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Syntax-Semantic-Pragmatic Interface of Dholuo Anaphors

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Abstract:

This paper highlights Dholuo anaphors in sentences at the linguistic interface of Syntax, Semantics and Pragmatics. Linguistic research on anaphors has concerned itself with, among others, questions on the relationship between syntax, semantics and pragmatics. This study sets out to investigate the interpretation of Dholuo anaphor at the three linguistic levels, since interpretation depend on the structure of the sentence. In this paper couched in Government and Binding (GB) Theory modules (Binding Theory, Case Theory, Theta Theory) and Relevance Theory (RT), it is demonstrated that Dholuo anaphors interpretation is dependent on these three linguistic fields. The interface occurs at either two or three linguistic levels. It is argued that syntactically, Dholuo anaphors adhere to Binding Principle A by being coindexed with the antecedent and also assigned case to be grammatical. The anaphor and antecedent in grammatical sentences assume different semantic interpretations when various contexts are provided. This implies that theta role assignment changes with introduction of different context. However, some structures deemed grammatical and assigned theta roles seemed illogical. Introduction of context enhanced vivid understanding of these structures. However, to reach at the right interpretation, it is inevitable to violate the Relevance Comprehension Procedure since the utterances require a lot of effort to interpret.

Keywords: Anaphors, antecedent, context, grammatical, interface

1. Introduction

Anaphors comprise of reflexives and reciprocals which may be lexical or non-lexical. They cannot be interpreted alone, thus they attain meaning via reference to another syntactic unit within the same sentence. In other words, anaphors depend on another element that comes before them for interpretation (Haegemann 1994, p.192; Poole, 2002, p.108). This is because the defining feature of anaphors is its accessibility to the subject within a particular context. Hence, the interpretation of anaphors involves syntax which ensures that the anaphors and the elements they attain reference from are well arranged. Then semantically, the string of words containing the anaphors must be meaningful. Thereafter, different meanings interpreted depend on the contexts presented during the utterances, pragmatics. From this angle, anaphors interpretation is dependent on the interaction of syntax, semantics and pragmatics.

Firstly, it is important to note that anaphors have been one of the areas of interest for linguistic research, and many questions have been raised on the relationship between Syntax, Semantics and Pragmatics (Huang, 2000). According to Huang (2006), in the interpretation of anaphors, factors such as syntactic, semantic and pragmatic are important since the structure of the sentence enables one to interpret it well. The interpretation may vary depending on the environment where the utterance was produced.

Secondly, anaphors are found in African languages including Dholuo, a Nilotic language spoken in Kenya. These anaphors in Dholuo are categorized into reflexives and reciprocals marked by the same morpheme *-r* 'self' 'each other' followed by a personal pronoun (Omondi, 1982; Okoth, 1997, p.41; Onyango, 2013). The morpheme marking anaphor (non-lexical) in Dholuo is not independent as it is attached to a verb. Since it is used to mark both the reflexive and the reciprocal, it poses some ambiguity in its interpretation which require context to disambiguate. This implies that Dholuo anaphor must be interpretable within the three linguistic fields to distinguish reflexives from reciprocals. Moreover, there are other lexical elements that function as anaphors in Dholuo such as pronouns, demonstratives and nouns which are body parts that indicate the body or soul affected by the action of self or each other. These elements also appear ambiguous such that context must be included to distinguish their usage. In this paper, emphasis is on reflexives and reciprocals.

In the same vein, the meaning of a sentence (semantics) is determined by the rules of the language (syntax). Chomsky (2001) argues that rules of language are inborn, and that every speaker or listener interacts with them when

they use language (pragmatics). The utterances produced can thus be judged as correct or incorrect depending on how the string of words are connected. For instance, the usage of any Dholuo anaphor in an utterance can be interpreted as right or wrong depending on factors such as position in the sentence, agreement and persons used. Besides, pragmatics depend on the cognitive and communicative principles in which the mind judges an utterance to be given right interpretation. These utterances depend on the well-formedness of the string of words to be meaningful. Semantically, the utterances containing arguments are assigned theta roles. Theta role assignment is dependent on the linguistic rules (syntax) and context which provides varied interpretations. Thus, context plays an important role in both semantics and pragmatics interpretations.

In this paper, Binding Theory and Case Theory are used to analyse the sentences syntactically. To begin with, Binding Theory is governed by three principles: Principle A, B and C. However, this paper focuses only on Binding Principle A which stipulates that an anaphor must be bound within its governing category. The governing category is the minimal clause where the anaphor is found. The governor is the antecedent where the anaphor finds its reference (Haegemann, 1994; Poole, 2002). The relationship between the anaphor and the antecedent where it gets reference is indicated by a subscript (_i) and coindexed. On the other hand, Case Theory deals with properties that noun phrases have and their distribution in a sentence. The theory accounts for some formal properties of overt NPs like anaphors and how they are assigned case. Case refers to the relationship the noun has with other words, or the change in form that relation is indicated. In syntax, a noun phrase must have case feature for the sentence to be grammatical. The accusative case is assigned to the complement of the verb, unless the verb is marked to assign or check for another case. The nominative case is assigned to the specifier (NP) by INFL, while oblique case is assigned to the object of the preposition. The element assigning case is the assignor (V, I, P) while the element being assigned case is the assignee. Case assignment is guided by the case filter principle which stipulates that an NP must be assigned case (Poole, 2002, P.94).

