4 ICLEHI 2016-013 Prodipta Bhattacharjee

Task Felicity in the Acquisition of Universal Quantifier '*Every*'

Prodipta Bhattacharjee,
The EFL-University, Hyderabad
12-12-18/1, Sitaphalmandi, Ravindranagar Colony, Hyderabad-500007
Email id: torsha2000@gmail.com

ABSTRACT

Investigation of sentences with the universal quantifier *every* have led to qualitatively different conclusions about children's linguistic knowledge. The aim of this paper is to investigate the role of task conditions in determining ESL children's knowledge of universal quantification. The tasks were truth-value judgment tasks designed with different frames to check its felicity abilities. The findings suggest that children's knowledge of *every* runs deep and emphasizes on the positive impact of task conditions that yield the most appropriate interpretation. The findings show that even at the earliest stages of language acquisition, as long as the sentences are presented in felicitous discourse contexts, children's interpretation of universal quantification appears adult-like. The data therefore support the adult-like accounts of children's acquisition of universal quantification.

Keywords: Language acquisition, universal quantification, task conditions, felicity, discourse contexts, children's interpretation

Introduction

Child acquisition research bears testimony to the phenomenon that every child is able to master his/her first language in the first 4 or 5 years of its life. This, according to the researchers working in the generative paradigm (Brown, 1973), is possible because human beings are endowed with an innate language learning capacity. It allows each child to link lexicon to the corresponding rules of syntax and semantics (e.g., word order, pluralization, and verb alternation) rapidly and with ease within the first five years of its birth.

In this paper, we propose to study the development of the logico-semantic properties of a specific kind of noun phrases (NPs) termed as quantifiers and their referential interpretation. We would examine if the knowledge of the concept is present in child ESL learners which would provide evidence that SL learning process is UG governed.

Quantification in English

In a language there are various kinds of noun phrases (NP). Of them, lexical NPs like '*a blue chair*' or '*Mr. Thomas*' have a one-to-one mapping of the form with one unique referent in the external world. The reference is a perceptually salient feature that a child can easily extract from the environment; therefore acquisition of concrete nouns happens quite early on in children (Gentner, 1982). Pronominal NPs, like '*he*' '*him*' '*his book*', are another NP category which derive their reference from other NPs present in a discourse. This category is more abstract as a child needs to attach a syntactic value of co-referencing to retrieve the actual referent of each pronominal NP from the context of its use.

A third kind of NPs are quantifying NPs (QNPs) like *three, most, many, every, each, all, none, any, a/ an* and can be expressed as 1(a-f):

1*a*. *One cat has whiskers.*
b. Three cats have whiskers.
c. Most cats have whiskers.
d. Many cats have whiskers.
e. Every cat has whiskers.
f. All cats have whiskers.

(Chierchia & McConnell_Ginet, 2000)

Quantifiers or QNPs expresses quantification through words or phrases which specify quantity or amount in 1(a-b) and they also precede nouns (as determiners) in 1(c-d). In the present study we will focus on one quantifying expression *every* and try to look at the semantic properties of the QNP with various syntactic frames. The study will primarily look at the generalizable property and the scopal property of the quantifying NP *every*. Let us try to unravel the two essential features of quantifying NPs.

A QNP has two parts: one is the quantity they denote (e.g., *all, none, a/an*) and the second is their corresponding individuals or members they refer to. But what delimits the referents of the QNPs is not clear from the context. It therefore involves a cognitive understanding of '*how many*' does a QNP like *all* specify. To understand the quantity entailed by each quantifying expression, one needs to understand the concept of set/collection of objects and the referents to which they are bound. A further understanding is required to understand whether the referents can be the entire set or a part of the set. In other words, the quantifier is said to have scope over the set of its entities. This is presented in the example below:

2a. *Everyone likes Loren.*

The semantic content of this sentence can be expressed in a truth-condition manner in (2a`) as:

