

ACQUISITION OF TURKISH ADJECTIVES IN CHILDREN'S EARLY LEXICON

Hatice Sofu & N. Feyza Altınkamış Türkay
Çukurova University

1. Introduction

Multiple explanations of the acquisition of adjective by children are possible to group in two main point of views: cognitive account and linguistic account. Researchers following Cognitive approach mostly have focused on acquisition of nouns and verbs (e.g. Gentner, 1982; Kern, 2007 with French; Caselli et al. 1995 with Italian). They claim that as nouns represent concrete objects, especially basic level object categories, they are easy to individuate and acquire in comparison to verbs and verb-like items. However, verbs require a cognitively complex task for children to accomplish since they are related to different elements in an utterance and in the world. Gentner (1982) also propose that verbs expressing relational systems vary more crosslinguistically than do object meanings. Similarly, adjectives as a lexical class also point out significant linguistic differences among languages (Dixon, 1982). Dixon claims that “all languages have noun and verb classes but not adjectives. Some languages have no adjective class at all or a small non-productive minor class that can be adjectives” (p. 3).

Adjectives, as a category, present some characteristics that can be evaluated in the light of noun and verb categories (Blackwell, 2005). Mintz and Gleitman (2002) claim that nouns are easy to learn, whereas verbs and adjectives are difficult. In line with the Markman's Whole Object Constraint (1987) they claim that children, first, recognize the objects as a whole unit and once children have recognized them, they are motivated to learn terms other than object labels. In this way, children analyze the object for some other properties. Similarly, Gentner and Boroditsky (2001) assert that whole objects pose natural conceptual priority in acquiring lexical items. Thinking that adjectives give additional information to the nouns that they precede, not relating to their wholeness, it is probable to say that adjectives are acquired later than nouns. In addition, nouns have a key role in learning the meaning of adjectives as adjectives are controlled by nouns that they modify (Maxman and Markow, 1998). Studies by Mintz (2005) and Klibanoff & Waxman (2000) have shown that adjectives associated to basic level object categories are extended correctly by children, so conceptual representation of the adjective is surrounded by the noun it modifies.

On the other hand, linguistic accounts on children's early lexical development have considered the input characteristics an influential factor in shaping children's early language trajectories. For example, input frequency has been found to be a determining

element on children's acquisition order of nouns and verbs (Choi, 2000; Choi & Gopnik, 1995; Türkay, 2005). In addition to frequency-based views, recent research has shown that syntactic diversity of that specific lexical item in the input has also been significant for children's language acquisition processes. For example; Blackwell (2005) has investigated semantic characteristics of early acquired adjectives as well as syntactic diversity of adjectives in child-directed speech.

As for acquisition of adjectives in Turkish, this category is a neglected area. One of the few studies on this category is a PhD dissertation by Sofu (1995). She has investigated spontaneous longitudinal data and concluded that adjectives are the third group of words in frequency (mean being 4 at 2;0 and 80 at 3;6) after nouns and verbs and that children use adjectives both attributively and predicatively. One reason for scarcity of studies on adjectives may be the fact that the definition of Turkish adjectives as a word class is still controversial (Göksel & Kerslake, 2005, Braun & Haig, 2000; Demircan, 1999). According to some researchers, adjectives have been categorized in the nominal group. They can take plural, possessive and case suffixes as nouns do. For example; the word *küçük* 'little', whose main function is adjective, as in *küçük kızlar* 'little girls' may also be used as a noun as in *küçükler* 'the little ones' (Göksel & Kerslake, 2005; Banguoğlu, 2004). On the other hand, Demircan (1999) classifies such adjectives as still being adjectives with their head noun deleted. And thus, the suffix the head noun takes is attached to the adjective. This does not change the category of the word.

Turkish simple adjectives are represented in two sub-categories as qualifying and descriptive adjectives (Banguoğlu, 2004). In this paper, we investigate the acquisition of qualifying adjectives with a specific focus on semantic and syntactic properties of them.

Mainly, in this study we aim to find answers to the following questions:

- 1- What is the semantic composition of early acquired adjectives?
- 2- What is the acquisition order of the syntactic position of adjectives?
- 3- Is there a relation between maternal input frequency and acquisition of adjectives?

