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THE DEVELOPMENTAL PATHS IN TURKISH CHILDREN'S EARLY LEXICAL COMPOSITION

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ÖZET

Bu araştırma, Türkçeyi anadil olarak edinen çocukların erken dönem sözcük dağarcıklarının yapısındaki genel gelişimsel değişimleri incelemektedir. Buna ek olarak, bu değişimleri çocukların bireysel dil gelişim farklılıklarını dikkate alarak tartışmakta temel amaçlardandır. Dil ve bilişsel gelişimi birbiri ile ilişkilendirme yaklaşımı, bu çalışmada da izlenmiştir. İlgili alanda, çocukların temel olarak izlediği bilişsel yolu anlamak için, dil ve kavramsal ilerleme arasındaki etkileşim incelenmiştir. Son yıllarda, aynı amaçtan hareketle, hem diller arası karşılaştırmalı çalışmalarda hem de bireysel dil edinimi farklılıkları konusunda önemli araştırmalar yapılmaktadır.

Bu araştırmanın amacı, anadili Fransızca, İspanyolca, İngilizce ve İsveççe olan çocukların erken dönem sözcük dağarcıklarında izlenen genel gelişim yapılarının, anadili Türkçe olan çocuklarda gözlenip gözlenmediğini ortaya çıkarmaktır. Genel amaç, Türkçeyi anadil olarak edinen çocukların erken dönem sözcük dağarcıklarında, üç aşamadan meydana gelen yolu izleyip izlemediklerini bulmaktır (gönderim, yüklemleme ve dilbilgisi). Bu amaçla, 5 Türk çocuğunun, anneleri ile doğa ortamdaki anadil gelişimlerinin gözlemlendiği veri tabanı incelenmiştir. Genel sonuçlar, Türk çocuklarının da ilgili alanda farklı diller için bulunan gelişim yolunu izledikleri yönündedir.

Anahtar Kelimeler: erken dönem sözcük dağarcığı/erken dönem dil gelişimi, Türkçenin anadil olarak edinimi, dil ve bilişsel gelişim, bireysel farklılıklar

ABSTRACT

This paper describes general developmental changes in Turkish children's early lexicon. Also, these lexical patterns are discussed in terms of interindividual paths. A point of view integrating language and cognition is taken to explain the growth trajectories in this research. In the related field, to understand the cognitive bases children stand on, the interaction between language growth and conceptual development has been investigated. In recent years, a significant body of research has accumulated both in individual and cross linguistic studies concerning the parallel objectives.

The objective of this study is to observe Turkish children's language growth patterns in the light of the related findings to observe whether there were shared patterns with French, Spanish, English and Swedish children's language development mentioned by researchers in the field. The overall aim of this study is to see whether Turkish children's early lexical composition follows the three waves (from reference to

predicates then to grammatical items) regarding the pattern of English speaking children's lexicon, then that of French children. With these aims in mind, the longitudinal data of five Turkish children in their routine interactions with their mothers were analysed. The findings are generally in keeping with the related research findings. As for interindividual variation, one early and one late talker was compared into each other.

Key Words: early lexical/vocabulary development, Turkish first language acquisition, language and cognition, interindividual variation.

Introduction

Among the attempts to reveal the frame of children's early language development, especially quantitative approaches indicating the number of different parts of speech such as nouns or verbs in their lexicon have received a growing interest. This has led to an accumulation of research findings shedding light on the composition of children's lexical expansion. Observing the acquisition of lexical categories challenges both language specialists, cognitive linguists and developmental psychologists, each emphasizing a different interface of language learning journey and speculating on the findings from various perspectives.

Research results have demonstrated both general tendencies and language specific variations in children's early period lexical progress. Following the investigation of noun/verb dominance discussion in Turkish children's early lexical development both in naturalistic longitudinal data and in a context-controlled study (Türkay, 2005; Türkay, 2008; Türkay & Kern, 2008), this specific research focuses on another common trajectory among languages: three waves in children's early period language growth from reference to predicate to grammar.

