Chomsky's Universal Grammar: A Case of Its Concepts of Government/Binding Theory

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Abstract: The purpose of this paper is to see the universality of the Government/Binding Theory in its concepts of government, the pro-drop parameter, and binding theory. Three languages – English, Indonesian, and Javanese – are analyzed based on the three concepts. From the analysis it is concluded that in some cases language is universal, but in some other cases every language is specific.

Keywords: universal grammar, concepts, government, the pro-drop parameter, and binding theory.

This paper, first of all, defines the terms 'grammar', 'universal grammar', then describes the types of grammar. Secondly, a brief review of the grammar approaches is related to the schools of linguistics. Next, the concept of government/binding theory is shortly explained. After that, the concepts of government, the pro-drop parameter, and binding theory are elaborated to see the universality of the theory based on three languages that the writer is familiar with.

DEFINITION OF GRAMMAR

'Grammar' which is the central term in linguistics is a set of finite rules by which we can construct infinite sentences. Thus, language is creative and productive. This idea is originally proposed by Juan Huarte who stated that human beings has three levels of intelligence: docile wit, normal human intelligence (ingenio), and true creativity. True creativity is the highest level of intelligence that enable human beings to create anything new that has never been seen, heard, felt, or smelt before (Wahab, 1991). With this highest level of intelligence human beings can be creative and productive in producing unlimited number of sentences from a limited number of rules.

Universal grammar is a grammar , especially in generative grammar, which is common for all languages. Further, Crystal (1991) states that there are two main types of universal, namely, **formal universals** and **substantive universals.** "**Formal universals** are the necessary conditions which have to be imposed on the constructions of grammars in order for them to be able to operate. They include such notions as the number of COMPONENTS, types of RULES, ORDERING conventions (e.g. CYCLES), types of TRANSFORMATIONS, and so on. **Substantive universals**, on the other hand, are the PRIMITIVE elements in a grammar, required for the analysis of linguistic data, e.g. NP, VP, [+grave], [+abstract]." The terms which are also important to be noted here are **implicational universals, absolute universals, and relative universals.** "Implicational universals are generalised statements of the form 'if X, then Y', e.g. if a language has a WORD ORDER of a certain type, it will also have a VERB structure of a certain type. Absolute universals are properties which all languages share; there are no exceptions. Relative universals are general tendencies in language; there may be principled exceptions" (Crystal, 1991:366-367).

There are at least seven types of grammar: descriptive grammar, theoretical grammar, diachronic and synchronic grammars, comparative grammar, pedagogical or teaching grammar, traditional grammar, and universal grammar. **A descriptive grammar** tries to describe a language in a systematic way . This type of grammar usually becomes reference grammars because of its adequate description of the language being described. Examples of descriptive grammarians are Otto Jespersen and Randolph Quirk et al. (Crystal, 1991). **A theoretical grammar** deals with the study of languages in general using linguistic data as a means of developing theoretical insights into the nature of language. **A diachronic grammar** deals with the grammar of a language based on the history. The study of diachronic grammar (historical linguistics) dominated the nineteenth century and before. The focus of the study was the changes of forms and meanings from time to time. Unfortunately, this approach did not satisfy the study of languages. Then appeared the study of **synchronic grammar** which focused on the study of a language simultaneously at one time. **Comparative grammar** compares the forms of different languages using the combination of theoretical and descrip-

tive grammars. **Pedagogical or teaching grammar** is a grammar of a language which is designed specifically for the purposes of teaching or learning a (foreign) language, or for developing one's awareness of the mother tongue. **Traditional grammar** studies the way words and their component parts combine to form sentences. **Universal grammar**, as defined above, is a grammar which is common for all languages.