2. Methodology

2.1. Corpus and Coding

Mainly, 4 Turkish speaking children's longitudinal spontaneous speech data (from 2;00 to 3;06) taken from Sofu (1995) were examined in relation with the objectives given above.

For adjectival semantic typology, we borrowed Blackwell's semantic analysis coding (2005) which was based on a very detailed semantic coding schema. In her coding convention, there are seven main categories as shown in Table 1.

Table 1. Main semantic categories used in semantic coding of adjectives

Semantic Coding	Dimension	
	Colour	büyük 'big', kısa 'short'
	Value	mavi 'blue', kırmızı 'red'
	Age	güzel 'fine', kötü 'bad'
	Physical Property	büyük 'elder', genç 'young'
	Human Propensity	kırık 'broken', sıcak 'hot'
	Other	şımarık 'spoilt', akıllı 'intelligent'
		aynı 'same', gerçek 'real'

As for syntactic coding, Blackwell (2001) presented eight syntactic positions of English adjectives (prenominal attributive, ordinary predicative, postverbal, postnominal attributive, predicative qualifying, adverbial position, clausal, and extraclausal position). However; we took into consideration the language-specific characteristics of Turkish and have provided a different coding schema (Table 2). In Turkish there are five positions an adjective can be found (Demircan, 1999; Göksel and Kerslake, 2005).

Table 2. Five syntactic positions of adjectives in Turkish

Syntactic Position	Surface sequence	Example
Prenominal Attributive	adjective + noun	akıllı çocuk ‘clever child’
Postnominal Attributive	noun+adjective	gözü yaşlı (ana) ‘the woman with tears in her eyes’
Ordinary Predicative	NP + be + adjective	Oyuncağım yeni. ‘My toy is new.’
Elliptic ¹	adjective + suffix	Küçük çocuk-lAr Küçükler ‘The young’
Preverbal	N+Adj+V	sütü sıcak (>35°C) tut. ‘keep the milk hot (>35°C).’

In our data, we came across only three of the syntactic positions shown in Table 2. Our analysis was based on these three categories; namely, prenominal, postnominal, and ordinary predicative position. The term “elliptic” in our study is used in a limited sense. We have considered only structures like “küçükler” (the young), “büyükler” (the elderly) in this group.

3. Analysis

3.1. The Children’s Data

The adjectives used by each child are presented in three developmental stages. In the first period, Ecem and Başak acquired three common adjectives: büyük ‘big’, küçük ‘small’ and kocaman ‘great’. In addition to that, Başak used minik ‘tiny/miniature’. As for İlknur, she also acquired adjectives about smallness as küçük ‘small’ and minik ‘tiny/miniature’ but not about greatness in the first period (Table 3).

Table 3. Adjectives in the **dimension** category for all children

Dimension	Ecem	İlknur	Seher	Başak
2;00-2;06	büyük, kocaman küçük	küçük, minik	uzun	büyük, kocaman, küçük, minik
2;07-2;11	alçak, geniş, kısa, uzun, yüksek	-	büyük, kocaman küçük, minik	-
3;00-3;06	minik	kocaman, uzun	-	uzun

Different from Ecem, İlknur and Başak, Seher only acquired *uzun* ‘tall’ in her first period. In the second period, Ecem acquired additional four adjectives as *alçak* ‘low’, *geniş* ‘wide’, *kısa* ‘short’ and *uzun* ‘tall’. In the same period with Ecem, Seher also acquired four

adjective types which were already acquired by Ecem and Başak in the first period. In the second period, İlknur and Başak did not acquire any new adjective types. Lastly, in the third period, İlknur and Başak acquired one common adjective, uzun ‘tall’ and individually İlknur acquired kocaman ‘great’ which was already acquired by Ecem and Başak in the first period. It is clear that all children followed a different path in themselves. However; we observed a strong consistency in semantic types of early acquired adjectives if all three periods were regarded as a whole. Most of the adjectives acquired in this period are positive polarity items. However, one child first acquired negative polarity items. This pattern was also in line with the acquisition order of dimension adjectives investigated by Blackwell (2005) in her study with English speaking children. Similarly, O’Grady, et al. (2001) summarizes that children follow three developmental stages. In the first stage, children acquire adjectives which refer to any aspect of size such as big and small. In the second stage, they acquire adjectives representing a single dimension such as tall-short and high-low. And lastly, in the third stage, they acquire adjectives referring to a secondary dimension such as wide-narrow and deep-shallow. In our study, only one of the children seems to have passed through these steps.

