RESEARCH ARTICLE

DO SECOND LANGUAGE LEARNERS FOLLOW A PATTERN SIMILAR TO FIRST LANGUAGE LEARNERS IN VOCABULARY ACQUISITION?

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ABSTRACT

This study straddles three areas of research: first/child language acquisition, second language acquisition, and psycholinguistics (the Natural Partitions Hypothesis, Gentner: 1982, 2001). It has been argued that there is a difference between nominals and predicate terms. It is based on a predetermined perceptual-conceptual distinction between the way we see concrete objects like individuals or things and the way we see activities, change of states, or causal relations (even at the pre-linguistic stage). The second language learner's situation is somewhat different from the first language learner. Since the cognitive and perceptual development has already taken place, the child possesses most of the concepts semantically. So, part of the job is already done i.e., word-world mapping. An Indian second language learner is a learner who receives auditory input and input in terms of literacy skills (reading and writing) in a second language at the age of around 6 to 7 years. By this time the child already has a well-established first language lexicon. It is found that there is a noun bias in the early vocabularies of L2 learners as predicted by Gentner and acquisition of verbs is accompanied by acquisition of other predicates as well. This study attempts to address the question of whether the organization of L2 lexicon is similar to L1 or not.

Keywords: Second language vocabulary acquisition, acquisition of nominals and predicates, natural partitions hypothesis, second language learners

Think of a child you know since the time she spoke her first words. Think of her first few words. What were they? They must be names of people like <u>mama</u> or names of things like <u>ball.</u> Have you ever heard of a child whose first word was <u>give</u> or <u>take</u> ? You wouldn't have because children's early words are names of people, places, animals or vehicles, food items, etc. These are names of concrete objects or individuals referred to as nominals, which are different from predicates: names for actions, changes of states, or causal relations (to walk, to be happy, since). Aristotle saw nominals or substantives as "more real because there is something definite which underlies them (i.e., the substance or individual)"(Book Zeta, Chapter I, quoted in W. P. Alston's *Philosophy of Language*, 1964) as compared to predicates which refer to an action or an attribute of the thing which exists. Based on this difference between substantives and predicates, Gentner (1982) argued that nominals would be perceptually-conceptually simpler to acquire than predicates. She argues that the order in

which words are acquired is determined by ease with which a child can separate the concepts from the environment. For example, it is easier to make out a <u>chair</u> in the backdrop of a classroom because it consists of a definite stable form than understanding a word like <u>take</u> which involves two people (one who takes and another who performs the act of giving), a thing to be given, and an act. This process of separating a cluster of relatively stable, and continuous percepts from the environment is referred to as Individuation. (Gentner and Boroditsky, 2001) This argument of nominals being conceptually simpler to acquire than predicates was put forward to explain a phenomenon observed in the early vocabularies of children in the context of first language situations. (Macnamara, 1972; Nelson, 1973) This paper is centered around finding out if Gentner's hypothesis applies to second language acquisition as well. I shall first describe Gentner's hypothesis in detail and the go on to discuss its implications for our second language learners.

Why does a child first learn to say <u>maamaa</u> 'mother' or <u>kaakaa</u> 'parrot' instead of <u>de</u> 'give', which is a significant term to express a child's basic needs? The explanation comes from a proposal put forward by Dedre Gentner in 1982 known as Natural Partitions Hypothesis. Gentner argues that there is a difference between nominals and predicate terms. It is based on a predetermined perceptual-conceptual distinction between the way we see concrete objects like individuals or things and the way we see activities, change of states, or causal relations (even at the pre-linguistic stage). Gentner (1982) traces the difference between the conceptual basis for nominals and the conceptual basis for predicates to the realm of philosophy. Aristotle (Book Zeta, Chapter I, quoted in W. P. Alston's *Philosophy of Language*, 1964) considered predicates like 'to walk' and 'to sit' to be inseparable from substance, and unable to subsist by themselves. Considering the earlier mentioned example, a verb like 'de' <u>give</u> does not refer to something which exists, rather, it refers to an action performed by that which exists; whereas, nouns can be mapped on to things or individuals which are real and definite in nature. Aristotle says,

> And so one might even raise the question whether these words "to walk", "to be healthy", "to sit", imply that each of these things is existent, and similarly in other cases of this sort; for none of them is either self-subsistent or capable of being separated from substance, but rather, if anything, it is that which walks or sits or is healthy that is an existent thing. Now these are seen to be more real because there is something definite which underlies them (i.e., the substance or individual) which is implied in such a predicate: for we never use the word "good" or "sitting" without implying this.

