CHAPTER 2

LITERATURE REVIEW

This literature review brings concepts of the term of syntactic knowledge, grammaticality, phrase structure rules, structural ambiguity, and how to measure syntactic knowledge.

2.1   Syntactic Knowledge

The term 'syntax' is derived from the Greek words *syn* means together and *tassein* means arrange. O'Grady (1996) said syntax is arranging words into phrases or clauses and phrases or clauses into sentences to form various types of sentences. Similar to O'Grady, Brinton (2000) stated that syntax is the study of the sequences of words which form the structures of sentences. Fromkin et al., (2003) added that syntax is "the part of the grammar that represents a speaker's knowledge of the structures to construct phrases and sentences out of morphemes and words".

From some definitions above, it can be concluded that syntax is the arrangement and relationship among words, phrases, and clauses forming sentences or larger constructions based on grammatical rules. It treats the relation of words or group of words to one another in sentences. And syntax also refers to the rules and principles of sentence structure. In short, syntax is the study of sentence formation.

Syntactic knowledge is the knowledge of someone's understanding of the rules of sentence formation. Fromkin and Rodman (1998) said that syntactic knowledge is "the knowledge of sentences and their structures". It includes speakers experienced with the grammar of language and speakers knowledge of the structure of phrases and sentences. Syntactic knowledge covers among others grammaticality, syntactic category, phrase structure rules, structural ambiguity, constituent structure, transformational rules, structure dependent rules, and syntactic dependencies (Fromkin et al., 2003).

The researcher uses and focuses on grammaticality, phrase structure rules, and structural ambiguity for this study. According to Fromkin et al., (2003) speakers who have syntactic knowledge are capable to make grammaticality judgments to judge whether the sentence is grammatical or not, to determine the order of words in a sentence, to identify ambiguity or double meaning, and to produce different structures with the same meanings or the same structures with different meanings. Syntactic knowledge also enables speakers to determine the grammatical relation in a sentence, such as subject, predicate and object and how they are to be understood.

2.2   Grammaticality

One particular aspect of knowledge about language is knowledge about the grammar of sentence construction. Richards et al (1985 cited in Nunan, 2001:35) defined grammar is "a description of the structure of a language and the way in which linguistic units such as words and phrases are combined to produce sentences in the language". Crystal (1992 cited in Nunan, 2001:35) defined grammatical is "sequences of words that conform to the rules of a language". In short, grammar is the rules that describe the structure of language. This includes the structure of words, phrases, clauses, and sentences.

Nunan (2001:36) defined grammaticality as "the conformity of a sentence or part of a sentence to the rules defined by a particular grammar of the language". Fromkin et al (2003:119) added that grammaticality is description of a well-formed sequence of words, one conforming to the rules of syntax. Grammaticality and sense or meaning can be independent of one another. They also asserted that grammaticality knowledge is unconscious knowledge that permits someone to make grammaticality judgment in sentences. The term unconscious knowledge is the knowledge of a language represented by mental grammar that accounts for speakers' linguistic ability and creativity.

Grammaticality does not depend on whether the sentence is meaningful or not; *e.g a verb crumpled the milk*, does not depend on the truth of the sentence; *e.g pregnant men are happy*, and does not depend on having heard the sentence before; *e.g enormous crickets in pink socks danced at the prom,* but it depends on

the sequence of words that conform to the rules of syntax. The examples above are taken from Fromkin et al (2003:120).

Fromkin et al., (2003:119) added that sequences of words that conform to the rules of syntax are well formed or grammatical sentence, and those that violate the syntactic rules are ill formed or ungrammatical sentence. Nearly the same, Larson (2010) stated that sentences generated by the rules will be judged by the person to be well-formed. Sentences not generated by the rules will be judged by the person to be ill-formed.

