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Introduction to  
Syntactic Analysis  
*A Valency Approach*

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# Introduction to Syntactic Analysis

A Valency Approach

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## Preface

This book outlines a framework for the analysis of English sentences in which the concept of valency plays a central part.

The model of valency theory on which this approach is based is that used in the *Valency Dictionary of English* (2004) (referred to as VDE) and in the valency pattern bank ([www.patternbank.uni-erlangen.de](http://www.patternbank.uni-erlangen.de)), which is related in many respects to other frameworks, notably the valency models developed in German linguistics.

Frequent reference will be made to the standard grammars of English, in particular the *Comprehensive Grammar of the English Language* (1985) (CGEL) by Randolph Quirk, Sidney Greenbaum, Geoffrey Leech and Jan Svartvik, which has influenced our thinking in many ways, and also to the more recent *Cambridge Grammar of the English Language* (2002) (CamG), edited by Rodney Huddleston and Geoffrey Pullum. It is obvious that these reference books supply much more detailed accounts of many aspects of the English language than is possible in the present book. The description of many of the categories we employ is based on the approaches taken in these grammars; however, we differ from them in a number of points such as certain aspects of the system of word classes outlined and the emphasis placed on the aspect of valency in the description of sentences. The latter can also be seen as an attempt to take into account the insight promoted by the work of, for instance, John Sinclair and also by construction grammar, that there is no clear dividing line between syntax and lexis.

We would also like to mention that most of the example sentences used in this book are taken from two novels by David Lodge, *Nice Work* and *Small World*. Although readers may find that the way academic life is described in these novels is not totally dissimilar to the situation of universities elsewhere, there are methodological reasons for this approach: it seemed to us that being forced to find examples for important points of syntactic analysis in two novels of this kind is a useful intellectual exercise, also because studying these texts so closely has drawn our attention to aspects of the English language which we might otherwise have overlooked. In some cases, other sources were also used, namely the British National Corpus and the VDE, which is based on the Cobuild Corpus. For every authentic example, a reference is given (SW + page reference, NW + page reference, BNC, VDE); the very few examples without such a reference were invented to illustrate particular points.

Not because it is an integral part of the text type preface but because in our case it is even more appropriate than usual we would like to thank a number of friends and colleagues for their valuable help: in particular we are very grateful to David Heath for reading and commenting on the whole manuscript, to Kevin Pike for looking through large sections of it, and to Dr. Michael Klotz and Peter Uhrig for the many and very valuable discussions we had with them about individual points of analysis and for the great encouragement they have given us concerning the analytical

apparatus we are trying to develop. Furthermore, we would like to thank Prof. Dr. Ernst Burgschmidt and Dr. Brigitta Mittmann for their comments on parts of the manuscript and Dr. Ian Roe for last-minute assistance. This also applies to all students with whom we discussed the ideas outlined here, especially Christian Hauf, Elisabeth Zinggl and Helena Otto, whom we also wish to thank for their help in the final stages of this book. Finally we would like to express our thanks to Barbara Gabel-Cunningham for her invaluable work on the manuscript.

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Thomas Herbst and Susen Schüller

# 1 Preliminary remarks about syntactic analysis

## 1.1 Syntax and lexis

One of the most fundamental units of linguistic description is the sentence. This is shown by the fact that from the beginnings of the study of language it was the sentence – and the word – that were considered to be the basic units of analysis. Many of the categories of syntactic analysis that are used today go back to the ancient Greeks, in particular to ideas of the Stoics, of Aristotle, Dionysius Thrax, or Apollonius Dyscolus.<sup>1</sup>

The distinction between lexis (the vocabulary) and syntax (the construction of sentences) finds a parallel in the two most important types of book in which languages are generally described: dictionaries provide information about the individual properties of words, whereas grammars deal with the more general rules of syntax and morphology. Nevertheless, there is no sharp dividing line between syntax and lexis:

- firstly, there is a very close interrelation between particular words and the grammatical constructions in which they appear: for instance, a noun such as *spaghetti* can only occur as the subject of a sentence with a singular verb; a verb such as *manage* can be followed by a *to*-infinitive complement but not by an *ing*-clause; a verb such as *decide* is much more likely to be followed by a [that\_CL]- or [to\_INF]-complement than to be followed by a noun phrase; it is much more likely for a verb such as *argue* to occur in a passive construction than for a verb such as *love*.
- secondly, when we produce language we do not seem to create structures on the basis of syntactic rules and then fill certain positions in the syntactic structure by words, but rather we very often seem to make use of larger chunks of language: this applies to constructions of the type *there is*, prefabricated chunks such as *what I wanted to say* or to collocations of the type *entirely agree* or *white coffee*.
- thirdly, it is quite possible that syntactic constructions are acquired and stored in the brain in a way very similar to that in which individual words are acquired and stored.

