

Syntactic Structure of Mental Down-Syndrome Children:

An X-Bar Theory Approach

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ABSTRACT

Dalam penelitian ini, penulis meneliti struktur konstituen dan kaidah struktur frasa dalam Bahasa Indonesia yang diucapkan oleh anak-anak penderita sindrom down. Penulis memilih anak-anak berumur 8 tahun sebagai subjek penelitian karena pada tahap ini anak-anak telah dapat berkomunikasi dan mengucapkan berbagai bentuk frasa. Penulis menggunakan teori X-bar untuk memformulasikan kaidah struktur frasa. Tujuan dari penelitian ini adalah untuk menjelaskan jenis-jenis frasa dan aturan struktur frasa yang muncul dalam ucapan anak-anak penderita sindrom down. Penulis menggunakan beberapa studi tentang sintaksis pada bahasa anak yang digunakan sebagai teori pendukung yaitu Galuh (2013), Weinzapfel (2014), dan Oliver (2012). Penelitian ini merupakan penelitian deskriptif dan menggunakan pendekatan kualitatif. Metode pengambilan sampel menggunakan “purposive sampling” dan metode simak libat cakap dengan teknik pancing sebagai teknik dasar. Hasil analisis menunjukkan frasa yang muncul dalam ujaran anak-anak sindrom “down” dapat diklasifikasikan kedalam lima struktur konstituen. Kategori-kategori ini meliputi frasa nomina, frasa verba, frasa sifat, frasa penentu, dan frasa inflektif.

1. INTRODUCTION

1.1 Background of Study

Down-syndrome is a set of physical and mental traits caused by a geneprobem that happens before birth. Children who have down-syndrome tend to have certain features, such as a flat face and a short neck. They also have some degree of intellectual disability. Surely, in that condition the ability of those children to acquire language can be hampered. Down-syndrome children are categorized in two classes which are C1 and C. Children with C1 category usually have intelligent quotient (IQ) 50-70 including the lightweight category, while medium category or C down-syndrome children have IQ between 25-50 (Roberts et.al, 2007). Children with mental down-syndrome have considerable difficulty with syntactic features. Normal children of eight years old commonly are able to arrange sentences. However, this is different with children from mental down-syndrome. The structure of language in terms of syntax has been found to play an important role in understanding how language is produced and comprehended during activities such as speaking. Based on the illustration above, the researcher wants to study about **Syntactic Structure of Mental Down-syndrome Children an X-bar Theory Approach.**

1.2 Scope and Research Problem

In order to make the analysis easier, the researchers limit the discussion only on sentence patterns uttered by mental down-syndrome. Therefore, the focuses of this research are as follows:

1. What kinds of phrase are found in mental down-syndrome children's utterances?
2. What is the syntactic structure of mental down-syndrome children's utterances within the x-bar theory?

1.3 Purpose and Significance

By answering the question of research question, the purposes of this research are:

1. To explain the kinds of phrases produced by children with mental down-syndrome, and
2. To describe the phrase structure rules of utterances produced by mental down-syndrome children.

The study is expected to give a model of syntactic patterns of the utterances produced by mental down-syndrome children. This model of analysis can help readers to use this paper to develop their research.

2. LITERARY REVIEW

2.1 Previous Study

There have been some studies on the syntax of children language. Galuh (2013) conducted research on syntax in Indonesian language produced by pre-school children. In this research she found 453 utterances produced by pre-school children that can be classified into seven categories of constituent structure. These categories are noun phrase, verb phrase, adjective phrase, adverbial phrase, prepositional phrase, determiner phrase, and inflectional phrase. Of the seven categories, the most frequently used category by pre-school children is the noun phrase.

The second study on the syntax was conducted by Weinzapfel (2014). This paper has examined whether syntax continues to develop for early adolescents and adults with down-syndrome. It has also discussed internal and external factors affecting syntactic development. Another study was conducted by Oliver (2012). This research explained how down-syndrome significantly affects children language development.

