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Verbal and nominal functional categories of a Turkish
speaking autistic child

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Özet

Otizm, dil ve toplumsal iletişimi etkileyen nöro-gelişimsel bir bozukluktur.

Bu çalışmada Türkçe konuşan otistik bir çocuğun ad nitelikli ve eylemsi ulamları ne şekilde kullandığı incelenmektedir.

Türkçe konuşan otistik çocuğun doğal konuşma örneklerinden oluşan veriler deneğin sözdizimsel gelişim açısından akranlarından geride olduğunu ortaya koymaktadır. Deneğin özellikle ad nitelikli ve eylemsi ulamları kullanımında farklılıklar bulunduğunu ortaya koymaktadır.

ABSTRACT

Verbal and Nominal Functional Categories of a Turkish Speaking Autistic Child

by

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Autism is a neuro-developmental disorder which affects social communication and language facilities.

The present study investigates the production of nominal and verbal functional categories by a Turkish speaking autistic child.

The data which consists of spontaneous speech samples of the autistic child suggest that the subject differs from his normally developing peers with respect to the production of nominal and functional categories,

The subject's syntactic development is severely delayed. The subject's syntactic development is severely delayed. The subject's grammar shows deviances related to verbal and nominal and functional categories,

Introduction

Aim

The aim of the study is to analyze the syntactic characteristics of the speech of a Turkish speaking autistic child. The main emphasis will be on the nature of nominal and functional categories observed in the subject's speech.

The organization of the work will be as follows:

In the chapter one, the general characteristics of the autistic spectrum disorder will be described. The linguistic features of autistic individuals and earlier studies on linguistic features of autism will also be summarized in this section. In Chapter 2, the theoretical background related to the present study will be presented. In Chapter 3, the methodology adopted in the present work will be explained. Chapter 4 contains a brief overview related to the verbal functional categories in Turkish and analyzes features of verbal functional categories in the language samples of the subject. In a similar fashion, in Chapter 5 the nominal functional categories are investigated.

Chapter 1

Autism

1. An Overview of Autism

Autism is a neurodevelopmental disorder that has been an issue of interest for various fields of study which ranges from neurology to psychology. Since milestones related to language and communication play an important role in evaluating and understanding autism, the syndrome has been an issue of interest for linguistics as well.

As the name suggests, autistic spectrum disorders (ADS) are made up of a spectrum of disorders which vary with respect to severity (Kırcaali-İftar, 2002). Autism, Asperger's syndrome, childhood disintegrative disorder, Rett's syndrome and pervasive developmental disorder not otherwise specified (PDD-NOS) are among autistic spectrum disorders (Darica et.al., 2002, Rapin & Dunn 2003 among others).

Autism causes impairment in social functioning and language and communication. Moreover, it causes repetitive and stereotyped patterns of behavior, interests or activities (APA, 1994).

One of the most definitive features of autism is language impairment. Autism always involves some sort of delay in language, and almost half of the individuals with the disorder never develop meaningful (verbal) language (Kırcaali-İftar, 2002). The language that is used may be repetitive and imitative (Prizant and Reydell, 1993; cited in Wilkinson, 1998) or idiosyncratic (Lord & Paul, 1997).

1.2 Language characteristics in autism

As mentioned earlier, linguistic properties are among the clues leading to the diagnosis of autism. The diagnostic criteria related to language is listed as follows in

the fourth Diagnostic and Statistical Manual (DSM-IV): (1) late or lack of development of language without an attempt to compensate with gestures, (2) impairment in the ability to initiate or sustain conversation, and (3) stereotyped, repetitive, and idiosyncratic language.

Being the first presenting symptom (Lord & Paul, 1997; Kurita, 1985; cited in Kjegaard & Tager-Flusberg, 2001), language abnormalities have been addressed by various scholars in the last three decades. Although the abnormalities are fundamental in the disorder, the most salient characteristic of language across individuals with autism is its diversity. Language skills range from mutism and little functional communication to relatively well-developed syntactic capabilities and functional speech.

It is stated that autistic children have difficulty in understanding what is said. (Darica et.al. 2002). Boucher (2003) notes that “comprehension is often more impaired than expression” and explains this seemingly implausible state with the formulaic nature of autistic expressive language noting “well-formed phrases may be learned and used as unanalyzed chunks” by the autistic individuals.

Autistic individuals are also observed to have problems related to the concept of time and they make mistakes while using postpositions (Darica et.al. 2002).

1.2.1 Echolalia

Echolalia is the repetition or echoing of verbal utterances made by another person. In fact, it is the routine process which starts at around eight months and disappears

around 3 years of age in normally developing children. (Darica et al, 2002). Echolalia is one of the distinctive characteristics of autistic speech. The repetition is either immediate (immediate echolalia), or happens after a certain amount of time (delayed echolalia) without any context at all (Prizant & Duchan, 1981 cited in Lord & Paul, 1997). Usually immediate echolalia is seen in conversations and used as an “answer” to the communication partner’s question, that is, instead of answering a question directed at him/her, the autistic person repeats the question. Unlike normally developing children, the ratio of echolalia increases after the age of three in autistic children.

Referring to Hermelin&O’Connor(1984) Frith (1989) points out that echolalia is a reflection of a detachment in the brain between processing systems and the system concerned with meaning. The autistic child hears the speech and produces what s/he has heard without processing its meaning. That is, rather than processing the information or the message the speech carries, the child simply reproduces the phonological input s/he received. For instance, the child might repeat an imperative structure (i.e. “Say hello, Bob!”) directed at him/her rather than obeying the demand. What lies behind echolalia is considered to be the narrow range of attention the autistic child has. It is claimed that autistic individuals have difficulty in comprehending the deeper aspects of communication (Frith, 1989).

There are basically two opposing views about communicative significance of echolalia. One group of researchers claim that echolalia is an indicator of the autistic individual’s inability to “understand” the speech and suggest it has no communicative aim. (Lovaas, 1977 cited in Lord & Paul, 1997)

The other group argues that immediate echolalia serves several communicative functions. It is considered to be an attempt for turn-taking, assertion, affirmative answer, request, self-regulation and it can be the part of the rehearsal to aid processing what is heard (Prizant and Dunchan 1981; cited in Lord & Paul , 1997) .

The nature of delayed echolalia is controversial as well. It is argued to be an automatic repeating of speech that has been heard thus it is considered to be serving no communicative function. The repetition of jingles from television commercials is considered to be a typical example for supporting this view. (Prizant & Duchan, 1981; cited in Lord & Paul, 1997). On the other hand there are researchers who argue delayed echolalia is, in fact, “borrowed” utterances autistic people often need to rely on to express their needs and intentions even though they fail to comprehend or analyze the internal semantic-syntactic relationships (Prizant, 1983, p. 299).

It is also been suggested that delayed echolalia might contain clues related to the linguistic forms that the autistic child is in the process of acquiring (Baltaxe and Simmons 1977; cited in Lord & Paul, 1997).

1.2.2 Pronoun reversal

A feature commonly observed in autistic children is pronoun reversal in which the child substitutes ‘you’ for ‘I’ and vice versa. In fact, pronoun reversal sometimes occurs in children with language disorders other than autism and it may also occur in normally developing children for a brief period (Lord&Paul, 1997).