Table 4. Adjectives in the **colour** category for all children

Colour	<i>Ecem</i>	<i>İlknur</i>	<i>Seher</i>	<i>Başak</i>
2;00-2;06	beyaz, kırmızı, mavi, sarı, siyah, pembe, yeşil	koyu	-	beyaz, kırmızı mavi
2;07-2;11	koyu	kırmızı, mavi	-	-
3;00-3;06	mor	mor, kara beyaz, sarı	kırmızı, sarı siyah	sarı, siyah, pembe, yeşil

As for colour adjectives, basic colours such as beyaz ‘white’, kırmızı ‘red’ and mavi ‘blue’ were acquired by Başak and Ecem in the first period but in the relatively later periods by Seher and İlknur. Mor ‘purple’ was acquired by İlknur and Ecem in the third period but not acquired by Seher and Başak. The variability in colour terms is clear among the children. It may be because of the interactional pattern of the children with their caregivers or because of the contextual factors in which the data were collected.

According to Blackwell’s results (2005), more general value adjectives (good, bad and nice) were acquired earlier than adjectives expressing degrees of value (wonderful, great, terrific, terrible, awful). Our findings related to value adjectives also supported this pattern (Table 5).

Table 5. Adjectives in the **value** category for all children

Value	<i>Ecem</i>	<i>İlknur</i>	<i>Seher</i>	<i>Başak</i>
2;00-2;06	güzel, kötü	kaka	-	güzel, iyi
2;07-2;11		-	güzel	-
3;00-3;06	şahane	-	çirkin, kötü, iyi	şahane, çirkin

More general value adjectives, güzel ‘fine’, iyi ‘nice’ and kaka ‘bad’ were acquired earlier than degrees of value adjectives such as şahane ‘great’. As for individual variability, İlknur acquired only one value adjective. In addition, Blackwell (2005) found out that most of degrees of value adjectives were acquired between the ages of 4;00 and

5;00. Since we investigated an earlier period, we did not observe a rich variety in this category either.

Regarding age-related adjectives, Ecem and Başak acquired büyük 'old' and küçük 'young' in the first period but İlknur and Seher acquired the same adjectives in the following periods (Table 6).

Table 6. Adjectives in the **age** category for all children

Age	Ecem	İlknur	Seher	Başak
2;00-2;06	yeni,büyük, küçük	-	-	büyük, küçük
2;07-2;11	-	küçük	küçük	-
3;00-3;06	-	büyük	-	-

Physical property and human propensity adjective categories revealed more individual variability than other categories. Many subcategories of physical property adjectives were apparent especially in Ecem's adjectival lexicon such as configuration (kırık 'broken' and cleanliness temiz 'clean' and kirli 'dirty'), starting from the first period. Temperature (sıcak 'hot' and soğuk 'cold') adjectives were acquired by İlknur and Seher in the first two periods and in soğuk 'cold' in the second period by Başak.

As it is clear from Table 7, Ecem is the child who produces a rich variety of physical property adjectives. And Seher is the one who produces the least.

Table 7. Adjectives in the **physical property** category for all children

Physical Property	Ecem	İlknur	Seher	Başak
2;00-2;06	cicikli, kirli, temiz, açık tatlı, boş, kırık, dolu dolu, çıplak, şişman, bıyıklı, acı, ekşi, kalın	soğuk, kağıtlı tüplü, yaş	sıcak, soğuk	acı, süssüz, tekerlekli
2;07-2;11	mini etekli Ninja kaplumbağalı, yuvarlak, kapalı, hafif, sert, sivri, tuzlu, yumuşak, sıcak	kirli, ekşi sıcak	pis, şişman, acı	soğuk
3;00-3;06	kuru, elbiseli, piyonlu, boncuklu, kare, topuklu, kıvrıkcık, tahta, zayıf, pis, soğuk	bozuk, kırık kuru kuru, topak, pashı, yuvarlak, yumuşak	az	bozuk, gevşek naneli, çikolatalı, yuvarlak, yumuşak, sıcak, dolu dolu

The reason for this difference may be due to the environmental factors. Ecem is raised as the first child of middle class family in which the parents spend time with their children by reading books and playing. However, Seher is the third child of a low class family. The parents could not share too much time with their child when compared to Ecem's situation.