This paper also adopted Relevance Theory (RT) by Sperber and Wilson (2002, 2004) in the analysis of pragmatics. RT is a theory of human communication that deals with relevance of utterances, in that our minds activate thoughts that are meaningful. In order to understand the relevance of an utterance, context is taken into consideration. This means that the strings of words which form a sentence that is grammatical and meaningful as analyzed by GB's Binding Theory and Theta Theory can attract varied interpretations. These interpretations can explicitly be understood when the principles of RT are employed. Other factors such as the linguistic environment, body language, facial expression, gestures and tone of voice are vital in explaining the meanings. The intentions of the speaker and hearer are also taken into consideration as they help to come up with assumptions that can guide the listener understand the speaker's meaning.

RT aims at picking the most relevant interpretation of an utterance and explicitly explain what the expectations of relevance amount to. Relevance refers to what the mind processes by focusing on either external stimulus (sight, sounds, utterances, actions), or internal representations (thoughts, memories, conclusions) of inferences. This means that what is expressed by an utterance cannot depend wholly on linguistic features (syntax, semantics) used to express it (Carson, 2002). This is because whatever the speaker meant depends on the situation and circumstances that surrounds the interpretation of the utterance (context). Information may be relevant in one context and not another or more relevant in one context than another. The central claim in Relevance Theory is that the expectation of relevance raised by an utterance is precise and predictable enough to guide the hearer towards the speaker's meaning. The theory is guided by two principles: Cognitive Principle and Communication Principle. Cognitive Principle of relevance indicates that human mind seems to focus on the right interpretation of an utterance and Communicative Principle of relevance asserts that the utterances expressed are the most correct (Sperber & Wilson, 2002). The two principles work with Relevance Comprehension Procedure which requires that one uses minimal effort in deriving meaning and stops when the right interpretation is arrived at. This is made possible by the various assumptions that come in the mind together with the context presented. The assumptions can help to strengthen, eliminate or derive a new meaning.

Besides, there is a relationship between relevance and contextual effects. The greater the contextual effects, the greater the relevance. The presumption of optimal relevance means that the ostensive stimulus is relevant to an audience if it is worth the addressee's effort to process it; or if it is the most relevant one compatible with communicator's abilities and preferences. The ostensive stimulus refers to the verbal communication which intends to inform the audience of something. To achieve maximum relevance, one selects the best context to process an assumption. The information is relevant to somebody if it interacts with some assumptions, that is, contextual effects in some contexts that it has access.

There could be derivation of new assumptions (new information achieved); strengthening of existing assumption by proving further evidence for them; and contradicting or weakening or eliminating the existing assumptions. The processing effort is also important in getting the relevant interpretation. This is because contexts that are easily accessible require little effort and so the hearer is able to understand an utterance well. This is guided by the Relevance Comprehension Procedure which requires one to use the least energy in interpretation of an utterance and stop when the right interpretation is reached. It states that,

Follow the path of least effort in deriving cognitive effects: Consider interpretations (reference assignment, disambiguation, implicatures in order of accessibility). Stop when your expectation of relevance is satisfied. (Sperber & Wilson, 2002, p.18)

As a consequence, the concept of interface can apply to syntax, semantics and pragmatics. The guiding principles of GB and RT enables us understand the interface of Dholuo anaphors. First, Government and Binding Theory principles emphasizes that human beings are born with an innate ability to learn language. Through exposure which is the interaction with the environment, they are able to understand a number of utterances. The understanding is based on the structures, meaning and sounds of the different strings. While the environment here refers to the people who physically use the language as they interact with the child; while it could also be the string of sentences introduced to the child as the child learns

language. RT, therefore, helps us understand the different interpretations of the sentences already uttered in different situations or context. The interpretations may be varied but the mind picks on only one interpretation that seems relevant without using a lot of energy (Yus, 2010, p.683). Carson (2002) argues that whatever is expressed by an utterance is not fully determined by the meaning of the linguistic expression used to convey it. The semantics, that is, the linguistic meaning provides the explicit context and utterance meaning is derived from the different contexts presented. Prior to any interpretation, the mind must gauge that the utterance is grammatically correct. This grammaticality involves syntax which is then followed by the interpretation, semantics. The interpretations vary depending on the contexts presented, pragmatics.