2a`. Loren likes Loren, James likes Loren, Mary likes Loren …

If the domain of discourse only involves these three people then *everyone* in (2a) refers to all of them. However, if there are some additional individuals for consideration, then such individuals would also be referred to in (2a) who like Loren. Understanding the meaning of QNPs like *all*, *every, none* involves understanding of a collection of set of entities and sometimes of the referents present within a set. So QNPs move beyond referring to specific properties of individuals to generalizing that set of properties to a set of referents (a collection of individuals). In a language this generalizability yielded by QNPs is an extremely powerful logico-semantic concept absent in any other NP categories. So QNPs express

> …what *quantity* of the individuals in a given domain have a given property. The quantificational apparatus of a langauge is a central plank of its expressive capacity. (Chierchia & McConnell-Ginet 2000: p. 114)

The generalizable property of QNPs forms a part of the knowledge of Universal Grammar (UG).

Quantificational sentences are thus built out of sentences containing variables. They have two integral parts: (1) sentences that express ordinary (unquantified) attributes of a property generalizable to the referents and an instruction as to how much the referent should have the properties (e.g., any person who likes Loren).

Learnability Issues in Quantifiers

Children learning the referential qualities of quantifiers find it difficult as there are no transparent or fixed referents or one-to-one word to world mapping. They need to learn the logico-semantic features associated with these NPs in a context-based manner, namely the power of generalizability of QNPs and this is a learnability issue for them. Accessing the generalization involved in QNPs is UG governed and hence easy for acquisition. But acquiring the specific properties of referencing of each quantifier requires time and exposure.

Once children understand what is quantifiable, i.e. either as count/ and mass, they can then apply the concept of quantification. This would be the beginning of application of logic as they would learn to count and identify the correct referents of numerical quantifying concepts like *three* or *one*.

Another most crucial learnability issue that a child needs to understand is the concept of 'collection' that is entailed in the understanding of referents of QNPs. As discussed above that the QNPs have the power of 'generativity' or they have the power to say *what* quantity of an individual has a specific property. This can be understood from the example given below.

3a. Every cat is proud of its whiskers.
b. All cats are proud of its whiskers.
c. Some cats are proud of its whiskers.
d. Any cat is proud of its whiskers.

The above set of sentences (3a-3d) can be interpreted as follows to understand the generalizable property of the four quantifiers *every, all, some and any.*

3a′. (Every cat) (It is proud of its whiskers) [every = each specific member of a set]
b′. (All cats) (It is proud of its whiskers) [all = collective members of a set]
c′. (Some cats) (It is proud of its whiskers) [some= few and not all members of a set]
d′. (Any cat) (It is proud of its whiskers) [any = any one member of a set does not matter which]

This referencing property is a generative property of the quantified NPs. Thus, there must be some commonality in the child's mind through which he/she decodes this attribute of quantification. This can be accessed by a child as a part of UG knowledge.

Learnability Issue in *Every*

Young children's interpretation of the universal quantifier (e.g. *every* in English) has been the subject of much debate over the last 40 years. Children respond differently to sentences containing lexical NPs and quantifying NPs. Let us look at the following sentences to see how children interpret the two types of NPs.

4a. *John*$_i$ *scratches him* $*_{i/j}$.

b. *Every boy*$_i$ *scratches him*$_j$.

In the sentence (4a) children overextend the referencing of the lexical NP *John* to that of the antecedent. The lexical NP *John* and the pronominal NP *him* are interpreted by children to refer to the same individual whereas the correct interpretation is that they refer to two different individuals. But in sentence (4b) the quantifying NP *everyone* is not misinterpreted by children. They clearly show the distinction between *everyone* and *him* to be from two different sets of individual. This claim has been supported by several other researchers conducted in this domain.

Traditional analysis of L1 quantification data (Inhelder & Piaget, 1964; Philip, 1995, 1996) supports the claim that children of various language backgrounds, between the ages of three and five years old fail to correctly assign the correct meaning to sentences with universally quantified sentences *every*. Children may interpret sentences like *Every farmer is feeding a donkey* in a non-adult way. The non-adult like interpretation is called the symmetrical interpretation. In the symmetrical account children show a bias for a one to one mapping between the agent and the object in any event. Therefore in the above sentence, children demand symmetry between donkeys and farmers in the given context. The next two sentences illustrate the symmetrical account.