Frith (1989) argues that in some cases, pronoun reversal is related to delayed echolalia. For example when the child utters, “Do you want a biscuit?” in order to

demand some biscuits, he is probably repeating the phrase he has heard as he was given a biscuit.

It is also suggested that confusion is due to linguistic and/or information processing demands related to the need of shifting and marking reference in the course of speech. (Lee, Hobson & Chiat, 1994; cited in Lord & Paul, 1997).

Some group of researchers claim that the incorrect use of pronouns indicates the autistic child's inability to understand speaker-listener relationship. (Lee, Hobson, & Chiat, 1994; Tager-Flusberg, 1994, cited in Tager-Flusberg, 1999). Substitution of pronouns with each other is claimed to reflect the difficulties in conceptualizing the 'ever changing' notions of self and other during the course of conversation (Tager-Flusberg, 1999).

Some others (for example Frith, 1989) believe the problem is related to the 'deictic' use of personal pronouns. Since the uses of these pronouns are relative to the speaker, even the normally developing children may use these elements erroneously up to five years of age. Frith (1989) claims that the autistic children do not confuse the identity of the speaker parties. The autistic children's ability to use proper names instead of pronouns is provided as an evidence of this claim. What is suggested is that autistic children simply do not consider global coherence and they pull together only a small amount of information at a time. Thus, they fail to understand a pronoun can be used for a proper name mentioned in the discourse earlier since they process only a limited amount of information at a time. Hobson, (1993, cited in Lord and Paul), on the other hand, asserts autistic children have difficulties in conceptualizing the notion of self and other.

Frith (1989) also suggests the autistic children have similar difficulties in using tenses. The problem is suggested to be an issue of 'when to use which tense' rather than a grammatical problem. In sum, Frith claims that the difficulties with pronouns or with terms temporal expressions for time and echolalia are all a result of a specific communication failure.

1.3. Earlier Studies on Linguistic Features of Autism

The diversity of language skills across individuals with autism is a very striking fact. As mentioned earlier, autistic people's language skills range from mutism to relatively well-developed syntactic capabilities. This diversity attracted the attention of many linguists and psycholinguists and many studies have been conducted since the disorder was first diagnosed. Studies conducted on the linguistic features of autism date back to 70's. In his seminal work, Baltaxe (1977) studied the pragmatic deficits in the conversations of autistic children and, comparing autistic children's communication deficits with that of other clinical groups, identified the distinguishing features of autism with respect to communication problems. The results of the study suggested that children with autism are seriously limited in their communicative skills (Baltax 1977, cited in Kjelgaard & Tager-Flusberg 2001).

Bartak, Rutter & Cox (1977; cited in Kjelgaard & Tager-Flusberg, 2001) found that speech comprehension was more defective in children with autism than in mentally retarded children matched for non-verbal cognitive level. Tager-Flusberg (1981) indicated that this was also true when autistic children were matched to normally developing children. She reported that children with autism did not differ from matched retarded controls in phonology, prosody, or syntax, but that they had more severe comprehension and pragmatic deficits than children with developmental

language disorders. Semantics was more impaired than syntax and the children violated semantic constraints. She concluded that in autism, phonological and syntactic development is relatively independent of semantic and pragmatic development. She also noted her observations related to the aberrant prosody, immature syntax, impaired comprehension, failure to perceive irony or understand jokes, and severely deviant pragmatics of autistic children's speech (Tager-Flusberg 1981; cited in Rapin & Dunn, 2003).

Bartolucci, Pierce, Streiner, Eppel (1976; cited in Rapin & Dunn, 2003) compared the phonologic errors of nine children with autism and a mean age of 12 years to those of 12 non-autistic retarded children, matched for age and non-verbal intelligence quotient. They found that even though the acquisition of phonology was delayed in autistic children, it followed the same trajectory as in normally developing children. However, they also noted that children with autism made more substitution errors than their non-autistic matched controls.

In another study they conducted in 1977, Pierce and Bartolucci analyzed 50 utterances of autistic, retarded and normal children in order to examine the syntactic development of the autistic children. They concluded that all children were developing a rule governed grammatical system. Yet, the autistic children were not as advanced as the other children in the control groups with respect to the rules they employed (Pierce and Bartolucci, 1977; cited in Tager-Flusberg 1985).

Bartolucci, Pierce and Steiner (1980) looked into the grammatical morphology of autistic, mentally retarded and normally developing children using spontaneous speech samples. Although all groups of children were generally proficient in the use

of morphemes in question, the autistic children omitted certain ones more frequently than the other children. They had problems with the morphemes like the past tense marker *-ed* and the articles.

On the other hand, Carter (2001) cited that in children with autism, the use of grammatical morphemes is delayed and the order of acquisition is atypical (Menyuk & Quill, 1985; Paul & Alforde, 1993; Swisher & Demetras, 1985, cited in Carter, 2001). Moreover, she noted children with autism exhibit a lack of flexibility in their use of various morphemes (Quill, 1998; Tager-Flusberg, 1989, cited in Carter, 2001).

Noting that earlier studies mentioned above (i.e. Bartolucci & Pierce, 1977; Boucher 1976, Pierce & Steiner, 1980, Boucher, 1976, 1988) relied on natural language samples of a limited number of subjects, Kjelgaard & Tager-Flusberg (2001) examined the language profiles of a “well-defined sample of autistic children” with respect to their phonological production, syntax, lexical knowledge, semantics and grammar. Kjelgaard and Tager-Flusberg (2001) collected language samples of 89 autistic children by administering a “standard battery of language tests”. This battery included Goldman-Fristoe Test of Articulation (Goldman & Fristoe 1986), Peabody Picture Vocabulary Test III (PPVT) (Dunn & Dunn, 1997), Expressive Vocabulary Test (EVT) (Williams, 1997), Clinical Evaluation of Language Fundamentals (CELF)-Preschool (Wiig, Secord, & Semel) or III (Semel, Wiig & Secord, 1992) and Repetition of Nonsense Words (Korkman, Kirk & Kemp, 1998).

Goldman-Fristoe Test of Articulation tests the production of English consonants. The child is presented pictures and with these pictures, all consonant sounds of English are tested word initially, medially and finally.

Peabody Picture Vocabulary Test-III aims to measure lexical comprehension. Four pictures are shown to the participant. The name of one of the objects in the pictures is said and the participant is required to pick the corresponding picture.

In EVT, the child is asked to name the pictures. In the further, thus harder, parts of the test, the child is asked to produce synonyms for words.

CELF is used to measure morphology, syntax, semantics and working memory for language.

For “Repetition of Nonsense Words” the authors used the sub-test from NEPSY, which is a comprehensive assessment battery. The child is asked to repeat a nonsense word s/he is presented on an audiotape. This way, the child’s ability to analyze and reproduce phonological knowledge is evaluated.

Not all of the children who participated in the study were able to complete all five tests. 90% of all children were able to complete PPVT, EVT and Goldman-Fristoe. Only half of the children were able to finish CELF and Repetition of Nonsense Words. As a result, it was not possible to obtain a standard, clear profile for the children with autism with respect to linguistic abilities.

Using the PPVT results, the authors grouped the children into three groups with respect to their linguistic abilities as the “normal” group, “borderline” group and the “impaired” group.

Those who were able to complete CELF and who are grouped as ‘borderline’ or ‘impaired’ achieved better scores in the vocabulary test than the tests related to syntax or semantics. For those who were in the “normal” group, vocabulary and syntax-semantics scores are equal.

