

Deep Structure vs. Surface Structure

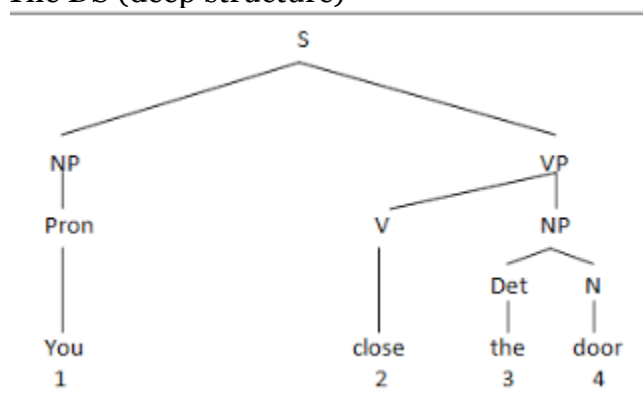
One of the most important concepts proposed by **Chomsky** is the concept of **surface** and **deep structure**. The Generativism paradigm claims that the concept of structural analysis proposed by Structuralism paradigm is too shallow, it only reaches the level of surface structure. **Surface structure** can be defined as the syntactic form they take as actual sentences. In the other words, it is forms of sentences resulted from modification/ transformation. Consider these sentences:

- (1) You close the door.
- (2) The door is closed by you.
- (3) Close the door!

The first sentence is active, second is passive, and the last is imparative. However, if you take a look those closely, you will find that those three are very closely related, even identical. They seem to be identical, since they have the same undelying abstract representation that is called **deep structure**. It is defined as an abstract level of structural organization in which all the elements determining structural interpretation are represented. If you want to analyze the relation of those three sentences, the first you have to know about the deep structure of them, since deep structure is the input of **transformation rules**. We cannot apply transformation rules if you don't have **deep structure**. transformation rules are sets of rules which will change or move constituents in the structures derive from the **phrase structure rules**.

e.g.

The DS (deep structure)



- (2) SD (structure description) : 1 2 3 4
- SC (Structural change) : 3 4 + be 2+en 1
- : The door is closed by you

SS (Surface structure)

:

Note: the SC is passive transformation rules

(3) SD: 1 2 3 4
SC: 0 2 3 4
SS: Close the door!

Note: 0 is deletion

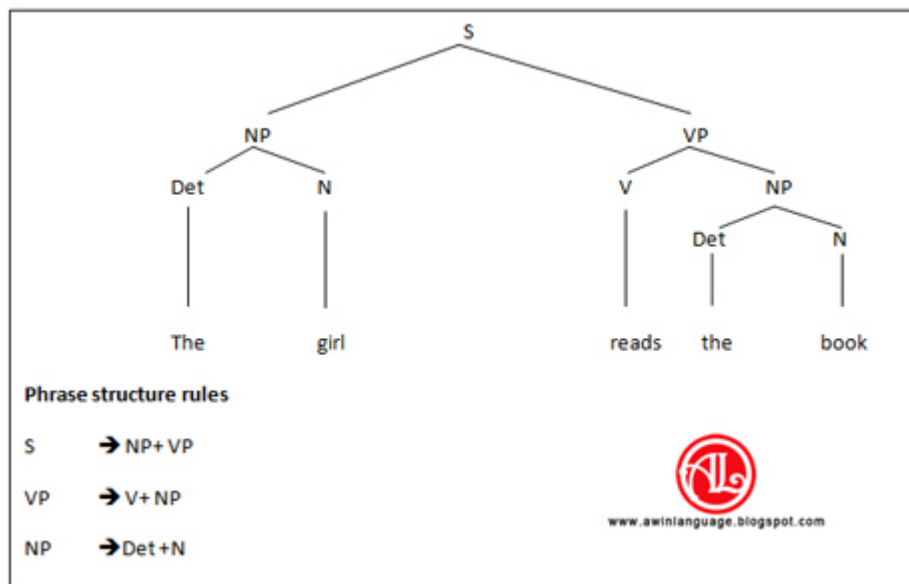
From the above example, it can be concluded that deep structure then is a pure representation of thematic relations. Anything which is interpreted as the subject or object of a given predicate will be in the subject or object position of that predicate at Deep structure no matter where it is found at Surface structure.