Sentence is considered as the part of syntactic category which has hierarchical structure. Hierarchical structure is the grouping and subgrouping of the parts of a sentence into syntactic categories. In the rules of syntax, sentence of English is always subdivided into a noun phrase (NP) with a verb phrase (VP) (Bornstein, 1997; Brinton, 2000; Fromkin et al., 2003). There are some examples below to get clearer comprehension about strings of words as grammatical and ungrammatical

'*The dog bit the child*'

'*The dog bit the child*' may be grouped *the dog* (NP) and *bit the child* (VP). A further division gives (*the dog*) ((*bit*) (*the child*)) and finally the individually words: ((*the*) (*dog*)) (((*bit*) ((*the*) (*child*))). The sentence contains subject, predicate, and object. The subject is *the dog* which accomplishes the action of the verb (*bit*). The verb used is transitive (V_t) so that need an object or noun phrase (*the child*) (Eastwood, 2002). The sentence is grammatical because it conforms to the rules of syntax.

'*The dog barked'*

This sentence contains an action (*barked*) and somebody doing the action (*the dog*). Moreover, the verb used is intransitive (V_i) so that it does not need an object (Eastwood, 2002). '*The dog barked'* it may be grouped *the dog* (NP) and *barked* (VP). A further division gives (*the dog*) (*barked*) and finally the individually words: ((*the*) (*dog*)) (*barked*). The sentence is also grammatical.

'*The woman gave me the report'*

It is also grammatical because it conforms to the rules of syntax. *The woman gave me the report* it may be grouped *the woman* (NP) and *gave me the report* (VP). A further division gives (*the woman*) ((*gave*) (*me*) (*the report*)) and finally the individually words: ((*the*) (*woman*)) (((*gave*) ((*me*) ((*the*) (*report*))). The verb used is ditransitive verb (V_{dt}) so that need two noun phrases as its object (Eastwood, 2002). The word '*me*' is the indirect object because it explains to whom the report was given and 'the report' is the direct object that was given.

'*The man'*

It is an ungrammatical sentence of English because the sentence does not have a verb phrase. It does not conform to the rules of syntax or violate the syntactic rules.

'*John smacked*'

This example is also ungrammatical because there is no object such as *John smacked* <u>Mary on the porch</u>, *John smacked* <u>her hand down on to the table</u>. The verb (*smacked*) used is transitive verb (V_t) so that need an object or noun phrase.

2.3   Phrase Structure Rules

Radford (1997) stated that phrase is "a grammatical unit, intermediate between a word and a clause, which may consist of just one word (its head) or its head and expressions (including other phrases) that modify or complement it". It does not have a subject or a verb, so it cannot stand alone as independent unit.

A phrase or a sentence is always made from the words arranged by a particular rule is called phrase structure rules (O'Grady, 1996). The templates of phrase structure are specifier, head, and complement. Phrase structure rules make explicit speakers knowledge of the order of words, the grouping of words into syntactic categories, and the hierarchical structure of the syntactic categories. The phrase structure rules of a grammar determine which categories go into a phrase, how these categories are ordered, which element is the head of the phrase (Fromkin et al., 2003:128).

Fromkin and Rodman (1998) said that in phrase structure rules, a category that appears on the left side of a rule may also occur on the right side is called phrasal category. While, a category that appears on the right side of a rule and never occur on the left side is called lexical category. Fromkin et al., (2003) defined phrasal category is "a set of constituents that behave the same, or share the same functions and distribution". A phrasal category should consist of two or more words that form a phrase. It includes noun phrase, verb phrase, prepositional phrase, adjective phrase, and adverbial phrase. While, lexical category is classes of words grouped together based on their morphological and syntactic properties,

traditionally known as parts of speech. It includes determiner, noun, verb, preposition, pronoun, adjective, adverb, and auxiliary verb.

