

The Role of Formulaic Chunks in First Language Acquisition

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ABSTRACT

The problem of language acquisition has led many scholars to the vanguard of linguistic nativists. In literature, attempt has been made to prove the presence of a linguistic predisposition which facilitates infants' effortless language learning. The claim made in this paper is that all such studies neglect the inquisitive nature of human mind which enables him to ask purposive questions based on regularities he observes in his immediate environment. A model has been proposed for early first language acquisition, which explains the processes involved, and it has been claimed that this model obviates major problems of language acquisition. Formulaic chunks play a major role in this model and facilitate the processes formerly considered as impossible, such as linguistic and non-linguistic bootstrapping. Formulaic chunks compensate for the degenerate nature of environmental data which has been referred to as the problem of poverty of stimulus.

KEYWORDS: Linguistic nativism; formulaic chunks; poverty of stimulus; bootstrapping

INTRODUCTION

The concept of formulaic chunk does not represent a single unitary definition with regard to how fixed and holistic it is. Xingping and Keisheng (2007) define lexical phrases as lexico-grammatical units that occupy a position somewhere between the traditional poles of lexicon and syntax; they are prefabricated chunks that consist of more than one word (hence named multiword). They put lexical phrases into four main categories: (a) Polywords which are short phrases functioning very much like individual items. They are continuous and leave no room for variability. (b) Institutionalized expressions are lexical phrases at sentence level, usually functioning as separate utterances. They are mostly continuous and invariable. (c) Phrasal constraints are short-to-medium length phrases and are continuous allowing variation of lexical and phrasal categories. (d) Sentence builders are lexical phrases that provide the framework for the whole sentence.

Although most scholars define formulaic chunks as fixed or semi-fixed expressions (Nekrasova, 2009; Romer, 2009; Feng-xia, 2009; Wood, 2006) which promote fluency (Miller, 2010; Wray and Perkins, 2000; Wood, 2002, 2006, 2007; Kuiper, 2000; Xingping & Keisheng, 2007) mostly in the case of native speakers (Aguilo, 2001; Ellis, Simpson-Vlac & Maynard, 2008), such belief in the fixedness should not prevent us from the fact that although memorization of such formulas at first seems to be done without any creativity and analysis on the part of children, later use of such formulas as pragmatic units by children results in further manipulation and analysis. On the other hand, formulas not only do serve children as fixed units which facilitate language learning, but also they are analyzable units which promote learners' understanding of language. This claim is quite in keeping with Elbers's (1990, cited in Hickey, 1993) contention that a child's output can serve as 'self-productive-input' through which newly learned formulas represent fairly unanalyzed routines, which are put to later analysis by children.

The role of formulaic chunks has been emphasized in both first language (L1) acquisition and second language (L2) learning. Although major studies presented are in the case of L2, they can be easily transferred to L1 situations in which formulas are facilitative in first language acquisition (Jespersen, 1924; Clark, 1974; Peters, 1983). The major question to be answered within both domains of study is whether formulaic chunks are learned and stored without further analysis and if analyzed, what is the output of such analysis, whether rules are stored and retrieved directly in productions or rules serve as indirect supports in formulaic item based productions. Myles, Hooper, & Mitchell (1998) attempt to prove the fact that rote learning of formulaic expressions automatically results in learning rules and developing creativity in using formulaic expressions in new utterances. They define formulaic utterances as rote-learned or imitated chunks as unanalyzed language available to learners to be used without any need to be derived from generative rules. What is of critical importance is finding out whether learners acquire chunks when at the same time 'unpacking' them in order to use them creatively to generate new utterances, or they merely cease to

use unanalyzed, rote-learned utterances as their creative, rule-governed competence develops through another route. They finally conclude that formulaic language helps learners as communicative and productive strategies and also in generation of new utterances as new situations come up which calls for the manipulation of fixed rote-learned utterances. They proved that learners did not drop their knowledge of formulaic language as inadequate, as their competence develop, rather they started modifying them as a database for hypothesis testing.

Yasuko (1993) maintains that through employing prefabricated formulae learners can produce expressions beyond their knowledge of vocabulary and syntax.

