İlk Kelimeleri Anlama ve Üretmede Aşırı Genişletme
Overextension of Early Words in Comprehension and Production

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Abstract

During the early years of language acquisition, children may use a word in a wide range of contexts, which is called as overextension in research agenda. Barrett (1991) hypothesizes that if a word like dog is overextended not only for referring to dogs of all sizes, but also for referring to cats, horses, or cows, then the overextension is likely to be exhibited not only in the child's production of that word, but also in the child's comprehension of the word. Based upon this hypothesis, the focal point of the present study is to test the overextension issue in terms of both production and comprehension perspectives. The subjects (N=10) aged 2;2 to 4;0 have been experimented through picture-naming and picture-pointing tasks in order to reveal whether there is a symmetry between these two stances. The results of this experiment are inconsistent with the views foreseeing any parallelism between the overextension in comprehension and production. Rather, it has been observed that children have a tendency to overextend the words in production more often than in comprehension. Nor does it supply evidence for overextensions mostly occurring in both phases at very early ages.

Keywords: Overextension,comprehension and production,lexicon.

Öz

Dil ediniminin ilk yıllarında çocuklar, araştırma gündeminde aşırı genişletme olarak adlandırılan, bir kelimeyi çok çeşitli bağlamlarda kullanma eğilimi göstermektedirler. Barrett (1991) eğer köpek kelimesi yalnızca tüm boyutlardaki köpeklere işaret etmek için değil de aynı zamanda kediler, atlar ya da inekler için de aşırı genişletiliyorsa, o zaman aşırı genişletme durumunun çocuğun o kelimenin yalnızca üretiminde değil aynı zamanda kelimeyi anlamasında da sergileneceği varsayımında bulunmaktadır. Bu varsayıma dayalı olarak, mevcut çalışmanın odak noktası aşırı genişletme problemini anlama ve üretme perspektifleri açısından test etmektir.Bu iki olgu arasında herhangi bir simetri olup olmadığını ortaya çıkarmak amacıyla 2 yaş 2 ay'dan 4 yaşa kadar olan deneklere (n=10) resim adlandırma ve resim işaret etme görevleri yoluyla deney uygulanmıştır. Bu deneyin sonuçları, anlama ve üretmedeki aşırı genişletmeler arasında herhangi bir paralellik öngören görüşlerle tutarsızdır. Daha ziyade, çocukların kelimeleri anlamadan ziyade üretme basamağında daha fazla aşırı genişletme eğiliminde oldukları gözlemlenmiştir. Bu çalışma, her iki aşama açısından çoğunlukla daha erken yaşlarda görülen aşırı genişletmeler için de kanıt sağlamamaktadır.

Anahtar Kelimeler: Aşırı genişletme, anlama ve üretme,sözlük.

Introduction

The development of lexicon in the first language acquisition of a child embodies myriad of discussions on most of which scholars have yet to reach a compromise. Even though the literature in this domain supplies a repertoire of sound and rich empirical data, a number of complicated issues in the acquisition of word meaning such as overextension await to be uncovered. Broadly speaking, the notion of overextension is "the use of words for more than conventionally accepted referents" (Elsen, 1994, p. 305). Hence, "the meaning of the child's word is more general or inclusive than that of the corresponding adult form" (O'Grady & Cho, 2001, p. 419). Overextension implies the child's use of his limited linguistic knowledge in order to refer to the words that he has "not fully developed mapping of linguistic and cognitive systems" (Elsen, 1994, p. 305). Kuczaj (2001) labels the same concept as overextension errors since "the early phases of word meaning acquisition demonstrate that children's initial guesses about the denotation of words are often incomplete" (p. 143). In addition, Gelman, Croft, Fu, Clausner, and Gottfried (1998) note that "overextensions are just the sort of converging evidence needed for more general conclusions regarding children's early linguistic knowledge" (p. 268).

The vast majority of related studies in the literature have been conducted through diary observations (*see* Leopold, 1939–1949; Thomson &Chapman, 1976; Rescorla, 1980) that

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enabled the researchers to sort out the sources of these errors to some extent. To illustrate, Thomson and Chapman (1976) attribute these errors to the word's underlying semantic feature, retrieval error, or limited vocabulary. Peccei (2006) expands the classification and outlines the alternative explanations for inappropriate uses of words as phonological avoidance, vocabulary gaps and retrieval problems, words as comments rather than labels, and playfulness and metaphor. Moreover, Clark (2009) ascribes the overextension errors of children to mostly communicative reasons stating that "they may well know that their word is not the right one, but they don't have or can't readily access the right word, so they make do with a term close by" (p. 83). In this sense, disappearance of overextensions just after the child learns the correct label for its referent might prove that these errors are not haphazard. Instead, the child might be deliberately using them to make up the words he does not know (O'Grady & Cho, 2001).

