Introduction to Syntactic Structure: Part One

• Why do we need syntactic structure?
  – who needs it?
  – for what?
• How do we find syntactic structure?
• How do we describe syntactic structure?
  – map 1: rank-based analysis
How do we understand sentences?
A small gnome in the garden wiped his hands.

Language: beads on a string?
This is a bad model because it does not allow us to make any accurate predictions about how we understand language or how sentences behave.
How much does a language user have to remember?

How much can a language user remember?

“Daddy, what did you bring that book that I don’t want to be read to out of up for?”
“Daddy, what did you bring that book that I don’t want to be read to out of up for?”

“How Anne Salisbury can claim that Pam Dawber’s anger at not receiving her share of acclaim for *Mork and Mindy*’s success derives from a fragile ego escapes me.”
Structure effects

• I saw the gnome in the garden.
• What were you doing in the garden?
• No, I wasn’t in the garden, the gnome was.
• Oh.
Structure effects

• Wanted:
  cook with small bowl for efficient beating.
Structure effects

• The gnome in the garden next door caught a fish in the pond.

• A fish in the pond was caught by the gnome in the garden next door
Structure effects

• The gnome in the garden next door caught a fish in the pond.

• A fish in the pond was caught by the gnome in the garden next door
Syntactic constituents

sentences are made up of parts, called **constituents**

• what are they?
• how can we find them?
• what different kinds are there?
• what maps might we need to describe them?
Grammar: The Rank Scale

• clauses
• groups and phrases
  – nominal groups
  – verbal groups
  – adjectival groups
  – adverbial groups
  – prepositional phrases
• words
• morphemes

are made up of
The Rank Scale

- clauses
- groups and phrases
  - nominal groups
  - verbal groups
  - adjectival groups
  - adverbial groups
- prepositional phrases

Morphology
- words
- morphemes

are made up of
The Rank Scale

Grammar/Syntax

- clauses
- groups and phrases
  - nominal groups
  - verbal groups
  - adjectival groups
  - adverbial groups
  - prepositional phrases
- words
- morphemes

are made up of
A ‘Chinese Box’ representation of grammatical structure: clauses and groups

```
A small gnome in the garden wiped his hands.
```

```
A small gnome in the garden

in the garden

the garden

wiped

his hands
```
A small gnome in the garden wiped his hands.
Sentence Structure
Tests and Probes
Types of structure ‘probes’: ‘semantic constituents’

• these are the parts of a sentence that answer the questions:
  – who?
  – where?
  – when?
  – why?
  – how?
  – to whom?
Types of structure ‘probes’: 
*Grammatical Subjects*

• Subject tests:
  – the Subject and the finite part of the verb agree in grammatical number
  – a *tag question* always picks out the Subject
  – if you make a *passive construction* the Subject is always the one to disappear or to be moved to a ‘by phrase’
Types of structure ‘probes’: syntactic constituents

- Expansions and substitutions
  - If you have a sentence:
    
    *The king of England opened Parliament*

  - then you can pick out constituents by trying to substitute ‘smaller’ but equivalent units:
    
    - The king opened Parliament
    - He opened Parliament
    - He worked
Types of structure ‘probes’: syntactic constituents

- **Dependency test**
  - if some words cannot be removed from a sentence or other unit *without taking others out with them* then these words are dependent on the others and form part of a larger constituent.
    - the King of England opened Parliament
    - the King opened Parliament
    - *of England opened Parliament
Dependency

the King opened of England Parliament
Dependency

the King opened Parliament
Dependency

the King opened
Dependency

he opened Parliament
“How Anne Salisbury can claim that Pam Dawber’s anger at not receiving her share of acclaim for *Mork and Mindy*’s success derives from a fragile ego escapes me.”
“How can Anne Salisbury claim that anger at not receiving acclaim for her share of *Mork and Mindy’s* success derives from a fragile ego escapes me.”
This escapes me.”
Types of structure ‘probes’: syntactic constituents

• Conjunction/Coordination test
  – if you can replace a unit by that unit and another one of a similar kind, then you have a constituent:
    – The boy chased the dog.
    – The boy chased the dog and the cat.
    – *John rang up his friend and up his mother.
Types of structure ‘probes’: 
**syntactic constituents**

• **Reduction/Ellipsis test**
  – If you have a sentence:
    
    *John won’t wash the dishes*
  – then you can pick out constituents by seeing what can be ‘left out’ or **ellipsed**:
    
    • He will _____ if you ask him
    
    **wash the dishes**
    
    • *John won’t help me with my homework*...
Movement tests

• The gnome washed his hands on Tuesday.
• On Tuesday the gnome washed his hands.
• It was on Tuesday that the gnome washed his hands.