THE GRAMMAR APPROACHES AND SCHOOLS OF LINGUISTICS

Among the seven types of grammar discussed above, three of them —descriptive grammar, structural grammar, and universal grammar–are discussed here. These three grammars are closely related to the schools of linguistics.
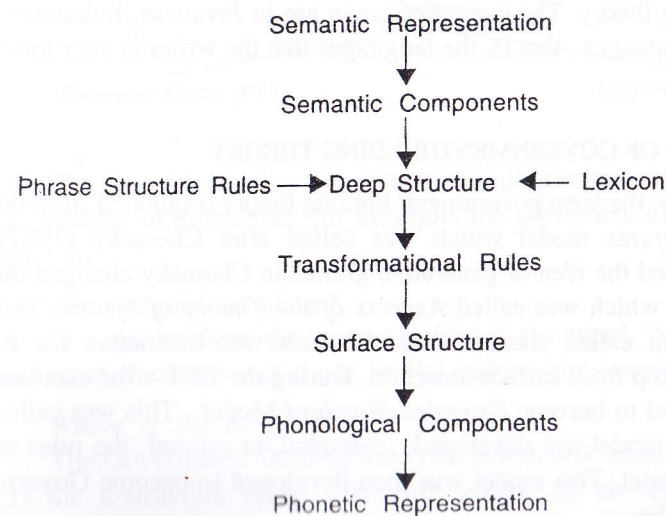
First, descriptive grammar which is defined as a grammar that describes a language in a systematic way was well-known at the end of the nineteenth century and proceed to the beginning of the twentieth century. This linguistic school emerged almost at the same time as the Saussurean time in Europe. It independently emerged in America under the leadership of the anthropologist Franz Boas (Sampson, 1980). The interest of Ferdinand de Saussure and Franz Boas in language are both synchronic. The difference lies in the language being described. Saussure focused his attention on the languages that are well-known to the European scholars, whereas Boas studied the exotic languages with the goal of describing languages as they were. Boas studied the exotic languages for practical purposes, that is, to translate the Bible.

Second, the role of descriptivists like Charles Carpenter Fries, Francis Nelson, and Gleason in the World War II was to describe exotic languages in the countries they visited. This was the era of structural grammar. Structural grammar is referred to "any approach to the analysis of LANGUAGE that pays explicit attention to the way in which linguistic features can be described in terms of STRUCTURES and SYSTEMS" (Crystal, 1991). C. C. Fries divides words into **content** and **function** words. Content words consist of Words of Class 1 (nouns), Words of Class 2 (verbs), Words of Class 3 (adjectives), Words of Class 4 (adverbs). Function words consist of Group A words (determiners), Group B words (auxiliaries) like 'can', 'may', Group C word (not), Group D words (all words in the position of 'very'), Group E words (words in the position of 'and'), Group F words (all words in the position of 'at'),

Group G words (auxiliary 'do', 'does', 'did'), Group H words (there) like in 'There is …' and 'There are …', Group I words (Wh. and H. question words), Group J words (words that stand in the position of 'after'), Group K words (words that occur at the beginning of 'response' utterance units like 'well', 'oh', 'now', and 'why'), Group L words ('yes' and 'no' at the beginning of response utterances), Group M words (three words that appear at the beginning of attention-getting signals 'look', 'say', and 'listen'), Group N word (please), and Group O word (lets/ let us) (Fries, 1959).

Third, universal grammar which is defined as a grammar which is common for all languages was proposed by Avram Noam Chomsky who is popularly known Chomsky. This universal grammar emerged as a result of the reaction on the structural grammar which was claimed to have inadequate explanation. All the explanation of the structural grammar is just on the surface structure. In order to have adequate explanation or using Chomsky's term 'explanatory adequacy', Chomsky proposed the deep structure which can explain the surface structure of a sentence through transformation. If Boas studied exotic languages for practical purposes, Chomsky studied languages for theoretical purposes, that is, to draw conclusions for universal grammar. The universal grammar that Chomsky proposed can be shown in the following diagram:

UNIVERSAL GRAMMAR *(Chomsky's Model)*

Semantic Representation
↓
Semantic Components
↓
Phrase Structure Rules → Deep Structure ← Lexicon
↓
Transformational Rules
↓
Surface Structure
↓
Phonological Components
↓
Phonetic Representation

Based on that diagram, universal grammar is common for all languages. In the encoding process a speaker has his/her idea in his/her mind which is still abstract and in totality. This abstract and total idea in the speaker's mind cannot be simultaneously presented to the hearers or readers but piece by piece in *semantic components*. The meaning contained in the semantic components is realised in the structure which is called *deep structure* . This deep structure is still abstract. In order to understand this deep structure, *phrase structure rules* and *lexicon* are needed. The process of describing deep structure usually involves symbols and needs *transformational rules* in order to obtain *surface structure*. In order to pronounce the surface structure *phonological components* are needed as an input for *phonetic representation*. Through this phonetic representation the idea of the speaker can be heard by the listeners. That is the process of encoding. The process of decoding will start from the phonetic representation up to the semantic representation. So analysing sentences just based on the surface structure like the one done by descriptivists is not adequate. Besides those terms Chomsky also proposed the concepts of *competence* and *performance*. Competence means what is understood by a native speaker and the hearer, whereas performance means the real speech made by the speaker in interacting with others (Wahab, 2000).