Chomsky (2001, 2002) suggests that language is a perfect system with an optimal design in the sense that natural language grammars create structures which are designed to interface perfectly with other components of the mind like speech and thought system. This means that in the mind we are able to construct as many syntactic structures as possible. These structures have to be semantically meaningful and the structures have to be communicated verbally through the utterances in communication. The utterances are then interpreted differently depending on the context of use. This brings in the concept of interplay between syntax, semantics and pragmatics. For instance, anaphors can be interpreted by first looking at their syntactic positions in the sentences. According to Chomsky (2000, p.9), the interpretation of the structures in the mind depends on the conditions imposed by the external environment where language interacts. This means that the semantic interpretation of syntactic structures is not enough. We need the pragmatic interpretation where context plays a major role in giving the meaning of the utterances. Section 2.2 provides the interface of Dholuo anaphors at syntax and semantics.

2. Linguistic Interface of Dholuo Anaphors

In the previous section, we attempted to demonstrate how the different theories interpret sentences by focusing on the syntax, semantic and pragmatic interpretations. In this section, the emphasis is on the interaction of the three linguistic levels in the interpretation of grammatical structures containing Dholuo anaphors. Section (2.1) presents data on Dholuo anaphors with the aim of giving insight on how the different theories operate.

2.1. Data Presentation and Analysis

According to Binding Principle A, an anaphor is bound within its governing category. The anaphor and the antecedent are coindexed using a subscript (_i) to indicate a relationship. Let's consider sentence (1) below, for example:

(1)

a. A_i-hinyo-ra_i

I hurt-self

'I hurt myself.'

b. Nyithindo_i go-re_i

Children fight each other

'Children are fighting each other.'

c. Tina owacho (nio_i-chwanyo-re_i)

Tina says that she hurt self

'Tina said that she was hurt.'

In example (1a), the reflexive *-ra*, - 'myself' is bound to the subject *a*- 'I', the antecedent. The antecedent *a* 'I' governs the anaphor *-ra* 'myself' in the minimal clause since they are coindexed. In sentence (1b), the reciprocal *-re* 'each other' is bound to the antecedent *nyithindo*, 'children' as they co-refer. The antecedent *nyithindo* 'children' govern the anaphor *-re* 'each other'. (1c) is an example of an embedded sentence. The subject *Tina* and *niochwanyore* 'that she was hurt' are in different clauses. According to government, Complemetizer Phrases (CPs) are barriers to government. The complementizer *ni* 'that' blocks the reflexive *-re* 'herself' from getting reference from the antecedent *Tina* which is on a higher clause. Therefore, the reflexive is bound with the antecedent *o*- 'she' to which they are coindexed within the same minimal clause.

With regard to semantic interpretation, the paper uses Theta Theory. Theta Theory indicates the relationship of NPs and predicates that sentences have in the performance of an action. The theory is guided by two principles: projection principle and theta criterion. The relationship in the sentences is between the predicates and arguments. The predicates which take the arguments are verbs, adjectives and prepositions. Predicates argument structure indicates the Noun Phrases required by the predicates to complete the meaning. This is shown by assignment of theta roles to the arguments or participants. The roles that the predicates assign to the NPs, arguments in the sentences are known as theta (thematic) roles. According to Poole (2002, p.80), theta roles encode the semantic role possessed by the NPs which are required by the predicate (verbs, prepositions). These roles, for example, indicate the doer of an action and the person or thing affected by the action.

Furthermore, as part of grammar, words (lexical items) and information are stored in the lexicon (mind). These words constitute syntactic categories that are also stored in the lexicon. The lexicon needs to specify more than the syntactic category by identifying both grammatical and ungrammatical constructions. This is done through identifying the number of arguments a predicate can take and assigning them theta roles which is semantic. This causes an inter-connection between syntax and semantics as will be demonstrated in section 2.2. Therefore, the distribution of theta roles in the structure of a sentence is guided by the projection principle and the theta criterion (Haegemann, 1994). According to theta criterion, each argument must be assigned only one theta role and each theta role must be assigned to only one

argument (Haegemann, 1994, p.54; Poole, 2002). In case an argument is assigned two theta roles, it is a violation of the theta criterion. At the same time the projection principle stipulates that an argument can only take a particular theta role if it is a subject and not another theta role. For example, if a subject is assigned an Agent theta role, it cannot take a Theme or Experiencer theta role. In other words, the projection principle ensures that the lexical items are joined together including what they subcategorize for to ensure a sentence is grammatical. Let's consider (2a):

(2a) $Apondi_i oherore_i$

Apondi love self

'Auma loves herself.'

In (2a), the verb *hero* 'love' is a two-place predicate. It assigns the NP *Apondi* Agent theta role and the NP *-re* 'herself' Patient theta role. This is in line with the projection principle and theta criterion. In the same manner, an argument that takes two theta roles that would be assigned to two arguments would violate the theta criterion, and the sentence would be ungrammatical. In example (2a), the NP *-re* 'herself' refer back to the antecedent *Apondi*. In essence, they are the same thing. Ideally, they should receive the same theta role. But if this happens, then it would be a violation of the theta criterion since they appear as different arguments which should be assigned different theta roles and subcategorized as subject and object respectively. Example (2b), gives an instance of two predicates in a sentence:

(2b) $Paka_i odumbore_i e dapi$

Cat plunge self into pot

'The cat plunged itself into the pot.'