The studies carried out with French, Spanish, English and Swedish children highlight a shared pattern regarding developmental language phases. The findings of these studies provide a framework for this specific research with Turkish children. The first reference study was conducted with Spanish children by Jackson-Maldonado et al. (1993). They aimed to investigate the overall trends in Spanish children's lexicon and they followed the common lexical categories as common nouns, predicates and closed class words in order to be able to compare the results with other languages. In their research, a parental report, CDI, was used as a data collection tool. The next reference study was conducted with English children by Bates et al. (1994). This was a large-scale study when compared to the Spanish data. The data collection method; however, was similar, through the CDI. The next research was carried out by Bassano et al. (1998) with French children. In their attempts to look for the general tendencies, they combined two main objectives in their studies, one for aiming to show the lexical expansion in French children and one for aiming to show the individual variation among children. The point that makes this study different from Spanish and English data is that data were not collected via the CDI but video-recording. Two different data completed each other in the research by Bassano et al. (1998). The first set of data was a longitudinal study with one child, the other was a one-shot study with 24 French children. In addition to French findings by Bassano et al. (1998), Kern (2007) also presented parallel research results as a result of study with 548 French speaking

children. Furthermore, Berglund & Eriksson (1998) reported the similar pattern which they observed in their research with 400 Swedish children. Kern's and Berglund & Eriksson's studies are same in using CDI as data collection tool. To sum up these research findings given above, it can be concluded that children acquiring different languages as their mother tongue follow a similar pattern in their early lexicon development: from reference to predicate to grammar.

This common developmental path in Spanish, French, English and Swedish children –the general tendencies- compose a research framework for this specific research in Turkish database. The main concern of this paper is to determine whether Turkish children go through the observed developmental trajectories as Spanish, English, French and Swedish children in their early language development.

The Theoretical Framework of the Study

The developmental change from common nouns to predicates and then to closed class items are also in line with Gentner's (1982) and Gentner's & Boroditsky's revised cognition-based approach (2001). According to them, since concrete objects are easy to individuate in comparison to relational meanings represented by verbs and since they are easy for children to find a referent, they are firstly acquired. However, predicates, carrying more interwoven meanings among objects and verbs, are cognitively complex, so they appear later than nouns. Lastly, grammatical words appear. Because they attain to the links between nouns and verbs and they represent emergence of syntactic development. The vocabulary composition highlighted in the reference researches also connect Gentner's cognition-based approach into language acquisition arena. It can be inferred that the general tendencies found in the mentioned studies above also highlight the mutual inteaction between cognition and language.

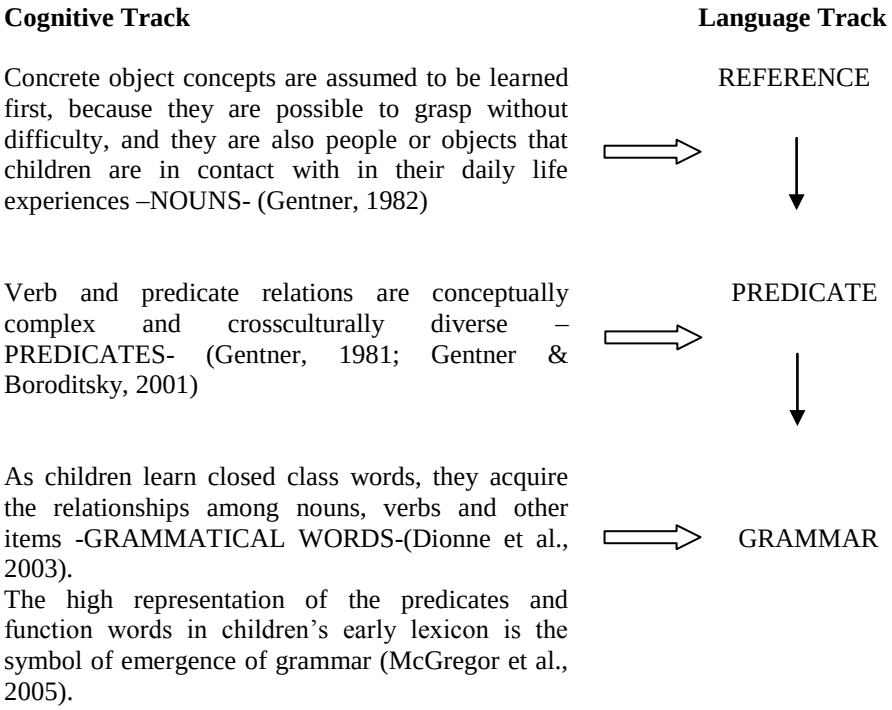

Figure 1. Cognitive base of the pattern (from reference to predicate to grammar) (Türkay, 2006).