On the other hand Yasuko cites scholars like Krashen and Scarcella (1978) who believe that formulas are developed independently from rule-formation. The author believes that main common argument agreed upon by both opposing views is the fact that when learners become aware of the internal structures of formulaic utterances through for example comparing a few similar formulas or by employing independently developed syntactic rules, formulas lose their status as unitary items in the learner's lexicon. Yasuko's main contention is that even after bringing syntactic structures of formulaic utterances into the learner's attention, they still remain as units or chunks in the learner's lexicon on the condition that they still serve some purpose in economizing processing energy in sentence production.

Yasuko also quotes Krashen and Scarcella (1978) who contend that formulas may develop into regular patterns, when simultaneously; the creative construction of new forms develops parallel to this process. Yasuko tries to obviate one misunderstanding about these two opposing positions by illuminating the stance taken by Krashen and Scarcells and maintains that they never believe that formulae are immune to syntactic analysis, rather what they believe in is the fact that syntactic rules are developed independent of formulae, but once rules are acquired they may be employed in the analysis of formulas. The author accepts both positions and furthers the point that there is no point in refuting the claim that learners can learn some rules from formulas when other rules can be acquired from other sources. Yasuko refutes the claims made by other scholars who believe that although formulaic utterances serve the good job of helping learners acquire creativity and function beyond their proficiency level at the beginning stages; once they are analyzed they lose their status as units and chunks, and believes that formulaic utterances preserve their status as single items even after being syntactically analyzed as far as they serve to save processing energy when producing sentences.

Yasuko's contention is that much of current theory of language production is biased by the principle of parsimony, and proposes the idea that learner's stock of memorized formulas and syntactic and lexical development are not as independent from each other as formerly believed. The author assumes a close correlation between syntactic, lexical sophistication of a child's formulaic utterances and his/her productive abilities.

As a way of summary the contentions made by Yasuko are that: (a) even after the internal structures of formulaic expressions become clear to the learner, these expressions can remain as chunks in the lexicon as long as they serve to save processing cost in speech production, (b) learners thus might resort to formulaic utterances even when they are vaguely aware that to do so is grammatically wrong. This is more likely to occur when they have to express new items which require much processing energy and the overall workload becomes more than they can handle, (c) when learners have acquired grammatical rules that prohibit the use of a formula in certain contexts, they will avoid it in these contexts. However, as long as it is still useful in other contexts, it may remain as a formula. In other words, formulaic expressions that are not disapproved by other rules remain, (d) formulaic utterances play a crucial role not only in the beginning stage of language development but also in the later stages and even in the native speaker's speech production; (e) formulae range from fairly permanent to short-lived ones. Finally, Yasuko mentions two major theoretical implications. First, interlanguage development can also be defined in terms of the acquisition and selection of formulaic utterances, i.e. learners begin with their idiosyncratic formulae, leaving out those that are mutually exclusive with newly acquired rules and strong syntactic and lexically more complex expressions as their knowledge in syntax and vocabulary increases, until their set of formulaic utterances converges to that of native speakers. The second theoretical implication is that if the concept that learners express in their idiosyncratic fashion is represented differently in another form in the input, then learners might infer that their own form is conventionally wrong and switch to the form that exists in the input. On the other hand expressions that we have never heard before tend to sound strange. The author at the end contends that there is a great deal of habit formation in our use of language.

Myles, Hooper, & Mitchell (1998) concluded that learners did not drop their knowledge of formulaic language as inadequate, as their competence develop, rather they started modifying them as a database for hypothesis testing. The critical questions to be asked are those mentioned by Myles, Hooper, & Mitchell (1998): how do we know whether the learner retrieves a particular utterance as an unanalyzed whole or derives it creatively from a rule or indeed, whether and to what extent both co-exist in the learners' interlanguage? And also what is the relationship

between the two sources of linguistic competence, i.e., rule-based grammatical competence and holistic formulaic competence?

Based on the arguments presented so far it can be claimed that formulaic expressions are fixed and semi-fixed units which can be put into further analysis and manipulation in order to achieve pragmatic goals and this pragmatic force in the form of communicative manipulation of formulas provide children with an opportunity to test their hypothesis about how formulas can be adapted and altered to meet special contextual needs and when turned into new forms the newly made formulas adapted to children's immediate situation is added to the repertoire of the child's linguistic competence as a new formula associated with other related formulas. It can be accepted that children have two separate (but related) sources of linguistic knowledge which they draw on simultaneously, i.e., grammatical rule-based competence and holistic formulaic competence. These two competences are not mutually exclusive and reciprocally influence each other in a positive way. Grammatical rule-based competence represents a passive and static competence compared to the holistic formulaic competence and serves as a support rather than a readily accessible linguistic source. This fact can be proven since almost all native speakers of a language are quite proficient in using the language with few of them (through being academically introduced to their native language) are able to formally discuss the grammatical underpinnings of their language.