Since echolalia is a common characteristic of autistic speech, one would expect the autistic children to have high scores in nonsense word repetition test. Yet, those who have low CELF and vocabulary scores have low scores in nonsense word repetition as well. The authors suggest that this is because the child has to analyze the speech stream, derive phonological representation, and keep the representation in their working memory to be able to repeat it. It seems the autistic children with language impairment have difficulty in this task.

The test results indicate that although the articulation skills were relatively spared, the use of vocabulary and higher order use of semantic and syntactic knowledge and nonsense word repetition ability is impaired in autistic children.

Some of the findings of Allen & Rapin's (1992; cited in Rapin & Dunn, 2003) study contradict the widely held notion that phonology and syntax remain unaffected in autism. Among the children they classify as having mixed receptive/ expressive disorder, there are autistic and non-autistic subjects who have deficient phonology and syntax; in fact, the ratio of affected autistic subjects (63%) is slightly higher than the subjects with dysphasia (50%).

Particularly the grammatical competence of low functioning autistic individuals is significantly low and their communication is limited to the use of isolated words or signs and rote-learned phrases (Boucher, 2003).

Studies on Turkish speaking autistic children are very limited. To our knowledge, Sofu & Firat (2001) and Arıca (2003) are the only two linguistic studies on Turkish autistic speech.

Sofu and Firat (2001) examined seven autistic children and compared them with seven normally developing children who have the same age, gender and socio-economical status. They concluded that autistic children face little problem with respect to the use of inflectional morphology and that they are able to produce constituents of sentences in the correct linear order. They also note that, albeit small in number, the subject correctly use questions and negative structures. The researches mention that the language delay is obvious in the autistic subjects when their linguistic development is compared to their peers. They emphasize that the main difference between the normal and the autistic group is related to the quality of communication. They note that autistic children need to be prompted to initiate and sustain conversations.

Arıca (2003) matches autistic subjects with a non-autistic control group on the basis of age and gender and investigates the autistic subjects' use of language with the help of language acquisition theories and Theory of Mind. Administering two tests, Arıca concluded that autistic children have difficulty in comprehending complex and indirect questions and that they have problems related to initiating and sustaining communication. She notes that the subjects' acquisition of syntactic structures seem to be delayed when their performance is compared to that of the subjects in the control group. Arıca argues that, although simple and short, the structures the autistic children produce are grammatical. She proposes that the main difficulty autistic children face is related to the semantic and pragmatic components of language.

Chapter 2

Theoretical Framework

Functional categories play a crucial role in syntactic representation and derivation within the Principles and Parameters (P&P) framework, as proposed by Chomsky (1981). In section 1.2, the basic notions and principles of P&P will be presented. In section 1.2, SPLIT INFL hypothesis of Pollock (1989), the analysis of which is related to functional elements, will be reviewed.

2.1. Basic Notions and Principles of Principles and Parameters Framework

Within the Principles and Parameters Framework, it is assumed that grammar can be decomposed into a number of interacting sub-systems- lexicon, syntax, Phonetic Form component and Logical Form component. Syntax has further components i.e. categorial component and transformational component (which is limited to ‘move alpha’) (Chomsky, 1981). Within Chomsky (1981), it is assumed that the categorial component of syntax meets conditions of some version of *X*-bar theory based on two categories of traditional grammar, substantive [+N] nouns and adjectives, and [+V] verbs and adjectives. *X*-bar representation is based on the statement that substantives and predicates constitute the ‘lexical categories’ where all the lexical categories have the same complement structure.

The principles of *X*-bar theory are extended to non-lexical, i.e. functional categories in Chomsky (1987). Extending the basic schemata

(1) a. $X' = X X''$

b. $X'' = X'' X'$

where X'' is the complement of X (or X') in (1a) and the specifier of X (or X' , or X'') in (1b), the traditional S is schematized as the following in Chomsky (1987):

- (2) a. $S = I'' = [NP [I [vp [V \dots]]]]$
 b. $S = S' = C'' [\dots [c' C I'']]$

where C'' and I'' can be referred as CP and IP respectively.

2.2 The SPLIT INFL Hypothesis (Pollock 1989)

In his seminal work, Pollock (1989) argued against INFL which was commonly considered as a category with two sets of different features, TNS and AGR. Pollock (1989) proposed that each of these sets of features can be the head of a maximal projection: AGRP and IP or TP. He also projected NEGP for both English and French. Pollock based his arguments on the following English and French examples, in which the two IP categories crucially interact with NEGP:

- (3) a. * John likes Mary not.
 b. Jean (n') aime pas Marie.

(3a) is ungrammatical since the verb is higher in the structure than NEG, which would require it to move to INFL. Such a movement is not allowed in English except for the verbs like *have* and *be*. Yet, (3 b) is well formed since in French all lexical verbs are allowed to undergo movement. Pollock explains the difference between the English and French verbs in terms of the theta-role assignment features of the two languages. He claims that AGR in English is 'opaque' to theta role assignment and the theta grid of the lexical verbs cannot percolate up to Agreement. This is not the case for *be* and *have*, however, since these two verbs fail to assign theta-role to their constituents.

Similarly, since Agreement is ‘transparent’ in French all lexical verbs can undergo movement.

Pollock also notes that the difference in the behaviour of adverbs in the two languages provide clues related to the nature of INFL.

(6) a. *John kisses often Mary

b. Jean embrasse souvent Marie.

(6a) is ungrammatical since the adverb occurs between the verb and the verb’s object. For such a structure, the verb has to move up to INFL. This movement, however, is not allowed in English. On the other hand, (3b) is allowed since V movement to INFL is allowed in French.

Drawing on his observations on French and English, Pollock proposes the following with respect to the structure of IP:

a. In English and French, there is an AGRP. It is defective in English, (that is, it is not an inherent barrier) but it is not defective in French. In both languages it is a complement of TNS or NEG.

b. IP, the traditional S, should be analyzed as TP and it seems to be an inherent barrier.

c. In both languages, there is a NEGP, which is also an inherent barrier.

2.3 Ouhalla (1991)

The significance of functional categories is further investigated in Ouhalla (1990). Ouhalla identifies the differences between lexical and functional categories.

Tsimpili and Ouhalla (1990) suggest the existence of two “separate” lexicons; one including the functional categories and which is in the domain of U(niversal) G(rammar) and another, an autonomous lexicon which is not subject to the rules of UG (cited in Ouhalla 1991).

The property of being (un)able to assign a theta role is suggested as one of the distinctions between lexical and functional categories. The members of substantives (lexical categories) are considered to have ‘thematic grids’, that is the ability to assign theta roles whereas functional categories lack them (Ouhalla, 1991). Following Stowell (1981) and Chomsky (1981) Ouhalla assumes functional categories lack thematic grids.

Following Chomsky (1986a), Ouhalla (1991) labels the selection of thematic roles as semantic selection (s-selection) and states substantives have s-selectional properties whereas functional categories lack them. Ouhalla further suggests that functional categories have categorial selectional (c-selectional) properties and substantives lack such properties. Noting the general affixal nature of the functional categories (yet stating obviously not all functional categories are bound morphemes), he states functional categories also have morphological selectional (m-selectional) properties which define the categorial nature of the elements the functional item can attach/adjoin to. If the functional item in question is not a bound morpheme but a free one, then the m-selectional properties will include the information that it will not attach/adjoin to any other item.