In example (2b) there are two predicates, verb *dumbo* 'plunge' and preposition *e* 'into'. The verb *dumbo* 'plunged' is a two-place predicate with two arguments: *paka* 'cat' and *-re* 'itself'. The verb *dumbo* 'plunged' assigns theta role of Agent to NP *paka* 'cat' and theta role of Patient to NP *-re* 'itself'. The preposition *e* 'into' is a one-place predicate and it assigns the NP *dapi* 'pot' theta role of Location which is the exact place that the cat fell. Therefore, the projection principle and theta criterion are satisfied. Let's consider another example in (2c):

(2c) $Nyithindo_i ochayore_i$

Children they hate each other

'Children hate each other/themselves.'

In (2c), the verb *chayo* 'hate' is a two-place predicate and it assigns theta role of Experiencer to the NP *nyithindo* 'children' and theta role of Theme to the NP *-re* 'each other' or 'themselves' to satisfy the projection principle and theta criterion. The anaphor in this example can be used as a reflexive or reciprocal, but in this case, emphasis is on the assignment of theta roles to be grammatical.

On another note, the information on theta role assignment is assumed to be part of the lexical entry in the mental dictionary. This information is represented in a theta grid which represents the mind in Theta Theory. For the sentences to be assigned thematic roles, they must be grammatically correct which forms part of syntax (Poole, 2002), thus an interface of syntax and semantics. The theta grid indicates the roles assigned to the arguments by the verb which appears outside the grid. The example in (3a) is represented in table 1 where Agent and Patient theta roles assigned to the arguments are slotted in respective theta grids:

(3a) $Apondi_i oherore_i$

Apondi love self

'Apondi loves herself.'

hero: verb 'love'

AGENT	PATIENT

Table 1

Table 1 shows that the verb *hero* 'love', assigns theta role of Agent to NP *Apondi*(antecedent) and Patient to NP *-re* 'herself'. This verb is a two-place predicate which requires two arguments. Though the external argument *-re* 'itself' refer back to the internal argument *Apondi* which is herself, the verb still is a two-place predicate with two arguments. If the two arguments are assigned the same theta role by virtue of their referent, it would be a violation of the theta criterion and projection principle. They are thus assigned different theta roles. This is seen in table 2 below:

hero: verb

love

AGENT NP	PATIENT NP

Table 2

The theta roles have been assigned to the arguments as seen in table 2. This indicates that they are saturated and they are marked by checking off the theta role in the thematic grid of the predicate. In order to identify the assignment of the respective thematic roles to the corresponding arguments, NPs are identified by means of an index or subscript. Then the index of the argument to which the thematic role is assigned is entered in the appropriate slot in the theta grid. Since the anaphor *-re* 'herself' refers back to antecedent *Apondi*, they are assigned the same index. This is represented in table 3:

(3c) $Apondi_i oherore_i$

'Apondi loves herself.'

hero:
Love

AGENT Apondi _i	PATIENT re _i
I	I

Table 3

According to Relevance Theory, the mind tends to not strain to get meaning of what is said. The different interpretations depend on aspects such as reference assignment. In this case, pronouns can function as anaphors by referring back to what the speaker meant. For instance,

(4) Jarichopakorekuomgombonemarich

Sinner praise self from desire evil

'A sinner praises himself/herself for his evil desires.'

In example (4), the sentence, *jarichopakorekuomgombonemaricho* 'a sinner praises himself/herself for his evil desires' has the pronoun *e* 'his' which refers back to *jaricho* 'sinner' in the sentence. In other circumstances, a sentence could be ambiguous and so the listener has to pick the interpretation that is relevant and do not require a lot of effort to process. This is because a number of interpretations may come to the mind which may not suit the situation. Once the listener has picked the right interpretation in connection with what he or she wanted, then the rest are left out. From this procedure, it is important to note that the mind works in steps as it interacts with the different contexts in emphasizing, strengthening or eliminating a given thought, conclusion or interpretation. The context of utterance of (4) may change depending on the use of pronoun *e* 'his'. If the context of the utterance reference is made to *jaricho* 'sinner' then the pronoun functions as an anaphor. But, if the pronoun *e* 'his' refers to someone else, then it does not function as an anaphor. The next section (2.2) expounds on the interaction between syntax and semantics.