The following sections discuss the concept of government/ binding theory that includes the concepts of government, the pro-drop parameter, and the binding theory. The examples given are in Javanese, Indonesian, and English languages , that is, the languages that the writer is very much familiar with.
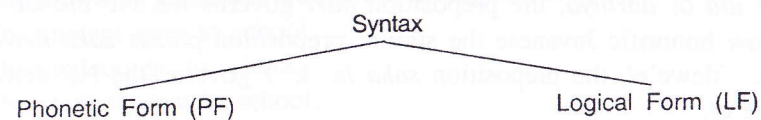
THE CONCEPT OF GOVERNMENT/BINDING THEORY

Historically, the term government/ binding theory originated from the *Syntactic Structures* model which was called after Chomsky (1957), which established the idea of generative grammar. Chomsky changed the model in 1965 which was called *Aspects of the Theory of Syntax*. This model was then called standard model which was distinctive for its separation of deep from surface structure. During the 1970-s the standard model developed to become *Extended Standard* Model . This was called so because the model just developed, extended, or refined the rules of the standard model. This model was then developed to become Government/Binding Theory.

The concept of government/binding theory began with "the insight that language is a relationship between sounds and meanings. Sounds are the physical forms of the speech, meaningless in themselves.... Meanings are the abstract mental representations, independent of the physical form" (Cook, 1988:28). If a person wants to describe a sentence, then the grammar of the sentence must show how the sentence is pronounced; so it needs a way of describing actual sounds, a phonetic representation. Besides that it also needs a way of representing meaning, a semantic representation. A syntactic structure is needed to connect them. This is called a syntactic level of representation. Syntactic structure is very important to mediate between physical form and abstract meaning. This statement can be drawn as follows.

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                      Syntax

phonetic representation          semantic representation
      'sounds'                         'meaning'
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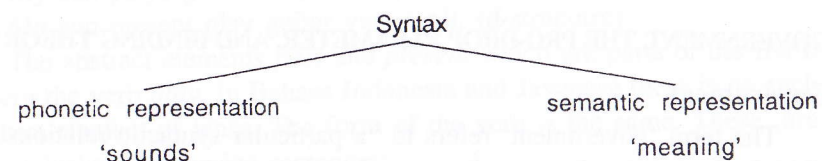
Government Binding forms a little bit different relationship between 'phonetic form' (PF), representing sounds and 'logical form' (LF), representing syntactic meaning, mediated through 'syntax'. The similar diagram can be shown as follows:

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                      Syntax

Phonetic Form (PF)                   Logical Form (LF)
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The syntactic level in Government Binding is then elaborated through the concept of movement, for example, the movement of the wh-word in question
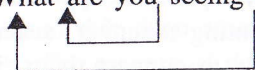
The hospital is where?

In order to form the correct sentence the word 'where' has to be moved to the front and the to be 'is' before 'the hospital'

Where is the hospital?

The Government Binding uses two levels of syntactic representation (1) the d-structure (deep structure), where all the elements in the

sentence are in their original location, and (2) the s-structure (surface structure), where some elements have been moved. The movement of some words from the original places to the ordinary places leave 'traces', symbolized as *t*. For example:

> You are seeing what at the cinema? (d-structure)
> What are you seeing at the cinema? (s-structure)
> What are you seeing at the cinema? (movement 'what' and 'are')
>
> What are you *t* seeing *t* at the cinema? (traces)

D-structure is related to s-structure by movement and then the s-structure is interpreted by both PF and LF components.

GOVERNMENT, THE PRO-DROP PARAMETER, AND BINDING THEORY

Government

The term 'government' refers to "a particular syntactic relationship of high abstraction between 'governor' and an element that it governs" (Cook, 1988:35). The examples given show the relationship between one element and the other.

In English the preposition phrase *from him*, the preposition *from* governs the NP *him*. In Bahasa Indonesia the similar preposition phrase *dari dia* or *darinya*, the preposition *dari* governs the NP *dia* or *-nya*. In low honorific Javanese the similar preposition phrase *saka deweke* / s k dewe'e/, the preposition *saka* /s k / governs the NP *deweke* / dewe'e/.

The government influences the form of the element governed. Therefore, the government ensures the *Case* of the element being governed. In the example *from him* above, the NP case *him* cannot be replaced by the other form like *he* or *his*. In Bahasa Indonesia and Javanese, fortunately that NP case has the same form for the other cases except for the case *-nya* .