Not:
• The gnome on Tuesday washed his hands.
Movement tests

- The gnome washed his hands in the pool.
- In the pool the gnome washed his hands.
- It was in the pool that the gnome washed his hands.

Not:
- The gnome in the pool washed his hands.
• The gnome in the garden was sad.
• The gnome was sad in the garden.
• In the garden the gnome was sad.

Tests:
• Who was sad was the gnome in the garden.
• Who was sad in the garden was the gnome.
• The gnome on Tuesday came to tea.
• The gnome to tea came on Tuesday.

The meeting on Tuesday will be cancelled tomorrow.

• The gnome quickly came to see me.
• The gnome then came to see me.
Types of structure ‘probes’: syntactic constituents

• Pseudo-clefts (‘wh-cleft’)
  – If you have a sentence:

  *The boy kicked the ball*

  – then you can pick out the constituents of the sentence using the pseudocleft construction:

  • what the boy kicked was the ball
  • (the one) who kicked the ball was the boy
Circumstance or phrasal verb?

- They got off the old bus.
- We looked at the snail.
- They weren’t worrying about it.
- They ran down the boy.
- They ran down the lane.

Theme predication probe: “It was X ...”
Circumstance or phrasal verb?

• They got off the old bus.
  – It was the old bus that they got off.

Theme predication probe: “It was X ...”
Circumstance or phrasal verb?

• We looked at the snail.
  – It was the snail that we looked at.

Theme predication probe: “It was X ...”
Circumstance or phrasal verb?

• They weren’t worrying about it.
  – It was that that they weren’t worrying about

Theme predication probe: “It was X ...”
Circumstance or phrasal verb?

- They ran down the boy.
  - It was the boy that they ran down.

Theme predication probe: “It was X ...”
Circumstance or phrasal verb?

• They ran down the lane.
  – It was the lane that they ran down
  – It was down the lane that they ran

  – * It was down the boy that they ran

Theme predication probe: “It was X ...”
Tests and Probes

- semantic unity
- expansions & substitutions
- dependencies
- conjunction & coordination
- reduction & ellipsis
- movement
- pseudo-clefts (wh-clefts)
- theme predication (it-clefts)
The gnome in the garden was sad.

- semantic unity?
- expansions & substitutions?
- dependencies?
- conjunction & coordination?
- reduction & ellipsis?
- movement?
- pseudo-clefts (wh-clefts)?
- theme predication (it-clefts)?
• The gnome in the garden was sad.

• The giraffe in the field could eat the leaves in the neighbouring garden.

• The radio in the car could be heard in the street.

• The gnome from the garden is my best friend.
How do we describe sentence structure?
Traditional categories

Robins’ Short history of linguistics
Two ways of defining word classes

• by their **grammatical form**
  – der Angestellte
  – das blaue Flugzeug
  – laufen wir weg

• by their **distribution**
  – i.e., where they occur in relation to other words

**morphology**

**syntax**
Problems with traditional grammar/word categories

- *Bathurst* is a *town* in the *country*

- Bathurst is a *country* town
- My cousin has bought a *town* house in Bathurst
- Stop here for a real *Bathurst* experience

**Class vs. Function**
Problems with traditional grammar/word categories: 2

“But me no buts”

• Class?
• Function?
When analysing grammatically

• best to look at both **morphology** and **syntax**

• and to very clearly **distinguish form and function**
a big house
an old train
a town house
a steam train
A ‘Chinese Box’ representation of grammatical structure: clauses and groups

A small gnome in the garden wiped his hands.

clause

A small gnome in the garden

wiped

his hands

in the garden

the garden
A small gnome in the garden wiped his hands.
Yesterday I noticed my accountant repairing the toilet.
The Rank Scale

- Clauses
- Groups & Phrases
- Words
- Morphemes
A small gnome in the garden wiped his hands.
A small gnome in the garden wiped his hands.
A small gnome in the garden wiped his hands.
Functional structure: clauses

- Circumstances
  - prepositional phrases
  - adverbial groups
- Participants
  - nominal groups
- Process
  - verbal group