Gentner in 1982

Gentner's Natural Partitions Hypothesis is based on this fundamental distinction between substantives and predicates. According to Gentner, the substantives or nouns refer to concepts of persons or things (e.g. father and toy); predicate terms include terms related to concepts of action, states, relationships and attributes (e.g.; to walk, to be sorrowful, elder and good respectively). The category of predicates, therefore, here includes not only verbs but also adjectives, adverbs and prepositions.

> ……..the "noun/verb distinction" is a kind of shorthand for "noun/composite category of predicate terms" [Gentner, 1982: 302]

The Hypothesis consists of two parts:

- ✓ Natural Partitions: Nominals are conceptually and perceptually simpler to acquire than predicates because they are coherent, continuous and more salient in the environment than predicates. Nouns are easier to isolate from the environment because they appear to a child as a collection of percepts which more or less hold together (e.g., objects and individuals). This is termed as natural partitions where certain percepts in the environment group together naturally and are easier for the child to perceive as a whole in the stream of physical experience, for example, objects like table and chair. Whereas, the other percepts are abstract and require the scaffolding of language for isolating them from the environment, for example, a verb, an adjective and other relational terms.

- ✓ Relational Relativity: In this part of the hypothesis it is argued that predicates are more complex because they vary across languages. The conceptual category corresponding to nouns is simpler

than the predicates. For example, an expression as simple as <u>to lie down</u> translates as <u>leTnaa</u> in Hindi. In English, the action of lying down is expressed with the help of a verb and a particle. Whereas, in Hindi, it is conflated into a single word <u>leT</u>. The point here is, mapping from concept to language is more complicated and varied in case of predicates across languages than in case of nominals. For a nominal, child merely needs to understand the way one noun maps to a concept and and a similar process can be adopted for others.

Gentner's Natural Partitions Hypothesis stands on the premise that semantic concepts are partially innate and partially acquired. In other words, we may say that it is an interactionist model of acquisition where development prompts learning and learning advances development. This will become evident when we describe the later part of the theory which was published in collaboration with Lera Boroditsy in 2001.

In Defence of The Natural Partitions Hypothesis Since 1982

The Natural Partitions Hypothesis, has been a matter of debate for psycholinguists studying early vocabulary acquisition since the time it was first proposed. Questions have been raised from time to time to check its validity. (Gentner & Boroditsky, 2001) Some of those questions are as follows:

1) "Children's early nouns may conceptually be verbs":

It has been argued that while the child says a word like 'door' she might actually be referring to an action, 'close'. Studies on early object words and associated concepts have found that most of the early object words tend to be used with objects of a particular kind but with a varied set of actions. The object words seem to refer to classes of objects not to objects or object-action combinations.

2) Counts of early nominals should include only common nouns:

Researchers arguing against noun dominance in early vocabularies have counted only common nouns and omitted proper nouns (e.g., Gopnik and Choi, 1990, Tardiff, 1996, etc.).But terms to be counted cannot be determined overlooking the theory under consideration. In Natural Partitions Hypothesis, it is essential to count proper nouns because they are names of people that are one of the most easily individuable categories.