2.3.1 Noun phrase (NP)

According to Fromkin and Rodman (1998), a noun phrase is a phrase which has a noun as its head word. Noun phrase contain some form of a noun (common nouns like *girl*, plural noun like *books,* proper noun like *Felice,* or pronoun like *she*). Brinton (2000) stated that a noun phrase may function as subject and object in a sentence and only noun phrase may do so. It can be used as the subject of the sentence, as in ***some children*** *like ice cream*; as the direct object, as in *Daniel likes **some children***; as the indirect object, as in *The teacher gives **some children** a homework.*

Fromkin et al., (2003:138) asserted that determiner (det) + noun (n) sequence would have been analyzed as a noun phrase. For example *a pity* which comprises a determiner *a*, a noun *pity.* Plural noun (N_{pl}), proper noun (N_{pr}), and pronouns (PRO) can be used individually as noun phrase. In phrase structure rule it can be stated as in: NP → Det N; NP → PRO; NP → N_{pr}; NP → N_{pl} .
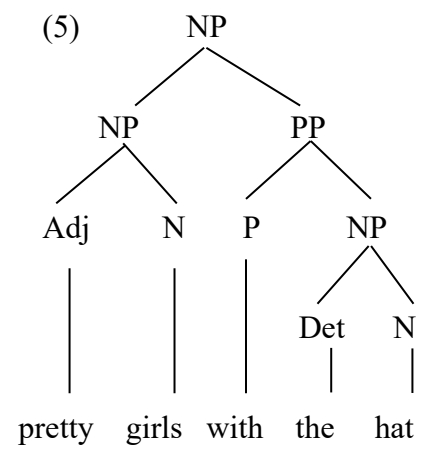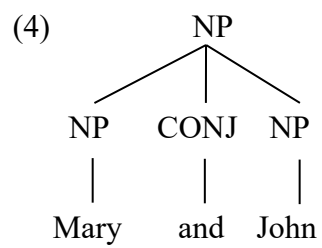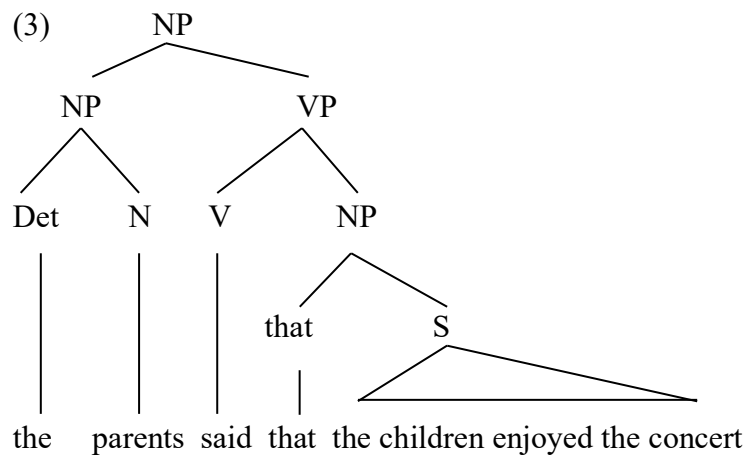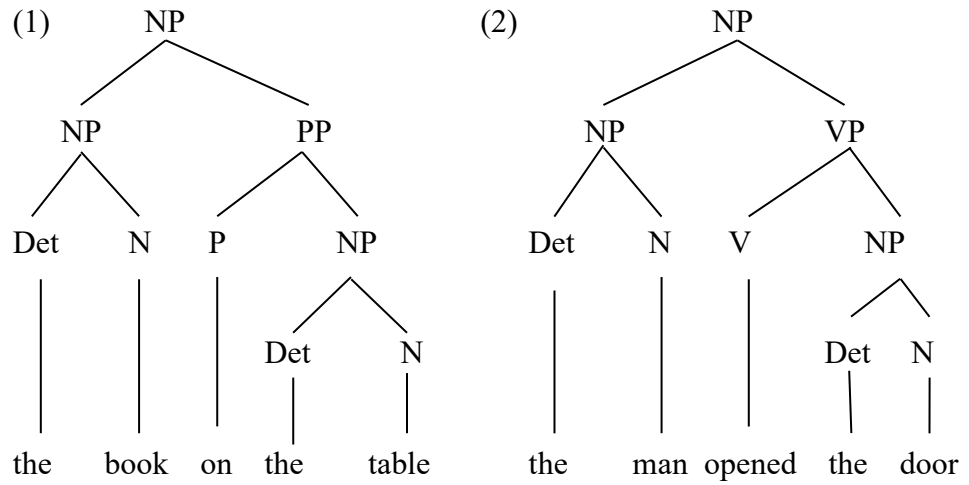
Other rules of noun phrase:

