

The Specification of the Position and Relationship between Heads and Dependents in English NPs from Government and Binding Perspective

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ABSTRACT: On the basis of government and binding theory, it is crucial to specify the position of different heads in NPs, VPs, APs and PPs in different languages along with their dependents and then the rules among the phrases should be distinguished and presented. This survey has been done based on a descriptive and analytical library study in which the English NPs have been carefully investigated to see the syntactic relationship(s) of heads and dependents of English NPs and on the other hand, to support why English NPs as Radford claims are considered as head initials while English head nouns can be both followed and preceded by their dependents. This study concludes that English NPs are head-initial because the frequencies of the dependents which follow their head nouns are more than those which precede them. It also shows that there are at least three dependents preceding their head nouns and five dependents following them in English.

Key Words: Heads- Noun phrase- Preceding dependent, Following dependent

INTRODUCTION

In this paper we want to investigate the lexical phrase of NPs in English to see the relationship of its head nouns and dependents. Radford (2006), for example, states that English is a head-initial language in all its lexical phrases of NPs, VPs, PPs and Adj Phrases (here NPs). If it is so, we want to find out why English NPs are considered head-initial while its head nouns can be both preceded and followed by their dependents. As an instance in the NP of "Tom's house", the head "house" is placed after its nominal dependent of "Tom" on the basis of the structure rule of $X' \rightarrow \text{complement } X$ which means the dependent has preceded its noun which can be the formula of head-final languages.

Universal Grammar Theory

A set of absolute Universals, Notions and Principles exist in the UG which do not vary from one language to another; while certain grammatical principles and rules may be universal, it is also true that languages differ from one another in some important ways. It incorporates a set of parameters to account for such variations among languages of which the head parameter or head-direction parameter is one. In other words, there is a single human language, with differences only at the margins (Chomsky, 2000b; Haegeman, 2008).

Opposing to the behaviorist approach, the alternative approach proposed by Chomsky, believes that language acquisition cannot be accounted for without considering a linguistically specific system of Principles and Parameters which every healthy child is expected to have it genetically in his or her mind which is sometimes called Language Acquisition Device (Universal Grammar); in Chomsky's words: Language is a system represented in the mind/brain of a particular individual (Chomsky, 1986; Chomsky, 1988; Radford, 2006).

Parameters and Universal Grammar

The innate linguistic endowment named UG is not sufficient to enable humans to speak a language, if it was so, human beings would be able to speak any language regardless of where they are born and whose their parents are, so it would be linguistically wrong to expect that, for instance, a child growing up in

a community where only English is spoken could become a native speaker of Persian or the other language; because while certain grammatical principles are universal, there is also some variation among different languages. For example the head parameter captures the way languages differ in the position of heads within phrases (nouns in NPs, verbs in VPs, prepositions in PPs, adjectives in APs etc.). It has two possible settings: head-initial, where heads precede their complements and head-final, where they are preceded by their complement (Cook, 1988; Haegeman, 2008).

Head Parameter

The concept of head parameter is quite known in the principles and parameters theory. "A crucial innovation to the concept of phrase structure that emerged in the early 1970s was the claim that all phrases have a central element, known as a head, around which other elements of the phrase revolve and can minimally stand for the whole phrases. ... An important aspect of language variation concerns the location of the head in relationship to the other elements of the phrase called complements. The head of the phrase can occur on the left of a complement or on its right." (Cook & Newson, 2007, p. 41)

There is a strong tendency, cross-linguistically, for the head to occur in a fixed position in all phrases within a language (Cook & Newson, 2007, p. 41). In head-initial languages like English, the head precedes its complements, and in head-final languages the head follows its complements.

"It should be noted, however, that word-order variation in respect of the relative positioning of heads and dependents falls within narrowly circumscribed limits. There are many logically possible types of word-order variation which just don't seem to occur in natural languages. For example, we might imagine that in a given language some verbs would precede and others follow their dependents, so that (e.g.) if two new hypothetical verbs like *scruunge* and *plurg* were coined in English, then *scruunge* might take a following complement, and *plurg* a preceding complement. And yet, this doesn't ever seem to happen: rather all verbs typically occupy the same position in a given language with respect to a given type of dependent. what this suggest is that there are universal constraints on the range of parameter across languages in respect of the relative ordering of heads and dependents. It would seem as if there are only two different possibilities which the theory of Universal Grammar allows for: either head-first or head-last. Many other logically possible orderings of heads with respect to dependents appear not to be found in natural language grammars because Universal Grammar imposes genetic constraints on the range of parametric variation permitted in natural language grammars." (Radford, 2006, p. 20)

As Chomsky (1982) states specification of the position of different heads in NPs, VPs, APs and PPs of different languages along with their dependents are necessary, and then the rules among the phrases should be distinguished and presented.