3) The noun advantage in the child language reflects the pattern in caretaker speech:

It has been argued that there are more noun types than verb types in English. A large number of noun types are used with a low frequency but a small number of verbs types are used with a high frequency. Gentner (1982) estimates that a 20% of the total words in English among the first 100 words acquired by children are verbs, whereas, only 6% are nouns. If we consider the input frequency as the only significant factor then children should start with learning more verbs. In a study conducted by the author as a part of her MPhil at The Central Institute of English and Foreign Languages, it was found that distributional patterns of nouns and verbs are the same in the inputs across different contexts (English in an instructed setting and Hindi in a natural setting) but the output in the L1 context does not match the input. The following table shows the frequencies:

Table I: Total number of tokens in caretaker speech and child speech in the Hindi (L_1).

Tokens	Hindi (L1) Input		Hindi (L1) Output	
	Nouns	Verbs	Nouns	Verbs
Tokens	367	962	54	16

Thus, contrary to the argument of the learning theorists that noun advantage is a reflection of the input, the output does not show similarities with the frequency of nouns and verbs in the input. We notice in the table above that the child (0;10 to 1;3) hears 962 verbs (tokens) and produces 16, whereas she hears 367 nouns (tokens) and produces 54 i.e. she hears more verbs but produces more nouns.

First and second language learners - the significant difference

The *hypotheses* described till now were formulated to explain a phenomenon in first language vocabulary acquisition. My concern here is a learner who receives auditory input and input in terms of literacy skills (reading and writing) in a second language at the age of around 6 to 7 years. By this time the child already has a well-established first language lexicon. Let us try to place my second language learner vis-à-vis the course of language development of a first language learner. (However, at this point I would like to draw your attention to the fact that we draw upon first language models, theories and studies because very little information is available on how a bilingual actually organizes language mentally.) We begin with comparing the starting points of first and second languages.
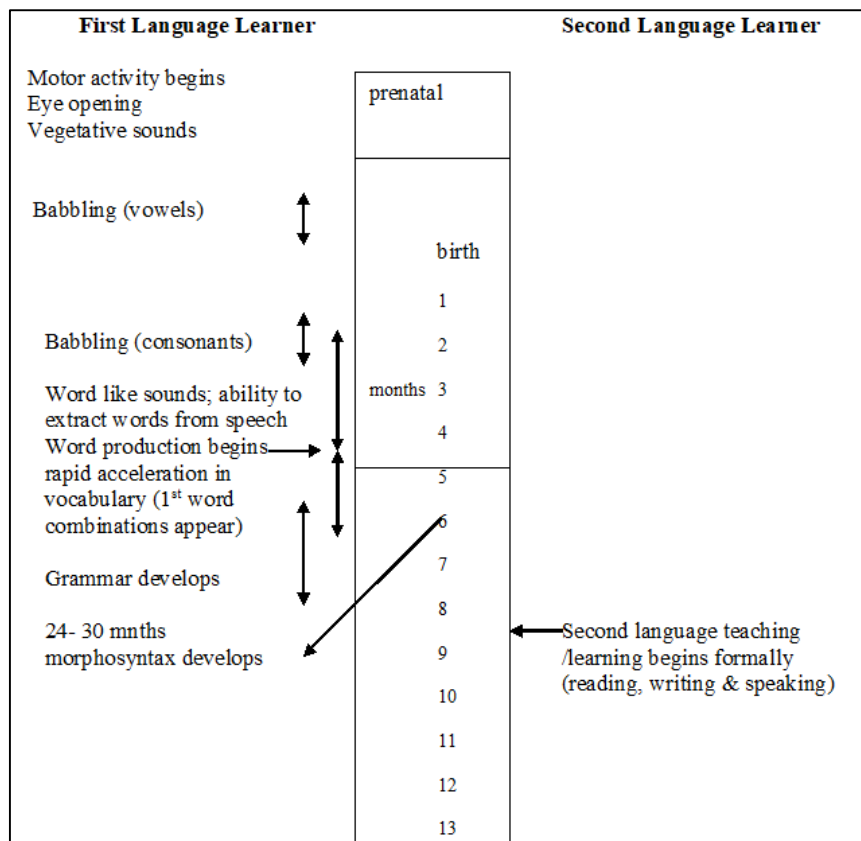

Fig. 1: *Comparison of first and second language learning* [Diagram based on Clancy and Finlays's (2001) diagram depicting neural events and language development]

As is evident in the diagram above, infants are able to extract word forms from the speech stream and remember them by about 8 months of age. By the age of 3 a child can produce complete sentences in the mother tongue. Whereas, when this learner comes around to learning the words "ball" and "kick" in the second language (English) she already has the concept of a "ball" and a "kick" and possesses the lexicon to express the concepts in the first language.

