

Prime	Likely description
worship	The **church** is being hit by lightning
thunder	The **lightning** is hitting the church

Sound primes affect **positional** level
You delay sound-alikes

Prime	Likely description
lamb	The woman is carrying the plant and the **lamp**.
plan	The woman is carrying the lamp and the **plant**.

But remember …

> *In everyday discourse such as stories …*
> 1. You choose the subject to fit the current topic
> 2. You order constituents depending on your choice of …
>   • perspective, such as figure vs. ground
>   • given vs. new information
>   • number of arguments mentioned
>   • etc.
> 3. What is most accessible is just *ONE* source of ordering

Evidence for planning: Slips of the tongue

Word Errors

Mis-orderings	Intended	Spoken error
Exchange	writing a **letter** to my **mother**	writing a **mother** to my **letter**
Anticipation	**sun** is in the **sky**	**sky** is in the **sky**
Perseveration	**class** will be about discussing the **test**	… discussing the class
Addition	these flowers are **purple**	these **purple** flowers are **purple**
Shift	something to tell you **all**	something **all** to tell you

Word Errors

Non-contextual errors	Intended	Spoken error
Substitution	pass the **pepper**	pass the **salt**
	Liszt's second Hungarian **rhapsody**	Liszt's second Hungarian **restaurant**
Blend	**athl**ete/play**er**	athler
	taxi/c**ab**	tab
Addition	the only thing I can do	the only **one** thing I can do
Deletion	I just wanted to **ask** that	I just wanted to that

3. Slips created at the functional level

Properties of word reversals
1. words of **same form class** (e.g., two nouns, two verbs)
2. words in **homologous positions** in phrases
3. reversals not usually from **adjacent** words
4. **stranding**: stems are moved, but suffixes remain

Examples
• **lose**r of **trace**d persons
• a **maniac** for **weekend**s
• My **hole** has a **bucket** in it
• A fifty pound **dog** of **bag** food
• Threw the **window** through the **clock**
• I went to **the mechanical mouse** for **an economy five and dime** (to the *economy five and dime* for a *mechanical mouse*)

Intrusion from similar set phrases

Intended	Slip
White Anglo Saxon **Protestant**	White Anglo Saxon **prostitute**
hot under the **collar**	hot under the **belt**
chamber **music**	chamber **maid**
Nick watered, and **Sue** weeded the garden	Nick watered, and **sea** weeded the garden
Liszt's second Hungarian **rhapsody**	Liszt's second Hungarian **restaurant**

Morpheme errors

Misorderings	Intended	Spoken error
Exchange	self-**destruct in**struction	self-**instruct de**…
	thinly **sliced**	**slice**ly **thinn**ed
Anticipation	my car **tow**ed	my **tow** towed
Perseveration	**ex**plain … rule insertion	… rule **ex**sertion
Addition	dollars **de**ductible	**de**dollars **de**ductible
	some weeks	some**s** weeks
Shift	get**s** it	get it**s**
Non-contextual	conclusion	conclude**ment**
	to strain it	to strain**ed** it
	he relax**es**	he relax

4. Morpheme errors created at positional level

Shift of suffixes:
Sing**er** sew**ing** machine → Sing**ing** sew**er** machine
he go**es** back to → he go back**s** to

Shift of other elements:
A half-**eaten** bag of candy → a half bag of **eaten** candy
my father's **other** remark → my **other** father's remark

Programming wrong suffix
group**ing** → group**ment**
motion**less** → motion**ly**
flash**ing** light → flash**er** light

Mis-derivation of inflected words
swam → swimmed

Sound errors

Mis-orderings	Intended	Spoken error
Exchange	**Y**ork **l**ibrary	**l**ork **y**ibrary
	s**p**ill **b**eer	s**p**eer **b**ill
	snow **fl**urries	**fl**ow **sn**urries
Anticipation	**r**eading **l**ist	**l**eading list
	couch is **comf**ortable	**comf** is …
Perseveration	**b**eef **n**oodle	beef **n**eedle
Anticipatory addition	eerie **st**amp	**st**eerie stamp
Perseveratory addition	blue b**u**g	blue bl**u**g
Shift	b**l**ack boxes	back b**l**oxes
Deletion	same s**t**ate	same sate

Sound errors (continued)

Non-contextual errors	Intended	Spoken error
	department	**j**epartment
	winning	winn**d**ing
	tremen**dous**ly	tremenly

5. Sound errors created at the positional level

Interacting elements …

1. are **metrically and phonetically similar**
2. need not be same form class (unlike word reversals)
3. are **homologous parts** of words: beginnings exchange with beginnings, ends with ends
4. are likely to be in same phonological phrase, **close together**: much closer than word reversals
5. are **well-formed phonetically**: no impossible sounds

We bring you "Mr. Keene, loser of traced persons"

