



Language acquisition, perception and production

*Lecture 1 – What is
Language?*

Plan for today

- **Introductions**
- **Administration**
 - **Evaluation: 30% participation, 70% final presentation**

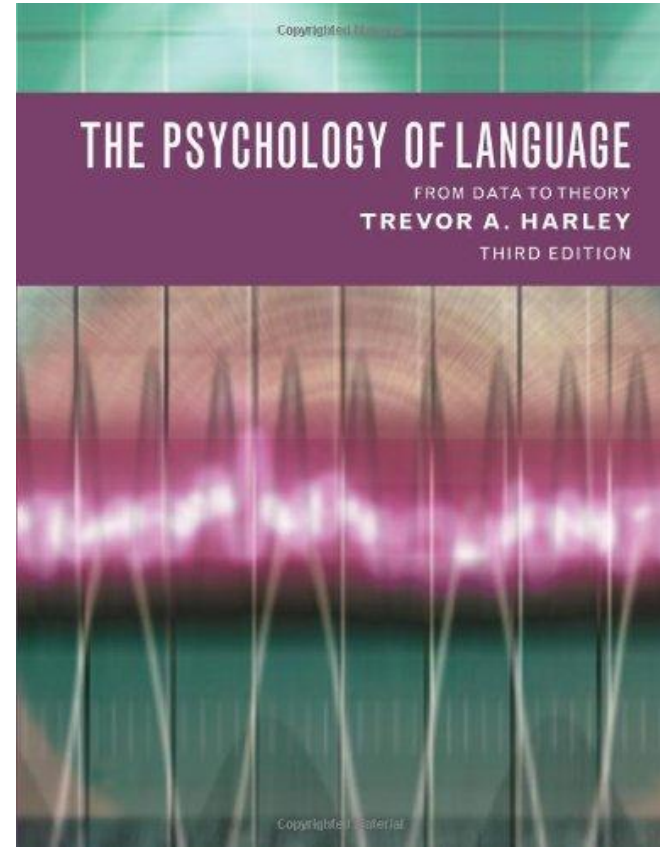
Class overview

- **Monday**
 1. Introduction
 2. Language change
 3. Language and thought
- **Tuesday**
 1. Language and brain
 2. Reading
 3. Speech comprehension
 4. Spoken word comprehension
- **Wednesday**
 1. Sentence comprehension
 2. Production
 3. BBC documentary
- **Thursday**
 1. Word meaning
 2. Nature versus nurture
 3. Early language acquisition
 4. Late language acquisition
- **Friday**

Presentations

Book

The psychology of language, 3rd edition
Psychology Press - Taylor & Francis
Trevor Harley



Plan for Monday

- **Introduction to neurocognitive study of language**
- **Language change**
- **Language and thought**

What is language?

- "Mientras comía pescado, se atragantó con una ..."
("While eating fish, he choked on a ...")
- "El médico le aconsejó mudarse al ..."
("The doctor advised him to move to the ...")
- How do you do this?

How do you do this?

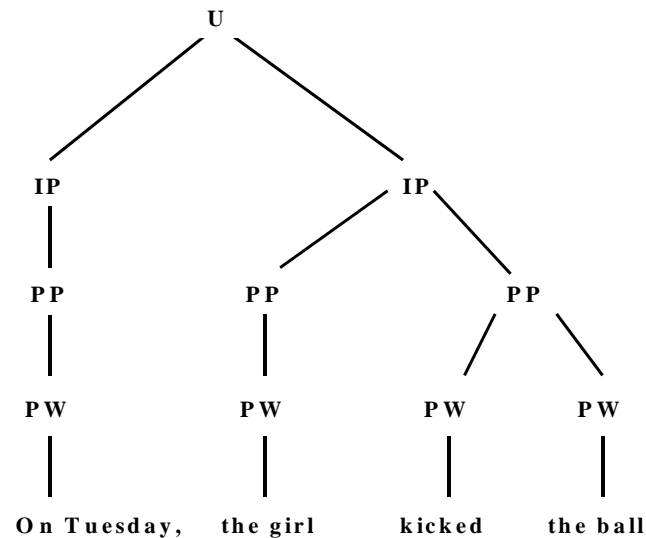
- 1. Able to read words / hear words**
- 2. Understand what each word means**
- 3. Understand what combinations of words mean**
- 4. How to combine meanings**
- 5. Choose an appropriate word**
- 6. Produce that word**
- 7. Produce word at right point, not too early, too late**