About the head parameter and indexing of English, Nematzadeh (1996) concludes that the present-day indexers are major beneficiaries of the linguistic achievements; since keywords which the indexer selects are noun phrases (NPs), the concept of head of NP is the most important.

The purpose of this study is to investigate the parametric directionality in head parameters of English. It is necessary to specify the position of different heads in NPs, VPs, APs and PPs of different languages along with their complements; and then the rules among the phrases should be distinguished and presented (Chomsky, 1970 & 1995; Jackendoff, 1977).

Head-initial and head-final parameter has an important role in acquisition of languages. According to Gass (1989), as far as structural dependency and constituent movement are concerned, students will know what phrase is the right one and should be extracted or moved like the movement in echo questions or in active/passive sentences.

This paper was an attempt to answer the following questions:

Is English a head-initial language in its all NPs?

Why English NPs are considered as a head-initial while its noun heads can be both preceded and followed by its complements?

The Relationship of Heads and their Dependents

As Tallerman (1998) claims in any phrase, the head is the necessary part of its phrase and other words are dependents on that head which can follow or precede. In the following examples the italic words are the key word of the phrase namely heads and the other components are their dependents.

- a. very bright [N sunflowers]
- b. [V overflowed] quite quickly
- c. very [A bright]
- d. quite [ADV quickly]
- e. [P inside] the house

Moreover, Tallerman (1998) stipulates that heads are the most important sections in their phrase due to the following reasons: 1- The head carries the most important semantic information, in other words it

determines the meaning of the entire phrase. For example the phrase very bright sunflowers is about sunflowers and overflowed quite quickly is about something overflowing and so on. To take other examples, A stone bridge is a kind of bridge, not a kind of stone, so the head is bridge; and A garden flower is a kind of flower, not a kind of garden, so the head is flower. By paying attention to the examples we can conclude that the class of the head determines the word class of the entire phrase. Because very bright sunflowers is headed by a noun, it is a Noun Phrase (NP); and because overflowed quite quickly is headed by a verb, so it is a Verb Phrase (VP); and accordingly very bright is an Adjective Phrase (AP), quite quickly is an Adverb Phrase (ADVP) etc. 2- Heads are the only words that have the same distribution as the entire phrase because it is possible to substitute just the head for the whole phrase. For instance, it could be said that either Kim liked very bright flowers, or just Kim liked sunflowers; or it could be said, go inside the house or just go inside. By the same token the sunflowers were bright is grammatically correct but not *the sunflowers were very. Therefore, bright rather than very must be the head of the AP. 3- The third property of heads is that they are the one obligatory item in the phrase, for example the answer to the question Are you angry?, Can't be just very!¹. 4- By taking the third property of heads into considerations, the fourth property of heads will be that they may select an obligatory dependent, such as NP. To sum up we can say that phrases have heads and may additionally contain some optional or obligatory dependents.

Tallerman (1998, pp. 93) continues that there are dependents also which are the remaining words in a phrase other than the heads. Traditionally, dependents are classified into two main types: Adjuncts and Complements. Adjuncts are always optional, whereas complements are frequently obligatory. The difference between them is that a complement is a phrase which is selected by the head and therefore has an especially close relationship with the head; adjunct, on the other hand, are more like "Bolton" extra pieces of information, and don't have a particularly close relationship with the head (Tallerman, 1998, p. 93). There are some obligatory complements which have been italicized in the following transitive verbs, adjective and preposition. Based on projection principle of GB, they have been projected by their heads.

a. [V admires] famous president, b. [V wondered] whether to go, c. [A fond] of chips, d. [P inside] the house

Adjuncts, on the other hand, are extra pieces of information, and don't have a particularly close relationship with the head, like the following adjuncts.

a. very bright[N sunflowers], b. [V talks] loudly, c. [V sings] in the bath

Considering the adverbials in the following examples the verb "was" in (a) requires an obligatory feature of the predicate, therefore the prepositional phrase in the bath is considered as a complement but in (b), the verb "sings" doesn't require an obligatory feature and then it is considered as an adjunct but when the verb "sings" is a transitive verb like the third example in part c, then it would require an obligatory object and it would become a complement.

a. was in the bath

a complement

b. sings in the bath

an adjunct

c. He sings folk songs

a complement

According to Cook and Newson (1996), in addition to heads and dependents, phrases contain a third main element in their structure, namely a specifier. While dependents belong to the X in the phrase, i.e. are the sisters of X, specifiers belong to the X'.