5. Every farmer is feeding a donkey. [Is every farmer feeding a donkey?]
   F1↔D1 F2↔D2 F3↔D3 D4
6. A farmer is feeding every donkey. [Is a farmer feeding every donkey?]
   F1↔D1 F2↔D2 F3↔D3 F4

Children in previous studies react to these questions differently than adults and answer 'No". When asked to explain their negative response, the children point to the extra object D4 as in (5) or to the extra agent F4 in (6) as their response. Children seem to be ignoring the semantic restriction that is imposed on the scope of the quantifiers. The children who exhibit the symmetrical bias allow the scope of *every* to quantify over both NPs in the sentence.

In another experiment conducted by Brooks and Braine (1996) where both the *extra agent* and *extra object* condition has been tested show that children do not fail to classify *every* as quantificational determiner and also abide by the principle of UG as they demonstrate the knowledge of the quantifier ranging over the set of individuals that they are linked with. This is again an evidence of the fact that children have knowledge of the sentences containing quantified expressions but the difference may be that it may not converge with adult grammar. This was also tested by Crain et al. (1996) and the experiments elicited similar kind of results.

A second crucial aspect which is integral to the understanding of children's knowledge of quantification is to understand whether children have knowledge of Quantifier Raising (QR). This is a fuzzy area which has not been traced down clearly in this domain of research. The syntactic representation of the sentence (5) is that the universal quantifier in the subject position (*every farmer*) has wide scope than the existential quantifier in the object position (*a donkey*). But this can also be interpreted as the universal quantifier has scope over the entire sentence which is more linear as a representation. Thus, it does not clearly provide evidence whether children have access to QR. Sentences with universal quantifiers can also have an existential wide scope reading where (5) can be interpreted as:

7. There is a *y* such that *y* is a donkey, for every *x* such that *x* is a farmer and *x* rides *y*.

Here *a donkey* has wide scope over *every farmer*. Crain et al (1996) in their experiment found that children are sensitive to the universal wide scope reading but there is no certainty that this representation is derived by application of QR. It may be a pure case of linear representation of the context. To derive unequivocal evidence, the condition needs to be tested in a way that the existential quantifier will be in the subject position and the universal quantifier will be in the object position as in (8).

8. *A donkey is being fed by every farmer.*

The most natural representation of (8) is that of a distinct donkey being fed by every farmer. Here also the universal quantifier has wide scope over the existential one but this defies the linear representation of the context. It will be a more genuine evidence to support the claim that children do have access to QR. The representation will thus be,

9. For every *x* such that *x* is a farmer, there is a *y*, such that *y* is a donkey and *y* is being fed by *x*.

The context will be true iff the wide scope reading of the universal quantifier is being accessed by the learners and not in the other way (where existential has the wide scope reading). The existential wide scope reading will be,

10. There is an *x* such that *x* is a donkey, for all *y* such that *y* is a farmer, and *x* is being fed by *y*.

It is not only the position of the quantifiers that children should attend to but they also need to have an understanding of the lexical properties of the different universal quantifiers.At this point we need do analyze where do children go wrong. For this we need to look at the context of the task.

Task Felicility Condition

The above section clearly stated how children prefer a one-to-one mapping between the agent and object in their interpretation of quantification. Let us look at the picture below to understand why this is a general tendency among children.