Function of language

- **8 functions of language (Crystal, 1997):**
 - 1. Communication**
 - 2. Express emotion (swearing)**
 - 3. Social interaction ("bless you!")**
 - 4. Make use of its sounds (children's games)**
 - 5. Attempt to control environment (magic)**
 - 6. Record facts**
 - 7. To think and express identity**
 - 8. Play with language (humor)**

Ways to study language

- Linguistics
 - Study language by itself



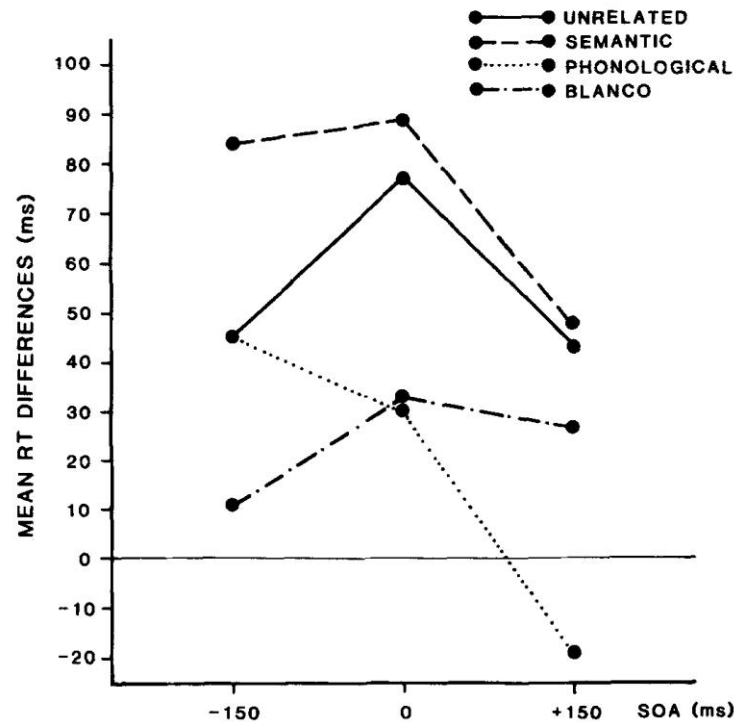
Ways to study language

- Anatomically
 - Components of articulatory tract



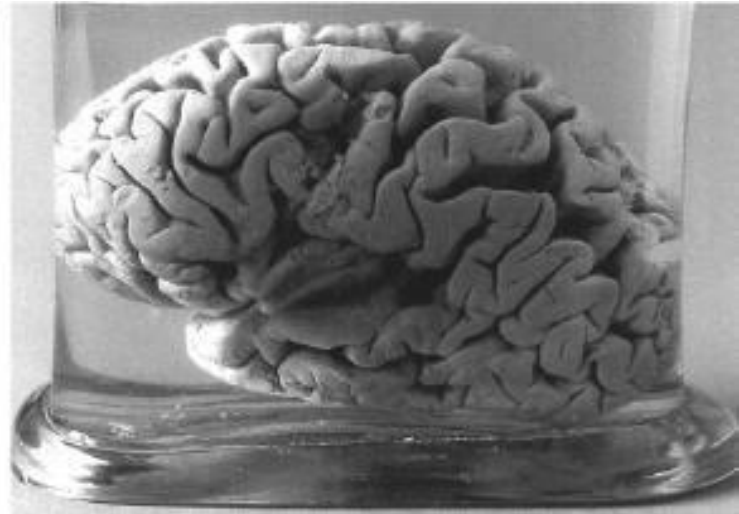
Ways to study language

- Psycholinguistics
 - Psychological processes involved in language



Ways to study language

- **Neurologically**
 - Relationship between language and brain



What is language?

what is language? - Google Search - Mozilla Firefox

what is language? - Google Sea... +

← https://www.google.es/search?client=ubuntu&channel=fs&q=language&ie=utf-8&oe=utf-8&redir_esc=&ei=Y7NIUKyDMM

+You Search Images Maps Play YouTube Gmail Documents Calendar Translate More -

Google

what is language?

Search About 6,920,000,000 results (0.20 seconds)

Web

Images

Maps

Videos

News

Shopping

Books

More

San Cristóbal de La Laguna

Change location

Related searches: [definition of language](#) [why is language important](#)

lan-guage /'laNGgwi:/

Noun:

1. The method of human communication, either spoken or written, consisting of the use of words in a structured and conventional way.
2. Any nonverbal method of expression or communication: "a language of gesture and facial expression".