Another property of functional categories mentioned by Ouhalla (1991) is that they have grammatical features, which are related to AGR elements (person, number and gender features), TNS elements (+, - past), C and Det elements (+, - wh) etc. Both for m-selectional properties and for grammatical features, Ouhalla leaves the question open whether they can apply to substantives as well.

The objective in classifying functional elements as above is to define the features that play significant roles in grammatical processes. For instance, with respect to m-selectional properties, Baker (1988) argues that the presence of an affixal element leads to a head movement in the construction thus the grammatical relations between the items in question have to be rearranged. In fact, Ouhalla's basic claim is that functional categories may differ with respect to c-selectional, m-selectional and grammatical properties and these differences might be the underlying reason for the language variation.

While elaborating on the selectional properties of categories, Ouhalla takes inflectional elements AGR and TNS as the representative of functional categories. In the further steps of his analysis, he provides a more detailed account on the nature of inflection. In line with Pollack's (1989) SPLIT INFL analysis, Ouhalla (1991) suggests the inflectional elements should be assumed to head their own maximal projections. Although he considers AGR and TNS as inflectional elements, he suggests English NEG, MOD and infinitival "to" cannot be considered as such. He argues INFL specifies a position, not a specific category or a class of categories.

Noting within Parameters and Principles Framework language variation is accounted for in terms of variation in the values of parameters, Ouhalla (1991) proposes that functional categories “contain” information which determines the parametric variation. Ouhalla notes unlike substantives, which have uniform properties across languages, the functional categories have idiosyncratic properties which differ from one language to another and he argues that the differences in the nature of functional categories that underlie the linguistic variation.

Ouhalla also argues that the typological word order differences can be accounted for in terms of minimal parametric differences involving the properties of certain functional categories. He supports his argumentation referring to the order of subject in relation to the verb (the SVO/VSO distinction) and the order of verb in relation to negation elements. Ouhalla proposes the distinction between VSO and SVO languages is based on their agreement patterns rather than the linear order of the constituents and argues the structural location of subjects can only be determined by closely examining the agreement patterns the subjects display. Noting that even the languages which belong to the same structural typological group may have differences and similarities related to their agreement relations, he argues the agreement pattern associated with a certain surface order is not the property of a typologically distinct group.

Basing his argumentation on the evidence provided by the SVO/VSO distinction and NEG elements, Ouhalla proposes that languages seem to differ with respect to the structural properties of sentences. However, he notes although the languages differ from each other in their clausal structures, the structural

representation of constituents is constrained by a limited number of principles which apply across clause-types. Ouhalla further argues that the differences in the clause structures are restricted to the difference in the ordering of a certain set of functional categories- AGR, TNS and NEG and he concludes crosslinguistic variation in the clause structure- which in fact leads to major typological differences- rests on hierarchical ordering of a small set of functional categories.

Ouhalla also notes that similar to clausal structures, nominal phrases instantiate a number of inflectional categories. It is commonly argued that Determiners are the heads of noun phrases (Abney, 1987).

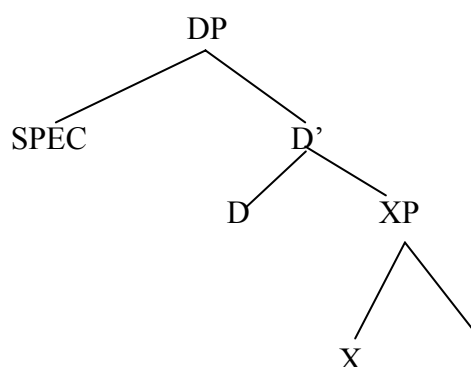
One significant parallelism between noun phrases and sentences, which is crucial for the following discussion, is the AGR category displayed within NPs in some languages including Turkish (Ouhalla, 1991, Kornfilt 1985).

(1) a. ben-im stakoz-um [sic]

I-GEN lobster-1sg (Agr)

In (1) the Agr overtly agrees with the possessor subject of the NP and assigns genitive case to the possessor through SPEC-Head agreement (Ouhalla, 1991).

Thus, Ouhalla proposes that the following structure which is parallel to sentential structure reflects the nature and order of functional categories related to NP:



2.4. SPLIT INFL Hypothesis and Turkish (Aygen-Tosun, 1998)

The implications of the SPLIT INFL hypothesis for Turkish are investigated in Aygen-Tosun (1998) where syntactic motivations for the projection of independent AGRP, TP, NEGP, AspP and ModP in Turkish are discussed. Aygen-Tosun argues that in Turkish AGR, TNS/ASP, MOD and NEG respectively head maximal projections of their own. She bases her argumentation on the obligatory nature of the SPEC positions of T/AP, NEGP and MODP noting that the motivation for the occurrence of these positions is the structural Spec-Head relation between the adverbs and the corresponding functional categories they are semantically related with. Aygen-Tosun notes that T/AP hosts frequency adverbs, NEGP hosts negative polarity items and MODP hosts epistemic adverbs in their SPEC positions.

Noting epistemic modal markers are checked under T/A Aygen-Tosun consider the possible concurrence of epistemic modal markers with TAM markers:

(7) a. *Ahmet evde ol-abil-miş.

The structure is ungrammatical with an epistemic reading. Thus, Aygen-Tosun argues TAM morphemes and epistemic modal markers are in complementary distribution.¹ In a similar fashion, Aygen-Tosun supports her argument with the observation that frequency adverbs cooccur with all frequency adverbs yet not with epistemic adverbs. This observation is accounted for by SPEC-Head relations; Aygen-Tosun argues epistemic adverbs occur in SPEC MODP and they do not have a SPEC-Head relation with epistemic features that are checked under

¹ Aygen-Tosun notes aorist and past marker *-di* can cooccur with epistemic modal markers

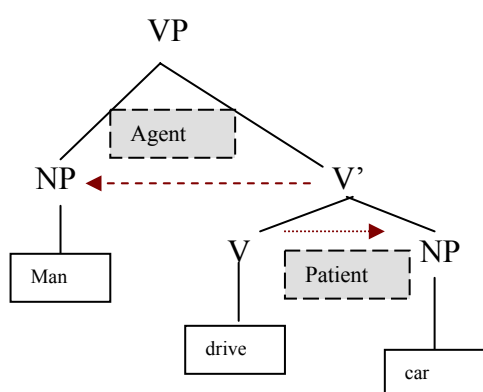
TP. Aygen-Tosun further argues that since Tense and Aspect are strongly related and Aspect and Epistemic modality seem to be in complementary distribution and since there is no syntactic motivation for more than one SPEC for Tense/Aspect and Epistemic modality, she proposes T/AP to be a syncretic double-headed category where Aspect and Epistemic modality occur in complementary distribution and Aspect is parasitic on Tense and Epistemic modality is parasitic on Aspect.