According to Rescorla (1980), children mainly resort to two kinds of overextensions, namely *categorical* and *analogical* when they are unable to name a word. *Categorical overextension* is the *a*pplication of extending a word for one member of a clear category to the other members of the same category. For instance, a child is very likely to use the word apple for orange or truck for bus. On the other hand, "*analogical overextensions* occur when a word for one object is extended to another object which is not in the same clear category but which still bears some similarity to the first one" (Peccei, 2006, p. 51). Although this seems to be a clear-cut division, categorical extensions may bring many other controversial circumstances with them. To illustrate, in his multi-route model of early lexical development, Barrett (1991) touches upon the occurrence of overextensions at the development stage of nominals and non-nominals when the underlying prototype is started to be analyzed and the child starts to use overextensions for words. Barrett (1991) further expresses that:

> Categorical overextensions need to be distinguished from other types of overextension which may occur; for example, from overextensions which are caused by the child making accidental lexical retrieval errors, by the child deliberately misapplying a word for playful purposes, or by the child deliberately stretching the use of an acquired word in order to fulfill a particular communicative purpose for which the child has not yet acquired the appropriate word. (p. 126)

Another discussion in the literature draws the attention to the bases of these overextensions on which no clear consensus has been reached so far. Some researchers like Nelson (2008) assign these errors to the *functional* base of the word (e.g. 'hat' for basket on head), whereas others like Clark (2004) propose the priority of *perceptual* features (e.g. 'tick tock' for sound of water); or some other researchers stress the importance of *affective* reaction ('hot' for objects that are forbidden to touch) in overextending the words. Though not proven scientifically, the number of empirical studies indicating that perceptual bases such as size, shape, movement, sound or taste are the most common is substantial now (*see* Thomson & Chapman, 1976; Barrett, 1978; Rescorla, 1980).

Overextension in Comprehension and Production

Semantic feature of lexical development theorized by Clark in 1973 acknowledges the overextensions as the deliberate attempts of a child when he refers to the objects he knows but is unable to name them. This view suggests that "an over-extended word's meaning is identified with the features upon the over-extended use is based on" (Thomson & Chapman, 1976, p. 360). According to the hypothesis, since the initial definition of a new word is incomplete, the child makes many referential errors in using it (Pacesova, 1987).

The most challenging aspect of overextensions is to investigate whether the child's overextension errors in production appear in the comprehension of the words as well. This has underpinned many of the research and experiments so far, yet there is a lack of sound evidential data. Unlike Barrett's (1991) aforementioned hypothesis asserting that overextension errors

occur not only in production but also in comprehension, Clark (2009) and O'Grady and Cho (2001) argue that children overextending words in production rarely overextend in comprehension. All in all, as Kuczaj (2001, p. 144) states "overextension errors may reflect the denotation of words for children, and have implications for theories about how the denotation of object words may be represented in the minds of young children".

Method

Subjects

The subjects are 10 monolingual Turkish children from a nursery school (Table 1). Four of them are female and the rest six are male. Unlike most of the former studies with subjects aged around 2;0, the subjects of this study have been purposively selected from the ages ranging from 2;2 to 4;0. The subjects were coded with letters *A, B, C, D, E, F, G, H, I*, and *J*.

Table 1: Subjects of the study

Subjects	Gender*	Age
Child A	F	2;2
Child B	F	3;0
Child C	M	2;8
Child D	M	3;5
Child E	M	3;8
Child F	F	4;0
Child G	M	4;0
Child H	F	3;9
Child I	M	2;2
Child J	M	2;7
10		**Mean Age: 3;7**

*Abbreviations F for Female; M for Male.

Setting

The experiment was conducted in a nursery school located in the city center of Adana. The study was able to be completed in two sessions each of which lasted for about one and half an hour. Both sessions were during their play time on weekdays.

Materials

A series of colorful animal pictures were collected and grouped into four categories. In each set, there were photos of three different domestic cats; three large felines (lion, tiger, and leopard); three cat-size non-felines (rabbit, monkey, and lamb); and three unlike animals (elephant, giraffe, and crocodile). In total, there were twelve animal pictures used in the experiment.

The experimenter also designed an observation checklist (Appendix 1) specific to this experiment in order to record the children's responses. The sheet included two tables for production and comprehension phases. For children's responses, categories were constructed beforehand as "knows", "doesn't know", "hesitations", and "overextends". An empty slot was allocated for children's different utterances and notes.