Synonyms: tongue - speech - idiom - parlance - lingo

More info » [Wikipedia](#) - [Dictionary.com](#) - [Answers.com](#) - [Merriam-Webster](#)

[Language and Culture: What is Language?](#)
anthro.palomar.edu/language/language_2.htm
31 Aug 2006 – Their creole **language** is used on the street in dealing with poor Haitians. The Gullah speakers of Georgia and South Carolina speak **English** ...

[Language - Wikipedia, the free encyclopedia](#)
en.wikipedia.org/wiki/Language
The **languages** that are most spoken in the world today belong to the Indo-European

What is language?

- **But what about:**
 - **Monkey communication?**
 - **Dolphin "language"**
 - **Honey bees dance waggle?**
 - **Etc**
- **Waste of time to find formal definition**

Describing language

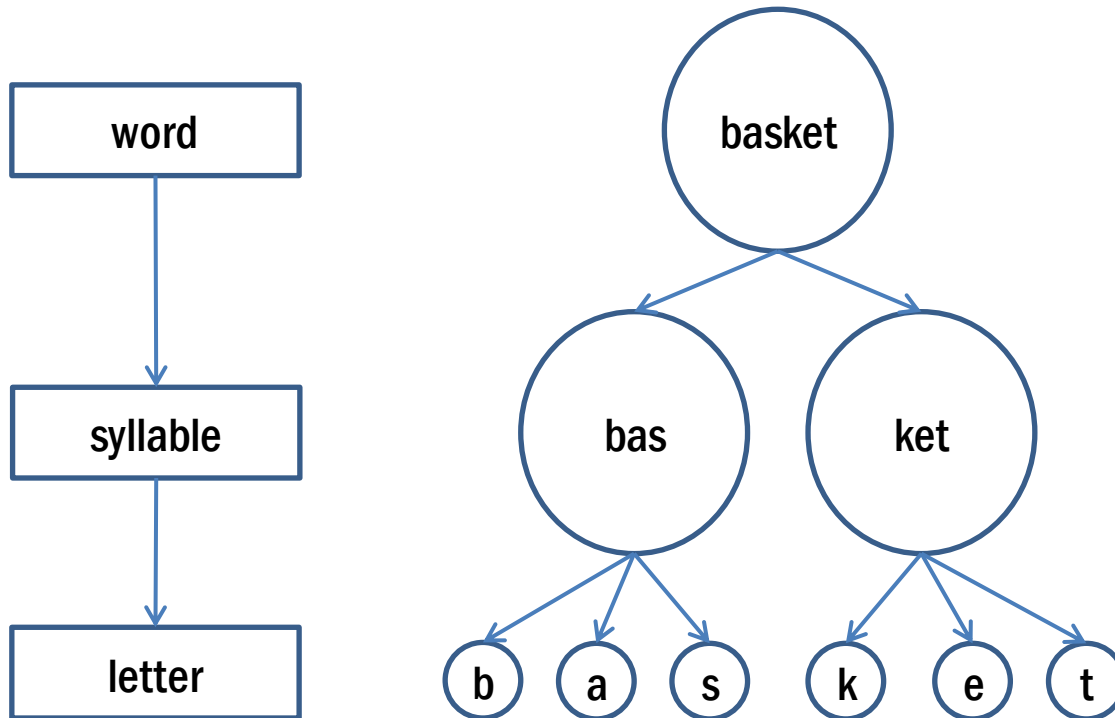
- **Components of language:**
 - **Semantics (study of meaning)**
 - **Syntax (study of word order)**
 - **Morphology (study of word structure)**
 - **Pragmatics (study of language use)**
 - **Phonetics (study of raw sounds)**
 - **Phonology (study of language sounds)**

Morphology

- **Inflectional morphology**
 - Changes to word that do *not* change meaning or syntactic category
 - Pluralization: Table – tables
- **Derivational morphology**
 - Changes to word that change meaning or syntactic category
 - Nominalisation: develop - development

What's in a word?