Türkay (2006) also reflects Gentner's (1982) and Gentner's & Boroditsky's (2001) points of views onto the developmental path indicated in the reference studies carried out in different languages. Gentner's claim has been found very provocative and fruitful since her proposals about the universality of the noun bias in children's productions have generated a great number of research (1981; 1982). Following a cognitive approach into her perspective, Gentner has pointed out preponderance of common nouns, referring to concrete objects, in young children's early lexical composition. She has explained that this derives from the cognitive easiness of concrete objects in terms of being represented in children's mental dictionary. Verbs –predicates- however, require a deeper cognitive task for children to accomplish as verbs and verb-like items indicate more complex cognitive relations among different agents in utterances. In addition to her explanation about the universal noun bias, Gentner and Boroditsky (2001) have indicated the importance of language-specific characteristics particulary on the behalf of verbs. It can be summed up from Figure 1 that language and cognition domains overlap in explaining the developmental trajectories in children's

early language progress. In line with this perspective, the overall objective of the study is to investigate the general changes/shifts in the composition of Turkish children's early lexical expansion in the light of cognitive and linguistic factors and to observe interindividual variability pattern in their vocabulary development.

Method

Participants

The Turkish database built on longitudinally video-recorded 5 mother-child natural interactions by means of video recording were analysed at five time points (01;04.00, 01;07.10, 01;10.00, 02;01.00, 02;04.00) (Türkay, 2005) for this specific study. All children were females and first-borns and they were the only child in their family approximately during whole period of the data collection process, except one child who had her younger brother in the last 5 months of the period. All mothers were university graduates and working actively in their full-time jobs.All fathers had university diplomas as well. The children were visited at their own homes and recorded in their naturalistic interaction with their mothers. There was no control of the context, so all recordings were free-play sessions. The sessions were transcribed using the CHAT system from the CHILDES project (MacWhinney, 1991). Each session was forty-five minutes long. The recorder did not interact with the child or the mother during recording but only gave a response when demanded or required.

Analysis & Coding

Data analysis of this study was completed in two steps. First, the classification systems for word categories in relevant studies, especially by Kauschke & Hofmeister (2002) and Bassano et al. (2005) were taken into account. The first coding was completed on the basis of the coding schema used in these studies. Then, both the structural and contextual characteristics of Turkish was taken into account. Following this, the second coding was done according to the detailed and revised word categories. In order to determine the category of any word in the data, not only linguistic definition of the word in Kornfilt (1997) and Göksel & Kerslake (2005) but also communicative context of the utterance in which the word appeared was taken into consideration. The finalized classification schema was based on one main system of coding, solely used in this study.

The category indicated the class of the word, the lexical content, if necessary morhological properties of the word. For example, all case markers of a specific noun was considered below the same category. As a result of these mentioned steps, four expanded categories emerged; namely, nominals, predicates, functional words and others (for detailed description of each category see Appendix I).

In order to provide comparable data and consistency, formal criteria referred in similar studies were chosen. That is; the forms of the words were based on the adult Turkish language. As is usual in the relevant literature, various phonologically different forms of any word was considered as the same type of the word (e.g., agga for ayakkabı). The video-recordings were analyzed carefully to be sure about the phonologically different form. In addition; when there were inflected forms of any verb, the verb was taken as one type but inflected forms were taken as tokens (e.g., 'gidelim

(Let's go), gittik (We went), gideceğiz (We will go)' were taken as -gitmek 'go'- one type but three tokens). As for nouns and place adverbs, different forms of nouns and place adverbs with case markers (accusative, dative, genitive, ablative and locative) were taken as tokens. This might lead to low frequency of types but high frequency of tokens. Following this, incomprehensible words or utterances were removed. Words repeated for the same function was counted once. Also, one to one repeated words by the children in this study were not regarded as productive language.

Results and Discussion

There are two levels of analysis in this study, each referring to a specific objective of the research. The data analyzed in types/tokens with specific reference to each determined time point in the study were used in order to assess the children's lexical productive language (Figure 1 and 2). Furthermore, some methods of descriptive statistics such as mean, standard deviation and coefficient of variability were preferred to evaluate the interindividual variation (Table 1). Also, two specific children –one late and one early talker- were analysed as cases in order to highlight the variation among children (Figure 3 and 4).