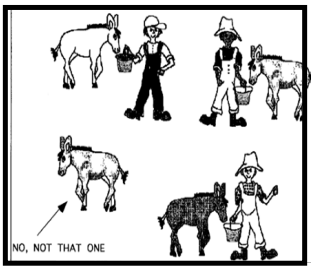

Figure. The farmer-donkey event

When the above picture was shown to the children in the experiment by Crain et al. (1996) and asked a question, *Is every farmer feeding a donkey?* They responded 'no' in the extra object condition (a condition where the number of objects is more than the number of agents, here donkey). They point to the extra donkey which is not being fed by

a farmer. Similarly in the extra agent condition (a condition where the number of agent is more than the number of objects, here farmer) when children are asked a question, *Is a farmer feeding every donkey?* They again respond in negation pointing to the extra farmer that is not riding a donkey. In the two interrogative structures the linear order of the universal and the existential quantifier is reverse to each other yet children do not appear to be sensitive to the difference. One of the explanations given for this erroneous interpretation is the symmetrical bias that is exhibited by children. Children's rejection seems to be influence by a lack of symmetry between the farmers and the donkeys. This shows that they expect a one to one mapping between the agent and the object. It here that their responses do not converge with adult responses and it leads to a conclusion that children do not possess the knowledge of quantification. But this conclusion by itself is inconclusive as Philip (1995) hypothesizes that children misinterpret the quantified expressions because their linguistic knowledge is not on par with adult knowledge.

This has been a topic of longstanding debate as there is a long conflict on whether children's misinterpretation can be accounted for their symmetrical bias or is it due to a non-linguistic factor which is attributed to the task being infelicitous. Now we shall try to understand the two major factors that explain children's incorrect responses.

Philip (1995) posits the symmetrical account which justifies children's (mis)interpretation of the QNPs. He states that children treat *every* not as a quantification determiner but as an adverb of quantification where every event which has a farmer and a donkey should be an event of a farmer riding a donkey. But quantificational determiner is not a relation between two events but two set of objects. So children need to understand that the relation needs to be extended to both the farmers and the donkeys. Both the sets act as the restrictor of quantifier and not just one of the two NPs. He also shows in his experiments that children do provide adult like responses which refutes the claim that children do not have access to the adult interpretation. They have access to both the interpretation but the symmetrical bias takes over the other interpretation.

Philip (1995) further claims that the symmetrical interpretation is the subset of the adult interpretation as he clearly lays down the two interpretations as in (11).

11a. *Adult reading* (universal wide scope reading): for every *x*, such that *x* is a farmer, there is a *y*, such that *y* is donkey and *x* is riding *y*.

11b. *Symmetrical reading*: all the events that have a farmer or a donkey (or both) are events of a farmer riding a donkey.

Crain et al. (1996) counter the symmetrical account and provide a different explanation for children's misinterpretation of quantified sentences. They claim that Philip's (1995) experiments are flawed and that lead to children's preference for the non-adult like responses. The task conditions are pragmatically infelicitous as the children think that the extra condition should have a decision making role in the experiment (which is again an indication towards their symmetrical bias). They further claim that the condition of **plausible assent**, a principle of pragmatic relevance was not satisfied by the tasks. If children need to judge the truth value of a sentence that is to decide if a sentence is true or false, it should be clearly perceived by them as to when they need to assent or dissent to the task condition. This makes the task felicitous and also determines the possible outcome. Therefore the expected response ascertained should consider both the possible outcomes in a Yes/No question. In the farmer-donkey event the two possible outcomes would be either (12a) or (12b).

12a. Yes, every farmer is riding a donkey.

b. No, not every farmer is riding a donkey.

Philip (1995) fails to consider both the possible outcomes as the pictures depicted only one outcome (the *yes* outcome as in 8a). Crain et al. (1996) further strengthen their claim citing Brooks and Braine's (1996) study where children do not show a symmetrical bias as the task type was picture selection task and not a truth value judgment task. The explanation provided in support of Crain's (1996) hypothesis is that adults are cognitively more matured so they can tackle the pragmatic infelicity and it does not impact the results of the study. But children being low on both pragmatic knowledge and cognitive development fail to respond like adults, which is the only reason that makes their responses non-adult like.