(1) NP → NP PP;   (2) NP → NP VP;   (3) NP→ that S;

(4) NP → NP CONJ NP;   (5) NP → (Det) (Adj) N (PP)

[Note: (S) for sentence, (CONJ) for conjunction, (Adj) for adjective, (PP) for prepositional phrase, (VP) for verb phrase]

The trees:

(1)

```
                    NP
          ┌──────────┴──────────┐
         NP                     PP
       ┌──┴──┐              ┌────┴────┐
      Det    N             P          NP
       │     │             │       ┌──┴──┐
       │     │             │      Det    N
       │     │             │       │     │
      the   book          on      the   table
```

(2)

```
                    NP
          ┌──────────┴──────────┐
         NP                     VP
       ┌──┴──┐              ┌────┴────┐
      Det    N             V          NP
       │     │             │       ┌──┴──┐
       │     │             │      Det    N
       │     │             │       │     │
      the   man         opened    the   door
```

(3)

```
                 NP
        ┌─────────┴─────────┐
       NP                   VP
     ┌──┴──┐           ┌─────┴─────┐
    Det    N          V            NP
     │     │          │        ┌───┴────┐
     │     │          │      that        S
     │     │          │        │         │
    the  parents    said     that  the children enjoyed the concert
```

(4)

```
            NP
     ┌──────┼──────┐
    NP    CONJ    NP
     │      │      │
   Mary    and   John
```

(5)

```
                 NP
        ┌─────────┴─────────┐
       NP                   PP
     ┌──┴──┐            ┌────┴────┐
    Adj    N           P          NP
     │     │           │       ┌──┴──┐
     │     │           │      Det    N
     │     │           │       │     │
   pretty girls      with     the   hat
```

2.3.2   Verb phrase (VP)

Fromkin et al., (2003:139) assert that verb phase is "a phrase which is headed by a verb". Verb phrase has an ordinary verb (*come, thought, left, climbing*) and may also have an auxiliary (*had, was, will*).
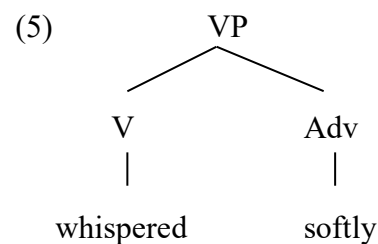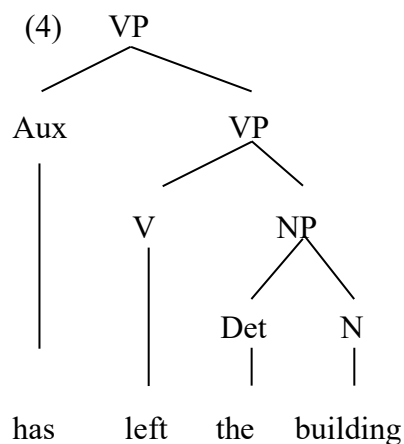
Verb phrase always contain a Verb (V), which may be followed by other categories, such as a Noun Phrase (NP) or Prepositional phrase (PP). In phrase structure rule that makes this explicit can be stated as:
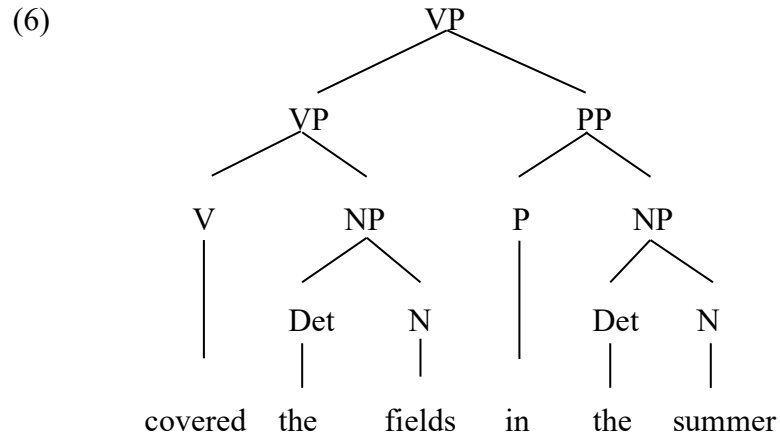
VP → V NP, VP → V (NP) (PP). This rule conveys two facts: (a) a Verb Phrase can be a verb followed by a Noun Phrase, (b) a Verb Phrase can also be a verb followed by a Noun Phrase followed by a Prepositional Phrase (Fromkin and Rodman, 1997).