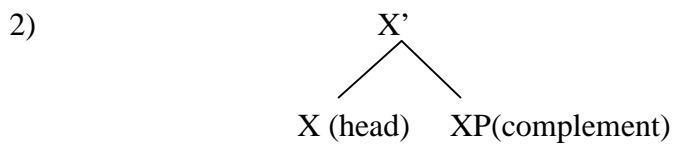
2.2 X-Bar Theory

X-bar theory is theory about the internal structure of syntactic constituents which was originally intended as a benchmark to place constraints on the power of phrase structure rules. X-bar theory revealed that all phrases share some essential structural properties. The theory claims there to be at most three different

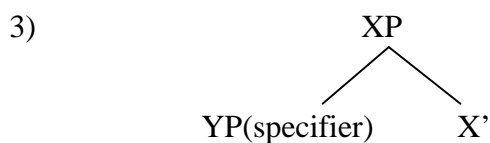
rules which determine the nature of all structures in a language. These can be stated as follows:

- 1) a. $X' \rightarrow X YP$
b. $XP \rightarrow YP X'$
c. $X^1 \rightarrow X^1, ZP$

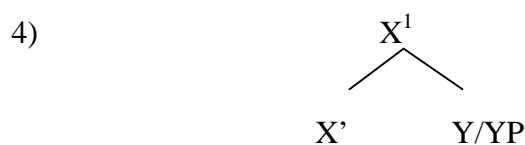
The use of category variables, X and Y usually stand for any possible category (nouns, verbs, prepositions, determiners, etc). Then, these rules tell us how phrases in general are structured. The first rule (1a) is called the complement rule, as it introduces the structural position for the complement.



There are two immediate constituents of the X' (pronounced "X-bar"), X as the head of the phrase and YP as the complement. The complement always appears either precedes or follows the head. However, the head will always be the central element of the phrase and is a word of the same category as the X'. The second rule (1b) is called the specifier rule, as it introduces the YP of this rule. The structure it defines can be seen below:



There are two immediate constituents of the phrase. The specifier that can be any category precedes the X', the constituent just discussed containing the head and the complement. (Newson, et al, 2006: 88) The last rule (1c) is called adjunction rule, as it introduces a position of adjunct in a phrase. When it comes to adjunct, there are two things to be noted. First, adjunct is conditional, it can precede or follow the head depending on other condition. Second, adjunct can be indefinite. It is because an element of type Xⁿ can be made up of two elements, that one of which is an adjunct and the other is another Xⁿ that can also contain another Xⁿ and so on. The structure it defines can be seen below:



2.3 Noun Phrase

Noun phrase is a phrase which has a noun (or indefinite pronoun) as its head word, or which performs the same grammatical function as such a phrase. Noun phrases are very common cross-linguistically, and they may be the most frequently occurring phrase type. Noun phrases often function as verb subjects and objects, as predicative expressions, and as the complements of prepositions.

2.4 Verb phrase

Verb phrase (VP) is a syntactic unit composed of at least one verb or a verb and dependent objects, complements and other modifiers. A verb phrase can

be added with specifier, complement, or adjunct. The verb phrase can be also considered as the predicate. Furthermore, it can be also constructed by various combinations (including main verb, auxiliary verb, complement, specifier, and adjunct), for example “**walk our dog every morning**”. It contains “walk” as the verb, our dog as a noun phrase and every morning as an adverbial phrase.

2.5 Determiner phrase

Determiner phrase is a phrase headed by a determiner. For example, the phrase *a little dog*, *a* is a determiner and *little dog* is a noun phrase. The two combine to form a phrase, and on the DP-analysis, the determiner *a* is head over the noun phrase *little dog*.

2.6 Adjective Phrase

An adjective phrase refers to a phrase that modifies a noun. It is built upon an adjective which functions as the headword of the phrase. For example, “**A very interesting book**”, “**very interesting**” is the adjective phrase of the clause.