METHOD

The present study tries to prove the fact that first language acquisition takes place through a complicated pattern as proposed in this paper (figure 1). Attempt has been made to show that children's production of related formulas are based on their recourse to instances of already produced formulas, on the other hand their first production of a formula which differs in one syntactic unit is a pragmatic attempt which is the result of system learning of grammatical concepts, further use of the same formula is realized to their recourse to that certain instance in their holistic formulaic competence resource rather than the verified grammatical competence.

Through a theoretical research and discussion based on the review of related literature, attempt has been made to show that taking formulaic expressions as pragmatic units which facilitate children's linguistic development solves major problems of first language acquisition proposed by Lust (2006). Attempt has been made to show how literature supports the model of language acquisition proposed by the authors (figure 1).

PRAGMATIC FORMULAIC BOOTSTRAPPING

This process facilitates the other types of bootstrapping. Due to the fact that infants see to language as a tool to interaction and are interactive participants, the claim can be made that formulaic language (chunks) can be employed to help infants get a "toehold in conversation" with others (Lieven, 1994, cited in Stilwell Peccei, 2006, p. 37). Clark (2009) believes that children's involvement with the sound system of a language is purposive and children discover this sound system as they try to figure out the communicative forces behind each utterance they come up with. Peters (2009) believes that the major driving force which promotes infants' ability in extracting language items is of a pragmatic nature. What motivates children to get involved in pragmatic manipulation of items is their eagerness to initiate interactions with their caregivers (Peters, 2009). Peters (1983) maintains that "socially relevant formulaic speech is not a dead end, but, through a documentable process of formulaic breakdown first to formulaic frames with slots and eventually towards analysis into the conventional lexical items and syntactic patterns of the language" (p. 13).

The pragmatic and communicative role of formulaic expressions has also been highly emphasized (Conklin & Schmitt, 2008; Wood, 2002; Nekrasova, 2009; Wood, 2002; Xingping&Keisheng, 2007) and the claim can be made that pragmatic goals of children serve as the driving force for their involvement with and use of such formulas. Pragmatic formulaic bootstrapping facilitates phonological and prosodic bootstrapping. Bannard and Lieven (2009) assert that if many strings with overlapping phonological and positional consistency, accompanied by type variation, are presented to infants, they have the ability to develop a frame and slot construction.

MINIMAL PAIR FORMULAS

Bannard and Lieven and Peters (cited in Corrigan, Moravcsik, Ouali& Wheatley, 2009) assert that adults present infants with many item based phrases and that children are able to analyze these chunks and form some general categories or schemas. Then they connect these constructions to form complex networks. Peters (2009) believes that children begin with unanalyzed chunks and gradually they discover how they relate to one another. Gradually, this process results in a shift from unrelated items to a system of related items. Clark asserts that children begin with some perception and representation of target words (chunks), and gradually through comparing chunks with other related chunks they manage to discover the interior segmental structure of their makeup. From this perspective

meaning within social contexts takes priority. Clark believes that both top-down and bottom-up processes take chunks as their main starting point. Such a model of language acquisition entails the view that through mutual interactions in the environment (thus a socialization view) infants are provided with closely-related formulas as a support (bootstrap) to decode the continuous speech presented to them (thus a connectionist view), and as a way to satisfy their needs (thus a pragmatic view).

LEXICAL ITEM COMPETENCE AND SYSTEMIC COMPETENCE

Despite former contentions made that the role of formulaic expressions is limited to the extrapolation of patterns and grammatical rules, the claim is that such patterns are secondary to the child's language learning and that syntax-tainted formulaic nuances give us clues to the ability of children to apply their verified tested hypothesis to the new situations in order to satisfy their communicative and pragmatic needs. Grammatical competence in no way is directly accessible by children in their productions; rather it merely supports children's formulaic nuances. Instances of formulas form a grammatical concept within the child's mind. As a hypothesis, this grammatical concept is tested by the child within the immediate environment, which if verified would result in the spurt of related formulaic expressions in the speech of the child. Later use of this verified grammatical concept is realized through drawing on instances of related formulaic expressions with a tacit and less active knowledge about its grammatical underpinning.