The Study

The present study is situated in the background of the above argument that explores whether young learners of English as a second language will face difficulty in the interpretation of the quantifying NP *every*. The study will provide evidence of whether children show adult-like knowledge in interpretation of the universal quantifier *every*. It will further explore the role of task conditions in determining children's interpretation of the concept of quantification. The report will make an attempt to look for the theoretical and empirical evidence in favour of the view that children learning English analyze the universal quantifier as adult English speakers do and they also have a non-adult like interpretation of the quantifier in that they prefer a symmetrical account. A *picture based truth value judgment task* with causative frame has been used in the study which was done in three different phases.

The aim of the paper is to investigate the extent to which children understand the concept of quantification like their adult counterparts. The study makes used of picture-based truth value judgment task with different event frames based on a study by Crain et al. (1998). This was done to understand if the property of *every* is interpreted differently when four different task conditions- *extra same agent, extra same object, extra different agent and extra different object*- are used. The study addresses the following research questions.

1. Do ESL children have knowledge of the universal quantifier 'every' in English?
2. Do children provide similar responses for the tasks having 'every' in different task frames or is their performance dependent on the task conditions?

Subjects

In this study, thirty child learners of English served as subjects. The participants were chosen from different Indo-European language backgrounds (Hindi(9), Bengali(2), English(1)) and Dravidian language backgrounds (Telugu(11), Kannada(3), Tamil(2) and Malyalam(2)). At the time of data collection the children were enrolled in Delhi Public School, Nacharam, affiliated to the CBSE board of curriculum. The mean age of the participants was 5; 9 years (sd= 0.61, range: 5;5- 7;10) and the learners were in their first and second grade of formal schooling: fifteen from first grade (male = 5; female = 10) and fifteen from second grade (male = 9; female = 6). As previous research in L1 acquisition (Lidz & Musolino, 2002; Balusu, 2010) claim that children show non-adult responses to ambiguous sentences containing quantifying expressions by the time they are above two years. For our study we chose learners who had 3-4 years of exposure in the target language, so the subjects are from grades one and two.

Tasks Used

We used *a picture based truth value judgment task* in the study. The task design was adapted from the study reported by Crain and Thornton (1998) but we explored the felicity conditions of all the four frames of the tasks in one verb event (*feed*). Children were given a short description of the context which was supported by a picture for better comprehension and then they were asked questions based on the description. The picture was used to disambiguate the context.

Since we are checking the receptive knowledge of the participants we used the Picture-Judgment task but did not include the written input. This was to reduce the processing demands on the task considering the age and the exposure of the subjects who participated in the study. Knowledge of quantifier *every* was checked through the use of four task conditions. The details of the task conditions are given below.

1. *Extra same agent condition*: In this task condition, there were four panels of pictures where the first three had an agent doing an action the patient/ object whereas the fourth panel had an extra agent which was same as that of the other three frames but it was not involved in any action. A sample extra same agent condition is given in Figure 2.

Figure 2. Extra same agent condition (Event: Feed)

2. *Extra same object condition*: This condition used the same panels but the fourth panel had an extra same object. A sample picture is in Figure 3.

Figure 3. Extra same object condition (Event: Feed)

3. *Extra different agent condition*: This condition used four panels of pictures where the first three showed an action taking place between the same agent and object while fourth one had an extra different agent which was different from the other three panels. A sample picture is illustrated in Figure 4.

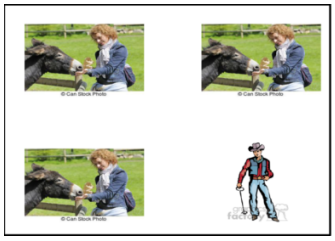

Figure 4. Extra different agent condition (Event: Feed)

4. *Extra different object condition*: In this condition, the first three panels included the one common agent acting upon the same object in all the three frames whereas the fourth frame had an extra different object uninvolved in the event. A sample picture is presented in Figure 5.