2.7 Inflectional Phrase

Inflectional phrase is a functional phrase that has inflectional properties (such as tense and agreement). An inflectional phrase is essentially the same as a sentence, but reflects an analysis whereby a sentence can be treated as having a head, complement and specifier like other kinds of phrases. Therefore, in the X-bar theory, a sentence has IP.

3. RESEARCH METHOD

a. Type of Research

This research is descriptive qualitative research. It explains that this research is a research that produces analytical procedures that do not use the procedure of statistical analysis. This method is intended to describe the quality of the research based on the problems studied.

b. Type of Data

The main data in this study are the utterances produced by mental down-syndrome children at SekolahLuarBiasa (SLB) C Swadaya Semarang. The type of data is spoken data from the students at SLBC Swadaya Semarang mostly in Bahasa Indonesia.

c. Population, Sample, and Sampling Technique

The research population in this paper is all utterances from students at SLBC Swadaya Semarang. The samples of the data are the utterances produced by two elementary students which suffer from mental down-syndrome. The researcher used purposivesampling technique. The informant is children of 8 year old who suffer from down-syndrome.

d. Method of Collecting Data

To collect the data, the researcher used participant observation and interview methods with note taking technique. In order to get the data, the researcher used participatory observation and conversation method. The technique

of elicitation or *teknikpancing* as basic technique and continuation technique by face to face interview was used in this study. The technique of elicitation as one of the conversation method techniques was used in order to make the data easier to analyze. While researcher conducted a conversation, she noted the children's utterances. To make the respondents catch what the writer meant, the researcher used triggered question before asking main questions and used some pictures or pointing in some objects to help the respondents understand. After that, the writer collected the utterances and categorized them in various forms of the phrase.

e. Method and Step of Analyzing Data

The researcher used distributional method or *MetodeAgih* to analyze the data, because the determinant device of this study is the inside parts of the language (Sudaryanto, 1993:15-17). After completing the data, the researcher sorted the utterances produced by mental down-syndrome children then the researcher described the categories and the phrase structure rules of the utterances.

f. Method of Presenting Data Analysis

When the data had been collected, classified, and analyzed, the writer continued the process of the research by presenting the result of analyzed data. The result of data analysis can be presented both in formal and informal method. The researcher presents the result of the data analysis using informal method. As the researcher used, the result or the analysis is conversation or sentences that uttered by the participants.

4. RESULT AND DISCUSSION

4.1 Kinds of Phrases Found in Mental Down-syndrome Children's

Utterances

The researcher found five categories of phrases consisting of Noun phrase (NP), Verb phrase (VP), Determiner phrase (DP), Adjective phrase (AdjP), and Inflectional phrase (IP) that produced by mental down-syndrome children. There are also variations which appear in every category found by the researcher.

4.1.1 Verb Phrase

In the phrase structure rule VP is a phrase headed by a verb. VP may be constructed from a single verb or combinations of the main verb plus optional complements or adjuncts. (Subiyanto, 2013: 184). This also appears in the utterances children with mental down-syndrome. The researcher found two categories of verb phrase in mental down-syndrome utterances, which are categorized into active and passive construction.

4.1.1.1 Active Construction of Mental Down-syndrome Children Utterances

In an active construction, the thing doing the action is the subject of the sentence and the thing receiving the action is the object.

- a. *[Aku] menyapu* \longrightarrow V' ---V
[I] swept
- c. *Bantu ibu* \longrightarrow V' NP
Helping mother

- d. *Buang sampah* → V' NP
 Throwing rubbish
- e. *[Aku] mintapenghapus* → V' NP
 [I] asking for an eraser

There are many variations of verb phrase that appear in mental down-syndrome children utterances. As can be seen in the clause (a) the VP only consists of verb *menyapu*. While, in the phrase (c), (d) and (e) the VP consists of V and NP. The function of NP is modifies the verb (V) *bantu*, *buang*, and *mint*. The researcher concluded that variations of mental down-syndrome children's utterances which often appear are V and NP.