2.5. Functional Categories in Child Speech

2.5.1. Absence of *I-system* in Child Speech

Radford (1990) suggests that in the early stages of language acquisition the child's speech is "agrammatical". He suggests the child goes through a precategorial stage which is followed by a lexical stage that leads to a functional stage (as cited in Ketrez, 1999). Before the functional stage, the sentence structures of the children who are acquiring English are projections of lexical heads (noun, verb, adjective and preposition) and lack functional heads and projections (Radford, 1996). He also notes unlike adult structures, which include thematic and non-thematic sisterhood of constituents, the structures children use in the *Early English Period* (i.e. the early patterned/multiword speech period which usually lasts between 20-24 months of age) are 'pure networks of thematic relations' (that is, every set of sister constituents are thematically interrelated). This means all the structures used by the children in this period is *lexical-thematic* (lexical categories bound together by thematic sisterhood relations) in nature. Radford illustrates his claim with the following example:

(8) "Man drive car"



Radford (1996) analyzes this structure as a verb phrase or a *verbal small clause*. Since it only contains projections of head lexical categories N and V, it is a lexical structure. It is a thematic structure since the V *drive* theta-marks the NP *car* and V-

bar theta marks its sister NP constituent *man*. Following Abney (1987), Radford interrelates the existence of lexical, and not functional categories and the thematic relations in the early child speech. He, thus agrees with Abney (1987) who argues that the basic difference between lexical and functional categories is that lexical categories have thematic content whereas functional categories do not.

Radford argues that Early Child English lacks both the *I-system* and the *C-system*. Noting the lack of the use of modals in Early Child English and assuming the modals are base generated in I in adult language, Radford supports his claim.

(9) a. The doggy will bite (Adult modal sentence)

b. Doggy bite (Child's imitation) [Adam 28 mnts., Brown and Frase, 1963; Brown and Bellugi, 1964; Ervin-Tripp, 1964 as cited in Radford, 1996]

Noting the adult sentence is in the form of an IP whereas the corresponding structure used by the child is a VP, Radford argues that the children use *lexical* VPs instead of functional/non-thematic constituents, i.e., *functional* IPs. In a similar fashion, the child does not use a functional DP, i.e. the doggy but uses an NP *doggy*.

Children's failure in the use of non-modal auxiliaries is another example Radford provides.

(10)a. Kathryn no like celery (= Kathryn does not like celery) [Kathryn 22 mnts., from Bloom, 1970 as cited in Radford 1996]

In the adult counterpart of the structure the child utters in the example above, the dummy *do* must be base generated in I, yet the child fails to use *do*. Radford considers this as an evidence of the absence of an *I-system* in Early Child English.

Another piece of evidence rests on the claim that the children at this stage do not use the tense/agreement affixes +d/+s productively and answer questions containing a verb overtly marked for tense/agreement with a sentence which has a tenseless/agreementless verb. Since tense and agreement affixes are realizations of I, the children's failure in the productive use of tense/agreement inflections is considered to be further evidence in support of the claim related to the *I-system*.

2.5.2. Absence of *C-system* in Child Speech

Radford (1996) argues that besides the *I-system*, the children also lack the functional *C-system*. Radford argues that since complementizers are both functional and non-thematic constituents, early child speech should not contain a C-system. The observations on early child speech indicate that the children do not use complementizers to introduce a complement clause and even in imitation tasks, in which the child is asked to repeat the adult modal sentence, the children omit the complementizers (Phinney, 1981 as cited in Radford, 1996). The second point indicating the lack of *C-system* in early child speech is the fact that early child interrogative clauses do not contain auxiliaries preposed into C, mostly the sentences do not contain an auxiliary at all.

Wh-movement provides further evidence in support of the lack of *C-system*. Noting that in adult English, in simple cases, the wh-phrase moves out of the thematic position within the VP into the non-thematic SPEC CP position, Radford argues that given that early child speech lacks *C-system*, we would expect the children should fail to prepose the wh-word.

(11)a. Where does Daddy go? (Adult model sentence)

b. Daddy go? (Child's imitation) (Daniel, 23 mnts.)

The expectation is indeed fulfilled. The child omits both the wh-element and the auxiliary. Moreover, Klima and Bellugi (1966, as cited in Radford, 1996) note that children fail to understand questions involving a preposed wh-element. Thus, the comprehension data also support the suggestion that at that stage the children have not developed a *C-system*.

Chapter 3

Methodology

In child language studies, spontaneous speech samples play an important role in determining the child's language level since in natural conversation situation, the child is not subject to external imposition. However, as noted by Tager-Flusberg (2000), when it comes to working with autistic children, attempting to collect naturalistic data poses an important problem: Due to the nature of the disorder, autistic children very rarely initiate conversation or speak spontaneously. As a result, using the canonical methodology of gathering spontaneous data samples, very little or no meaningful data can be collected. In the research they conducted on school-aged autistic children, Stone and Caro-Martinez (1990, cited in Tager-Flusberg 2000) found out that during free play sessions or informal times in the classroom, autistic children very rarely spoke to one of their peers. Moreover, the frequency of spontaneous communicative acts performed by these children, all of which were directed at the adults, was limited to only two or three per hour. All these studies point out that it is very hard to obtain unstructured, spontaneous speech samples of autistic children.

Considering the findings mentioned above, at the start of the present study, we collected speech samples which were instances of highly structured conversations. The speech samples of eleven autistic children, whose ages ranged between 5,5 and 17 during the time of recording, were recorded. The speech samples of seven of the children were collected at TOHUM Vakfı, which is a non-profit organization which provides language therapy and special education to autistic children and informative training to autistic children's parents. The data was recorded during the speech therapy and special education sessions by the researcher or by the therapist. The

other four children are attending a day-time special education center and the speech samples of these children were recorded by their instructors during their courses. In the latter institution, the autistic children received education in mixed classrooms i.e. the courses or classrooms are not designed only for the autistic children. During the recording, the instructor and the autistic children were interacting with non-autistic children and the recording include the exchanges among all these participants.

Due to the nature of the speech samples recorded, i.e. the restricted context and content of the particular conversations and to the 'instructive' features of the setting and interaction, the data obtained in the recordings mentioned above are not used in this study.²

Instead, the spontaneous speech samples of a 7-year-old male subject, who was among the subjects observed in TOHUM Foundation are used. The recording was made at the subject's home in a single session which lasted about three hours.

During the recording the subject freely interacted with his mother, his sister and the researcher. However, as can be understand form the volume of the data at Appendix 1, the total time of interaction in which the subject was willing to speak is about 45 minutes.

In order to trigger speech and test whether the subject can productively use certain structures, which seem to be prone to deviation according to the earlier recordings, the subject is shown some picture books, however, since his attention is very limited, it was not possible to engage him in conversation related to the pictures in the book.

² Only some of the statistical data related to the MLU's of these subjects and to certain deviant structures observed in the subjects speech are be presented in the Appendix 2 and Appendix 3.

Chapter 4

Verbal Functional Categories

4.1. Preliminaries

Functional Categories of Turkish Verbs

Turkish is an agglutinative language and a verbal form consists of a verb root and a number of verbal suffixes which include tense, aspect, modality, negation and subject agreement markers. In the following subsection the TAM and Agreement system of Turkish will be described.

4.1.1. Turkish Tense-Agreement-Modality system

Turkish has a large number of TAM markers which are suffixed onto the verb stem. It has been claimed that some of these markers, *-Ar*, *-miş*, *-DI*, *-Iyor* and *-AcAk*, are multifunctional in nature. The TAM markers and their functions can be briefly summarized as follows:

The aorist *-Ar* is an Aspect and modal marker (Giorgi and Pianesi, 1997; Yavaş, 1982), *-DI* acts as a tense, aspect and modal marker (Taylan, 1997), *-miş* as an aspect and modal marker, *-AcAk* as tense and modal marker and *-Iyor* as a Tense and Aspect marker.