Cruttenden (1981) also refers to two separate stages of language learning i.e., item learning and system learning. The claim is that although learning formulaic expressions as analyzable units rather than fixed fossilized units results in a system learning rather than item-learning, and item by item learning results in the segmentation and the breakdown of items which builds into the child's developing system (Cruttenden, 1981), it does not necessarily mean that children have to directly use their systematic knowledge in their productions. On the other hand, children become fluent through employing the instances of the components of their systematic knowledge (items) rather than their systematic knowledge untouched. On the other hand, as shown in the authors' First Language Acquisition (FLA) model in figure 1, item competence is a subcomponent of systemic competence, which in turn represents a subcomponent of a general linguistic competence in the form of formulaic pragmatic competence. Such general competence facilitates the bootstrapping processes exerted on the data the child receives from the environment. Item competence represents infants' knowledge of instances of formulaic chunks which are responsible for direct and automatic well-formed linguistic productions. As the child's item competence increases, it further scaffolds the child's attempts in discovering instances of minimal pair formulas to develop hypotheses about lexicon and function words.

Lust believes that solving the Projection Problem resembles to a linguist's endeavor to crack the code of a new language in order to discover its grammar. Lust also believes that the problem that infants face is much more severe considering their lack of access to any first language to take advantage of translation and of native speakers of the new language. Bootstrapping in the form of non-linguistic information can only be possible if it involves a pragmatic formulaic mechanism which provides food for hypothesis testing which in turn results in the formation of a separate syntactic rule-based system which works in coordination with another item-based formulaic competency.

Prosodic bootstrapping facilitates segmentation of human's continuous speech in the language development of the infants who are rhythmic-biased in their preverbal speech segmentation to the extent that infants are able to differentiate between significant syntactic prosodic information and non-significant ones. Such differentiation is realized through comparing instances of minimal chunk (formulas) pairs which results in the discovery of word boundaries by infants. The relevance of acoustic and prosodic changes as cues to syntactic units is determined based on infants' knowledge about variations and substitutions within formulas. Lust's contention that prosody must be accompanied by other linguistic knowledge to be effective can be accepted and supplemented by asserting that linguistic knowledge involves infants' knowledge about formulas and their analytic nature. When prosody and formulas work simultaneously within the mind of infants, they support them in discovering syntactic structures. Pragmatic formulaic bootstrapping is both a linguistic and a non-linguistic bootstrapping which draws on both sources of information in discovering syntactic units. Lust also asserts that the developing dimensions of language knowledge seem to support rather than precede one another. The claim is that all kinds of bootstrapping, linguistic or non-linguistic are at work simultaneously when infants deal with formulas as a mechanism for pragmatic bootstrapping.

When it is true that without a linguistic code, children have no idea about the useful components of data, the claim is that this linguistic code is formed within infants' minds through a pragmatic formulaic bootstrapping which solves the problem of first language acquisition. Poverty of stimuli is based on the false assumption that the external data presented to the child cannot account for the linguistic knowledge they are supposed to acquire. The linguistic

data is replete with formulas which infants draw on in their segmentation of syntactic units. The critical information resides in the data presented to infants in the form of formulas- unattended building blocks of first language acquisition. We do not need to look inside the child mind in order to discover units and their structured and sequential organization. Research has shown that “language acquisition is continuously guided by the child’s linguistic computation in every area of language knowledge” (Lust, 2006, p. 264). What integrates syntax, semantics, phonology and even pragmatics is a formulaic approach to language which takes formulaic expressions as building blocks of language.