According to Table 8, Ecem was, again, the most precocious child among all. Ecem totally acquired 8 human propensity-related adjectives while Başak acquired only two adjectives. İlknur and Seher did not acquire any human propensity adjectives.

Table 8. Adjectives in the **human propensity** category for all children

Human Propensity	<i>Ecem</i>	<i>İlknur</i>	<i>Seher</i>	<i>Başak</i>
2;00-2;06	aç, utangaç	-	-	şaşkın
2;07-2;11	terbiyesiz	-	-	komik
3;00-3;06	komik, deli, akıllı, kör, yaramaz	-	-	-

Finally, in the last main category (Table 9), others, İlknur acquired uzak 'far' and Seher acquired aynı 'same' in the third period. Ecem acquired these adjectives in the first period and she additionally acquired ayrı 'separate' in the first period. We observed a spurt in Ecem's adjectival lexicon in the third period. Though this was the case with Ecem, Başak did not acquire any adjectives to be included in this category.

Table 9. Adjectives in the **other** category for all children

Other	<i>Ecem</i>	<i>İlknur</i>	<i>Seher</i>	<i>Başak</i>
2;00-2;06	ayrı, uzak, aynı	-	-	-
2;07-2;11	yapışık, değişik, farklı	-	-	-
3;00-3;06	hakiki, zor, gerçek, canlı ters, yasak, yanlış, doğru	aynı	uzak	-

The second group of analysis has been done on the syntactic patterns of adjectives. Table 10 shows frequency of each adjective in a syntactic diversity that we encountered in our corpus. This was calculated in terms of the cumulative number of adjective tokens, following Blackwell's study (2001).

Table 10. Frequency of adjective syntactic positions across ages

Syntactic Positions	Age	İlknur %	Ecem %	Başak %	Seher %
Predicative	2;00-2;06	58,33	57,76	58,33	100
	2;07-2;11	71,43	74,73	72,72	73,53
	3;00-3;06	70,42	54,55	63,05	68,03
Pre-nominal	2;00-2;06	33,33	37,89	41,67	0
	2;07-2;11	28,57	21,98	27,28	26,47
	3;00-3;06	21,12	38,63	23,91	22,96
Ellipsis	2;00-2;06	8,34	4,35	0	0
	2;07-2;11	0	3,29	0	0
	3;00-3;06	8,46	6,82	13,04	9,01

However, Blackwell categorized adjectives appearing as one-word utterances in the alone group, gave them a score of 0 for syntactic position and did not consider them as in a syntactic position. In this manner, we took into account the language specific properties of Turkish. As Turkish allows ellipsis, adjectives appearing as one word utterances were grouped in a predicative position. For example:

Example 1: (Ecem, 2;02)

*ECE: Anik dört yaşında.

*ECE: Anik is four years old.

*HAT: senden büyük mü küçük mü?

*HAT: Is she elder or younger than you?

*ECE: **küçük.** (O, benden küçük.)

*ECE: *younger. (She is younger than me.)

As seen in Example 1, when Ecem was asked about her friend's age, she replied by using a one word utterance which is an adjective. In this position, this adjective is grouped as a predicate. Example 2 shows an exact utterance of elliptic use.

Example 2:

*HAT: o da korktu kaçtı hı?	*HAT: He was afraid and he escaped, didn't he?
*ILK: korktu.	*ILK: He was afraid.
*HAT: hıı.	*HAT: hmm.
*ILK: ben onun onun altında durdum.	*ILK: I stopped under it.
*ILK: bi taneyi gördüm küççüğü gördüm.	*ILK: I saw one of them, I saw the small one.

When a developmental point of view into Table 10 was posited, a common pattern among all children was observed in all periods.

İlknur	predicative > prenominal > ellipsis
Başak	predicative > prenominal > ellipsis
Ecem	predicative > prenominal > ellipsis
Seher	predicative > prenominal > ellipsis

According to the results of this study, we can say that all children acquired the predicative position in the very early period of their language development. Elliptic use appeared as the last syntactic position in the first period. In the second period, a consistency was seen among children. All of them used predicative position more frequently than prenominal position and again, elliptic position came last. In the third period, Başak and Seher also started to use adjectives in elliptical structures. Referring to the processes claimed by Demircan (1999) (see footnote 1), elliptic use of adjectives is a language-specific property and it may be difficult for children to produce such patterns at the earliest period of language development.