It is interesting to see that these interrelationships between lexis and syntax are in the centre of much of recent work in corpus linguistics (Sinclair 2004ab) and in linguistic theories such as construction grammar (Fillmore 1988, Goldberg 2006, Croft/Cruise 2004).

Although we do not know exactly what happens in the brains of speakers when they formulate utterances, there is very strong evidence to suggest that the decision to use a particular word often entails the use of certain other words or constructions, as the

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<sup>1</sup> See Robins (1967) or Thümmel (1993).

above examples show. It is certainly not adequate to imagine that the levels of syntax and lexis are completely independent from one another: it is unlikely that when formulating a sentence the human brain should create syntactic structures, which are then filled more or less at random by lexical items that are not subject to any restrictions other than being semantically compatible with each other. Recognising the strong interrelationship between what is traditionally called syntax and lexis does not mean, however, that there is no such thing as syntactic structure. Rather, the categories of syntax represent abstractions of a higher level than lexical items or words.

In some cases, there may even be discrepancies between lexical storage and syntactic analysability: for instance, it is very likely that chunks such as *make up my/your/etc. mind* are stored in the brain as one lexical item, but nevertheless they can be analysed into syntactic categories such as word classes or functional categories such as object.<sup>2</sup> To what extent speakers perceive or use such chunks as prefabricated wholes or to what extent they analyse them into parts may depend on the individual case or/and on the individual person.

In this book, we will mainly be concerned with syntactic categories, which we see as abstractions from raw data. Many researchers in the field of language acquisition, particularly those working within the framework of construction grammar such as Tomasello (2003) or Goldberg (2006: 62), believe that the acquisition of syntax involves storage of utterances and abstraction of categories.

To a certain extent, at least, the task of the grammarian trying to establish the syntactic categories of a language on the basis of linguistic data is similar to that of a child acquiring the language. This does not mean, however, that the categories arrived at as a result of these abstraction processes will be identical – if they were, there should be fewer discrepancies between the linguistic terminologies employed by different schools than there actually are. This can be partly explained by the fact that linguists analysing a language can hardly do this without preconceptions that arise from established terminology of one sort or another. It is thus one of the purposes of this book to provide an analytical framework for English which is developed on the basis of the analysis of the English language. In some cases this means that deviations from traditional terminology are necessary, as is indicated by Tomasello (2003: 173):

Even in a language that is generally considered to have a number of clear categories, like English, in many cases the real situation is that traditional categories from Western linguistics are applied in something less than a thoughtful manner.

Nevertheless, we would not like to make any claims as to the cognitive plausibility of the categories developed here, because as yet there does not seem to be empirical

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<sup>2</sup> Compare Tomasello's (2003: 106) analysis of *I dunno*: "... in usage-based approaches a given linguistic structure may exist psychologically for the speaker both as a concrete expression on its own – at the bottom of the structural hierarchy, as it were, and, at the same time, as an exemplar of some more abstract construction or constructions."

evidence which is sufficiently detailed to allow such claims. We do hope, however, that highlighting some of the weaknesses of traditional terminology and developing alternatives will provide an impetus for cognitive research along those lines.

## 1.2 Sentence and clause

Problems of definition already start with a central term such as **sentence** itself. There is considerable variation between the units we generally refer to as sentences as far as shape or structure and even length are concerned. This is immediately apparent when one looks at the beginning of a very successful twentieth century novel:<sup>3</sup>

(1)<sub>SW0</sub> *When April with its sweet showers has pierced the drought of March to the root, and bathed every vein of earth with that liquid by whose power the flowers are engendered; when the zephyr, too, with its dulcet breath, has breathed life into the tender new shoots in every copse and on every heath, and the young sun has run half his course in the sign of the Ram, and the little birds that sleep all night with their eyes open give song (so Nature prompts them in their hearts), then, as the poet Geoffrey Chaucer observed many years ago, folk long to go on pilgrimages.*

(2)<sub>SW0</sub> *Only, these days, professional people call them conferences.*

Both (1) and (2) represent sentences on the basis of two criteria:

1. Punctuation and spelling: they end with a full stop and otherwise only contain elements which are separated by commas or semicolons and the next sentence begins with a capital letter.
2. Structure: they could not be split up into separate units which in themselves could be considered acceptable sentences.