- Smallest unit of grammar that can stand alone
- Words can be analyzed at different levels

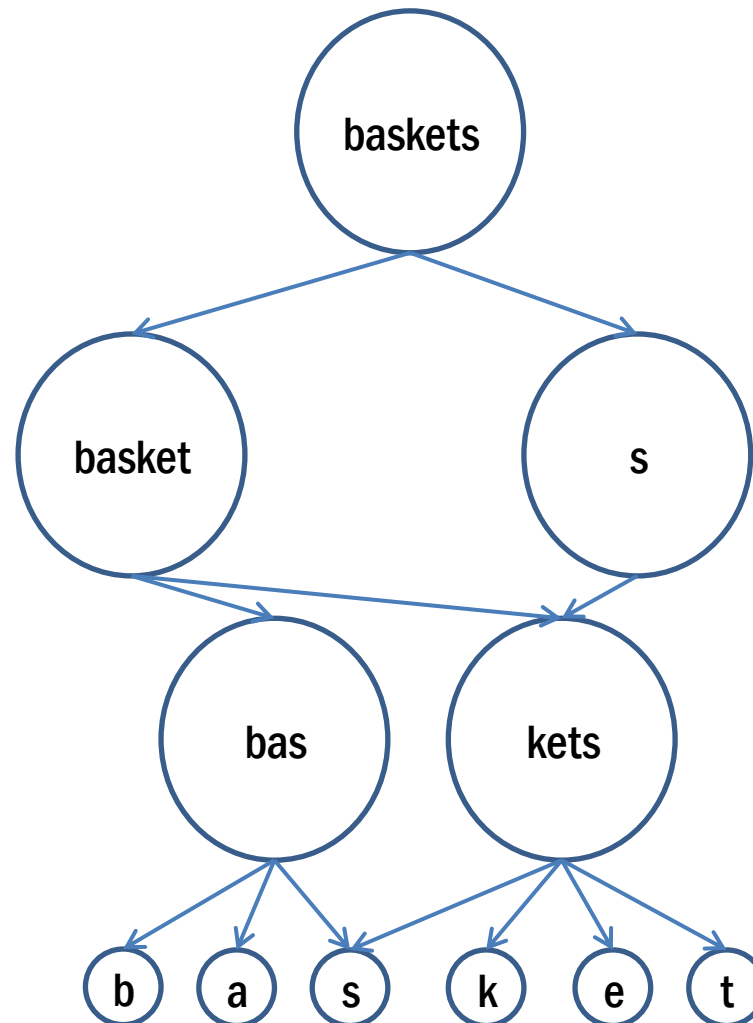
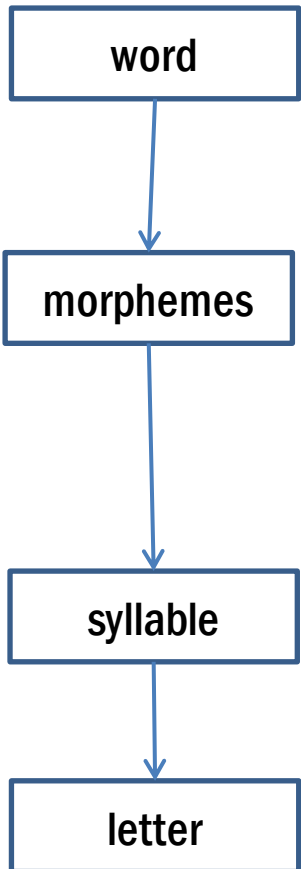


Morphology

- **Words are either complex or simple**
 - **Complex = consist of more than one morpheme**
 - Baskets = basket+s
 - Kissed = kiss+ed
 - Doghouse = dog+house
 - **Simple = consist of only one morpheme**
 - Dog
 - Walk
 - Kiss

What's in a word

- Morphology

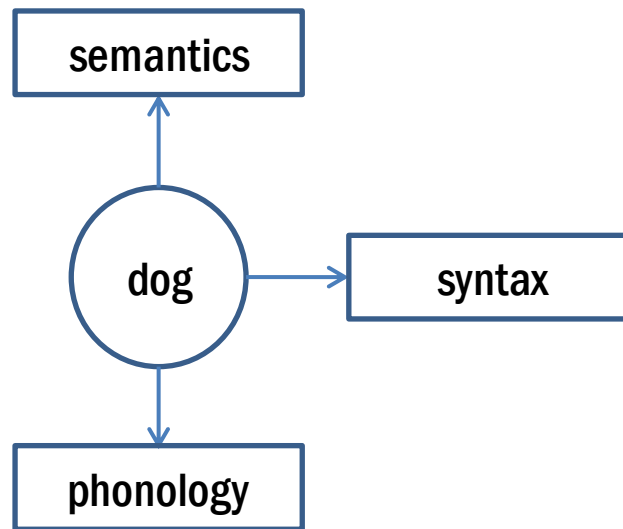


Morphology

- **Two types of inflections:**
 - **Regular**
 - Obey general rule
 - **Irregular**
 - Do not obey general rule
- **Examples**
 - **Verbs:**
 - kiss + ed = kissed (regular)
 - go + ed = went (irregular)
 - **Nouns:**
 - house +s = houses (regular)
 - mouse +s = mice (irregular)