The verb in English governs an NP that follows it. The sentence *Mr. Smith taught them,* the verb *taught* governs the NP *them*. Thus the case of the NP has that form, *them,* not *they, their,* etc. Similarly, in Bahasa Indonesia and Javanese the verb also governs the NP following it. The sentence *Pak Wahab mengajar saya.* The verb *mengajar* governs the

NP *saya*. In Javanese, similar government of verb on the NP that follows it also exists like in the sentence *Pak Wahab mulang aku.* The verb *mulang* governs the NP *aku.*

Tense (past and present) and number (singular and plural) are properties of the sentence that are not allocated to a single word but are spread across different locations. **Inflection (INFL)** represents these properties as a single abstract constituent that does not itself usually occur in the surface sentence or in the lexicon.

Let's take a look at the examples of past and present sentences below.
(1) My daughter played organ well. (s-structure).
(2) My daughter past play organ well (d-structure)
(3) My son plays guitar very well. (s-structure)
(4) My son present play guitar very well. (d-structure)

The abstract elements *past* and *present* which are parts of the INFL govern the verb *play*. In Bahasa Indonesia and Javanese there is no such abstract element of tense. The form of the verb is the same. These are the equivalent Indonesian sentences:
(1) Anak perempuan saya *bermain* organ dengan baik.
(2) Anak perempuan saya *bermain* organ dengan baik. (kemarin)
(3) Anak laki-laki saya *bermain* gitar sangat baik.
(4) Anak laki-laki saya *bermain* gitar sangat baik. (tiap saat)

The following examples are about the singular and plural sentences.
(1) The student goes to school.
(2) The students go to school.
(3) The student went to school.
(4) The students went to school.

In Government Binding the relationship between the subject and predicate of singular and plural is treated as an abstract feature called **agreement (AGR).** Both **tense** and **agreement** are part of the same abstract element **INFL (Inflection).** The examples above can be explained as follows:
(1) The student INFL (singular present AGR) go to school.
(2) The students INFL (plural present AGR) go to school.
(3) The student INFL (singular past) go to school.
(4) The students INFL (plural past) go to school.

In those four sentences the INFL whether singular or plural present AGR, or singular or plural past governs the verb *go*. In Bahasa Indonesia

and Javanese there is no such government of verb because the form of the verb *go* in Bahasa Indonesia is just one that is *pergi*. Thus, those four sentences in Bahasa Indonesia are as follows:

(1) & (3) Murid itu pergi ke sekolah.

(2) & (4) Murid-murid itu pergi ke sekolah.

Similarly in Javanese there is only one form of the verb *go* that is *lunga* /lu   /. So, the equivalent Javanese sentences are as follows:

(1) & (3) Murid iku lunga menyang sekolah.

(2) & (4) Murid-murid iku lunga menyang sekolah.

The Pro-drop Parameter

The pro-drop parameter which is sometimes called 'the null subject parameter' 'determines whether the subject of a clause can be suppressed' (Chomsky, 1988:64 in Cook, 1988). This pro-drop parameter deals with a language which has declarative

sentences without apparent subjects, which is known as null subject or subjectless sentences. English language is categorized as non-pro drop language because this language does not have null-subject declarative sentences. In English we can say 'He speaks fluently' but we cannot say just *Speaks. Some languages like Italian, Arabic, and Chinese are pro-drop languages. They have null-subjects for the declarative sentences. Bahasa Indonesia and Javanese are non-pro-drop languages. The following list is the examples of pro-drop and non-pro-drop languages mentioned above.

Differences between pro-drop and non-pro-drop languages

		Subject Verb	Null-subject
Italian	pro-drop	lui parla	parla
Arabic	pro-drop	huwa yatakalamu	yatakalamu
Chinese	pro-drop	ta shuo	shuo
English	non-pro-drop	he speaks	*speaks
Indonesian	non-pro-drop	dia bicara	*bicara
Javanese	non-pro-drop	deweke omong	*omong

(Cook, 1988:40) with some modification

The list above is just an exemplification of pro-drop and non-pro-drop languages. Government Binding treats languages which are categorized

as pro-drop languages as having an empty subject position. Actually the basic assumption is that all sentences have subjects but for pro-drop languages the subjects in the declarative sentences are or may not be 'visible'. Again in the Government Binding it is the INFL which is a proper governor . So for the Italian pro-drop sentence *parla* which means 'speak' can be analyzed 'pro INFL parla'; the Arabic *yatakalamu* 'pro INFL yatakalamu; and so on.

Binding Theory

"The theory of *binding* is concerned with the relations, if any, of anaphors and pronominals to their antecedents" (Chomsky, 1982a:6) in Cook, 1988:49. In relation to this theory there are three Binding Principles:

A: An anaphor is bound in a local domain.