These criteria are not entirely satisfactory, however. Punctuation and spelling obviously apply only to the written language and even then punctuation is not always clear. So one could argue that

(3)<sub>SW5</sub> *"No, that's Bob Busby, he's just as bad. Worse, if anything. Been beside himself with excitement for weeks, organizing outings and so forth."*

could also be represented as

(3a) *"No, that's Bob Busby. He's just as bad – worse, if anything. ..."*

As far as the spoken language is concerned, defining sentence boundaries is even more difficult. Certainly, intonational cues serve to mark the ends of sentences, but only up to a point. Basing a definition of the sentence on prosodic and intonational criteria does not seem to be possible.

Similarly, attempts to define the sentence by saying that it expresses a particular idea or thought are not very promising since it is very difficult to say precisely how many ideas are expressed by a sentence such as

---

<sup>3</sup> Examples marked SW are taken from David Lodge's novel *Small World*, examples marked NW are taken from *Nice Work*.



- (4)<sub>SW0</sub> *Rummidge is not Birmingham, though it owes something to popular prejudices about that city.*

Apparently, it is not possible to define sentence in a satisfactory way.<sup>4</sup> Quirk, Greenbaum, Leech and Svartvik point out in the *Comprehensive Grammar of the English Language* (CGEL 1985: 2.11) that a sentence is often considered to be "the highest-ranking unit of grammar" but that this results in a situation where "'grammar' and 'sentence' are mutually defining" because the grammar accounts for the description of the sentences of a language.

In fact, for a number of reasons it may be more convenient to focus on the **clause** rather than the sentence. A clause can be defined as in the *Cambridge Grammar of the English Language* (CamG 2002: 44) by Huddleston and Pullum as "a syntactic construction consisting (in the central cases) of a subject and a predicate". It should be noted, however, that such a definition is not entirely unproblematic either. Firstly, it is a definition of a prototype and thus allows for non-central cases such as two of the units separated by full stops in (3) or (5), which obviously do not have subjects:

- (3)<sub>SW5</sub> *"No, that's Bob Busby, he's just as bad. Worse, if anything. Been beside himself with excitement for weeks, organizing outings and so forth."*

- (5)<sub>SW33</sub> *"Don't get the wrong idea, Percy" ...*

Secondly, it is difficult to escape the circularity of then defining subject and predicate as clause constituents. Nevertheless it seems to make sense to accept this terminology and regard a sentence as a unit that consists of one or more clauses. The sentence is then distinguished from a clause in that it is not a constituent of any other syntactic unit, i.e. "the largest unit to which we can assign grammatical structure" (Palmer 1971: 73).<sup>5</sup>

## 1.3 Clause constituents

### 1.3.1 Clause constituents at different levels

Assigning a clause grammatical structure means accounting for the structural relations that hold between its parts or, to use a more technical term, its constituents. In order to do that, one has to establish what one considers to be the constituents of a clause, i.e. which types of clause constituent one wishes to identify.

---

<sup>4</sup> For the difficulties of defining sentences see Palmer (1971: 70-82) or Matthews (1981: 26-45). Compare in this context Paul (1919/2000: 498): "Der Satz ist der sprachliche Ausdruck, das Symbol dafür, daß die Verbindung mehrerer Vorstellungen oder Vorstellungsmassen in der Seele des Sprechenden sich vollzogen hat ...".

<sup>5</sup> Cf. Huddleston (CamG 2002: 44): "We take sentences, like words, to be units that occur sequentially in texts, but are not in general contained one within another." For a very similar definition see Kortmann (2005: 124): "What is understood by *sentence* is the largest independent (!) syntactic unit of a language which is not embedded in any larger construction." Again, there are exceptions such as 'I wish you'd put that question to the Vice-Chancellor, Rupert,' says Philip<sub>NWS7</sub>, which are classified as QUOTE in the *Valency Dictionary of English* (2004) (VDE).

One such level of clause constituent is the word since clauses obviously are made up of words. Although words can be analysed further into morphemes, we will take the word as representing the lowest unit in the analysis of clause structure. It makes sense, however, to establish further syntactic constituents between the level of the clause or sentence and the level of the word, although linguists would not necessarily always agree as to what these constituents are.