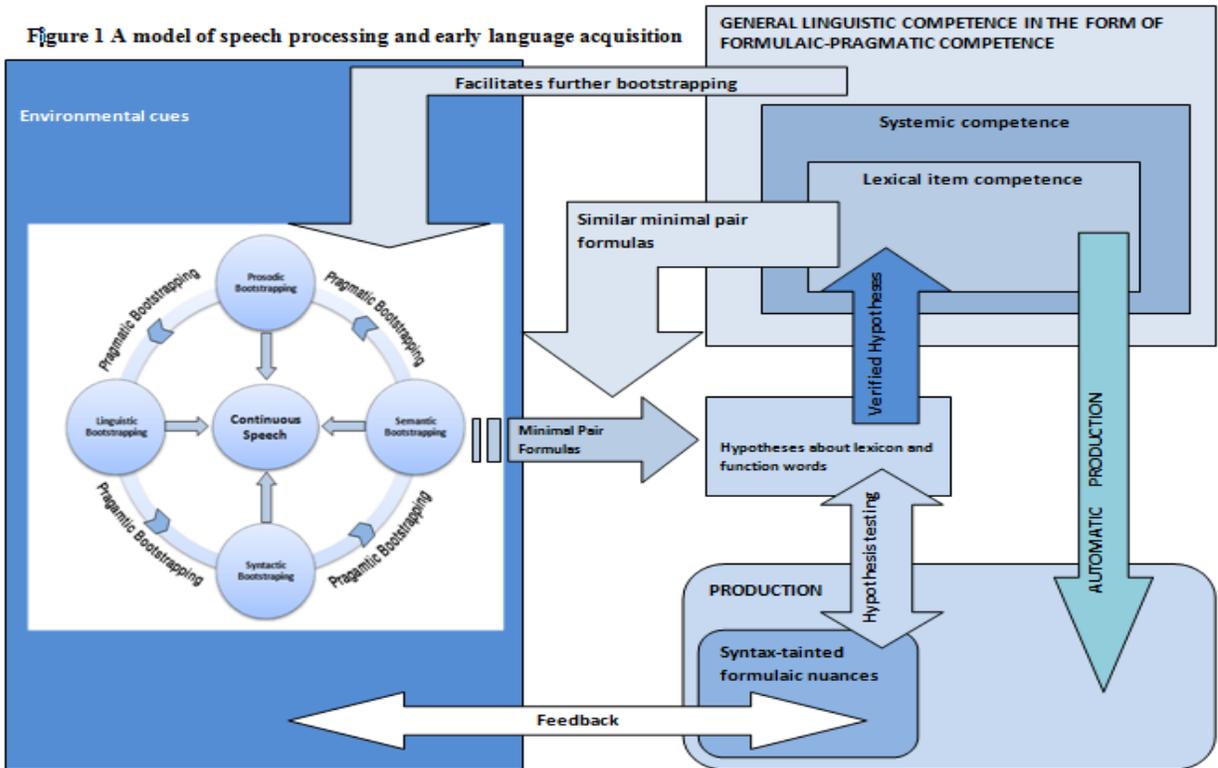
Lust is true when she asserts that children create their grammar based on the input they receive, and this shows that even without the presence of a linguistically predisposed child mind; children are capable of building a grammar since they have an “instinct to learn” (Lust, 2006, p. 266). This instinct is what has been termed a hypotheses testing procedure in the model proposed by the authors (figure 1). As an answer to Kit’s (2003) question which runs: are the cues the starting point, or the byproduct of the learning? One can claim that, according to the model proposed in this paper, cues are both the starting points as rich sources for various types of bootstrapping and also the byproducts of the learning since they provide further verified evidence and facilitate the process of bootstrapping. This claim is quite in keeping with Elber’s (1990) contention that a child’s output can serve as ‘self-productive-input’ through which newly learned formulas represent fairly unanalyzed routines, which are put to later analysis by children.

DISCUSSION

Although Lust (2006) refutes the presence of any non-linguistic bootstrapping at play and provides evidence to the contrary, research has shown that semantic (Grimshaw, 1981; Pinker, 1984; Rondal & Cession, 1990), syntactic (Gleitman, Gleitman, Landaue, & Wanner, 1987; Gleitman, 1990; Fisher, Gertner, Scott, & Yuan, 2010; Christophe, Millotte, Bernal, & Lidz, 2008), phonological (Mazuka, 1996, 2007; Christophe, Guasti, & Nespors, 1997), and linguistic bootstrapping, where one linguistic knowledge supports (bootstraps) another type of linguistic knowledge (Valian, 1991) are effective in the process of cracking the code in early language development. Peters (2009) believes that children form a connected system of items based on pragmatic, semantic, phonological and syntactic considerations. Attempt has been made to show how a pragmatic bootstrapping facilitates these processes and obviates major problems of first language acquisition and weaknesses of each type of bootstrapping through providing a comprehensive model for early language acquisition (figure 1).