4.1.1.2 Passive Construction in Mental Down-syndrome Children Utterances

Children with mental down-syndrome can arrange passive construction. In Bahasa Indonesia, passive voice tends to be easy to detect. In the active sentence, the subject is doing the action. Meanwhile, in the passive sentence, the target of the action gets promoted to the subject position. The following sentences are the example of passive form produced by children with mental down-syndrome.

f. *[Aku] dijemputayang* [passive]

[I] will be picked by Grandma.

g. *[Aku] dipukulRangga* [passive]

[I] was hit by Rangga

h. *Mejadidorong Mala* [passive]

The table was pushed by Mala

In example (f,g,h) are utterances produced by the eight years old mental down-syndrome children. Those children have been able to talk in passive voice and they often omit the correct word in the sentences. From the example (f and g)

Dijemputeyang → *Eyangas* the object

Dijemput as the action

DipukulRangga → *Dipukul* as the action

Rangga as the object

In this clause, the speaker omitted the passive agent. Because the words *dipukul* and *jemput* need two arguments and sentence would be appropriate if the speaker add the passive agent. The different variation can be shown in the example (i)

Mejadidorong Mala → *Meja* as the subject

Didorong as the action

Mala as the agent

The utterance *Mala* is the agent of the sentence with predicate *didorong* and the utterance *meja* as the object. In the passive voice, the subject is a patient and the object is an agent.

4.1.2 Noun Phrase

There are some variations of noun phrase that appear in mental down-syndrome children's utterances which found by the researcher.

i. *Sarungbapak* → N' NP

Daddy's sarong

j. *Pensil Mala* → N' NP

Mala's pencil

k. Jam kakak \longrightarrow N' NP

Your watch

l. BukuRangga \longrightarrow N' NP

Rangga's book

m. TasRangga \longrightarrow N' NP

Rangga's bag

The phrases above can be shown that those phrases have a grammatical meaning as possession, for example (i) the word *sarung* is noun and *bapak* is also noun. *Sarung bapak* is a form of noun phrase that has grammatical meaning as possession. Those are have same as the structure in phrase (j,k,l,m). Thus, variation that often appears in the noun phrase is N + NP.

4.1.3 Determiner Phrase

There are also some variations of determiner phrase that appear in mental down-syndrome children's utterances which found by the researcher.

n. Bapaknya [Rangga] \longrightarrow D'

Rangga's father

o. BukunyaRangga \longrightarrow D' NP

Rangga's book

DP can also be modified by specifier. The specifier of the DP is the possessor. Possessors are marked by the element *-nya*, as can be seen in the clause (n,o). Possessors can also be formed by pronouns. Pronouns sit in the same position,

specifier of the DP. The variation that often appears in the determiner phrase (DP) is D + NP

4.1.4 Adjective Phrase

An adjective phrase (or adjectival phrase) is a phrase whose head word is an adjective. There are also some variations of adjective phrase that appear in mental down-syndrome children's utterances which found by the researcher.

AdjP → Adj'

Adj' → Adj' AdvP

q. Sakitbanget → Adj' AdvP

Very sick

r. Nakalsekali → Adj' AdvP

Very naughty

As can be seen in (q and r), AdjP is formed by Adj'. Then, Adj' is formed by Adj and optional AdvP. AdvP*banget* in the clause (q) is the specifier of the head *sakit* and the same structure in example (r) the word *sekali* the specifier of the head *nakal*. The researcher concludes that the variation which often appears is Adj + AdvP.