Other rules of verb phrase:

(1)VP → V_i; (2) VP → V_t NP; (3) VP → V_{dt} NP NP;

(4) VP → Aux VP; (5) VP → V Adv; (6) VP → VP PP

The trees:

(4)   VP
Aux   VP
            V   NP
                 Det   N
has   left   the   building

(5)   VP
V   Adv
whispered   softly

(6)

```
                              VP
                    ┌─────────┴─────────┐
                   VP                   PP
              ┌─────┴─────┐         ┌────┴────┐
              V           NP        P         NP
              │        ┌──┴──┐      │      ┌───┴───┐
              │       Det    N      │     Det      N
              │        │     │      │      │       │
           covered    the  fields   in    the    summer
```
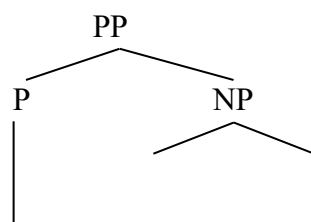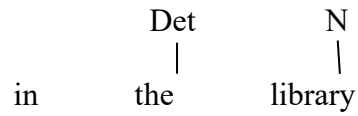
2.3.3   Prepositional phrase (PP)

According to Radford (1997) defined Prepositional phrase as "a phrase whose head is a preposition (e.g. *in town, on Sunday to the market, for someone else, etc*)". Fromkin et al., (2003) added that prepositional phrase will begin with a preposition and end with a noun, pronoun, gerund, or clause, the "object" of the preposition. It functions as adjective or adverb. A prepositional phrase is shown to consist of a preposition (P) followed by a noun phrase. In short, prepositional phrase consists of a head preposition and an object or complement, which is typically a NP. In phrase structure rule that makes this explicit can be stated as:

PP → P NP;   PP → P

The trees:

```
              PP
          ┌───┴───┐
          P       NP
          │      ┌─┴──┐
          │
```

```
                Det           N
                 |            |
        in      the        library
```
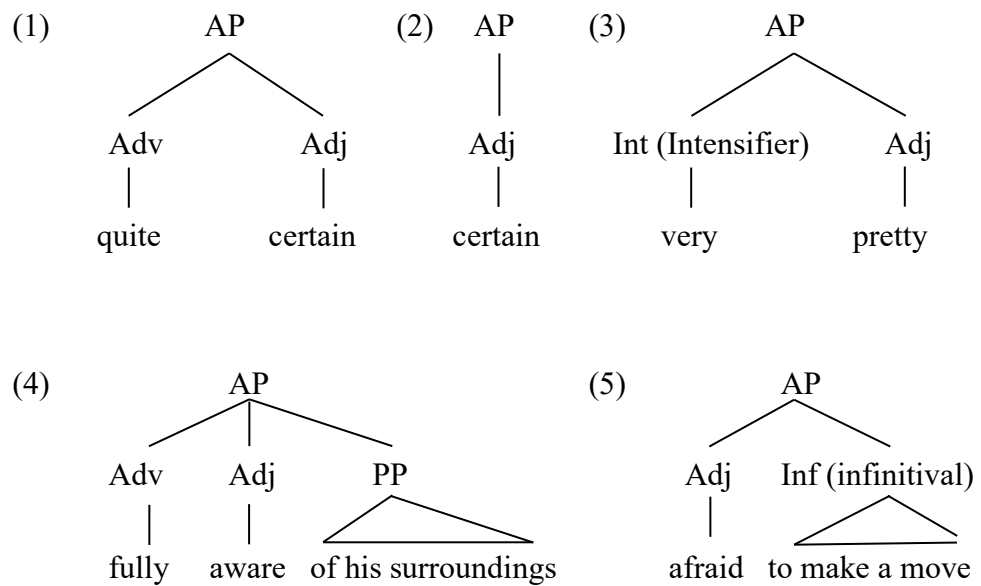
2.3.4 Adjective phrase (AP)