$X'' \rightarrow X' \text{ specifier}$ or $X'' \rightarrow \text{specifier } X'$

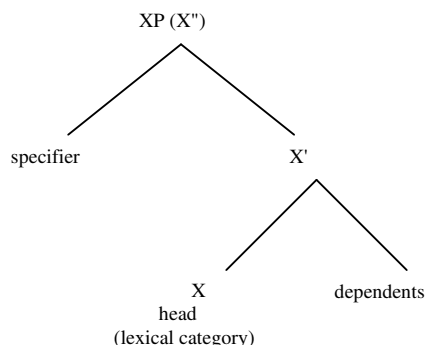


Figure 1. Specifier of the phrase

Taking the four following different syntactic relationships existing between heads and their dependents, one can see the clear-cut difference between the heads and the dependents by the use of X-bar structures.

Table 1. Syntactic relationships between heads and dependents (Based on the definitions and illustration of Tallerman, 1998, p. 103)

Dependent & Heads	Example	X-bar structure
preposition + Object NP	On the table (preposition)	<p>The diagram shows the X-bar structure for the prepositional phrase 'On the table'. The root node is P'', which branches into Spec and P'. P' branches into P and NP. The word 'on' is the head under P, and 'the table' is the object NP under the NP node. A triangle is used to indicate the NP structure.</p>
Verb + Arguments of the verb	Ali loves the girl	<p>The diagram shows the X-bar structure for the verb phrase 'Ali loves the girl'. The root node is V'', which branches into NP and V'. V' branches into V and NP. The word 'loves' is the head under V, 'Ali' is the subject NP under the NP node, and 'the girl' is the object NP under the V' NP node. Triangles are used to indicate the NP structures.</p>
(possessed) noun + (possessor) noun	Ali's car	<p>The diagram shows the X-bar structure for the noun phrase 'Ali's car'. The root node is N'', which branches into Spec and N'. N' branches into complement and N. 'Ali's' is the complement under the complement node, and 'car' is the head under the N node.</p>
adjective + noun	Big house	<p>The diagram shows the X-bar structure for the noun phrase 'Big house'. The root node is N', which branches into Spec and N'. N' branches into Adj and N. 'big' is the specifier under the Spec node, and 'house' is the head under the N node.</p>

It is necessary to specify the “position of different heads in NPs, VPs, APs and PPs of different languages along with their dependents; and then the rules among the phrases should be distinguished and presented” (Chomsky, 1995, p. 53).

Head-Initial Languages

"In English all heads (whether nouns, verbs, prepositions, or adjectives etc.) normally precede their complements" (Radford, 2006, p. 19), and hence it is a head-initial language. The complements to V, P, A and N all are preceded by their heads in the following examples:

- a. [VP loves Mary]
- b. [PP into the water]
- c. [AP fond of chips]
- d. [NP admiration for Sara]

Head-Final Languages

Examples of head-final language and dialect can be Persian for example in which most heads of AP, NP, VP and PP follow its complements.

Taking the four following different syntactic relationships existing between heads and their dependents, one can see the clear-cut difference between the heads and the dependents by the use of X-bar structures.

The Structure of Lexical Phrases in GB

Lexical phrase is a type of phrase recognized in GB theory for a structural configuration built around a lexical head, as in the case of NP, VP, AP, PP etc. (Crystal, 2003, p. 267)

The four lexical phrases which are used in X-bar theory are: Noun Phrase (NP), Verb Phrase (VP), Adjective Phrase (AP), and Prepositional Phrase (PP). Each of these phrases has to contain at least the head N, V, A, and P.