4.1.5 Inflectional Phrase

Inflectional phrase is inflectional properties that have tense and agreement. An inflectional phrase is essentially the same as a sentence, but reflects an analysis whereby a sentence can be treated as having a head, complement and specifierlike

other kinds of phrases. There are also some variations of adjective phrase that appear in mental down-syndrome children's utterances which are found by the researcher.

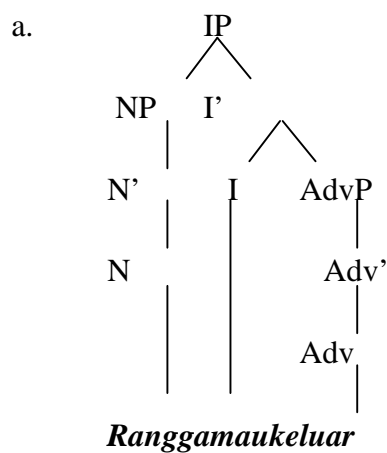
v. <i>Ranggamaukeluar</i>	→	NP' I AdvP
Rangga wants out		
s. <i>Ranggasudahmakan</i>	→	NP' → I'
Rangga has already eaten		I' → I VP
t. <i>Ranggabisanyanyi</i>	→	NP' → I'
Rangga can sing		I' → I VP
u. <i>Tangansakit</i>	→	NP' I AdvP
Sick arm		
v. <i>Tangandipukul</i>	→	NP' → I'
The arms was beaten		I → I VP

An Inflectional phrase is essentially the same as a sentence, but reflects an analysis whereby a sentence can be treated as having a head, complement and specifier, like other kinds of phrase. From an X-bar point of view, the inflection is a head that takes a V/VP as its complement. In Bahasa Indonesia uttered by children with mental down-syndrome, there are some tense markers such as *mau*, aspectuality markers such as *sudah* and *lagi* and also modal such as *bisa* were found. The researcher concludes that the variation which often appears is I + VP.

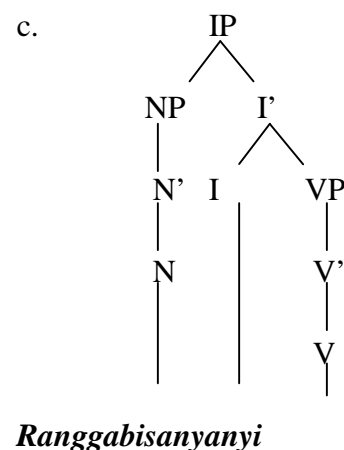
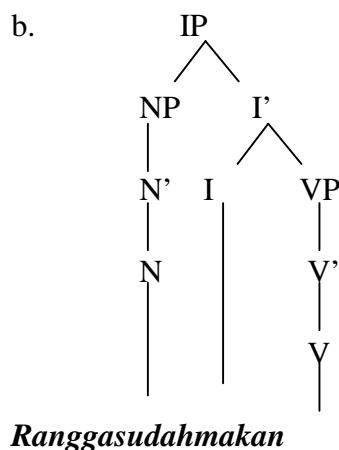
4.2 Syntactic Structure Representation of Mental Down-syndrome Children

The sentence analysis model discussed here is based in part on the *X-bar theory* of sentence structure. Here, the researcher will represent the variation and utterances of mental down-syndrome children by using syntactic structure.

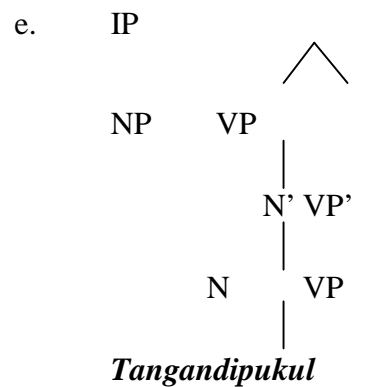
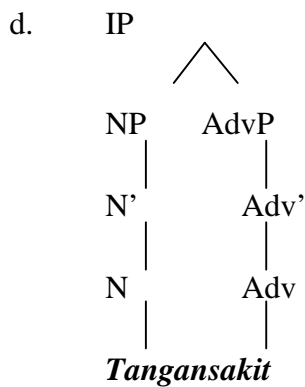
4.2.1 Inflectional Phrases



The NP is in the same node as I' and under the node of IP. Therefore, the NP *Ranggain* the phrase structure tree above is the specifier of the utterance *maukeluar*. The Adverbial Phrase (AdvP) is in the same node as I under the node of I.