Radford (1997) stated that adjective phrase with an adjective as its head stated, for instance such as *beautiful hair*, *with green dress*. In phrase structure rule that makes this explicit can be stated as:

(1) AP → Adv Adj ; (2) AP → Adj; (3) AP → Int Adj

(4) AP → Adv Adj PP;   (5) AP → Adj Inf

The trees:

```
(1)              AP            (2)   AP     (3)              AP
                / \                  |                     /  \
              Adv   Adj             Adj            Int (Intensifier)  Adj
               |     |              |                   |             |
             quite  certain        certain            very         pretty
```

```
(4)            AP                  (5)            AP
             / | \                              /    \
          Adv Adj  PP                         Adj   Inf (infinitival)
           |   |   /\                          |       /\
         fully aware of his surroundings     afraid  to make a move
```

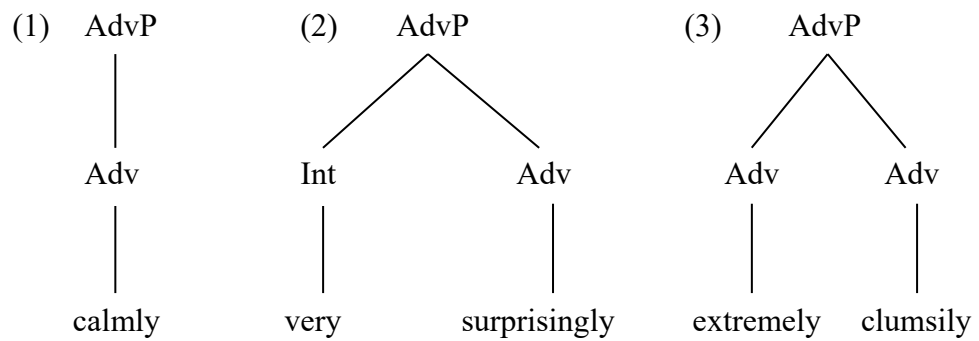The trees above can be stated as: AP→ [(Int/Adv)] Adj [(PP/Inf)]. An adjective phrase consists of an optional intensifier or adverb, an adjective, and an optional prepositional phrase (PP) or infinitival.

2.3.5 Adverbial phrase (AdvP)

Radford (1997) said that adverbial phrase is the term for two or more words which play the role of an adverb. Adverbial phrase is a phrase whose head is an adverb. When used to modify a verb, an adverb will usually describe *when (time), where (place), or how (manner)* something happens. Phrase structure rule that makes this explicit can be stated as:

(1) AdvP → Adv;   (2) AdvP → Int Adv;   (3) AdvP → Adv Adv

The trees:

(1) AdvP	(2) AdvP	(3) AdvP
Adv	Int Adv	Adv Adv
calmly	very surprisingly	extremely clumsily

2.4   Structural Ambiguity

Structural ambiguity is referred to as syntactic ambiguity or grammatical ambiguity. It deals not only sentences but also with phrases since phrases are the constituents of a sentence (Fromkin et al., 2003:122). They also added that structural ambiguity occurs when a phrase, clause or sentence can be represented in more than one structurally different ways.