2.2. Syntax- Semantic Interface

Interface can occur at two or more levels of linguistic study. This section explains the interface at two levels of syntax and semantics. In the interpretation of anaphors at the syntax-semantics interface, Case Theory and Theta Theory work hand in hand. Case Theory provides the syntactic interpretation while Theta Theory gives semantic interpretation. Case assignment and theta roles are assigned to arguments by heads of verbs, nouns and prepositional phrases. First, in Case Theory, the agreement element in INFL (lection) assigns nominative case to the NP, subject of the sentence. Then the verb assigns accusative case to the NP, object; while the preposition assigns oblique case to its object. A verb assigns case to an NP that it governs if and only if it assigns it a theta role. Case Theory is guided by case filter principle which states that all arguments (NPs) must be assigned case for the sentence to be grammatical (Poole, 2002). Besides, Theta Theory provides the semantic interpretation and is guided by two principles: theta criterion and projection principle. The predicates which include verbs, preposition and adjectives assign theta roles to the NPs which they subcategorize. For instance, a verb can subcategorize for one or two arguments. In this case we say the verb is a one-place or two-placed predicate respectively. Let us consider another example, in (5).

(5) Mpiraong'ielorekochiko pap

Ball roll self towards field

'The ball rolled itself towards the field.'

In (5), the verb *ng'ielo* 'roll' is a two-place predicate which takes the arguments *mpira* 'ball' and anaphor *-re* 'itself'. The verb *ng'ielo* 'roll' assigns theta role of Agent to the NP *mpira* 'ball' and theta role of Patient to NP *-re* 'itself'. This is because the action of the verb *ng'ielo* 'roll' affects the argument *-re* 'itself' which refers back to the ball. In the PP, *kochikopap* 'towards the field', the preposition *kochiko* 'towards' assigns theta role of Goal to the NP *pap* 'field' indicating the direction taken by the ball as it rolled. The sentence *mpiraong'ielorekochiko pap* 'the ball rolled itself towards the field', has three arguments which have been assigned thematic roles. The theta criterion and the projection principle are thus fulfilled in this example. In terms of case assignment, the verb *ng'ielo* 'roll' assigns the NP *-re* 'itself' accusative case, INFL assigns *mpira* 'ball' nominative case, while preposition *kochiko* 'towards' assigns oblique case to NP *pap* 'field.' Since all the arguments have been assigned case, case filter principle is fulfilled. The sentence is grammatical and assignment of theta roles ascertain that it is interpretable.

Another area where Case Theory and Theta Theory interact is at what we refer to as the visibility condition. According to Haegemann (1994, p.189), the visibility condition works in a way that the argument of the predicate is recognized, that is, the NP is made visible. Only visible NPs are assigned theta roles while the invisible NPs cannot be assigned theta roles. Moreover, sentences with arguments lacking case violates theta criterion. This implies that argument NPs are made visible by virtue of case and theta roles can only be assigned to them when they are present. Otherwise, there would be no theta role assignment. This brings in the interface of the two concepts in describing the grammaticality of a sentence. If we consider example (2a) *Apondioherore* 'Apondi loves herself', all the argument NPs are visible- *Apondi* and *-re* 'herself'. They are, therefore, assigned case and theta roles as demonstrated above. Therefore, the visibility condition is satisfied. In example (5), the arguments *mpira* 'ball', *-re* 'itself' and *pap* 'field' are all visible and case marked. They are hence assigned theta roles in line with the visibility condition. On the contrary, there are sentences that require

more than the two levels of linguistics for vivid interpretation. The next section 2.3 includes pragmatics in the interpretation.

2.3. Syntax, Semantics and Pragmatic Interface of Dholuo Anaphors

Sperber and Wilson (2000, 2002) argue that in the production of an utterance, it takes time to process the same utterance. In order to understand this utterance, then one needs to have knowledge of syntax, semantics and pragmatics. This then enables one to bring in the context, thus the interface. In the production of an utterance, the mind takes time to process the interpretation. These interpretations depend on the syntax (grammaticality) of the utterance, semantics (meaning) and pragmatics (context) of the utterance. Since the mind takes time to process the information, context (pragmatics) of the utterance becomes handy. It enables the mind to link what the utterance meant by allowing the most relevant interpretation. For instance, example (1c), *Tina owachoniochwanyore* 'Tina said that she hurt herself' when uttered in a group set up can attract different reactions.

One is that probably someone in the group hurt her, or something that was said or done in the group hurt her. It can also mean that something or someone who is not in that group hurt her. Again, it could be interpreted that she is pregnant in some other context. On another note, it could be someone else was hurt that Tina is reporting. These varied interpretations are all correct, but the most relevant one will depend on the context of the utterance. This is in line with the Cognitive Principle of relevance which indicates that human mind seems to focus on the right interpretation of an utterance and Communicative Principle of relevance which asserts that the utterances expressed are the most correct (Sperber & Wilson, 2002). The two principles work with Relevance Comprehension Procedure which requires that one uses minimal effort in deriving meaning and stops when the right interpretation is arrived at. This is made possible by the various assumptions that come in the mind together with the context presented. The assumptions can help to strengthen, eliminate or derive a new meaning. The mind recognizes that the words are well arranged and so meaningful (syntax and semantics). The mind does this by use of the Relevance Comprehension Procedure in order to reach the optimal relevant meaning. Example (1c) *Tina owachoniochwanyore* 'Tina said that she hurt herself' can be interpreted to communicate something about *Tina* which the speaker will pick depending on what is presented at the time of utterance.