Unfortunately, no type of the recorders was allowed to use. Therefore, the experimenter had to ask for a colleague to take field notes on children's nonverbal behaviors during the sessions since such information would contribute to the results as well.

Data Collection Procedure

The selection of the words to be tested was made on the basis of the familiarity with the children. Earlier studies in this domain revealed that children mostly tended to overextend people, animal or object names (Rescorla, 1980). Arising from this fact, the researcher constructed her study on labeling animal names. Having designed all the essentials, she initiated the experiment that was composed of two phases: production and comprehension.

Phase 1: Production

Production phase mainly consists of a picture-naming task. To initiate the experiment, the experimenter sat opposite the child and told him/her that they were going to play a game. Then, she shuffled the pictures, and showed them one by one to him/her by asking "Bu hayvanın adı ne?" (*What is this animal called?*) The child's responses were carefully marked in the checklist and noted down. The procedure went on until all the pictures were shown to him/her.

Phase 2: Comprehension

Following the picture naming task, the comprehension phase of the experiment was composed of a picture-pointing task. Here, all twelve pictures were laid out on the table in front of the child and the experimenter asked him/her "Bana kediyi göster" (*Point to a picture of a cat*) or "Bana kaplanı göster" (*Point to a picture of a tiger*) until all animals names were used. All the reactions in both phases were noted down as well.

Research Questions

Are there any differences between comprehension and production in terms of overextension?

How does age range affect overextensions in comprehension and production?

Findings and Results

Data gathered from the checklists and field notes were examined scrupulously in line with the purpose of the current study. Table 2 briefly summarizes the overall experiment results for each child. There were 240 instances in total with 12 pictures in two phases shown to 10 subjects. It revealed that all of the children (100 %) were able to name (*kedi*) and identify 'domestic cats' in both picture naming and picture pointing tasks in total 60 instances.

In the category of large felines, the subjects failed to produce the names in 9 instances whereas their performance in comprehension task was composed of 22 unsuccessful instances out of 60. There were 17 overextensions (14 in production, 3 in comprehension) in the same category (28,3 %). According to findings, 8 out of 10 subjects overextended the animal names mostly in production, namely in labeling *aslan* (lion), *kaplan* (tiger), *leopard* (leopard). *Kaplan* (tiger) was the most overextended word with 8 instances (7 in production, 1 in comprehension). However, in two of the instances (see Child E and Child G), the children overextended the words *kedi* (cat) or *aslan* (lion) to all the large felines both in production and comprehension.

In cat-size non felines category, among a total of 17 unsuccessful performances, 11 of them belonged to picture-naming task whereas the rest six were in the picture-pointing task. Apart from large felines, the overextension errors occurred only in two of the animal names *maymun* (monkey) and *kuzu* (lamb), both in the production phase. In addition, subjects above 3;0 performed notable success with very few exceptional instances (2 out of 30 instances) in this category whereas subjects aged 3;0 and below failed in 17 out of 30 instances.

On the other hand, the unlike animals category consisted of 24 unsuccessful instances out of 60; 15 in production and 9 in comprehension tasks. In sum, of 240 instances, there were 19 instances (7,9 %) in which overextension errors occurred in 16 production (6,6 %) and 3

(1,25%) comprehension tasks. In order to shed light on the focus of this study, a deeper look into individual child's responses accompanied by field notes is presented as follows:

Table 2: The overall analysis of the experiment

Subjects	Age	Sex	Comprehension vs. Production	CATEGORIES											
				Domestic cats			Large Felines			Cat-size non felines			Unlike animals		
				Cat1	Cat2	Cat3	Lion	Tiger	Leopard	Rabbit	Monkey	Lamb	Giraffe	Elephant	Crocodile
Child A	2;2	F	Production	+	+	+	+	O	O	—	+	—	—	—	—
			Comprehension	+	+	+	—	—	—	+	+	—	—	—	+*
Child B	3;0	F	Production	+	+	+	—	O	O	+	—	—*	—	+	—
			Comprehension	+	+	+	—	—	—	+	+	+	+	+	—
Child C	2;8	M	Production	+	+	+	+	O	O	+	+	O	+	+	+
			Comprehension	+	+	+	+	—	—	+	+	+	+	+	+
Child D	3;5	M	Production	+	+	+	+	O	O	+	+	—	—	+	—
			Comprehension	+	+	+	+	+	—	+	+	+	—	+	+
Child E	3;8	M	Production	+	+	+	+	O	+	+	+	+	+	+	+
			Comprehension	+	+	+	O	O	—	+	+	+	+	+	+
Child F	4;0	F	Production	+	+	+	+	O	O	+	+	+	+	+	—
			Comprehension	+	+	+	+	+	—	+	+	+	+	+	+
Child G	4;0	M	Production	+	+	+	—*	—*	O	+	+	+	+	+	+
			Comprehension	+	+	+	—*	—*	O	+	+	+	+	+	+
Child H	3;9	F	Production	+	+	+	+	—	—	+	+	—	+	+	—
			Comprehension	+	+	+	—*	—*	—	+	+	+	+	+	+
Child I	2;2	M	Production	+	+	+	O	O	—	—	O	—	—	—	—
			Comprehension	+	+	+	—	—	—	—	—	—	—	—	—
Child J	2;7	M	Production	+	+	+	—	—	—	—	—*	—*	—	—*	—
			Comprehension	+	+	+	—	—	—	+	—	—	+	—	—