Ambiguity means words or sentences having more than one meaning or interpretation (Fromkin and Rodman, 1998). For example, '*Maria gave her own jacket*', one may interpret it as 'Maria gave her own jacket (to an unspecified person)'. Another interpretation may be 'Maria gave her jacket to someone (a female)', regardless the jacket belong to Maria or maybe someone else.

Some sentences can be considered structurally ambiguous in that 'the meanings of their components words can be combined in more than one way' (Fromkin et al., 2003; O'Grady et al., 1996). In short, if the sentence represented in two structurally different ways, it is ambiguous, and each tree will conform to one of the possible meanings. For example, the phrase 'Indonesian history teacher' is structurally ambiguous since it can be represented in two structurally different ways; they are 'Indonesian [teacher of history]' and '[Teacher] of Indonesian history'.

In English, there are many grammatical situations that are potentially ambiguous. Ambiguity may arise in the noun phrase because there is confusion about the span of the application of a modifier. This occurs when it has compound nouns. The confusion is whether the adjective affects both or only one, and it

occurs when the modifier comes before the two nouns (O'Grady et al., 1996; Cann, 1994). For example, *Deny met **tall boys and** **girls***, the sentence may interpret in two ways. The first interpretation could be *'Deny met both boys and girls are tall'*. The adjective 'tall' modifies the noun phrase 'both boys and girls'. Another interpretation could be *'Deny met only boys who are tall'* (with the height of the girls not specified). The adjective 'tall' modifies just the noun 'boys'.

Ambiguity also may occur as a result of the confusion of the head itself. It occurs where there are two modifiers, *intrinsic adjective* and *possessive adjective*. The confusion is whether the adjective modifies possessive or the noun-head which the possessive modifies. For example, ***Beautiful girls' hostels***, it has two different interpretations as in: **'**Beautiful hostels for girls' or 'Hostels for beautiful girls'.

2.5   How to measure syntactic knowledge

The syntax of English language has several interesting properties which have often been discussed in many works of research. Several tasks had been used to investigate syntactic knowledge. The types of syntactic structure tasks to measure syntactic knowledge encompasses of grammaticality judgment, revision task, oral cloze, identification task, and test of syntactic awareness.

The first is a grammaticality judgment task. Rahimy and Neda (2012), Armenian and Maghsoudi (2009) had been conducted grammaticality judgment task to measure syntactic knowledge. This task is designed to test subjects' abilities to judge the correctness of sentences. In a judgment task, the participant is presented with both grammatical and ungrammatical sentences. He/she is required to indicate which are grammatical and ungrammatical.

The second is a revision task. In a revision task, the participants are presented with only ungrammatical sentences and required to correct them (Pratt *et al*., 1984). Revision task more difficult than grammatical judgment, it is not only judgment but also revision.

Another task that can be used is oral cloze task. It was used by Siegel and Ryan (1989). This task contains 20 sentences and each sentence has one word missing, which the administrator said "blank" and asked the participant to provide the missing word orally. For example, the administrator said *The moon shines bright in the (blank)* and the participant said *sky*. So it would be *The moon shines bright in the sky.*

Other test is identification task was used by Martohardjono et al., (2005). This test consists of three illustrations at the slide of power point. The participants are to read aloud the sentence that appeared at the top of the slide and select one of three pictures that reflect the appropriate sentence. The sentence used is passive voice. This test is done by orally. It tends to be used in testing young language learners.

There is also syntactic awareness test was constructed based on prior research by Nation & Snowling (2000), Durgunoglu (2002), and Layton et al. (1998). The test contains eight grammatical categories: problem with modifiers, word order, nouns, pronouns, prepositions, verbs, comparative structures, and connectors. The items are selected from different TOEFL and grammar books. The subjects have to read the sentences and identify the one word or phrase that should be changed in order to make the sentence grammatically correct.

Every kind of test has its difference benefits and lacks. However, the format of the test in this research is giving checklist for correct sentences and giving cross for incorrect sentences, giving yes/no answer, and matching due to theirs benefits; easy to design and to determine the test results. The tasks in this study were explained more in chapter III.