In essence, the linguistic interpretation of example (1c) *Tina owachonio_i-chwanyore_i* 'Tina said that she hurt herself' is dependent on both syntax and semantics. The antecedent *o-* 'she' which refers to *Tina* and anaphor *-re* 'herself' are bound to each other within the minimal clause and they are coindexed. *Tina* is in the higher clause and so is blocked by the barrier CP *ni* 'that'. Semantically, the verb *chwanyo* 'hurt' is a two-place predicate that assigns theta role of Agent to NP *o-* 'she' and Patient to anaphor *-re* 'herself'; while the verb *wacho* 'say' is also a two-place predicate that assigns theta role of Experiencer to *Tina* and Theme to NP *o-* 'her'. This interpretation is based on the assumption that *Tina* could have hit her toes on a stone. This could be evident when *Tina*'s toe is bleeding at the time of the utterance and she was hurt. If during the utterance *Tina* wears a sad face and is in a bad mood, then it would be correct to interpret the utterance that something annoyed her emotionally. In this situation, the verb *chwanyo* 'hurt' assigns theta role of Experiencer to antecedent *Tina* and Theme to anaphor *-re* 'herself'. But, if during the utterance *Tina* was participating in a game and looks at a team mate groaning in pain, the roles change. For instance, someone reporting while looking at *Joy* that, *Tina owachonijoy_iochwanyore_i* 'Tina said that Joy hurt herself' is the same as *Tina owachonio_i-chwanyore_i* 'Tina said that she hurt herself'. In this situation, the verb *chwanyo* assigns the person, antecedent *Joy* and *o-* 'she' Agent theta role and anaphor *-re* 'herself' Patient theta role and not *Tina*. The semantic interpretation, therefore, is dependent on the context presented.

The processing effort is also important in getting the relevant interpretation. This is because contexts that are easily accessible require little effort and so the hearer is able to understand an utterance well. For example, (1c) *Tina owachonio_i-chwanyore_i* 'Tina said that she hurt herself' could also be interpreted as *Tina* is pregnant which is based on the community's use of the word *chwanyo* 'hurt'. This occurs especially for girls with unwanted pregnancies. If at the time of the utterance *Tina* is seen to have a bulging tummy and a sad face and is unmarried, then this strengthens the assumption. We thus conclude that *Tina* is sad because she is pregnant. All the interpretations of an utterance occur simultaneously, though some take a lot of effort to process. Semantically, the verb *chwanyo* 'hurt' in this case assigns Experiencer theta role to *Tina* and Theme theta role to anaphor *-re* 'herself' to indicate that *Tina* is emotionally hurt by being pregnant. In addition, Dholuo anaphors tend to be ambiguous and so the utterance can also be disambiguated using context as shown in (7).

(7) *Nyithindo_ing'iyore_i*

children see each other/themselves

'The children are looking at each other/themselves.'

From the data provided in (7), we can use the three linguistic areas to interpret the sentence. The anaphor *-re* 'each other' or 'themselves' is bound to the antecedent *nyithindo* 'children' within the same minimal IP. The antecedent *nyithindo* 'children' governs the anaphor *-re* 'themselves' 'each other' and they agree in number and person. They are thus coindexed to indicate their relationship, hence grammatical. Semantically, the verb *ng'iyore* 'see' assigns a thematic role of Experiencer to the argument *nyithindo* 'children' and Theme to anaphor *-re* 'each other' or 'themselves'. The explanation is that the argument *nyithindo* 'children' are the persons feeling or experiencing or performing the act of looking to each other or to themselves. The verb *ng'iyore* 'see' also means to take care in Dholuo. In order to fully understand this utterance, Relevance Theory picks on the context of the utterance to provide the most relevant interpretation. The question is, why are the children looking at each other? Several assumptions can be made based on the context of the utterance. These include, children are shocked, children love each other, children are annoyed at each other, children are communicating non-verbally about a situation to each other or children are taking responsibility of caring for each other. If at the time of the

utterance the children were found playing with water, then the implication is that the children were caught unaware. They are, therefore, shocked and so look at each other. The other interpretations are thus eliminated. The presence of water used by the children in playing strengthens our interpretation. The comprehension procedure enables us to settle on this interpretation where little effort is used. The other eliminated interpretations would require a lot of effort in relation to the context presented. The children in this situation are assigned Experiencer theta role while the anaphor *-re* referring to the shocked children is assigned Theme theta role. Moreover, if the children are found taking care of each other by feeding each other or bathing each other, the roles change in this new context, the interface of semantics and pragmatics. This is because the children take responsibility to care for each other or one another as presented by the context. The children are assigned Agent theta role by the verb *ng'iyō* 'see' while anaphor *-re* 'each other' is assigned Patient theta role. Therefore, theta roles change in different contexts.