Definitions of Deep Structure

1. Deep structure is the output of phrase structure rules

We can not have deep structure if we don't have phrase structure rules.

e.g.



2. **Deep structure** is the input of transformation rules. We can apply transformation

Transformation rules

(1) Dative movement

SD: NP + V + NP + (to/for) + NP

1 2 3 4 5

SC: 1 + 2 + 5 + 3

Surface structure: She gives me a book

(2) Passive

SD: NP + V + NP

1 2 3

SC: 3 be 2 + en by#1

e.g. The ball is kicked by Khan

(3). Substitution/ reflexivization;

She → herself

Surface structure ; she hurt herself

(4). Affix hopping;

Past + hurt → hurt +past →hurt

e.g. She hurt herself

etc.



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rules if we have de.

3. **Deep structure** is the level of grammar which can explain adequately the concepts of subject, direct object and indirect object.

- Subject is a noun phrase which is directly dominated by category of sentence.
- **Direct object** is a noun phrase which is directly dominated by verb phrase
- **Indirect object** is a noun phrase which is directly dominated by prepositional phrase.

e.g.

4. **Deep structure** is the level where we can apply selectional restriction rules (rules that restrict the selection of lexicons in a sentence)

e.g. the grass devoured the elephant (it is impossible, how the grass can eat an elephant)

The rule is:

- animate + animate > subject

+ animate +animate < subject

e.g. The tiger devoured the goat.

The ones who don't follow the selectional restriction rules are the linguist, writers, author.

5. **Deep structure** is the level which can solve the problem of ambiguity.

e.g.

"The girl hits the man with an umbrella."

Syntax : the arrangements of words to show their relationship to one another in a sentence.

Syntax rules govern proper sentence structure.

In school, we learned preferred syntactical rules, like **isn't** is preferable to **ain't** (prescriptive approach)

Psycholinguists analyze syntax at the descriptive level :

A. James asked the woman about her headache.

B. About the James headache woman her asked.

Same Lexical Information in both sentences, yet we prefer the structure in A

Noam Chomsky and Transformational Grammar

Chomsky developed Transformational Grammar to replace **Left-to-Right Grammar**

Major Factors of Transformational Grammar

Every Sentence exists on two levels :

Surface Structure : the actual spoken sentence.

Deep Structure : underlying meaning of the sentence.

A single deep structure idea can be expressed in many different Surface structures :

Deep Structure : Boy kisses Girl

Surface structure : The boy kissed the girl.

The boy was kissing the girl. The girl was kissed by the boy.

Surface and Deep Structure

The deep structure gives the semantic component of a sentence, while the surface structure gives the proper phonological information to express that thought.

How do we develop these two levels of sentence construction ?

Chomsky has proposed two sets of Rules :

1. Phrase Structure Grammar : these rules dictate the form of the deep structure.

If you have ever diagrammed sentences in English (or foreign language classes), than you have explicitly used phrase structure rules before.

Phrase Structure Grammar

Phrase structure rules specifies both the necessary phrases for proper sentence construction, and the specific word ordering that should be followed within these sentence phrases.

Phrase Structure Grammar forces a hierarchical arrangement among different parts of sentences.

Why can't we just use phrase structure rules to explain language ?

Phrase Structure Rules can not help distinguish among ambiguous sentences :

Visiting relatives can be a nuisance.

The shooting of the hunters was horrible.

To account for these shortcomings in Phrase Structure Grammar, Chomsky proposed an additional level of rules which assists in translating deep structures to surface structure sentences.

Transformational Rules : these rules help transform the deep structure into the surface structure.

The manipulation of verb tenses is one aspect of transformational rules.

Present tense, past tense, subjunctive, past perfect, future tense are all derived through transformational rules.

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