Step 1	*Meaning* selection: description of Mr. Keene:
	He is a person who traces lost people.
Step 2	Selection of **syntactic frame**:
	Agent-noun + prep + participle + noun-plural
	[2 stress] [2 stress] [1 stress]
Step 3	Select **content words** for each slot
	First select stressed word: the noun *person*
	Next select two verbs: *lose, trace*
Step 4	**Insert** content words **into frame**
	lose-agent + prep + *trace*-ed + *person*-plural
Step 5	Add **morphology**: suffixes and function words
	loser + of + traced + persons
Step 6	Spell out **phonetic segments**
	lo-zer uv traist per-sunz

It was "a *weekend* for MANICS"

Step 1	**Meaning** selection: description of time period
	The end of the week when people go crazy
Step 2	Selection of **syntactic frame**:
	article + noun1 + prep + noun2 + plural
	[2 stress] [1 stress]
Step 3	Select **content words**
	Select noun with [1 stress]: *maniac*
	Select noun with [2 stress]: *weekend*
Step 4	**Insert** content words **into frame**
	article + *maniac* + prep + **weekend** + plural
Step 5	Add **morphology**: suffixes and function words
	a maniac for weekend-s
Step 6	Spell out **phonetic segments**
	Uh-*mai-nee-yak* for *WEE-KENDS*

General rules about exchange slips

1. *Levels* of formulation are ordered
   a. **Functional** (subject, direct object, indirect object)
   b. **Positional** (order of words)
   c. **Phonological** (sounds)
2. *Scope* of exchanges are ordered
   a. **Words** are exchanged within **intonation units (e.g., clauses)**
      "a **maniac** for **weekend**s"
   b. **Sounds** are exchanged within **words or short phrases**
      "**l**ork **y**ibrary"

General rules about exchange slips II

3. Slips exchange **similar** units in **similar** surroundings
   a. **Words** exchanged are **same type of word** in like phrases
      Example: two nouns (*maniac, weekend*)
   b. **Sounds** exchanged are **same type of sound** in homologous positions
      Example: two liquid consonants (*y, l*) at onset of syllable
4. Planning errors occur **within one level**, but affect next level
   Suffixes, prefixes, function words are adjusted to fit content words
   - **an** eating marathon ➔ **a** meeting arathon
   - a tracer of **los**t persons ➔ a **los**er of traced persons

Lexical entry for *give*

word-form	lemma (or word-content)
morphology: none	conceptual specification: *x causes y to change*
phonology: /giv/	*possession from x to z*
	conceptual arguments: *x, y, z*
	syntactic category: *verb*
	grammatical functions: *subject, direct object indirect object*

6. Errors in selecting the right lexical entry

Wrong lexical entry but right domain

- pay by **check**   pay by **rent**
- my dissertation is too **long**   too **short**
- There's a small **Japanese**—I mean, **Chinese** restaurant
- there are a lot of **questions**—I mean, **answers**

Blends: formulating two equally possible words at once

- **moment**ary/ins**tant**aneous   mom***ent***aneous
- **spl**inters/b**listers**   spl**li**sters
- **per**son/peo**ple**   purple
- **dr**aft/b**reeze**   d**r**eeze
- **cl**ose/n**ear**   clear
- **R**oss/Ch**omsky**   R**o**msky

Tips of the tongue, phonetic errors in word shape

Word is in memory, but phonetic shape not fully available
- only stress pattern
- number of syllables
- first and last phonetic segments

7. Properties of tips of the tongue

1. ***In daily life***, TOTs are nearly universal experience
   a. school children to older adults
   b. about once a week, more often with age
   c. most TOTs are triggered by ***names*** of acquaintances, then famous persons and objects

2. ***In the lab***, TOTs elicited by word definitions, faces, line drawings
   a. ***related words*** come to mind on 40% to 70% of TOTs
   b. ***first letter*** guessed right 50% of the time, well above chance
   c. ***last letter*** guessed right less often
   d. ***number of syllables*** guessed right 50% to 80% of the time (chance = 38%)
   e. 40% to 66% of TOTs ***resolved within one minute***
   f. TOT target words ***recalled later more often*** than non-TOT targets

8. Properties of malapropisms

Speaker has right lemma, but wrong word shape (*from ignorance*)

- like social psychology, **behest** (beset) with all these experiments
- There's a connection, no matter how **obtuse** (obscure) it is
- I hereby **jeopardize** (deputize) you to handle my duties
- the **holocaustic** (holophrastic) stage in language acquisition
- It warms the **coggles** (cockles) of my heart
- The policemen threw an **accordion** (cordon) around the crowd

In summary, speech production is hierarchical

Conversations, narratives

These divide into …
Sections, then paragraphs, then sentences, then clauses

Evidence?
intonation contours, pauses between units, entry problems

Utterances

These divide into …
clauses, then phrases (NP, VP), then words, then syllables, then phonetic segments

Evidence?
End weight, ordering of levels, slips of the tongue