A total of 240 instances (20x12)

__Symbols: + for knows; ─ doesn't know; O for overextension. Items with an asterisk will be made further explanations in the analysis of each child.__Child A: The experiment took about 20 minutes, the one with the longest duration, with Child A. She seemed rather uninterested and she could not focus on the directions of the experiment. There were long pauses during the task. As seen in Table 2, the child was able to name 5 out 12 animals correctly in the production phase. Overextension occurred in the labeling of large felines, namely *kaplan* (tiger) and *leopar* (leopard). She overextended the words *kedi* (cat) to *leopard* and *aslan* (lion) to *tiger.* In the picture-pointing task, she was able to point 6 animals correctly, namely domestic cats, rabbit, monkey, and crocodile. However, her success in pointing the crocodile seemed dubious to the experimenter since she was trying to get rid of the task as quickly as possible by choosing the closest picture to her seat. Large felines whose names had been overextended in the production task were unable to be identified in the picture pointing task.

Child B: She was able to name 5 out of 12 animals but most of the time she had some hesitations. She was able to name domestic cats, rabbit, and elephant. In one instance with *kuzu* (lamb), she just made its sound '*meee'.* In two instances with large feline pictures, she used the word '*aslan*' (lion) to the tiger and leopard instead of the lion itself. In the second phase, she was able to identify 8 animals. Again she had some hesitations with the large felines and she made a gesture showing that she didn't know the animals; lion, tiger, and the leopard.

Child C: In the picture naming task, Child C was able to name 9 out of 12 animals correctly and without any hesitation. However, he overextended the word *aslan* (lion) both to the tiger and leopard. In addition to this, he overextended the word *kedi* (cat) when he was shown the picture of a lamb. In the second phase, however, he was able to identify all the animals apart from the tiger and the leopard.

Child D: He named 7 animal names correctly. These were *kedi* (domestic cat), *aslan* (lion), *tavşan* (rabbit), *maymun* (monkey), and *fil* (elephant). He overextended the word *aslan* (lion) to tiger and leopard. In the second phase, he was able to point 10 pictures correctly except for leopard and giraffe. The important finding here was that he didn't overextend the word *aslan* (lion) he did in the production phase and he successfully pointed to the tiger when he was asked to do so.

Child E: In the first phase, the child was able to name 10 animals correctly and quickly without any hesitation. Just like Child D, he also overextended the word *aslan* (lion) to all large felines. However, this child did the same overextension in the comprehension task as well and pointed to the lion each time he was asked to show the tiger, leopard, and lion.

Child F: She was able to call the name of 9 animals correctly. The overextension occurred in the large felines by naming all three animals as *aslan* (lion). She hesitated a lot in naming the leopard which she was unable to identify and point in the second phase. In addition, she named the crocodile as *dinozor* (dinosaur) after a very long pause. In the second phase however, she was able to point all animals except for the leopard.

Child G: The child had problems only with the large felines category in both tasks. In the first phase, he shifted the names of animals, *aslan* (lion) and *kaplan* (tiger). Likewise, he labeled the leopard as lion. The shifting problem also occurred in the comprehension task. However, he overextended the word *kedi* (cat) to the leopard which had been named as *aslan* (lion) in the first phase.

Child H: The child was able to name 8 animals correctly. In other instances with tiger, leopard, lamb, and the crocodile she hesitated and signaled that she did not know the names of these animals. In the picture-pointing task, however, the only category she failed in was the

large felines where she shifted the pictures of the lion and the tiger. The leopard remained as an item that she was unable to identify.