The second language learner's situation seems to be slightly different from the first language learner. Since the cognitive and perceptual development has already taken place, the child possesses most of the concepts semantically. So, half the job is already done i.e., word-world mapping.
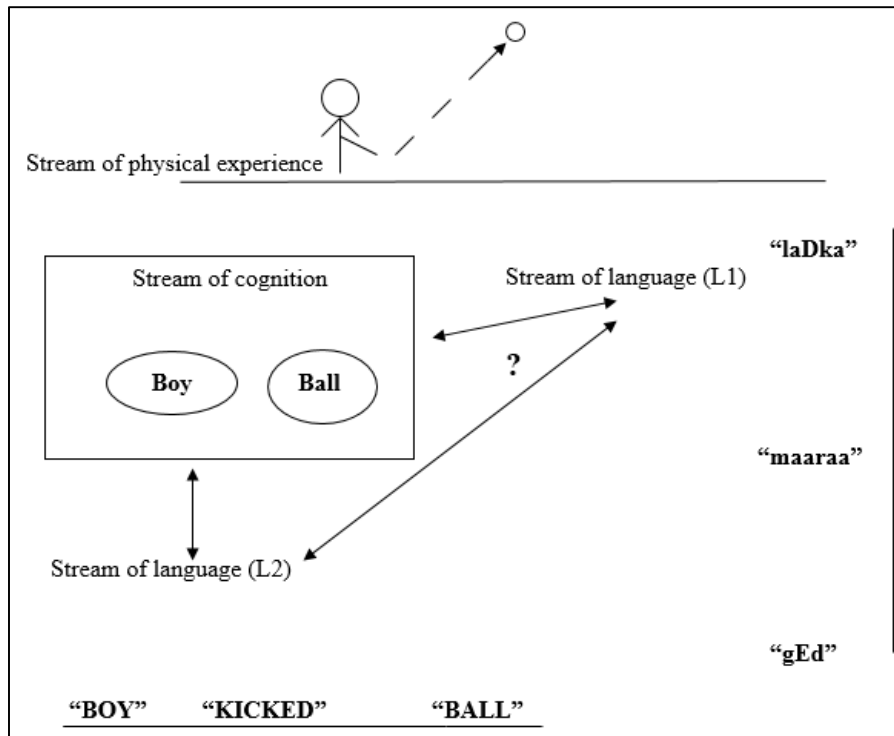
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Fig. 2 *Options available to L2 learners in learning words – mapping from L1 to L2 / concepts to L2 (based on Gentner and Boroditsky, 2001)*

Now, there are two possibilities for second language learners (shown in the figure above). They either learn nouns and verbs by mapping the new L2 words directly to the concepts or by basing the second language vocabulary on the first language lexicon. If the first hypothesis holds true, we predict that same order of acquisition reflecting natural partitions shall be observed in second language learners language data as well. Nominals should appear before predicates. Results from some of the earlier L2 studies provides us with a basis to argue for a similar order in L2 and consequently for a word-world mapping in early vocabularies of L2 learners as well. Some of the studies are as follows:

Table II: A Summary of Studies on Second Language

Author (s) and year	Results
T. S. Rodgers,1969.	The task required learning a vocabulary list in Russian and recalling the translations of words in English. In the recall test, the most learned words did not include verbs or adverbs but consisted of nouns , adjectives and prepositions.
M. Yoshida, 1978.	The subject was 3;5 when experiment started and 3;3 when she started getting exposed to English(there was no English, only Japanese at home. It was a longitudinal study for 7 mnths. Input data and child's utterances were recorded (once a week) & contexts where S's verbal and non-verbal behaviours occurred were described.(the study comprised of two parts: an experimental study-a comprehension task (The Peabody Picture Vocabulary Test) and a production task (the *Golden Happy Word Book* & the *Best Word Book Ever*). Nominals had the highest score among the words acquired for seven months. The categores in descening order of learning were; Food, Animals, Vehicles and Outdoor objects. (Food and Animals are universally acquired earlier in first languages as well)
R. Dietrich, 1990.	The study continued for a period of two and a half years on learning of 5 second languages- French, German, English, Dutch, and Swedish. The data reported here was drawn from the pilot study with 3 adult learners (2 Italians and 1 Turkish) who were