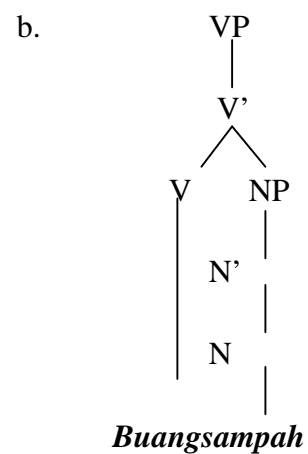
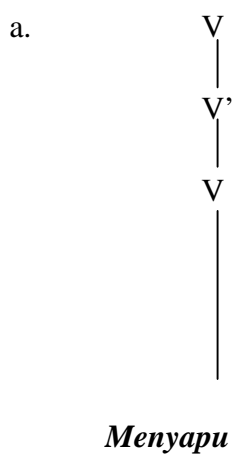


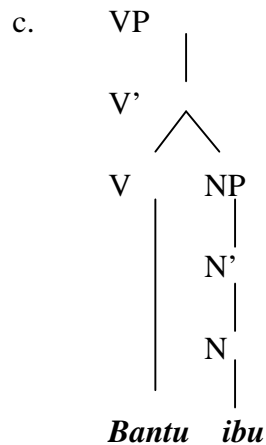
The NP is in the same node as I' and under the node of IP. Therefore, the NP *Ranggain* the phrase structure tree above is the specifier of the utterances *sudah makan* and *bisanyanyi*. The position of VP in the phrase structure tree above is same as I under the node of I'.



In the phrase structure above, NP and VP are under node I'. *Tanganis* the head of the phrase and the words *sakit*(d) stands as the complement of the phrase. It is also same as structure in the phrase (e) *Tangan* stands as the head of the phrase while *dipukul* is the complement.

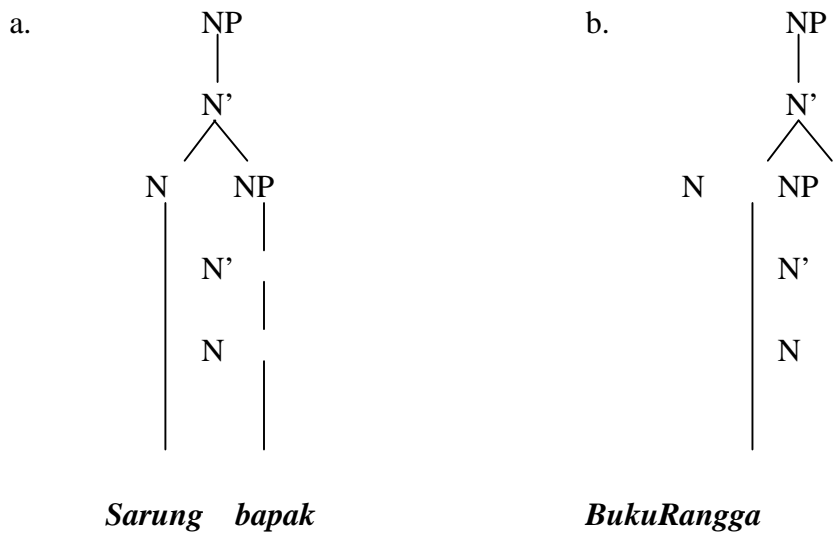
4.2.2 Verb Phrase





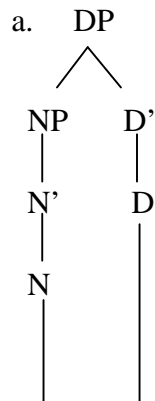
The words *menyapu* consist of verb only. The NP *sampah* phrase structure tree above is the complement of the head V *membuang*. It is also same as in the structure in the verb phrase, *Bantu* as the head of the complement *ibu*.