4.1.2. Turkish Verbal Agreement System

Agreement occurs in the outer most position of any verbal complex. Being in the final position, it is the highest constituent of any verbal projection (Kural, 1994). The morphological form of agreement suffixes differs according to the

Tense/Agreement/Modality (TAM) marker they follow. There are four different paradigms that define the shape of the agreement marker. Kelepir (2001) describes these four paradigms as follows:

(i)

	<i>k</i> -paradigm
1 st Sing	-m
2 nd Sing	-n
3 rd	Ø
1 st Plural	-k
2 nd Plural	-nIz
3 rd Plural	-ler

TAM markers requiring <i>k</i> - paradigm	
<i>-DI/ idi</i>	
<i>-se, ise</i>	

(ii)

	<i>z</i> -paradigm
1 st Sing	-(y)ım
2 nd Sing	-sIn
3 rd Sing	Ø
1 st Plural	-(y)Iz
2 nd Plural	-sInız
3 rd Plural	-ler

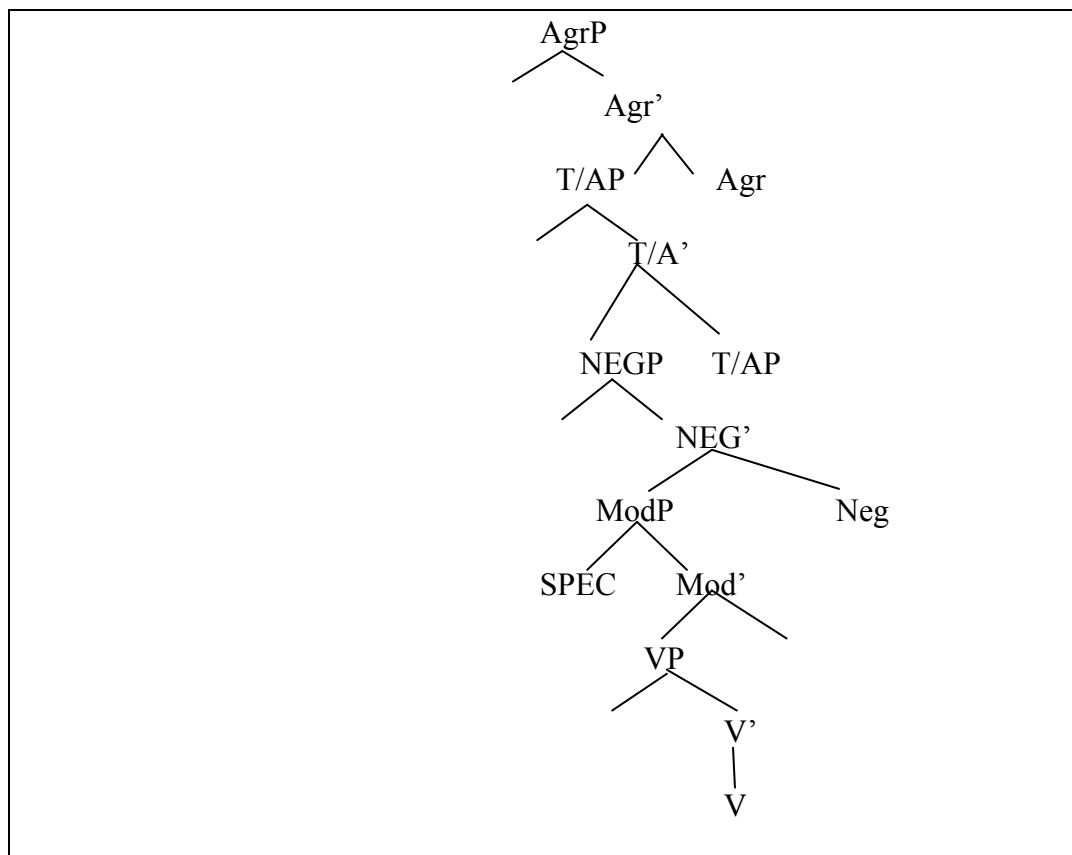
TAM markers requiring <i>z</i> -paradigm	
<i>-Iyor,</i> <i>-Acak,</i> <i>-miş,-imiş</i>	<i>-Ar</i> <i>-Ebil</i> <i>-mEll</i>

(iii)

(iv)

Optative/subjunctive		Imperative	
1 st Sing	-yIm	1 st Sing	----
2 nd Sing	-sIn	2 nd Sing	Ø
3 rd Sing	Ø	3 rd Sing	-sIn
1 st Plural	-IIm	1 st Plural	-----
2 nd Plural	-sInIz	2 nd Plural	-(y)In
3 rd Plural	-lAr (sInlAr)	3 rd Plural	-sInlAr

Another category that is marked on the verb as a suffix is negation. With respect to the relative order of these suffixes, the following representation of the verb markers reflects the linear sequence of functional categories on a Turkish verbal stem (Aygen-Tosun, 1998):



4.2. Acquisition of Verbal Functional Categories in Turkish

One of the issues in language acquisition is the stage at which functional categories emerge in children's speech. Earlier studies with respect to the acquisition of Turkish morphosyntactic categories indicate that inflectional morphology emerges quite early in Turkish (Aksu-Koç & Slobin, 1985). Aksu-Koç and Slobin note that normally developing Turkish speaking children inflect

nouns for case and number, and to inflect verbs for tense and aspect, person, negation and interrogation even at one-word stage and master the inflection system before 2,0 years of age. Early utterances are short and simple but the stressed, suffixed inflections are present. The order of agglutinated morphemes are not erroneous.³ Two and three-year-olds manage to master verb inflections for voice and modality and syntactic means for temporal and clausal linking of clauses (Aksu-Koç & Slobin, 1985). Tense-aspect system evolves and unlike earlier times in which the child uses to indicate immediately completed changes of state versus durational events marked by *-Iyor* the child begins to use *-DI* as the past tense marker. With the development of tense-aspect system the child starts to make a distinction between directly experienced past events denoted by *-DI* and past events inferred from their end states indicated by *-mIş*. Similarly, as acquisition continues, the child makes a distinction between witnessed past (*-DI*) and non-witnessed past (*-mIş*).

Aksu-Koç (1988) who examined the linguistic development of three subjects in a period between 21 months and 30 months, noted that *-dI*, *-Iyor* and *-sIn* (which express past of direct experience, present progressive and desire/intention respectively) are the earliest acquired and most productive inflections.

Following Pine, Lieven & Rowland, 2000 (cited in Ketrez, 1999) Ketrez group the evidence related to the development of the Turkish verb into three. Any type of inflectional morphology peculiar to the verb category, such as tense/aspect/modality and negative markers are considered to be morphological

³ Yet, some overgeneralizations might occur. For example, while inflecting a noun stem which ends with *k*, i.e. *tabak*, with a suffix beginning with a vowel, the child might fail to delete the stem-final *k* and produce something like *tabaki*. This indicated the child is not rote-learning the inflected structures but using them productively.

evidence. Person markers are not included under this category; since they mark the subject of the verb, they are considered to be syntactic evidence.