All speakers of a language seem to be able to identify constituents – at least up to a point.<sup>6</sup> Thus there would be a large measure of agreement amongst speakers of English that a sentence such as

(6)<sub>SW18</sub>            *I bought this hat at Heathrow this morning.*

can sensibly be divided into units such as

|       |          |               |                 |                    |                     |
|-------|----------|---------------|-----------------|--------------------|---------------------|
| [6.1] | <i>I</i> | <i>bought</i> | <i>this hat</i> | <i>at Heathrow</i> | <i>this morning</i> |
|       | 6A       | 6B            | 6C              | 6D                 | 6E                  |

rather than

|       |                      |               |                      |                |
|-------|----------------------|---------------|----------------------|----------------|
| [6.2] | <i>I bought this</i> | <i>hat at</i> | <i>Heathrow this</i> | <i>morning</i> |
|       | 6α                   | 6β            | 6γ                   | 6δ             |

Some of the constituents in [6.1] consist of single words whereas others are made up of a number of words. From the point of view of the clause one could thus argue that clauses seem to provide certain structural "slots" which can be filled by particular words or groups of words. From the point of view of the word, one would have to say that different words can combine to form groups of words that can function as constituents at the next higher level of structure in the clause.

Such relationships can be very complex. Thus in the case of a clause such as

(7)<sub>SW0</sub>            *The modern conference resembles the pilgrimage of medieval Christendom in that it allows the participants to indulge themselves in all the pleasures and diversions of travel while appearing to be austere bent on self-improvement.*<sup>7</sup>

it is possible to identify the following four constituents:

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<sup>6</sup> For evidence as to the psychological reality of phrases see Clark/Clark (1977: 53-55). Compare also Sinclair/Mauranen (2006: 6) on chunking.

<sup>7</sup> The clause following *in that* contains further subordinate clauses itself.

|       |                              |                  |   |   |
|-------|------------------------------|------------------|---|---|
| [7.1] | <i>The modern conference</i> | <i>resembles</i> | <i>the pilgrimage of medieval Christendom</i> | <i>in that it allows the participants to indulge in all the pleasures and diversions of travel while appearing to be austere bent on self-improvement</i> |
|       | 7A                           | 7B               | 7C  | 7D  |

However, groups of words such as *of medieval Christendom* or *all the pleasures and diversions of travel* can also be identified as constituents in this clause. They can, however, be seen as parts of the larger constituents 7C and 7D.

### 1.3.2 Identifying clause constituents

The fact that intuitively (6) can be broken down into units such as 6A – 6E as in [6.1] is reflected by the fact that these units can be replaced by

(a) single words or

(b) groups of words

in the same sentence.

|       |  |                   |                  |                    |                     |
|-------|--|-------------------|------------------|--------------------|---------------------|
| [6.3] | <i>I</i>   | <i>bought</i>     | <i>this hat</i>  | <i>at Heathrow</i> | <i>this morning</i> |
|       | <i>Morris Zapp</i>   | <i>had bought</i> | <i>something</i> | <i>there</i>       | <i>then</i>         |
|       | <i>The famous professor of English literature who had just arrived from the States</i> | <i>had left</i>   | <i>it</i>        | <i>somewhere</i>   | <i>at 9 o'clock</i> |
|       | 6A   | 6B                | 6C               | 6D                 | 6E                  |

All elements occurring in slots 6A, 6B, 6C, 6D and 6E can replace each other syntactically in that they can fill the same slot in the clause. This test of **commutation** is a very important criterion in this context: in terms of structuralist linguistics, *Morris Zapp* and *The famous professor of English literature who had just arrived from the States* can substitute *I* in (6), *had bought* can substitute *bought* etc., which shows that they realise the same constituent in the sentence.<sup>8</sup>

A further test to illustrate the possibility of commutation is that the elements in question can be elicited in a *wh*-interrogative-'question'-construction:

<sup>8</sup> For commutation compare Emons (1974).

- (6a) *Who bought this hat at Heathrow this morning?*
- (6b) *What did you buy at Heathrow this morning?*
- (6c) *Where did you buy this hat this morning?*
- (6d) *When did you buy this hat at Heathrow?*

On the basis of such criteria most of the units identified in [6.3] can be elicited as a relevant type of constituent. This type of constituent is often referred to as a phrase (> Chapter 4).

