Lexicon and syntax

• Relationship between syntactic patterns and certain lexemes
• Lexemes do not occur in isolation but are usually combined into larger units
  - phrases, sentences
• Combination of lexemes is rule governed
• Approaches to syntax and to the relationship between syntax and lexicon try to explain the generation of grammatical vs. ungrammatical sentences (e.g. possible vs. impossible structures)

The role of the lexicon

• Important in the structuring of sentences
  - lexemes seem to contain grammatical information
• Lexemes therefore seem to determine the syntactic shape of sentences
• No general set of principles can predict whether a particular verb can undergo alternation

Examples

• This question concerns Peter.
• Peter is concerned by this question.
• This question regards Peter.
• *Peter is regarded by this question.
• Joan sank the boat.
• The boat sank.
• Joan shot the deer.
• The deer shot.
• *The postman arrived the package.
• The package arrived

Approaches to syntax

• The computational perspective
• Lexicogrammar
• Valency grammar
• Generative grammar
• Lexical functional grammar

Computational linguistics

• Interdisciplinary field
• Applied approach → machine translation
• Corpus linguistics
• Collocations
• Lexicography
Problems:
  - Difficulty of separating lexis and grammar
  - Fuzzy categories
Lexicogrammar

- Michael Halliday
- Lexis and syntax are regarded as two poles of a continuum – lexicogrammar
- Meanings can migrate along the cline
  → Grammaticalisation
  → Lexicalisation

Valency grammar

- Student's presentation

Generative grammar

- Noam Chomsky: 1957 Syntactic Structures
  1965 Aspects of the Theory of Syntax
- Attempts to account for the structure of all the grammatical sentences of a language
- Intuitive knowledge about acceptability of sentences (competence vs. performance)
- Finite set of words
- Finite set of rules
  → Generation of infinite number of sentences
  → Rule governed creativity

Categories and Lexicon

- The lexicon contains information about the category membership of a lexeme
- Lexemes of the same category share grammatically significant properties
- Grammatical rules refer to categories instead of individual lexemes
  → More general
  → Better approach to productivity and the question how an infinite number of sentences is generated from a finite set of rules and lexical items

Lexemes and their syntactic behaviour

- Aspects that determine the syntactic behaviour of lexemes:
  - Syntactic category label (N, V, Adj., Det…)
    - Distribution is limited to nodes bearing the same label as defined by phrase structure rules
  - Rule feature
    - Triggering the application of particular transformations such as Passive or Tough Movement (John is easy to please → It is easy to please John)
Lexemes and their syntactic behaviour

- **Subcategorisation features**
  - Specification of the number of sister constituents the lexeme requires or allows as well as their syntactic category
  - e.g.: eat subcategorizes for an optional direct object NP, while describe subcategorizes for an obligatory NP

- **Selectional restriction**
  - Specification of the semantic properties of the surrounding constituents

Lexical functional grammar (LFG)

- Joan Bresnan, Ronald Kaplan

- Name reflects central characteristics of this approach

  - Role of the lexicon is central
    - Lexical entries are elaborate
    - Every single inflected form has an own entry

  - Grammatical relations are called grammatical functions

LFG

- Uses model with multiple levels of representation, each with own architecture, vocabulary and constraints
  - f(functional) structure
  - c(constituent) structure
  - a(argument) structure
  - σ(semantic) structure
  - phonological structure

  - Levels are not derived from each other but parallel and linked through mappings constrained by principles of correspondence

  → LFG is constraint-based and non-derivational

C-structure

- C-structure
  - Encodes phrasal dominance and precedence relations

  - Represented as a phrase structure tree

  \[ S \rightarrow \text{NP } \text{VP (English)} \]

  \[ S \rightarrow \text{C aux } \text{C* (Warlpiri)} \]

  - Each fully inflected word belongs to exactly one node → restriction called lexical integrity

F-structure

- F-structure
  - Represented as an attribute-value matrix

  \[
  \begin{array}{|c|c|}
  \hline
  \text{SUBJ} & \text{NUM} \\
  \text{TENSE} & \text{PRED} \\
  \text{CASE} & \text{LOC} \\
  \text{OBJ} & \text{PRED} \\
  \hline
  \end{array}
  \]

  \[
  \begin{array}{|c|c|}
  \hline
  \text{SUBJ} & \text{Tion} \\
  \text{NUM} & \text{PL} \\
  \text{TENSE} & \text{Tive} <.....> \\
  \text{PRED} & \text{PRED} \\
  \text{OBJ} & \text{DEF} \\
  \hline
  \end{array}
  \]
c-structure and f-structure

S
<table>
<thead>
<tr>
<th>NP</th>
<th>VP</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>NP</td>
</tr>
</tbody>
</table>

PRED 'GREET'(SUBJ)(OBJ)
   SUBJ [PRED 'SAM']
   OBJ [PRED 'TERRY']

Sam    greeted    Terry

C - structure     F - structure