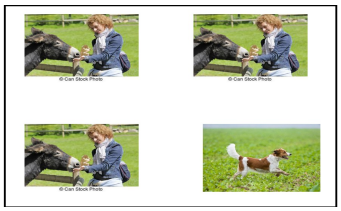

Figure 5. Extra different object condition (Event: Feed)

The task used four different causative events- *feed*, *walk*, *hold* and *ride*. The verbs were chosen from their course books and which children of this age would likely be aware of. The tasks used assertive sentences and negative sentences which had to be matched with their relevant pictures. The children had to choose the pictures which best represented sentences like '*Every farmer is feeding a donkey*'. In this paper we are going to present the findings of the causative event '*feed*' at length.

Before conducting the main study, a screening test was done to determine whether children had the knowledge of distributivity and collectivity associated with quantification. Only those who cleared the screening test were allowed to participate in the main study. The screening test was cleared by all the students except two who were later replaced by another two participants from the same grade.

Procedure

The task was done individually in a separate room called the Language laboratory. The room had adequate air and light. Each candidate took approximately 15 minutes to complete the test. Initially the candidates were asked a few general questions so that they were comfortable before the actual task. The task was done in two phases. The first phase was the task familiarization phase where the children were showed one of the cue cards and given a trial of the test. The children were also given the details of the task procedure at the beginning so that it did not impact their task performance.

Findings and Discussion

In this section, we report the findings on children's frame-wise performance on the event *feed* and find out whether children exhibit knowledge of *every* as a universal quantifier. Previous researches provide evidence that children do not show adult-like knowledge of quantification (Philip, 1995; Brooks and Brain, 1996 & Crain, 1996; Balusu, 2010). But in our study it is seen that the children do exhibit knowledge of quantification.

The main study show that children find the extra different agent (mean= 0.9, sd= 0.32) and the extra different object (mean= 0.8, sd= 0.32) frames easiest to interpret as they mainly select these two frames for the visual representation of the event '*feed*'. The extra same agent frame doesn't pose any ambiguity to the learners so the performance is accurate in this frame (mean= 0.8, sd= 0.42). The extra same object frame is seen to be mostly rejected by the children followed by the extra same object (mean= 0.3, mean= 0.43). This implies that they show a strong symmetrical bias between the agent and object involved in a specific event which also influences their ability to assign the scope of the quantifier. For the extra different agent and extra different object frames, the agent-object bias in not applicable as the frame has a different agent/object in one of the panels from the other three panels which stands out from the other three frames. Therefore the performance is high in these two frames whereas in the extra same agent and extra same object condition the context has no aid to disambiguate the interpretation of these events. This leads to the children not selecting these two frames and thereby considering the agent and the object to be a part of the entire event and not two separate quantifying expressions. Hence we get the answer to the second research question that ***Do children provide similar responses for the tasks having 'every' in different task frames or is their performance dependent on the task condition?***

The overall performance of the learners shows that they have knowledge of quantification. It is seen that children's interpretation of the universal quantifier *every* is accurate when there is a context provided which help them to disambiguate the two scopal relations of the agent and the object clearly. The children's knowledge is *incomplete rather than inaccurate*. It is therefore necessary to work on the felicity conditions of the tasks which will yield the correct responses from the children. Children's knowledge may not converge with the adult interpretation but it is definitely constrained by UG. They do show knowledge of *every* as a determiner quantifier in English which proves the first research question to be true that ***ESL children show knowledge of the universal quantifier 'every' in English***.

Recall that in the task there were four panels given in one picture card. Three pictures had an agent doing some action on an object and the fourth picture had an extra same/different agent or object. So the logico-semantic representation would be:

(i) ∀x was doing y
and not
(ii) ∀ [x was doing y]

So, the scope of *every* is on the agent/ self-agent and not as in (ii) where it is both on the subject and the verb.

In our study, the subjects have responded to the extra same agent/object condition and answered in the negative as for them as the cards do not show (ii) above. This is a non-adult like interpretation and has been attested in earlier studies on children's acquisition of logico-semantic properties of *every* as a determiner quantifier. But this response is systematic and therefore UG governed as this is not a random behaviour exhibited by children rather a systematic developmental error. So, the child ESL learners in our study are at a developmental state where the distributional properties of *every* is still partial and would get to be adult-like at a later stage. This finding seems to provide evidence for Partial competence view of Philips (1995, 1996) because children prefer symmetrical representation of scope of *every* in the extra same agent/object frames.