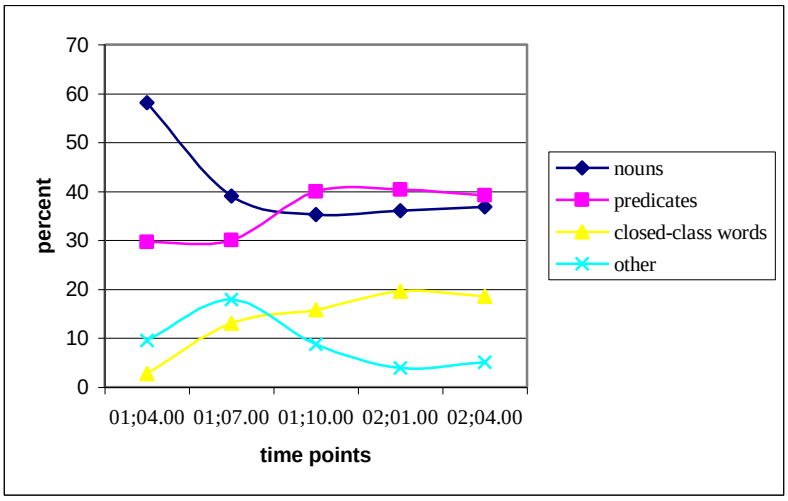

Figure 2. Development of word categories at five time points (type)

Figure 2 presents the percentage distribution of each lexical category throughout the time points determined at the study. Percentage was chosen as the aim was to reflect the developmental changes and the place that each category occupied across time points. At 01;04.00; nouns were the dominant parts of speech. However, a sudden decrease was observed at nouns just after the first time point. This was also the same period when a burst was seen at closed class words (at 01;07.00). Following this attention-getting decrease at nouns and increase at closed class words, in the next time point, a rise at verbs was observed. Then, both nouns and verbs remained stable across all time points with moderate increases at closed class words. In general, the changes at closed class

word types were more developmental –except a very slight decrease at the last time point; whereas, the rising at verbs and falling at nouns were more drastic.

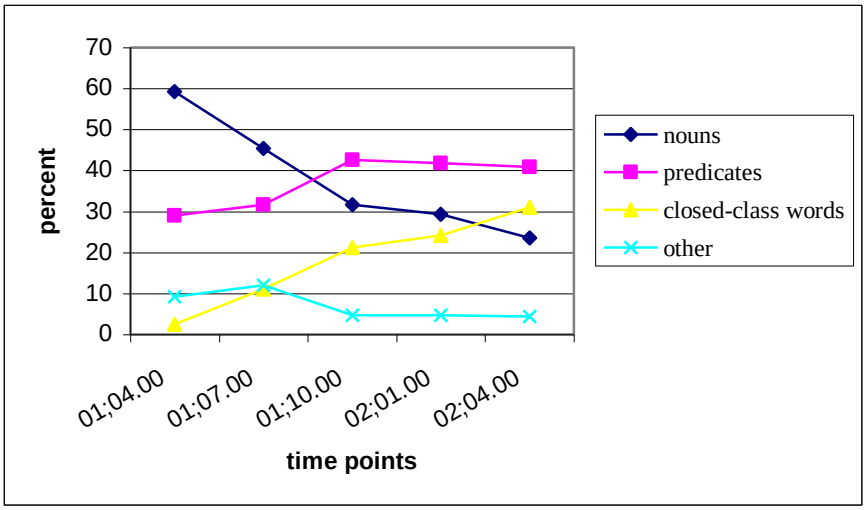

Figure 3. Development of word categories at five time points (token)

The pattern from reference to predicate to grammar was more considerable in the token analysis. The gradual decrease in nouns and the slow but proportional rise in predicates and closed class category was very significant. Particularly the consistent increase in grammatical words can be regarded as a signal of the children's rising competency in using the language since this group consisted of pronouns, adverbs, conjunctions and postpositions. However, different from Bates et al.'s data, the Turkish children in this specific study demonstrated a consistent increase in closed class vocabulary earlier than English children. According to Bates et al.(1994), there was no proportional development in closed class vocabulary between 0 and 400 words but there was a sharp increase from 400 words to 680 words. The Turkish children's words had not been reached at 400 and they were between 300-350 throughout the data collection period of this study. Therefore, it can be concluded that both type and token analysis has supported the same developmental pattern found on Spanish, English, French and Swedish children but the only striking difference was on functional words/closed class words. Turkish children's growth pattern in this category was more gradual and starts early.