What is remarkable, however, is that constituents such as 6B [*bought*] or 7B [*resembles*] cannot be identified as constituents in this way since they cannot be elicited by a question. Questions of the type

- (6e) *What did you do with this hat at Heathrow this morning?*
- (6f) *What did you do at Heathrow this morning?*

do not permit any response of the type

- (6g) *\*Buy.*

But rather

- (6h) *Buy it.*
- (6i) *I bought it.*

This means that [*bought this hat*] must be seen as a possible constituent of sentence (6), which results in an analysis as in

|       |          |                        |                    |                     |
|-------|----------|------------------------|--------------------|---------------------|
| [6.4] | <i>I</i> | <i>bought this hat</i> | <i>at Heathrow</i> | <i>this morning</i> |
|       | 6A       | 6BC                    | 6D                 | 6E                  |

On the other hand, different kinds of syntactic tests also provide arguments for an analysis of the following kind:

|       |          |   |
|-------|----------|---|
| [6.5] | <i>I</i> | <i>bought this hat at Heathrow this morning</i> |
|       | 6A       | 6BCDE   |

For instance, [*bought this hat at Heathrow this morning*] can be replaced by a proform of the type

- (6j) *I did.*

as a reply to a question such as

- (6k) *Did you buy this hat at Heathrow this morning?*

and similarly, the scope of negation in

- (6l) *I did not buy this hat at Heathrow this morning.*

extends to the whole unit 6BCDE [*bought this hat at Heathrow this morning*], which could thus also be regarded as a constituent of clause (6).

Obviously, a phrase such as 6C [*this hat*] can be seen as a constituent of larger constituents such as 6BC [*bought this hat*] or 6BCDE [*bought this hat at Heathrow this morning*]. It is important to see that on the basis of such criteria as commutation and question tests a case can be made out for the identification of quite different kinds of constituents in a clause. One can thus identify three different ways of establishing constituents in a clause such as

|       |          |               |                 |                    |                     |
|-------|----------|---------------|-----------------|--------------------|---------------------|
| (6)   | <i>I</i> | <i>bought</i> | <i>this hat</i> | <i>at Heathrow</i> | <i>this morning</i> |
| [6.1] | 6A       | 6B            | 6C              | 6D                 | 6E                  |
| [6.4] | 6A       | 6BC           |                 | 6D                 | 6E                  |
| [6.5] | 6A       | 6BCDE         |                 |                    |                     |

Depending on which of these constituents one sees as most important and how one describes the relationships between the various types of constituent, one can thus arrive at different analyses of a sentence. This unfortunately is also reflected in the terminologies that are employed by different linguists. The different possible analyses of example (6) demonstrated above can serve to illustrate why such terminological discrepancies exist. The most familiar categories in the analysis of sentences are probably subject and predicate, which have both been used for centuries.<sup>9</sup> All three analyses identify the identical first constituent 6A [*I*], to which the term subject can be applied. Thus it is tempting to refer to one of the remaining parts of the sentence with the term predicate, which as a result is used for different types in different frameworks. In what one could call a "broad use" of the term predicate, which is employed in the *Comprehensive Grammar of the English Language* by Quirk, Greenbaum, Leech and Svartvik, for instance, the predicate corresponds to a constituent such as *bought this hat at Heathrow this morning* in [6.5], i.e. it is that part of the sentence which is not the subject.<sup>10</sup> The "narrow view" corresponds to a definition of the predicate as a constituent such as in [6.4] based on a threefold distinction between subject, predicate and adjuncts, which will be outlined further in 2.2.<sup>11</sup> There is a certain overlap between the use of the term predicate and the term verb phrase, as can be seen from the following table:<sup>12</sup>

<sup>9</sup> For the different use of the term predicate in Stoic philosophy see Hülser (1996).

<sup>10</sup> See, for instance, Robins (1971: 240).

<sup>11</sup> Note that Kortmann (2005: 131) uses the term predicate to refer to a constituent such as 6B in [6.1]. Compare also Haegeman (1991).

<sup>12</sup> Up to a point these terminological differences can be taken to reflect different views of sentence structure. However, it must also be understood that if the terms predicate and verb phrase are used to refer to the same unit, this does not necessarily mean that they are used synonymously since the term verb phrase is often used to describe formal units (verb phrase, noun phrase etc.), whereas predicate is often contrasted with a functional unit such as subject.

|          | predicate | verb phrase |
|----------|-----------|-------------|
| CGEL     | 6BCDE     | 6B          |
| Haegeman | 6B        | 6BCDE       |
| Kortmann | 6B        | 6B          |

### 1.3.3 Relations between constituents

The fact that a unit that can be identified as a constituent can both be part of a larger constituent and consist of smaller constituents means that the relationships between the different types of constituent must be accounted for in any syntactic analysis. It is perhaps not surprising that different linguistic theories should have opted for different kinds of solutions, which is also reflected in the use of different terminologies, as outlined above.