Table 2. Principles and rules in lexical phrases (Based on Cook & Newson, 1996, p. 147)Phrase Structure of NPs

X-bar theory: Lexical Phrase		
Principles	Rules	Examples
A phrase always contains a head of the same type, i.e. Ns in NPs, Vs in VPs, etc.	a) Noun ¹ b) Verb c) Preposition d) Adjective	a) doctors, in doctors from England b) drink, in drink milk c) from, in from England d) jealous, in jealous of Peter
A two-bar category consists of a head that is a single-bar, a specifier position, and a possible adjunct.	X' → specifier X'	His fear of the dark
A single-bar category contains a head with no bars and possible complements.	X' → X complement(s)	Fear of the dark
A single-bar category can also contain a further single-bar category and an adjunct.	X' → X' adjunct	Fear of the dark yesterday

NPs in different languages can be followed or preceded by different number(s) of complements; these phrases are analyzed in the following paragraphs in order to recognizing the position(s) of their heads and complements.

Is English Head-Initial in its NPs?

A phrase in X-bar theory always contains at least a head as well as other constituents. In NPs, N is the head plus some specifiers and dependents (Haegeman, 2008, p. 99). Since more dependents in English NPs, follow their head nouns than the dependents which precede them, they are considered as head-initial.

The Position of Heads and Dependents in English NPs

According to Marcella (1972), there are three complements which precede their head nouns in English NPs such as: 1- Specifiers: e.g., The politicians are talking with each other. The word "the" in this example is the head of the determiner phrase and also the word "politicians" is the head of noun phrase and the rest are the verb phrase of the sentence. 2- Attributive adjectives: e.g., The careless soldiers have been fined. In the NP of "the careless soldiers", the word "careless" is the attributive adjective and the word "soldiers" is the head. 3- Nominal dependents: e.g., My grandmother's house is being repaired. In the NP of "my grandmother's house", the word "grandmother's" is the nominal dependent and "house" is the head, and there are five complements which follow their head nouns which have been listed as: 1- Appositive phrases: e.g., Mr. Harris, in a hurry to get home, took a taxi from the airport. In this example, "Mr Harris" is NP which

¹ The nouns, verbs, prepositions, and adjectives are the key words in their phrases.

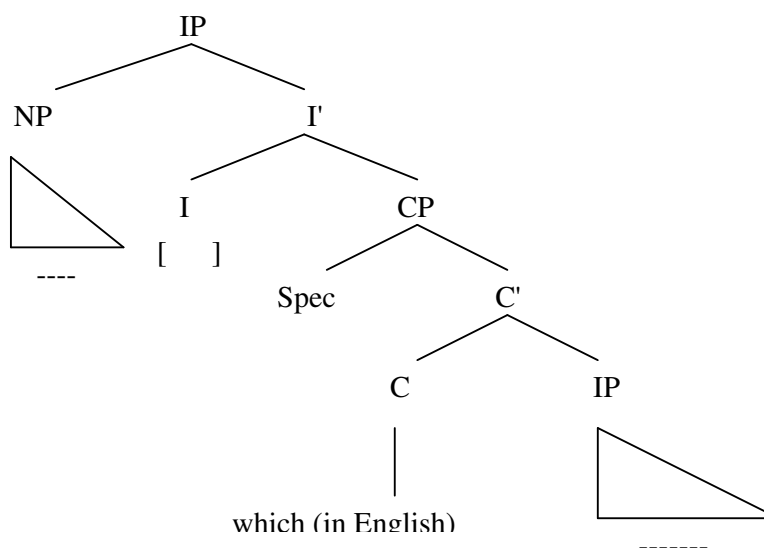
has been followed by an appositive phrase called "in a hurry to get home". 2- Participial phrases: e.g., The girl talking to the teacher is very intelligent. In this example, "the girl" is NP which has been followed by a participial phrase called "talking to the teacher". 3- Gerund phrases: e.g., Her cleaning the house everyday is not necessary. "Her cleaning" is an NP which has been followed by "the house every day". 4- Prepositional phrases: e.g., reason of the war. "reason" is an NP which has been followed by the prepositional phrase of " of the war". 5- Adjective clauses: e.g., Here is a book which describes animals. "a book" is an NP which has been followed by the adjective clause of " which describes animals".