In the study we have worked with four causative events but this does not give us enough evidence to support the claim that children's interpretation of *every* as a universal

quantifier is not at par with the adult interpretation. This study however is an ascent from the point where task felicity is determined to be an integral cause for understanding children's knowledge of quantification. The underlying assumption is that the interplay of task conditions is the sole factor that leads to children's most appropriate responses of the task frames. However this might not be the case as there might be other factors that might affect children's knowledge. One of the major drawbacks of the study is that it uses task sentences where the universal quantifier *every* is used only in the subject NP position which also corresponds with the linear semantic representation, hence it might be interpreted before the object NP due to its syntactic position in the sentence. In future it would be interesting to examine the object NP position of *every* in sentence structures like *The smurf didn't buy every orange*. It could also be tried with combining other factors like numerically quantified NPs with the universal quantifier *every* in a sentence like *Every boy didn't buy two oranges*. This would provide us a deeper understanding of children's knowledge of the concept.

Pedagogical Implications

Previous research on child language acquisition on quantifiers have shown us that children use quantification in their spontaneous speech not before two and a half years and even till 5 years of age continue to face difficulty in using sentences with quantifiers as they find the interpretation of the referential properties of quantifiers ambiguous. This problem of interpreting quantifiers and their scope is also a learning complexity for child ESL learners even though their first language might have similar instantiations of quantification. So, research on English speaking children and ESL learners have given us enough evidence that quantification and its application to sentences to communicate is a pretty challenging issue. As this is a psychological concept, the ESL learners acquire this concept with very limited exposure to the input. This is where the UG aspect of language acquisition comes into play. It does not require overt teaching and a formal setting like a classroom. It will not ensure children's correct usage of quantifying expressions in their speech. Instead what a teacher can do is to draw learners' attention to the concept as a lexico-mathematical concept in terms of numbers. Thereafter, the teacher can introduce the concept of distributive/exhaustive properties of different types of quantifiers with help of simple tasks. It will make the learners aware as language users and also result in development of their cognitive faculty.

Conclusion

To conclude, in our study we have examined child ESL learners' competence of *every* as a universal quantifier. The findings show that their knowledge is UG governed; however whether they have an adult-like representation of the logico-semantic properties is not clear from the study. The felicity in task design is also found to be an important factor in determining children's responses and in future we would revise to make our tasks more felicitous and then look for evidence as to when children's understanding converge with adult interpretation. Based on the main findings of our study we can therefore conclude that teachers could use to teach the concept of quantification to young ESL learners which could provide positive evidence to the learners to assist them in disambiguating the context of quantification.

Reference

Brooks, Patricia; and Braine, Martin (1996). What do children know about the universal quantifiers *all* and *each*? *Cognition* 60, 235–268.

Chierchia, G. & Ginet, S.M. (2000). Quantification and Logical Form. In *Meaning and Grammar: An Introduction to Semantics*. Massachusetts: The MIT Press.

Crain, S., Thornton, R., Boster, C., Conway, L., Lillo-Martin, D., & Woodams, E. (1996). Quantification without qualification. *Language Acquisition. 5*(2): 83-153.

Inhelder, B., Piaget, J. (1964). *The Early Growth of Logic in the Child: Classification and Seriation* (E. A. Lunzer & D. Papert, Trans.). New York, Evanston: Harper & Row.

Lidz, J. and J. Musolino (2002) "Children's Command of Quantification," *Cognition* 84, 113–154.

Philip, W. (1995). *Event quantification in the acquisition of universal quantification*. Doctoral dissertation. University of Massachusetts at Amherst. Amherst, MA.

Philip,W. (1996). The event quantificational account of symmetrical interpretation and a denial of implausible infelicity. In *Proceedings of the 20th Boston University Conference on language Development* (pp. 564–575). Somerville, MA: Cascadilla Press.