Child I: The child was one of the youngest subjects and just like his peer (Child A) he seemed rather uninterested in both tasks. He also had articulation problems in most of the sounds. In both tasks, he only labeled and pointed to the domestic cats with 100% accuracy. However, in picture naming, he overextended the word *kedi* (cat) to the tiger, lion (saying "big cat"), and monkey. In other instances, he did not give any response. The child uttered some unidentified sounds while pointing to the animals in all the categories except for the domestic cats. He was unable to point the correct pictures with an accuracy of 3 out of 12 instances.

Child J: Interestingly, the child tried to make the sounds of all the animals that he was unable to label in the production task. Moreover, he used some gestures to show the experimenter that he knew that animal. Although in the instances of monkey, lamb, and the elephant he produced the sounds that were quite similar to those of the animals, in total he only named the domestic animals correctly. In stage 2, he pointed to the domestic cats and also to the rabbit successfully. However, he failed to point all the other animals and refused to give any response each time the experimenter attempted to restart the trial. The duration of the experiment with Child J was about 25 minutes.

RQ1: Are there any differences between comprehension and production in terms of overextension?

Among all the overextended words, 16 of them occurred in production, whereas 3 of them were in the comprehension stage. Nonetheless, Table 3 illustrates the status in comprehension of words overextended in production.

Table 3: Status in comprehension of words overextended in production

Subjects	Age	Overextended words in production
A	2;2	tiger – leopard
B	3;0	tiger – leopard
C	2;8	tiger – leopard- lamb
D	3;5	tiger – leopard
E	3;8	tiger*
F	4;0	tiger – leopard
G	4;0	leopard*
I	2;2	lion-tiger – monkey
8 in total		**2 instances**

also overextended in comprehension task

There were only 2 instances recorded (Table 3) where overextension occurred in both phases. The words overextended belonged to the category of large feline.

RQ 2: How does age affect overextensions in comprehension and production?

It is suggested that at earlier ages children tend to make more overextension errors especially at around age of 2 (Gelman, et al., 1998). Table 4 displays the frequency of overextensions with respect to age range divided into two groups for this study:

Table 4: Overextension errors with respect to age range

Groups	Subjects	Mean Age	Overextension Errors	
			Production	Comprehension
Group 1	A B C	2;6	10	0

2;2-3;0	I			
	J			
Group 2 3;1-4;0	D E F G H	3;9	6	3

As clearly seen from Table 4, there is a slight difference between two age groups in the rate of overextensions. Besides, at later ages children tended to make more overextension errors in comprehension while its number was zero in Group 1. Thus, data gathered from this experiment has not supplied any evidence for the literature.

Discussion

Data accumulated in this study has manifested highly striking results in that it has formed asymmetry to some of the notable studies in the literature. Neither the frequency of overextensions especially in earlier ages suggested in former experiments nor the age range was found to be compatible with the results of the current study. First of all, in total of 240 instances in this experiment, the number of overextensions was only 19 (7,9%). One possible reason might have resulted from the fact that the current study was completed in a shorter period of time and through an experiment which limited the data unlike the previous studies based on diary observations that were mostly a part of longitudinal studies. Second, no significant difference has been detected between the age ranges of the subjects here. Besides, all the overextensions in comprehension were done at later ages.

Since the purpose of the experiment was to label or identify animals, no sign of analogical overextension was encountered. All the errors were made on categorical basis. In some of the instances where there was no response to the attempts of eliciting the words, a few of the subjects failed due to articulation problems. However, in some cases especially where they shifted the names of large felines, it was rather difficult to decide the source of errors since they were not close to any categories suggested in the literature. In other words, they did not result from any phonological avoidance, retrieval errors, or vocabulary gap since children did not show any hesitation in shifting instances. Rather, it seemed that they were unable to differentiate those animals, namely leopard, tiger, and lion, which may not be a flaw confined to those ages only. On the other hand, the present study confirmed that children relied on perceptual bases in the overextension as some of the subjects tried to make the sounds of the animals while some others tried to show it by their gestures.

Unlike Barrett's (1991) aforementioned theory of parallelism between the comprehension and production in overextensions, this study has revealed contrastive results resembling those of Thomson and Chapman (1976). There were very few cases in which the child overextended the word in comprehension as he did in production. Almost all of the words overextended in production were not overextended in comprehension. All in all, the rareness of overextension errors in comprehension has supported the common view that comprehension is ahead of production.

Conclusion

This study has explored the overextension errors of children at early ages and given a different point of view to word learning processes. To sum up, children's early lexicon development process is too complicated to explain based on one single theory. Likewise, it is a highly challenging task to test the parallelism between comprehension and production

perspectives since the bases of overextensions may be diverse. In order to be able to generalize a phenomenon like overextension, there is a need for more empirical research over a greater number of children.

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