FUNCTION FORM
For your children to spend all your money is a shame.
For your children to spend all your money is a shame

- semantic unity?
- expansions & substitutions?
- dependencies?
- conjunction & coordination?
- reduction & ellipsis?
- movement?
- pseudo-clefts (wh-clefts)?
- theme predication (it-clefts)?
Rank-based analysis

• Work out what the parts of the sentence are
• Put them in a tree structure
• Work out what rank units those parts are
  − form
• Work out what grammatical functions they have
A map of linguistic structure

Thomas T. Tatimus has been tying his tubs tentatively to two tall trees

Useful as a way of decomposing a sentence into parts that can be quickly related to functional elements

Ranked Constituents
(minimal bracketting)
Question 1: 
is the map correct? 
and how would we know?

Question 2: 
what is the map showing? 
what aspect of the world?
Linguistic analysis

DATA

Linguistic method
Building up a constituent from a word class

- start with a word class: noun, adjective, verb, etc.

- and see what we can ‘add to it’ to get something bigger that
  - does the same kind of job (function) and
  - appears in the same kind of places (form: distribution)
Building up a constituent from a word class: nouns

- he [pronoun]
- John [proper name]
- The boy [determiner noun]
- The good boy [determiner adjective noun]
- The boy in the garden ??

the Noun Phrase (NP)
Building up a constituent from a word class: verbs

- ate [V]
- ate a cake [V NP]
- ate a cake in the park [V NP PP]
- quickly ate a cake in the park [Adv V NP PP]

the Verb Phrase (VP)
Building up a constituent from a word class: prepositions

- in [preposition]
- in the garden [preposition ??]
- right in the garden [adv? preposition NP]

**the Prepositional Phrase (PP)**
Describing Structure

• to describe these ‘immediate constituents’ we use

–SYNTACTIC TREES
Immediate Constituency Analysis

• Builds patterns into syntactic trees

The good boy [determiner adjective noun]

determiner

the

adjective

good

noun

boy
Another constituent ‘tree’

```
 VP   
    /\ 
   V  NP 
   /   /  
 ate a cake
```
A third constituent ‘tree’

preposition

in

the garden
Yet another constituent ‘tree’
A phrase structure tree for...

The boy in the garden
I saw the boy in the garden.
The Sentence

Poor John ran away
What do all these trees do?

• help construct structure...
I saw the gnome in the garden
I saw the gnome in the garden.
I saw the gnome in the garden
I saw the gnome in the garden
The dwarf saw the gnome in the garden.
What do all these trees do?

• help construct structure...
• guide interpretation...
The dwarf saw the gnome in the garden.
The dwarf saw the gnome in the garden.
The dwarf saw the gnome in the garden.

Two structures:
- It was the gnome who was seen in the garden.
- The gnome was seen in the garden.

In the garden the dwarf saw the gnome.

Combined by the VP: the ‘seeing’.

‘PP Attachment’
The dwarf saw the gnome in the garden. It was the gnome in the garden who was seen. The gnome in the garden was seen. The gnome in the garden the dwarf saw. Two structures: two meanings. ‘PP Attachment’. Combined by the NP: the ‘ gnome’. 
Two structures: two meanings

same string of words, different structures...

structural ambiguity

each tree corresponds to a different meaning
What do all these trees do?

• help construct structure...
• guide interpretation...
• guide functional interpretation...
I saw the gnome in the garden
I saw the gnome in the garden.
I saw the gnome in the garden.
The function can be worked out by where in the tree the constituent is ‘hanging’
Structure is
“any assemblage of materials which is intended to sustain loads.”

The small gnome wiped his hands on the hill.
Grammatical Functions

S

VP

ideational

verb

Process

Participants

Circumstances
The small gnome wiped his hands on the hill.
Structure: carrying loads

- With structure, sentences can combine many sort of meanings and express them all at once.

Structure is

“any assemblage of materials which is intended to sustain loads.”

Metafunctions

sentence

ideational

textual

interpersonal
The small gnome on the hill wiped his hands
Summary

- Constituency is created by syntactic structure
- Syntactic structure determines linguistic behaviour (tests, probes)
- Syntactic structure guides interpretation
- Syntactic structure provides a scaffold for organising the different meanings that we want to make with sentences …
- … many types of meanings possible simultaneously!