B: A pronominal is free in a local domain.

C: A referring expression is free.

In order to discuss these principles thoroughly, let us try to start with the terms *an anaphor* and *a pronominal*. An anaphor is "a type of Noun Phrase which has no independent reference, but refers to some other sentence constituent (its antecedent). It includes reflexive pronouns like *myself*, reciprocal pronouns like *each other*, and NP-traces" (Crystal, 1991:18–19). In relation to Binding Theory an anaphor must be bound in its governing category. To check whether principle A applies, let us take the following examples:

(1) John bought his lunch himself.

(2) His father told John to have lunch himself.

In these two examples the anaphor *himself* refers to John because John and *himself* are both in the same domain (in the same clause).

In Bahasa Indonesia the equivalent sentences of the two sentences above are as follows:

(1) John membeli makan siang sendiri.

(2) Ayahnya menyuruh John makan siang sendiri.

The reflexive pronoun *sendiri* refers to the antecedent John because John belongs to the same domain with *sendiri*.

Similar sentences also exist in Javanese as follows:

(1) John tuku mangan awan dewe.

(2) Bapake akon John mangan awan dewe.

In Javanese the reflexive pronoun that is equals to *himself* in English and *sendiri* in Bahasa Indonesia is *dewe*. That reflexive pronoun *dewe* also refers to John in both sentences.

Based on the discussion above Principle A applies to English, Bahasa Indonesia, and Javanese.

To begin with the discussion of Principle B, read the definition of the term pronominal. "In government-binding theory, the term **pronominal** is used for a type of noun phrase (along with anaphors and r-expression) of particular importance as part of a theory of binding. Pronominals include the class of personal pronouns, and little and big pro. A pronominal NP must be free in its governing category" (Crystal, 1991:281).

To check whether Principle B applies to all languages, again let us take examples in English, Bahasa Indonesia, and Javanese.
(1) Her mother told Mary to pick her up.
(2) Mary spoke with her.

The pronominal *her* in both sentences refers to the antecedent belonging to the NP outside the local domain. In sentence (1) the pronominal *her* refers to 'her mother' not to 'Mary' because 'Mary' is in the same local domain with the pronominal 'her'. Likewise, the pronominal *her* in sentence (2) refers to someone else outside that sentence, not to 'Mary'.

In Bahasa Indonesia the pronominal *her* equals to *dia*. The whole two sentences are as follows:
(1) Ibunya menyuruh Mary untuk menjemput dia.
(2) Mary berbicara dengan dia.

In Javanese the two sentences become as follows:
(1) Ibune akon Mary metuk dewe'e.
(2) Mary omong karo dewe'e.

In both languages, Bahasa Indonesia and Javanese, the pronominal *dia* and *dewe'e* refers to 'Ibunya' and *Ibune* respectively for sentence (1) and refers to other person outside that sentence for sentence (2). Thus, Principle B applies to all three languages.

Principle C is not discussed .

CONCLUSION AND SUGGESTION

So far this paper has discussed Chomsky's Universal Grammar: A Case of Its Concepts of Government/Binding Theory which includes the

definition of grammar, universal grammar, the types of grammar, a brief review of the grammar approach related to the schools of linguistics, the concept of government/binding theory, the concepts of government, the pro-drop parameter, and binding theory related to English, Bahasa Indonesia, and Javanese to see the universality of Chomsky's Universal Grammar.

Based on the discussion of the government/binding theory especially the concept of government, the pro-drop parameter, and the binding theory above it can be concluded that in some cases language is universal but in some other cases every language is specific.
(1) In the concept of government there is no such abstract element of tense governing the verb in both Bahasa Indonesia and Javanese unlike English.
(2) In relation to the concept of pro-drop parameter, it applies to all languages in the sense that every language is either pro-drop or non-pro-drop language. English, Indonesian, and Javanese are all non-pro-drop languages. In government/binding theory the pro-drop languages which claim that the declarative sentences can be subjectless actually the sentences contain 'invisible' subject which can be formulated as '*pro* INFL verb'.
(3) In the binding theory, the discussion above proves that English, Bahasa Indonesia, and Javanese share the same features on Binding Principles A and B.

In relation to the schools of linguistics, eventhough Chomsky's ideas of universal

grammar has been critisized of only dealing with language systems which include phonetics, phonology, morphology, syntax, and semantics; excluding the other aspects of language like paralanguage (e.g. body movement, eye movement, quality of sounds), cultural world, and collective mind, studying universal grammar is still very much needed to broaden our knowledge and to learn the other aspects of language more easily.

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