Language

What is it good for?
Where did it come from?
Why Have Language?

communication? thought?
Thought and Language

Complex thoughts are built of simpler parts in structured compositions

Could you have a thought like this without language?

Mentalese

If three of us sneak in the back, we can steal at least a bag of apples without getting caught
Language is a tool for solving problems

Even the simple use of labels can radically change a problem
Evolution of Language: Why? When? How?

What data? How might we study this?
One small biological change facilitating **joint attention** leads to massively increased dynamic entanglement.
Language and Linguistics

1. Pragmatics
2. Semantics
3. Syntax
4. Morphology
5. Phonology
6. Phonetics
Speech and Language encompass a vast array of phenomena without which the human world would not exist.

Any “science of language” can only address some aspects, and the boundaries of “language” are always under revision.
Philology

Before ca. 1800, language was studied for a variety of reasons, including

* interpretation of religious texts
* teaching of “grammar” to learners
* teaching of foreign languages
* study of highly respected authors

None of these is strictly scientific

Philology is the scholarly study of languages & texts, including deciphering, interpretation and history.
Structural Linguistics

From about 1916, and with the work of Ferdinand De Saussure, (some aspects of) language became the object of scientific inquiry.

Language was seen to be *systematic*, and a new scientific goal arose: characterising the abstract system which underlies the slightly messy business of everyday language use.

Although overtaken by modern linguistics, many of the basic elements of structural linguistics are still taken for granted by linguists.
These two tables illustrate the spirit of science about 1890: systematising very many observations.
Modern Linguistics

Since about 1957, Linguistics has been dominated by a formal approach known as Generative Linguistics.

At the heart of this is the formal (mathematical) treatment of Syntax (more on that in a moment)

The rise of Generative Linguistics is intimately tied to the origin of Cognitive Psychology and the development of the modern Computer.

Although many people have contributed, Noam Chomsky is very central to this development.
Modern Generative Linguistics has many sub-fields, each attending to one form of regularity in language.

1. Pragmatics
2. Semantics
3. Syntax
4. Morphology
5. Phonology
6. Phonetics
1. Pragmatics:

How does the thing someone says relate to what they want?

Do your sentences mean what you want to convey?

“Can you pass the salt?”
Grice’s Conversational Maxims

In linguistic interaction, cooperation is the norm

Even conversational partners who are arguing typically exhibit cooperative behavior in selecting when to speak, how much information to provide, etc.
Grice’s Conversational Maxims

**Truth:** Do not say what you believe to be false
Do not say that for which you lack adequate evidence

**Quantity:** Make your contribution as informative as is required
Don’t make your contribution more informative than is required

**Relevance:** Be relevant

**Clarity:** Avoid obscurity of expression
Avoid ambiguity
Be brief
Be orderly

These are assumptions listeners make. They are not prescriptions. If you flout them, it probably means something
2. **Semantics:** The study of (some aspects of) meaning.

*All Dubliners are not dumb* vs
*Not all Dubliners are dumb*

Do *student* and *pupil* refer to the same thing?

Many approaches use *formal logic*
Examples of semantic relations

Synonymy (same meaning), (example: sofa/couch)
Antonymy (opposite meaning), (ex: up/down)
Polysemy (several related meanings), (ex: chip)
Homonymy (several unrelated meanings) (ex: bank)
Hyponymy (ex: triangle is a hyponym of polygon)
3. Syntax:

Sequences of words are highly structured, i.e. there are implicit rules about what can go with what.

```
S
 /   \
/     /
NP   VP
   /  /
  /  /
A   A  N  V  Adv
```

Colorless green ideas sleep furiously.
In linguistics, the word “Grammar” describes the regularities that determine what sequences of words can occur and what cannot occur in a given language.

When we say “rules” or “regularities” we are using the term as scientists, not as teachers.

The law of gravity is not the same kind of law as a law enacted by politicians.

Likewise a rule of syntax is not the same kind of rule as a rule made up by teachers.
Prescriptive vs Descriptive

*Prescriptive:* Lays down the law.  
Appropriate for language learning texts

*Descriptive:* Attempts to describe actual use and structure  
Scientific agenda  
Data: actual sentences/speech  
Goal: understand and describe what people do

Linguistics is a science. It is thus *descriptive*, and not *prescriptive*
Many Languages, Few Principles?

**Principles:** Languages do not vary arbitrarily. It is hard to make up an artificial language (Klingon?). A few *principles* of syntax determine the basic shape of all languages.

**Parameters:** Each language represents a specific choice among a small number of mutually exclusive options. E.g. most languages, English included, use the order

```
Subject  Verb  Object
```

for simple sentences.
Irish: Ith mé arán  (eat - I - bread)

   Verb  subject  object

English: I eat bread

   Subject  verb  object

(Yoda is not entirely consistent)
Yoda: Lost a planet Master Obi-Wan has.

   Verb  object  subject
4. **Morphology**: Morpheme: the smallest unit of language which has some independent meaning.

dog  dogs  doubtful  cranberry
Strassenbahnritzenreinemachefrau

Word formation

Lexicon: mental vocabulary. What is stored (morphemes? sounds? spellings? meanings?)

Expletive infixation
5. **Phonology**: Systematic organization of sounds within a language.

Which of the following are potentially legal words of English:

scraw stlomp pfiff poink

**Phontactics**: the rules which determine legal combinations of sounds in a language. (Are all ‘illegal’ combinations equally bad?)
Phonology Example 1

What is the shape(s) of the plural marker(s) in English?

*lip, rock, tree, latch, gum, myth, laugh, two, cove, toe, bell, wretch, rib, load, breeze, fudge, hen, law, fez, bar, bat, tea, garage*

How do you know which one to use?
Some American dialects pronounce some of these words differently than Irish locals:

*pure, cute, tune, abuse, dues, argue, muse, mew, new, lewd, few, view, enthuse, suit, hue, spurious, beauty, bugle, cue*

Which ones are subject to variation? Can you predict this for other words? Is the process regular?