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	asked to retell the content of a film shown to them. The experiment was run three times in interval of seven to ten months. The new words are not equally distributed among nominal and verbal categories. " At the very beginning, the adult learner, like the child, picks up more referential items than predicative ones."

Two important studies in this tradition are Rodgers (1969) and Ellis and Beaton (1995). Rodgers (1969) reported that nouns are easiest to learn, followed by abdjectives; verbs and adverbs are the most difficult. In an experiment involving learning of written German words by English-speaking adults, Ellis and Beaton (1995) found that nouns were easier to recall than verbs and imageability of the concept was an important factor in determining learnability. For L1, Gentner (1982, 2001) attributed the noun advantage in child vocabularies to greater perceptual salience and stability of concrete objects, while Dietrich (1990) stressed the importance of nominal reference for basic communication for his L2 learners.

In a study conducted by the author with 20 Hindi-speaking Kendriya Vidyalaya first standard students, it was found that there were two kinds of learners: those at the 'only noun' stage, those who produced not only verbs but other categories like determiners and prepositions as well. The task was to tell stories with the help of a picture story given to them and prompts provided in the form of questions. A similar set of students performed the same task in Hindi. This experiment (Vijaya, 2008) showed us that there could be noun bias in the early vocabularies of L2 learners as predicted by Gentner and acquisition of verbs is accompanied by acquisition of other predicates as well. There may not be a 'verb only' stage. Broeder et al (1993) have suggested that "an increase in the proportion of verbs corresponds to a development in the structuring of learner's utterances."

There are still other issues regarding the validity of Gentner's hypothesis that need to be considered before we draw our conclusions. One of them is:

Does the individuation continuum apply to L2 acquisition? Do words for animate beings appear before names of vehicles and other simple objects?

Our study and the other evidence quoted above suggests that the counterintuitive view that children's language may not simply be a reflection of what they hear or what they are interested in might be true. While a child might find the action of a ball being kicked by someone very interesting and observe it intently, her language may not be governed by what she finds interesting.

A prime question for second language researchers has been whether the organization of L2 lexicon is similar to L1 or not. Meara (1984) found that connections between L2 words were primarily phonological and not semantic as in case of L1 learners. Experiments with bilingual word association tasks suggest that some areas of mental lexicon are more closely connected than others: Concrete words and cognates having a high degree of meaning overlap may be represented by the fluent bilinguals in a compound (interdependent) fashion as opposed to abstract nouns which might be stored independently.

Meara (1996) in his book, *Words, Words, Words* enumerates four problems faced by the current L2 vocabulary research.

- "The effect of individual differences on vocabulary acquisition is still not known.
- The range of languages on which work is being done is very restricted (English, French, Dutch, Swedish, etc.)
- *Few attempts have been made to assess how the overall structure of L2 lexicon works and how the size of a learners lexicon effects her learning.*
- *There are very few studies comparing the acquisition of the same L2 by different L1 learners. Instead the work till now concentrates on learning of a restricted number of words.*
- We do not seem to have much advances in the area of measurement of vocabulary acquisition."

This study attempts to make the connection between a body of research in L1 (on early vocabulary acquisition) based on a hypothesis from psycholinguistic literature, and L2 vocabulary acquisition to help us understand the L2 lexicon better. It bases itself on findings from three fields of vocabulary research: first/child language acquisition, second language acquisition, and psycholinguistics (the Natural Partitions Hypothesis, Gentner: 1982, 2001).

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