3.2. Input frequency

In the third level of analysis, we have compared frequency of parental input and frequency of child adjectives. The highest use of adjective types and tokens is realized by Ecem's mother and similarly, Ecem produced the highest number of adjective types and tokens. On the other hand, there is no consistency between the means of maternal input and their children's.

Table 11. Input and Child Frequency Comparisons

	Mean type	token	Total type	token	SD type	token
Input Adjective Frequency						
İlknur's mother	9,27	17,61	167	317	4,37	7,53
Seher's	6,11**	13,44**	110	242	3,17	7,81
Ecem's	14,78*	28,84*	281	548	7,30	16,13
Başak's	10,10	19,10	192	363	4,88	9,92
Child Adjective Frequency						
İlknur	2,72**	5**	49	90	2,58	6,48
Seher	3,22	9,05	58	163	2,55	9,39
Ecem	9,94*	19,73*	189	375	4,31	12,40
Başak	3,31	4,26	63	81	2	3,10

*the highest mean of type and token for children and input

**the lowest mean of type and token for children and input

In order to see the statistical correlation between caregiver input and children's adjective use, we calculated Pearson correlation. The statistical result showed that although there seemed to be high correlation between mothers' input and child production ($r=.79$), this correlation was not proven to be statistically significant. This may be resulting from the limited number of participants in our study.

4. Conclusion

In this study, we analyzed a corpus based on 4 children's 19 month-longitudinal data in order to observe how the adjective category developed in children's early lexicon. We investigated semantic component, syntactic structures, and the effect of input frequency in the acquisition of adjectives. In our study, we found out both general and Turkish-specific trajectories about adjective acquisition.

The results of semantic analysis show that children acquiring Turkish follow a trajectory similar to children acquiring English as indicated by Blackwell (2005). Semantically, we have observed that in dimension category, three children first use positive polarity items referring to any aspect of size, then, they move on to refer to a single dimension, and finally, to secondary dimension. Only one child followed this order differently. For value and colour adjectives, a similar consistency is, again, clear among children. The children acquired basic colours or some basic colours earlier than others, regardless of age period. Two of the children acquired more general value adjectives earlier than degrees of value adjectives parallel to the findings of Blackwell (2005). Physical property and human propensity categories are the ones in which we have observed individual variation the most. One child is much more ahead of the others in these categories, which might be resulting from the effects of maternal input and interactional pattern between the child and the parents. However, the other three children were not productive in these categories.

Next, syntactic analysis shows that all children use adjectives in predicative position more frequently than in prenominal position and in elliptic structures. The syntactic pattern our participants show is different from Blackwell's study with English children. In her study, she found out that children favored prenominal position from earlier stages of their language development. This difference highlights Turkish-specific language characteristics. As Turkish is a pro-drop and head-drop language, predicative use of adjectives may not be as difficult as that of English adjectives, so Turkish children tend to use predicative position earlier than their English peers. Lastly, for input frequency, though we found out high correlation between maternal input and children's adjective use, this was not statistically significant.

However, the specific results show that a more comprehensive database is required to support our findings. As mentioned in the related literature and as our study indicates, adjective is a lexical category which is acquired late when compared to nouns and verbs. Therefore, studies focusing on adjective acquisition should be conducted with children from later age periods as well.

Notes

However; this has led to some controversial points among leading Turkish linguists in identifying the adjective in the context. For example; according to Demircan (1999), as Turkish is a head-drop language in a given context as long as the referent is clear, some lexical items can be dropped. In Turkish, when a head in a noun phrase is dropped, its contextual and syntactic properties are kept and attached to the word that precedes the item dropped. For example;

Units	Processes
i. Küçük çocuk -lAr (bu oyuna katılamaz)	+ head drop
ii. Küçük Ø-lAr ...	+ attachment of the plurality marker
iii. Küçükler ... (in Demircan, 1999, p. 129)	+ vowel harmony

Unlike Göksel & Kerslake (2005) and Banguoğlu (2004), Demircan (1999) claims that the processes given above do not change the lexical category of the word, so it is wrong to accept that as a result of the ellipsis, the inflectional suffixes of the head noun are attached to the adjective and this process change that adjective into a noun. He (1999) adds that the word-final suffixes do not always change the word category.