Moreover, for an utterance that is referentially ambivalent, the range of possible interpretations is determined by grammar. It is the grammar that indicates the speaker and the mind together with contextual information that helps identify the exact speaker at any given occasion (Sperber & Wilson 2000, p.41). We can demonstrate how this works in grammar.

(8)

a. *Nyithindo_igore_i*

Children fight each other/themselves

'The children are fighting each other/themselves.'

b. *Peter_ionegore_i*

Peter kill self

'Peter killed himself.'

In (8a), grammar shows that the anaphor *-re* 'each other or themselves' refers to the antecedent *nyithindo* 'children'. The antecedent is plural and so it agrees in number with the anaphor which is in the third person. The anaphor and the antecedent are bound to each other in the same minimal clause by being coindexed. The semantic interpretation depends on the grammaticality of the sentence. Thus, if the children are physically fighting each other, the verb *go* 'fight' assigns a thematic role of Agent to *nyithindo* 'children' and Patient to *-re* 'each other'. If at the time of the utterance the children are seen to be in groups competing, then we can interpret the action as children working as a team to show unity. In this case, *nyithindo* 'children' are assigned Experiencer theta role while anaphor *-re* 'themselves' assigned Theme theta role by the verb *go* 'fight'. We can deduce that context has helped to disambiguate the reflexive and reciprocal usage in the sentence. If at the time of utterance there is actually commotion and cries of children, then this context strengthens our assumption that children are fighting each other. The implication is that the children are actually fighting each other. The reason for fighting is not known. Though the reason might require a lot of energy to connect with the interpretation. If at the scene there are toys scattered, then we can guess that the children were fighting over toys. This new information on toys affects the existing information by strengthening it. If at close look at the children you see them laughing, then this new information contradicts our first assumption that children were fighting over toys. The implication is that the children were playing. The noise could have been caused by the excitement of the children as they scattered the toys. This new information helps us in achieving relevance by strengthening the fact that children were fighting each other for fun.

Example (8b), *Peter onegore* 'Peter killed himself' can be interpreted to be grammatically correct. The anaphor *-re* 'himself' refers to the antecedent *Peter* who performed the act of killing himself. They are bound to each other within the same minimal clause and coindexed *Peter_ionegore_i*. In order to confirm that the sentence is interpretable, the verb *nego* 'kill', a two-place predicate theta marks the argument *Peter* and anaphor *-re* 'himself'. The verb *nego* assigns thematic role of Agent to the argument *Peter* and Patient to anaphor *-re* 'himself' since the action happens to self. The sentence is therefore saturated as the arguments have been theta marked. This sentence *Peter onegore* 'Peter has killed himself' attracts different interpretations depending on the context. This means that *Peter* can be assigned different theta roles depending on the interpretation. One, is that it can literally mean that the person *Peter* actually committed suicide and is dead. Therefore, semantically *Peter* is assigned theta role of Agent and anaphor *-re* 'himself' theta role of Patient. Secondly, it can mean that the person called *Peter* overworked himself and so was exhausted. In this situation, *Peter* is assigned theta role of Experiencer and anaphor *-re* 'himself' assigned theta role of Theme. If at the time of the utterance people are seen crowded and talking in low tones, and there is a dead body hanging; we can conclude that it is true *Peter* committed suicide. If on the other hand there is a crowd of people and at a closer look there is a person seated looking exhausted, then we can conclude that this person *Peter* overworked himself. The fact that he is said to be dead is because the body cannot contain it anymore. The implication of this metaphoric meaning is that someone should only do what the body can contain. Relevance Comprehension Procedure allows us to use very little effort in picking the right interpretation. Therefore, our mind stops at the fact that *Peter* actually killed himself without focusing on the reasons for doing so. There is, therefore, the interface of syntax, semantics and pragmatics.

3. Interface and Grammaticality

Sentences can be grammatical whether they make sense or not. These same sentences are legible to be assigned thematic roles because they are arguments identified structurally. In this sense, the context of the utterance enables us to understand and interpret these sentences that do not make sense. For instance, a verb assigns case to an argument if and only if the verb theta marks it. This condition is fulfilled irrespective of whether the sentence is grammatical or ungrammatical; or whether it makes sense or not. Case assignment and theta roles are two levels of language interpretation, hence an interface of syntax and semantics. The mind connects these interpretations by presenting different contexts. Relevance Theory enhances the right interpretation. Consider (9)

(9)

a. *Atudo,oringoirAumamonang'ore_i*

Duck run to Auma lick self

'The duck ran to Auma and licked itself.'

b. *Yien,oringoirAumamonang'ore_i*

Tree run to Auma lick self

'The tree ran to Auma and licked itself.'