The status of a particular constituent in a particular syntactic description varies considerably depending on the overall principles of the approach. If we look at a clause such as

|       |          |               |                 |
|-------|----------|---------------|-----------------|
| (6m)  | <i>I</i> | <i>bought</i> | <i>this hat</i> |
| [6.3] | 6A       | 6B            | 6C              |

the relations between the three constituents 6A, 6B and 6C can be represented in such a way that

- (a) 6A is at a higher level than 6B and 6C (immediate constituent analysis)
- (b) 6B is at a higher level than 6A and 6C (dependency analysis)
- (c) all three are at the same level of analysis (linear analysis).

*Immediate constituent analysis:* Analysis (a) is typical of the phrase structure analysis employed in American structuralist linguistics and early versions of generative grammar. Applying principles outlined by Bloomfield (1933), it was common to divide sentences into their **immediate constituents**<sup>13</sup>, generally following the principle of binary divisions.<sup>14</sup> In the case of a sentence such as

(6m) *I bought this hat.*

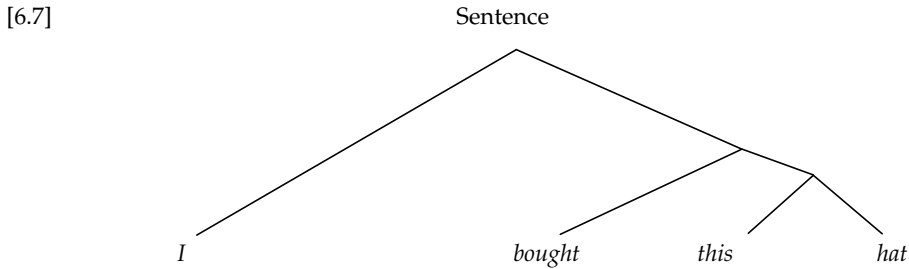
a first division would lead to the immediate constituents *I* and *bought this hat* as in

[6.6] *I | bought this hat.*

<sup>13</sup> Bloomfield (1933), who was mainly concerned with morphology, illustrated the principle of immediate constituent analysis using the sentence *Poor John ran away*. See also Nida (1964). For an outline of the problems of immediate constituent analysis see Palmer (1971) or Matthews (1993).

<sup>14</sup> For a discussion of the idea of binary divisions see Matthews (1993: 54-55) or Palmer (1971).

which can then be split up further into *bought* and *this hat*, which in the next step is divided up into *this* + *hat*. This kind of constituent analysis can be represented in the form of a phrase structure tree of the following kind:



If one takes the word as the final level of syntactic analysis, *I*, *bought*, *this* and *hat* can then be called the **ultimate constituents** of the sentence. Such a model represents part-whole-relationships and establishes a hierarchy in which the whole sentence is at the top and the smallest constituents identified are at the bottom.

According to these principles, constituents such as 6A [*I*] and 6BC [*bought this hat*] could be identified as immediate constituents of (6m). Since 6C [*this hat*] is a constituent that is the result of a further division, it can be seen as taking a lower place in the hierarchy of the clause structure.

(6) is a good example to illustrate the fact that the principle of binary divisions cannot be easily applied to all clauses since there does not seem any sensible way of dividing 6BCDE [*bought this hat at Heathrow this morning*] into two constituents, as illustrated in [6.8] and [6.9]:

[6.8]

|                        |                                 |
|------------------------|---------------------------------|
| <i>bought this hat</i> | <i>at Heathrow this morning</i> |
| 6BC                    | 6DE                             |

[6.9]

|               |  |
|---------------|--|
| <i>bought</i> | <i>this hat at Heathrow this morning</i> |
| 6B            | 6CDE                                     |

Binary division results in constituents of the kind 6DE [*at Heathrow this morning*] or 6CDE [*this hat at Heathrow this morning*], both of which are counterintuitive and do not meet the criteria for constituents established above.<sup>15</sup> It is for this reason that the principle of binary divisions has not been accepted by other schools of thought, in particular by dependency grammar.

<sup>15</sup> Similar problems arise with sentences containing trivalent verbs such as (2).