4.2.3 Noun Phrase

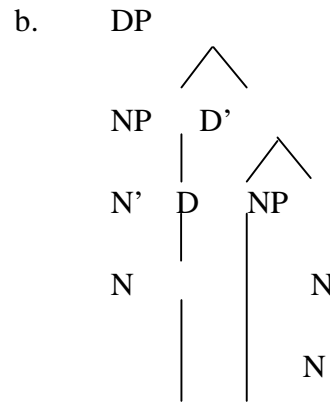


The word *sarung* is noun and *Bapak* is also noun. *SarungBapak* is a form of noun phrase that has grammatical meaning as possession. In the example (b), the word *Buku* is considered as the head of the phrase and *Rangga* as the adjunct of the phrase. The NP is in the same node as N and under the node of N'.

4.2.4 Determiner Phrase



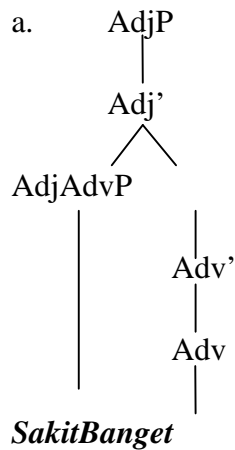
Bapaknya



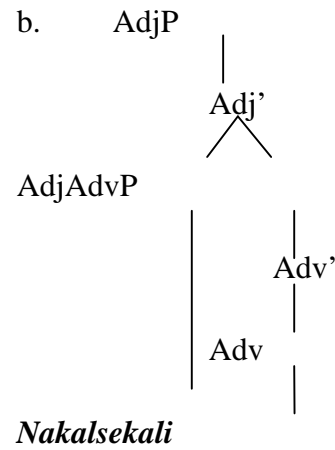
BukunyaRangga

In expressing possessions, the children also often used the word *-nya*. While, the phrase *BukunyaRangga*(b), DP is in the same position as D' under the node DP. Pronouns sit in the same position, specifier of the DP.

4.2.5 Adjective Phrase



SakitBanget



Nakalsekali

In general, adjective phrases produced by mental down-syndrome children are formed by adjective followed by post-modifier adverb. As can be seen in the explanation above, AP has a function as attribute (modifier) that is appearing after the noun. It can be proven that there are AdvP in bahasa Indonesia produced by

mental down-syndrome children. APs can be formed by A only or A plus Adv.

The position Adj is in the same position as AdvP under the node Adj'.

5. CONCLUSION

After analyzing the data, utterances produced by mental down-syndrome children can be classified into five categories of constituent structure. The categories are 1) noun phrase, 2) verb phrase, 3) adjective phrase, 4) determiner phrase, and 5) inflectional phrase.

In X-bar theory NP can be formed by N only, N+A or AP, and N+N; VPs can be formed by V only or V plus Complement or Adjunct; Complements or adjuncts can be parts of VP are NP; DP, AdvP, and PP. AdjPs can be formed by A only or A plus Adv; AdvP may be accompanied by modifiers; an adverb appear in the phrase can modify a verb and an adjective, DPs are formed by D, NP and D, or D and NP and inflectional elements take verbal complements on the observation that they are followed by a VP and AdvP.

According to Galuh (2014) normal children at age three years they begin to arrange phrases. She found seven categories of phrases. Meanwhile, in this study the researcher only found five categories of phrases produced by eight years old mental down-syndrome children. It can be concluded that down-syndrome delays in producing the utterance, children eight years old with mental down-syndrome have produce same structure of phrases with normal children aged three years.

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