As for variation among children, coefficient of variability (CV) was calculated as it has been accepted as an index indicating magnitude of variation among involved parties in leading studies in the field (Bassano et al. 1998; Bassano et al. 2005). CV is calculated by dividing the mean into the standard deviation. Table 2 points out the mean, standard deviation and CV values of the children at five points.

	01;04.00		01;07.00		01;11.00		02;01.00		02;04.00	
	type	token	type	token	type	token	type	token	type	token
mean	14.8	39.2	25.2	46.8	43.8	92.8	71.4	161.2	98.8	239
S.D.	15.1	34.3	17.2	34.5	18.2	57.7	33.8	88.3	16.6	66.6
CV	1.02	0.87	0.68	0.73	0.41	0.62	0.47	0.54	0.16	0.27

Table 2. changes of mean, standart deviation and CV at five time points

A specific level of CV was not considered here following the relevant studies. Instead, the developmental change at CV was focused. As is clear at Table 2, the coefficient of variability was interestingly high at 01;04.00 as for both type and token. However, the CV values, following a constant path, fell down, except a slight difference between 01;11.00 and 02;01.00 at types. The minimum degree at the CV was observed at 02;04.00 in terms of both types and tokens. This level of analysis supported the findings by Bassano et al. (1998) in favor of observing more variability at younger ages than older ones. In fact, an important difference was seen between the participant children between Bassano et al.'s research and this study. They conducted a cross sectional study with different children at 01;08.00 and 02;06.00 In this study; however, the variability among same participant children was observed longitudinally.

The high level of standard deviation especially at younger periods led to a follow-up analysis in the study. Two of the children were identified as an early (C1) and a late talker (C2) based on the researcher's personal observation. Then, the development of four lexical categories in the study were analysed, aiming to see the pattern of interindividual variability between two extreme children in the database of this specific study.

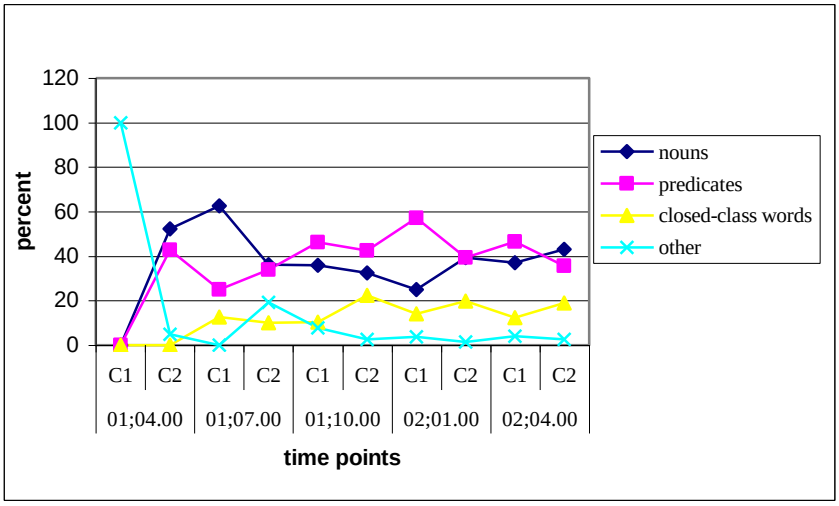

Figure 4. The variation between C1 and C2 at four lexical categories (type)

Figure 4 illustrates a direct comparison of variation in percent at four word categories, considering the most productive child (C2) and the least productive child (C1) throughout the study. At 01; 04. 00, the variation among word groups between two children is at the highest level. Remembering the content of the 'other' category, it can be said that C1 only produced individual-expressive utterances, interjections and interactive words at the first time point. It may have derived from C1's resistancy towards the presence of an outsider and a video-camera. As is clear in Figure 4, ignoring C1's position at the first time point, a noun superiority over predicates was seen at both children: for C2 at 01;04.00 and for C1 at 01;07.00. Therefore; it may be said whether early or late talker, children start with noun production, referring to 'reference' domain at cognitive point of view. For both children, at following time points, predicates overweighed nouns just after the early periods. This may stem from the structural characteristics of Turkish as predicates- verbs- solely function as an utterance and because of noun ellipsis property of Turkish. Moreover, parallel to Bates et al. (1994), the decrease at variation between two children was seen after the very early periods of language development.