The lexicon

- The mental dictionary where words are stored



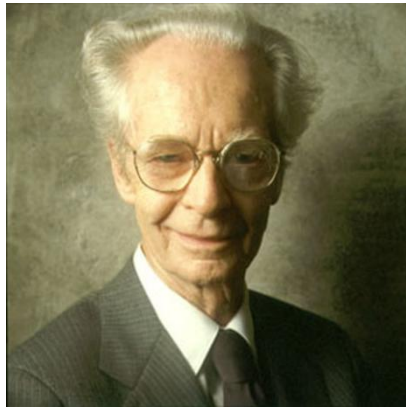
- You know about 50,000 words!
 - How we "find" a word in the lexicon?
 - What determines whether an item is stored or not?

Historical context

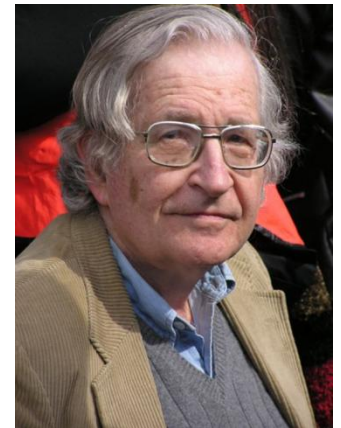
- Psychological approaches to language
 - Start in Germany end of nineteenth century



Wundt 1832-1920



Skinner (1950)



Chomsky

Chomsky

- **Around 1950 dominant tradition in psychology**
 - Behaviorism
- **BF Skinner, 1957, *Verbal Behavior***
 - Associative Chain Theory
- **Book review by Chomsky (1959)**

Chomsky's view of language

- **Language is innate**
 - **What is language? What is innate?**

- **Independent of other cognitive mechanisms**

Chomsky's view

- **Goal of theory: Describe rules that enable us to understand and produce language**
 - John loves Mary
 - *Loves John Mary

Generative grammar

- **Generative grammar**
 - Finite set of words
 - Finite set of rules to combine words
 - *Generates infinite set of sentences*
- 1. **Must generate only "correct" sentences**
- 2. **Must explain underlying similarities between sentences**
 - The vampire kissed the ghost
 - The ghost was kissed by the vampire
- 3. **Must explain how children acquire language**

Generative grammar

- What does generative grammar look like?
 - Phrase structure rules

$S \rightarrow NP + VP$

$NP \rightarrow DET + N$

$NP \rightarrow N$

$VP \rightarrow V + NP$

$VP \rightarrow V$

$N \rightarrow \{\text{John, Mary, dog, cat, ...}\}$

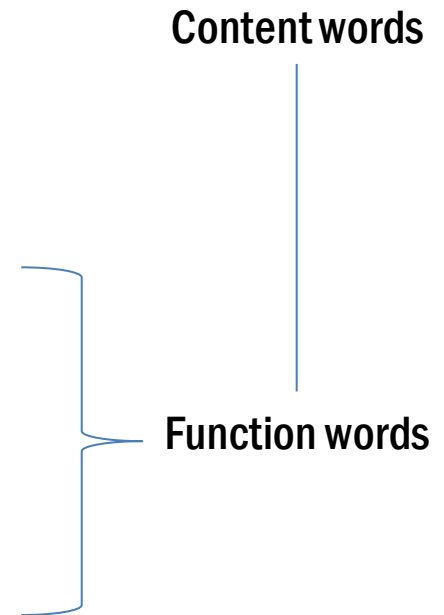
$V \rightarrow \{\text{loves, hates, runs, ...}\}$

$DET \rightarrow \{\text{a, the, this, ...}\}$

Elements of the grammar

- **Phrase structure elements:**

- Nouns = objects / ideas
- Adjectives = modify nouns
- Verbs = actions
- Adverbs = modify verbs
- Determiners = determine the nouns
- Prepositions = "in", "at", etc
- Conjunctions = "and", "because", etc
- Pronouns = "he", "it", etc



Elements of the grammar

- **Words combine to make:**
 - **Phrases, express single idea**
 - The red car
- **Phrases combine to make:**
 - **Clauses, always have verb**
 - John is running
- **Sentences contain at least one clause**