Example (9a), *AtudooringoirAumamonangore* 'the duck ran to Auma and licked itself' has syntactically followed the rules on correct sentence structure. The antecedent *atudo* 'duck' and anaphor *-re* 'itself' are coindexed because they refer to the same thing though they are not in the same minimal clause *atudo,oringoirAuma monang'ore_i*. This is because PPs are not barriers to government, so it allows the anaphor to get reference from a higher clause. The sentence is therefore, grammatically correct. The verb *nang'o* 'lick' is a two-place predicate and it theta marks the arguments *o-* which refers back to *atudo* 'duck' and anaphor *-re* 'itself'. The verb *nang'o* assigns thematic role of Agent to argument *o-* and Patient to anaphor *-re* 'itself'. The preposition *ir* 'to' assigns theta role of Goal to argument *Auma* to indicate the direction the duck was running to. After role assignment, the mind is satisfied with the interpretation. But at a closer look, this sentence elicits a number of interpretations. First, it could mean a duck literally running towards the person *Auma*. Second, it could be a person nicknamed *atudo* running towards *Auma* and licking himself or herself. Third, it could have been a dog licking itself. Ideally, a duck does not remove its tongue to lick itself. Instead, the duck scratches itself on the ground. In this context, our mind stops at the interpretation that the mention of a duck is linked to a person who probably behaves like a duck. This person is the one who ran to *Auma* licking herself or himself. The intention for the action of licking is not known. This sentence could also mean that it was a dog licking itself. This information may require a lot of effort to interpret which may be irrelevant at the moment and violates Relevance Comprehension Procedure. The context being a situation whereby the 'dog' could have been on sight but the speaker says the 'duck' while looking at the 'dog'. Hence the listener could easily have connected with what the speaker meant.

In the same vein, (9b) *yien,oringoirAumamonang'ore_i* 'the tree ran to Auma and licked itself' is grammatically correct. It means that it is the tree that ran towards the person *Auma* and performed the act of licking itself. The anaphor *-re* 'itself' and *yien* 'tree' are bound to each other as they co-refer even though they do not occur in the same minimal clause, since PP is not a barrier to government. Semantically, the entity *atudo* in (9a) has a meaning feature of animate whereas *yien* 'tree' is inanimate. The verb *ringo* 'run' requires a subject that is animate like *atudo* 'duck', but not *yien* 'tree'. The verb *ringo* 'run' assigns *yien* 'tree' Experiencer theta role and *Auma* Theme theta role, while the verb *nang'o* 'lick' assigns *yien* 'tree' Agent theta role and anaphor *-re* 'itself' Patient theta role. Pragmatically, there is more being communicated than what is said. This is because *yien* 'tree' here could be associated with a slender or thin person who probably ran to this person '*Auma*'. It could also mean that something strange or mysterious happened that people saw a tree run towards the said person. In this case, this is unusual happening because trees are inanimate and not expected to run. The person could also have meant *atudo* 'duck', but maybe in the course of the utterance he or she was looking at the 'tree'. This then would have made the listener think that the person meant a 'tree'. How then do we get the right interpretation in this context? If at the time of the utterance there is a slender person seen running towards *Auma*, then the assumption is that this person is the tree being talked about. At the same time if the person is seen licking herself or himself, our interpretation is strengthened. But the problem is that we are violating the Relevance Comprehension Procedure. In this interpretation, we need a lot of effort to infer the meaning that *yien* 'tree' refers to a person. This is because it takes one an effort to find out the connection between the two. Otherwise, the sentence though grammatical can be deemed illogical in the absence of context.

4. Summary and Conclusion

This paper focused on the analysis of Dholuo anaphors in sentences at the linguistic interface of Syntax, Semantics and Pragmatics. The sentences were first analyzed for syntax using Binding Theory and Case Theory. Thereafter, Theta Theory was used to expound on the semantics. Relevance Theory was used to explicitly explain the importance of context in providing meaning. In testing for grammaticality, Dholuo anaphors were bound to the antecedent within the minimal clause. The anaphor and the antecedent were also assigned case to fulfil the case filter principle. Semantically, theta roles were assigned to the arguments to satisfy theta criterion and projection principle.

Pragmatically, the utterances were interpreted in different contexts which indicated different semantic meanings, thus an interface between semantics and pragmatics. These utterances were confirmed to be grammatical, interface of syntax, semantics and pragmatics.

Interestingly, the analysis showed that utterances could be disambiguated with inclusion of context. For instance, theta roles changed in different interpretation where the reflexive and the reciprocal could be distinguished. However, some

utterances were interpreted as grammatical and the arguments assigned theta roles, though they were deemed illogical. In order to explicitly understand the meaning of these utterances, context was included to enhance the right interpretation. This involved use of more effort in interpretation leading to violation of the Relevance Comprehension Procedure. But, it was inevitable that to derive the relevance of these interpretation this direction had to be taken. There is thus a need for the theory to accommodate such exceptional cases.

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