CONCLUSION

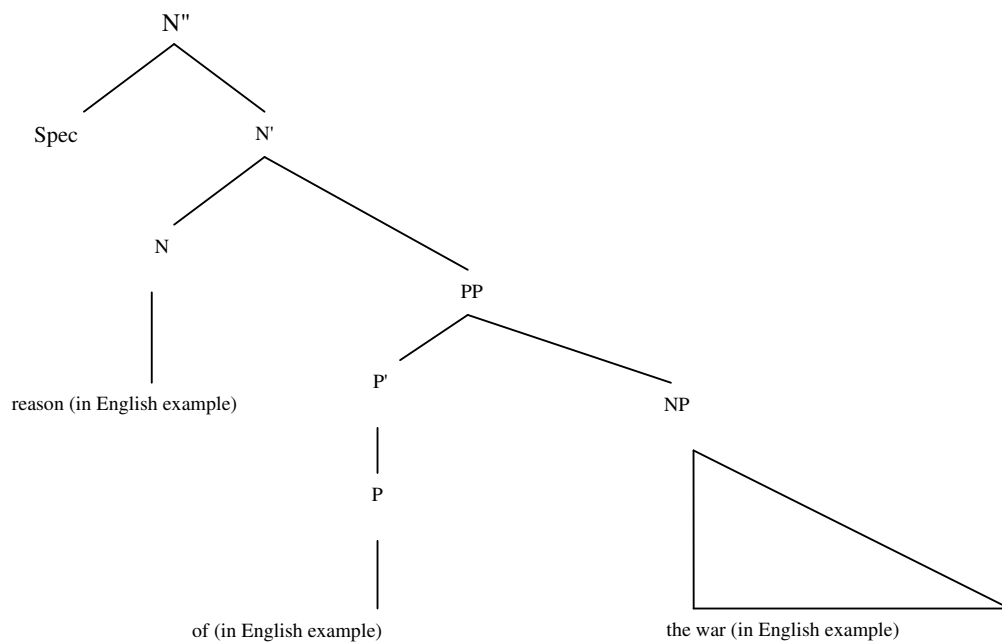
Accordingly, we can conclude that English is head initial in its NPs because more NPs are ordered based on the phrase structure rule of $X' \rightarrow X$ complement. In other words most head nouns occurred on the left of the other elements in the phrase because the attributive adjectives, specifiers, and nominal dependents had just one option for their occurrence, and preceded their head nouns on the basis of the formula of: $N' \rightarrow \text{Spec } N'$. In contrast the appositive phrases, participial phrases, adjective clauses, prepositional phrases and gerund phrases followed their head nouns and accordingly more dependents of English NPs followed their head nouns.

Since in English more NPs are ordered based on the phrase structure rule of $X' \rightarrow X$ complement, their NPs are considered head-initial. Taking the four different syntactic relationships existing between heads and their dependents one can see the clear-cut difference between the heads and the dependents by the use of X-bar structures which should be taken into account as far as applied linguistics like teaching or translations are concerned.

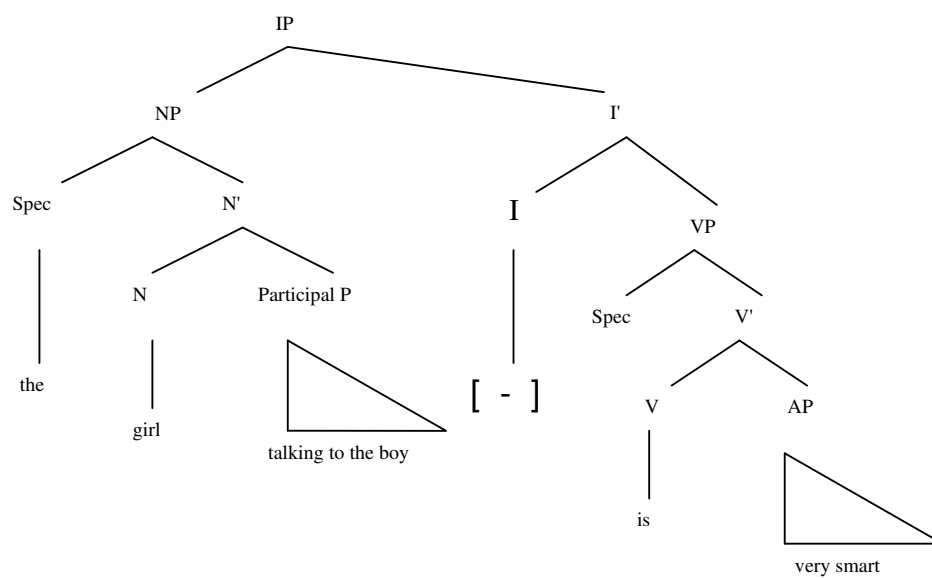
Appendix



Diagrams of some heads and dependents in English NPs



Example 1: reason of the war



Example 2: the girl talking to the boy is very smart

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