The second type of evidence is syntactic evidence. The presence of subjects and objects in the child's speech and case markings on NPs are considered as syntactic evidence since case is assigned structurally or inherently by the verb. Since Turkish is a pro-drop language, the subject may be denoted by an agreement marker attached to the verb. Thus, for the present study, the presence or lack of agreement marker on the verb will be considered as an evidence related to the syntactic development of verbal categories.

Productivity is another issue which is used in describing the development process. To test the productivity of a verb, Pine, Lieven and Rowland consider the constructions that include a certain verb to see whether a verb is used with different TAM or person markers. If it is used in various constructions, the verb is considered to be used productively.

Noting that children go through a 'pre-categorical stage' (a term used in Radford 1990 as cited in Ketrez 1999), the subjects Ketrez observes go through three stages with respect to the development of the verb category. In the first stage, one of Ketrez subjects does not produce any verbs-or words; in fact, Ketrez (1999) notes that the stage seems to be a phase between prelinguistic and linguistic stages. In the following stage, the subject starts to produce verbs as lexical units which do not exhibit any morphological and syntactic properties verbs normally have. At this stage, the verbs are "acategorical" in Radford's (1990, cited in

Ketrez, 1999) terminology. They do not have grammatical properties, that is, either these earlier verbs are not inflected for tense/aspect and person or the markers are not used contrastively or productively. Moreover, children do not produce agreement markers at that stage as well. Another syntactic evidence is that the subjects do not produce NPs with case markings yet. In the third stage, on the other hand, the verbs the subject produces exhibit syntactic and morphological evidence for the development of an adult-like verb category. At this stage, the subjects in Ketrez (1999) start to mark verbs with tense/aspect markers. They also start to produce subject-verb agreement. The case markings on the NPs also emerge and are fully established in this third stage.

4.3. Verbal Functional Categories in Autism

The subject whose speech sample is used as data in the present study provides evidence that at least some Turkish-speaking autistic children may have problems with respect to their syntactic development.⁴ The subject of this work has an MLU of 1,79. During the unstructured speech session and therapy sessions, he mostly produced one or two word utterances:

- (1) R: Aşağıda ne yedin hatırlıyor mu-sun?
 Down what eat-PAST-2nd Sing remember-PROG QUE-2ndSing
 ‘Do you remember what you have eaten down stairs?’
- E: Donduma
 ‘Ice cream’

⁴ In the larger group of subjects who were recorded but whose speech is not analyzed within the scope of this thesis, there was at least one autistic child who did not seem to have any syntactic deviation in his structures. However, it should be noted that this subject was 17 years old at the time of recording. His MLU, which was 3.8, was found to be the highest among the subjects recorded. Although this seems to indicate that there is a correlation between high MLU and the lack of syntactic deviation, it does not seem to be possible to make such a generalization for autistic speech. As can be noted in the table in Appendix 2 children with relatively high MLUs still have deviations in their syntax.

(1) is an example in which E answers only with the information bearing the element *donduma* which indicates that he has correctly processed the question posed to him.

(2), on the other hand, is an example which illustrates that E has problems related to the projection of the verbal functional categories.

- (2) N: Sesli söyle E. Kolayı seviyor musun?
 Aloud say E. Coke-ACC like-PROG QUE-2ndSing
 ‘Say it aloud E. Do you like coke?’
- E: Kolayı seviyo
 Coke-ACC like-PROG
 ‘Like coke’

Unlike the normally developing children, the autistic subject of the present work failed to master the verbal inflectional system and at an observational level, the speech samples indicate that the functional categories are not well developed in the subject’s speech. Deviations have been observed in both verbal and nominal functional categories. In section 4.3.1, deviations in the verbal inflectional categories will be analyzed. In section 4.3.2, the verbal functional categories the child produces correctly will be presented.

4.3.1. Deviations in Verbal Functional Categories

In the natural language sample, there are instances where the subjects attempts at answering questions directed at him with a verbal construction. The most striking characteristic of these attempts is the lack of agreement morphology on the verb.

- (3) a. R: Sev-iyö mü-sün kola-yı?
 like-PROG QUE-2Sing coke-ACC
 ‘Do you like coke?’
- E: Sevi-yo [=seviyorum]
 like-PROG-Ø
 ‘like’
- b. R: Başka ne yi-yo-sün? Patates yi-yo mü-sün?
 Else what eat-PROG-2S Potato eat-PROG QUE-2S
 ‘What else do you eat? Do you eat potatoes?’
- E: Yi-yo [=yiyorum]
 Eat- PROG-Ø

‘eating’

In (3a) and (3b), the subject produces the progressive marker yet he fails to produce 1st person singular marker. Similarly, in (4), talking about the dinner he and his family had the earlier night, the subject fails to produce the first person plural marker agreement marker.

- (4) N: Başka kim vardı?
 Else who there-PAST
 ‘Who else was there?’
 E: Lahlacun ye-di (= yedik)
Lahmacun eat-PAST-Ø
 ‘(We) ate *lahmacun*.’

The subject fails to produce 1st person singular agreement marker in the following structure as well.

- (5) R: N-ap-tın dondurma-yı?
 What-do-PAST-2S ice-cream-ACC
 ‘What have you done with the ice-cream?’
 E: Teşekkür-eli, teşekkür-ederi (=teşekkür ederim)
 Thank-do-Ø thank-do-Ø
 ‘Thank you thank you’

This example is significant in that it is different from the ones given in (3a-b) since the structure the subject attempts at uttering is in fact a ‘frozen form’. The subject nevertheless fails to produce the agreement marker on the verb.

In (6), on the other hand, in which the verb of the expected answer should be marked for 3rd person singular, the subject seems to produce a non-deviant form.

- (6) R: Bak bu çocuk napı-yo? Çocuk uyu-muş
 Look this child what do-PROG? Child sleep-MIŞ
 ‘Look, what does this child do? The child is asleep.’
 E: Uyu-muş
 Sleep-MIŞ
 ‘(He is) asleep.’

As can be seen, the subject is able to produce the expected structure. However, since 3rd person singular is not overtly marked in Turkish, we cannot claim the subject managed to produce the agreement.

The failure in the production of agreement markers is evident in the following utterance, which is obviously an example of immediate echolalia:

- (7) N: İste-mi-yor-um. Söyle E. İste-mi-yor-um.
 Want-NEG-PROG-1S Say E. Want-NEG-PROG-1S
 ‘I don’ t want it. Say it, E. I don’t want it’
 E: İste-mi-yo
 Want-NEG-PROG-Ø

The context indicates that the subject is expected to produce 1st person singular and even though he is prompted to utter the structure, he fails. What is noteworthy about (7) is that although the Agreement marker is missing, the negation morpheme *-me* (which is realized as *-mi* in accordance with the phonological rules of Turkish) is present.

The table below provides the total number of verbal structures produced and the number of verbal complexes which lack the obligatory agreement marker in the speech of the subject.

Agr Marker	No. of occurrences	%
-	22	54
+	10	24
Ø	9	22
Total	41	

Table 1: Agreement markers in speech samples of the subject

In the above table, the category marked as “null agreement marker”, that is “Ø” refers to those structures in which the verb is marked for third person singular

following a TAM marker as well as those which are marked for second person singular of imperative mood.