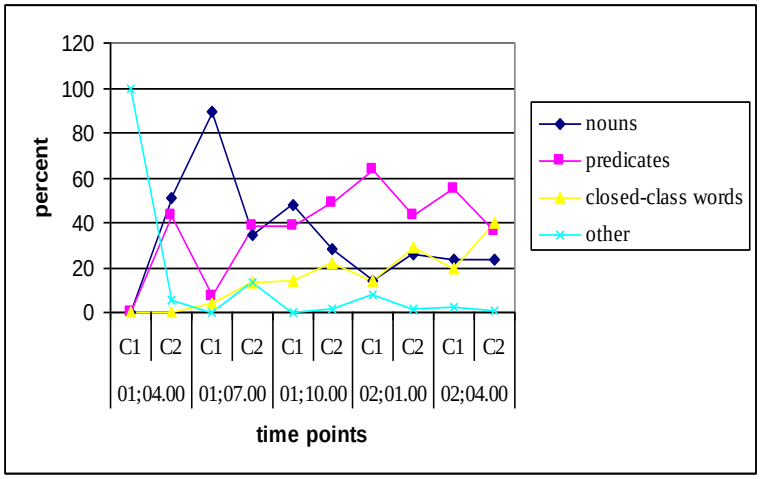

Figure 5. The variation between C1 and C2 at four lexical categories (token)

Token results at Figure 5 also reinforces the profile indicated at Figure 3. Early preponderance of noun category was followed by a developmental rise at predicates at C1. However, the difference between nouns and predicates was not as striking as C2 in comparison to C1.

To conclude; the general results of the study can be summed up as below:
Turkish children also follow the same general developmental pattern in their early lexical expansion (similar to Spanish, French, English and Swedish children). This also highlights the universality of the common cognitive developmental steps in children as well as language growth. However, the Turkish results need to be supported with the data collected through the most widely used parental report, CDI, in order to provide a

data collection consistency because the reference studies mainly used in this research utilised the CDI. Furthermore, with a kind of inventory-like instrument, an expanded number of target children can be accessed and more children's lexical development can be evaluated in the light of the trajectory presented in the relevant literature.

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Appendix I The detailed description of the main categories in the analysis

Category	**Category content**	**Turkish Examples**	**English equivalent**
Nouns	Proper nouns, animate and inanimate nouns, abtract nouns	Özlem İlayda Kedi Köpek Araba Sevgi	 Cat Dog Car Love
Predicates			
▪Verbals	words indicating actions, events, states, movements etc.	Düşmek Toplamak	Fall down Pick up
▪Nominals			
-'to be' in complements	with the function of nominal complement	Satıcıydım	I was a seller.
	with the function of adjective complement	Arabam yeniydi.	My car was new.
	with the function of adverb complement	O, buradaydı.	He was here.
-Existentials	words for presence or absence (var/yok)	Masada iki kalem var.	There are two pencils on the table.
-Negative Copula	negative form of 'to be' in utterances functioning nominal, adjective and adverb complement	O, hiç güzel değil.	She is not beautiful at all.
- Adjectives	Words indicating qualities or characteristics of people or objects,	Büyük Sütlü	Big Milky

Functional Words			
▪Adverbs	Words referring to specific relations among actions, objects and people such as time, location, state, quantity etc.	Burada Böyle	There like this
▪Pronouns	Subject, object, possessive, demonstrative and reflexive pronouns	Ben Şu Sizin	I That Your
▪Conjunctions	Words combining utterances or sentences	Ama çünkü	But Because
▪Question words	Words used for questions, called as wh- words	Neden Kaç tane	Why How many
▪Postpositions	Closed class of words not referring to complete meaning when used isolated	Kadar Gibi Göre	As much as Like this According to
Other Words	Nouns when used for attention getting purposes, yes/no particles, individual-expressive utterances, interjections, interactive words etc.	Efendim Tabii Aşkım Kızım	Yes Of course My dear My dearest daughter