According to Lust (2006), one problem of first language acquisition lies in the fact that finite positive evidence cannot account for the infinity of possible expressions in a language. The fact that adults do not provide children with all the possible lexical items in English proves the fact that there needs to be a generative system which accounts for such infinity of language productions in children. The claim is that what is at work is a system learning rather than a pre-given, rule-based system, and that this system at best produces possible chain of inferences and does not directly produce language.

Lust believes that indirect rather than direct evidence accounts for children’s language learning since children seem to rebuff direct evidence when provided by parents. Lust also believes that children relate their parents’ comments to meaning rather than form. A better contention would be that children pay more attention to the pragmatic forces at play through formulaic expressions. In the case of indirect negative evidence, Lust is right when she asserts that children must be able to determine the significance of non-occurrence. In doing so, there need to be prior hypotheses about possibilities and that “Non-occurrence is computationally intractable without a prior hypothesis or expectation that certain occurrences *are* possible in a particular situation” (p. 30). Lust poses the question: how do children come to know the significant hypothesis about language? The answer to this question lies in the fact that hypotheses are formed within infants’ minds through juxtaposition of similar formulas presented to them within their immediate environment (figure 1). Supported by already learned formulas, different types of linguistic and non-linguistic bootstrapping work hand-in-hand to render minimal pair formulas which provide food for a hypothesis tester system. What facilitates both linguistic and nonlinguistic bootstrapping is a pragmatic bootstrapping which encourages infants to go through such facilitative processes to decode language into manageable units.

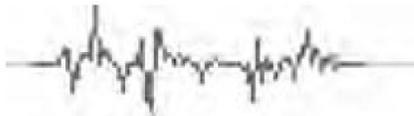


Lust defines Primary Linguistic Data (PLD) as “The actual original finite language data to which children are exposed, and from which they must map to knowledge of a specific language; a combination of sound and extra-linguistic experience” (p. 32), and introduces the following examples. At first, children, who know no language, must find a way to map from (5) to (6), or (8) to (9), without any adult intuitions, and without knowing any form for the representation of these sounds. Lust calls this initial input presented to children primary linguistic data which is considered as ambient language in all contexts.

English

4. This is a story about Cinderella

5.



6. ðisiz ə stor`iəbawtsindərelə

Sinhala

7. This is a story about mother.

8.



9. me: katandəre: ammagəno
 this story mother about

This is where the Projection Problem, which is defined as “the problem of mapping (projecting) from the finite initial specific experiences of PLD to knowledge of a specific language” (Lust, 2006, p. 32), comes into play. Lust believes that children need to “crack the code” of the physical stimulus presented to them and then map (project) from the data to linguistic knowledge. In their attempts to solve the Projection Problem, children need to convert the acoustic stimulus from a continuous stimulus, e.g., (5) or (8), to a discontinuous or digital (unit-based) representations, e.g., (6) or (9). As in examples (5) and (8), children must discover the sounds (which combine into words), the words (which combine into phrases), the phrases (e.g., subjects and predicates which combine to form clauses), and the clauses and clause combinations (which form sentences).

When the speech stream is continuous and (6) and (9) do not precisely match the units of speech stream, and essential units run into each other, and although parents do not present all words individually to children in their discovering new words, and considering the fact that speech stream resembles a motion picture which does not reveal individual images which compose it (Lust), through comparing instances of formulas which have one element (minimal pair formulas) substituted in them children manage to differentiate between these formulas and detect the word boundaries. Some of these formulas remain intact and unanalyzed as far as they serve their communicative and pragmatic functions. Proof to this can be given considering the presence of some formulas in the linguistic repertoire of adults which have never come into their scrutiny brings them surprise and when analyzed to them.

CONCLUSION

The problems of language development, proposed by Lust, seem to be based on the defects observed when considering the role of linguistic and non-linguistic bootstrapping. The model of first language acquisition proposed in this paper is based on the assumption that four types of bootstrapping work coordinately and a formulaic pragmatic bootstrapping compensates for the shortcomings of each type of bootstrapping. The problem of language development can be logically solved without any need to recourse to the nativistic approaches about the presence of a pre-endowed linguistic faculty. The proposed model highlights the fact that even if a predisposition exists within humans’ mind, its nature should not be necessarily linguistic; rather, a cognitive ability exists which predisposes infants to test their linguistic (and even non-linguistic) hypotheses, formed in the course of their purposive comparisons, as inquisitive creatures. Linguistic nativism is the taken-for-granted belief which downplays the human mind’s predisposition in asking and inquiring about his/her environment.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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