Ambiguity

- **Ambiguous sentences**
- **"I saw the witches flying to America"**
 - **When I was flying to America on an airplane, I saw the witches**
 - **I was standing on the ground and looked up in the sky and there I saw the witches flying to America**

Recursion

- **According to Chomsky**
 - Language is set of phrase structure rules that accurately describes grammar of language

Recursion

- Recursion

$S \rightarrow NP + VP$

$NP \rightarrow DET + N$

$NP \rightarrow N$

$VP \rightarrow V + NP$

$VP \rightarrow V$

$N \rightarrow \{\text{John, Mary, dog, cat, ...}\}$

$V \rightarrow \{\text{loves, hates, runs, ...}\}$

$VP \rightarrow \text{that} + S$

Recursion

- **Center embedded sentences**
 - The vampire loved the ghost
 - The vampire the werewolf hated loved the ghost
 - The vampire the werewolf the bat scared hated loved the ghost
 - Etc...
- **But do people say these kind of things?**

Competence and Performance

- **Competence**
 - Idealized and abstract knowledge of language
 - Judgments about language if we had unlimited time and memory
- **Performance**
 - Language as it is actually used and influenced by time and memory limitations

Elements of grammar

- Long-term dependencies
 - John went back to school after three years in prison and he/*she liked it

What is language?

- **Chomsky's view**
 - Language is set of rules that are used to understand and produce language
 - Language is innate
 - Language is special

Modern psycholinguistics

- **Chomsky's view is now quite limited**
 - Surface vs deep structure

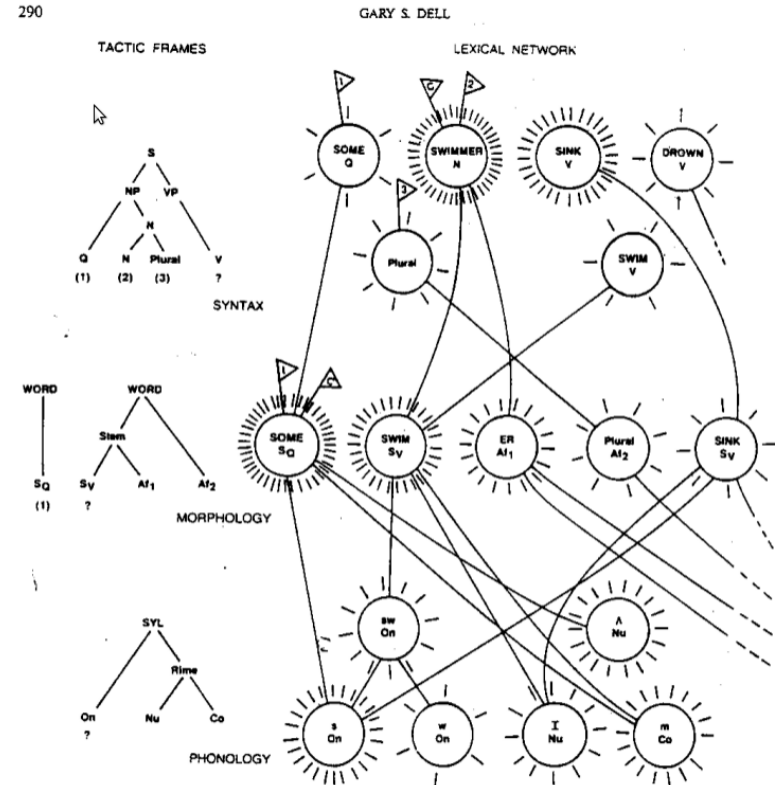
- **Modern psycholinguistics now embedded in Cognitive Sciences**
 - Philosophy
 - Artificial Intelligence
 - Computer Science
 - Psychology
 - Neuroscience

Modern psycholinguistics

- **Influence of computer science**
 - **ELIZA (Weizenbaum, 1966)**
 - "men are all alike"
 - IN WHAT WAY
 - "They're always bugging us about something or other"
 - CAN YOU GIVE A SPECIFIC EXAMPLE
 - "well my boyfriend made me come here"
 - YOUR BOYFRIEND MADE YOU COME HERE
 - Etc
 - **SHRDLU (Winograd, 1972)**

Current models

- **Activation**
 - Energy of something
- **Priming**
 - Experimental method of putting something before something else



Summary

- **What is language?**
 - **Components of language (syntax, morphology, etc)**
 - **What are words (inflectional morphology, derivational, etc)**
 - **Generative grammar (nouns, verbs, phrases, clauses, etc)**