References

- Banguoğlu, T. (2004). Türkçenin Grameri. Türk Dil Kurumu Yayınları. Ankara.
- Blackwell, A. (2001). On the acquisition of the syntax of English adjectives. In J. Boyle, J. Lee, and A. Okrent (eds.), /CLS// 36, Volume 2: The Panels/. Proceedings of the Chicago Linguistic Society's Annual Meeting. Chicago: University of Chicago Press. 361-375.
- Blackwell, A. A. (2005). Acquiring the English adjective lexicon: relationships with input properties and adjectival semantic typology. *Journal of Child Language*, 32, 535-561.
- Braun, F. & Haig, F. (2000). The noun/adjective distinction in Turkish: An empirical approach. A. Göksel & C. Kerslake (eds.) Studies on Turkish and Turkic Languages, Proceedings of the 9th International Conference on Turkish Linguistics (1998).
- Caselli, M.C., Bates, E., Casadio, P., Fenson, L., Merderl, L., & Weir, J. (1995). A cross-linguistic study of early lexical development. *Cognitive Development*, 10 (2), 159-200.
- Choi, S. (2000). Caregiver Input in English and Korean: use of nouns and verbs in book-reading and toy-play contexts. *Journal of Child Language*. 27, 69-96.
- Choi, S., & Gopnik, A. (1995). Early Acquisition of Verbs in Korean: A Crosslinguistic Study. *Journal of Child Language*, 22, 497-529.
- Demircan, Ö. (1999). Türkçede türsel bir ayırım: (başdüşümlü) Türkçede "Sıfat" ayırımına "Düşüm"sel bir bakış. XII. Dilbilim Kurultayı Bildirileri. pp: 127-140. Mersin University: Mersin.
- Dixon, R. M.V. (1982). Where have all adjectives gone? The Hague: Mouton.
- Gentner, D. (1982). Why nouns are learned before verbs: Linguistic relativity versus natural partitioning. In S.A. Kuczaj (Ed.), *Language Development: Vol. 2. Language, thought, and culture*, pp. 301-334, Hillsdale, NJ: Erlbaum.
- Gentner, D. & Boroditsky, L. (2001). Individuation, relativity, and early word learning. In M. Bowerman and S. Levinson (Eds.), *Language Acquisition and Conceptual Development*, pp. 257-283, Cambridge, UK: Cambridge University Press.
- Göksel, A. and Kerslake, C. (2005). Turkish: a comprehensive grammar. Routledge. New York.
- Kern, S. (2007). Lexicon development in French speaking infants. *First Language*, 27 (3), 227-250.
- Klibanoff, R. and Waxman, S. (2000). Basic level object categories support the acquisition of novel adjectives: Evidence from preschool-aged children. *Child Development*, 71, 649-659.
- Markman, E.M. (1987). Constraints Children Place on Word Meanings. *Cognitive Science*, 14, 57-77.
- Maxman, S.R. and Markoff, D.B. (1998). Object properties and object kind: Twenty-one month old infants' extension of novel adjectives. *Child Development*, 69 (5), 1313-1329.
- Mintz, T. (2005). Linguistic and conceptual influences on adjective acquisition in 24 and 36 month olds. *Developmental Psychology*, 41 (1). 17-29.
- Mintz, T. and Gleitman, L. (2002). Adjectives really do modify nouns: the incremental and restricted nature of early adjective acquisition. *Cognition*, 84, 267-293.
- O'Grady, W., Archibald, J., Aronoff, M. & Rees-Miller, J. (eds). (2001). Contemporary Linguistics: An Introduction. 4th edition. Bedford/St. Martin's Press.
- Sofu, H. (1995). *Acquisition of Lexicon in Turkish*. Unpublished Doctoral Dissertation. Çukurova University: Adana.
- Tardif, T. (1996). Nouns are not always learned before verbs: evidence from Mandarin speakers' early vocabulary. *Developmental Psychology*, 32, 492-504.
- Türkay, F.(2005). *Children's Early Lexicon in terms of Noun/Verb Dominance*. Unpublished Ph.D. Dissertation. Çukurova University: Adana.