As can be seen in the table, the subject failed to produce the agreement markers in more than half of the instances. Note that the ratio of structures in which agreement is overtly marked is 24 %. This ratio, however, includes the stereotypical or echolalic structures rather than the expected agreement in a question-answer interchange. These structures will be analyzed in section 4.3.1.

4.3.2. Verbal Functional Categories Projected

Unlike the deviations observed in the projection of Agreement, the subject seems to be able to produce the Tense markers with minimal problem. With a small number of exceptions, which will be analyzed in the following section, the subject produces TAM markers correctly in most of the cases:

(8) R: Başka ne yi-yo-sun? Patates yi-yo musun?
 Else what eat-PROG-2S? Potato eat-PROG QUE-2S?
 ‘What else do you eat? Do you eat potatoes?’

E: Yi-yo (=Yiyorum)
 Eat-PROG-Ø

(8) is one of the examples of the use of progressive marker *-Iyor*. Although the 1st person singular agreement marker is missing, note that the TAM marker is produced by the subject.

Another tense marker that is observed in the data is the past tense marker *-DI*.

(9) R: Kuzu mu ye-di-niz yoksa?
 Lamb QUE eat-PAST-1PL
 ‘Or could it be that you have eaten lamb?’

E: Yed-di
 Eat-PAST-Ø

Similar to (8) above, the agreement marker is missing in (9) too. The tense marker however is projected.

In the frozen structure which is mentioned above and repeated here, the aorist *-Ar* is produced even though it is phonologically distorted in the first utterance of the subject:

- (10) R: N-a:p-tı-n dondurma-yı?
 What-do-PAST-2S ice-cream-ACC
 ‘What have you done with the ice-cream?’
- E: Teşekkür-eli, teşekkür-ederi (=teşekkür ederim)
 Thank-do-Ø thank-do-Ø
 ‘Thank you thank you’

Another example mentioned earlier indicates that the reported past tense marker *-mİş* is among the TAM markers that occurs in the data.

- (11) R: Bak bu çocuk n-ap-ıyo? Çocuk uyu-muş
 Look this child what do? Child sleep-MİŞ
 ‘Look, what does this child do? The child is asleep.’
- E: Uyu-muş
 Sleep-MİŞ
 ‘(He is) asleep’

In fact, this is the only example the child uses *-mİş*.

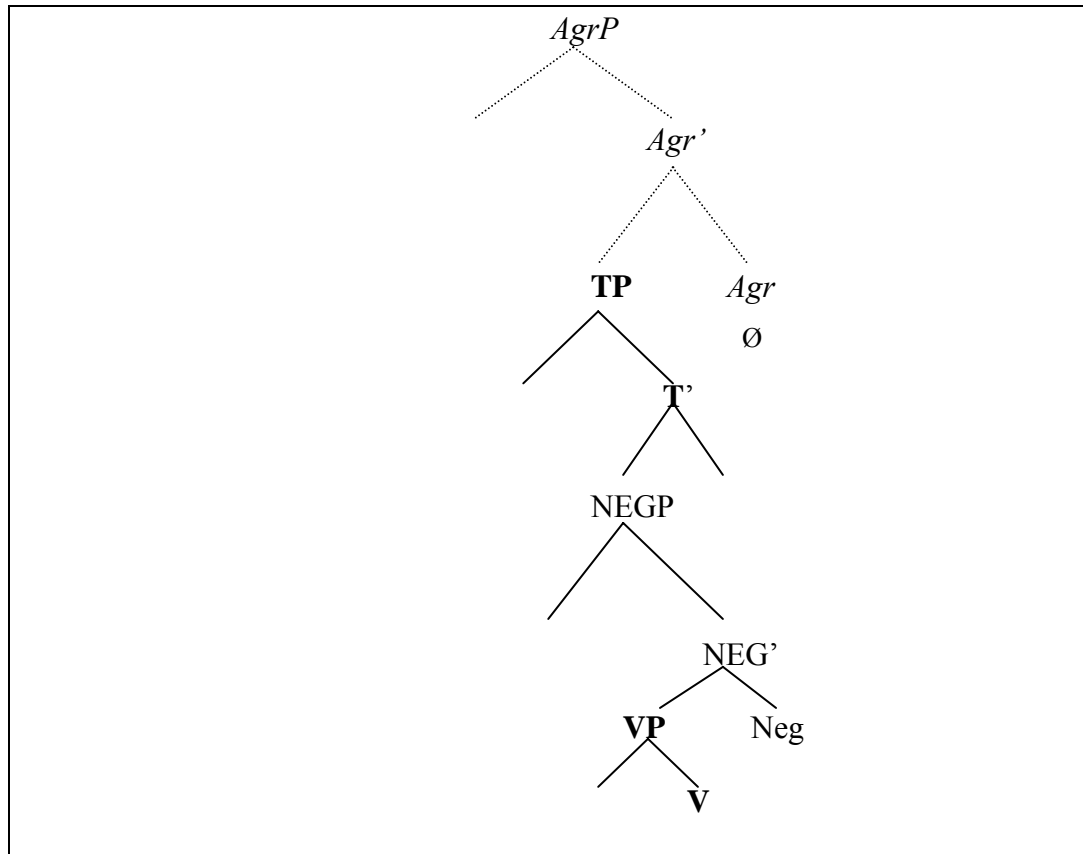
Besides *-Iyor*, *DI*, *-mİş* the future marker *-AcAk*, the imperative and optative mood are also observed in the data. The following table provides the frequency of the use of the TAM markers in the language samples of the subject.

	<i>-Iyor</i>	<i>-DI</i>	<i>-Ar</i>	<i>-mİş</i>	<i>-AcAk</i>	<i>Imper.</i>	<i>Optative</i>	<i>Total</i>
TAM	17	11	3	1	1	7	1	41

Table 2: The number of TAM markers used

Because of the restricted nature of the questions directed at the subject during the spontaneous speech sessions, i.e. most of the questions were asked with the marker *-Iyor*, progressive marker is the most frequently occurring Tense marker in the sample data. The examples related to the last two markers will be analyzed under 4.3.3. which deals with the exceptions related to the general pattern in which the TAM marker is produced and the agreement marker is missing.

In the light of the examples provided above, we propose the following representation of clause structure for E., assuming the SPLIT INFL analysis of Turkish verbal clauses as proposed by Aygen-Tosun (1998).



Note that AGRP is represented in lighter shade indicating the dubious nature of the projection in the speech of the autistic child.

In the course of the derivation of a sentence, the structure of a sentence produced by an autistic child seems to differ from that of a sentence produced by a normally developing child. In the speech of an autistic child, the verb fails to move to AGRP. This is observed in the preceding examples in which the agreement morpheme is missing on the verb.

Although we the expected head-to-head movement (i.e. the movement of verb to AGR) is not observed, SPEC-to-SPEC movement seems to be taking place between [SPEC, VP] and [SPEC, AGRP]

Consider the following example:

(12) N: N-*apı-yo-sun köfte-ler-i deniz kıyı-sı-nda?*
 What-do-PROG-2S meatball-PL-ACC sea side-POSS-LOC
 ‘What do you do with the meatballs in the sea side’.

E: [xxx] O Dilekinin
 It Dilek-GEN-GEN

The subject uses an overt pronoun in (12). Being the internal argument of the predicate, the pronoun must be generated in [SPEC, VP] and move up [SPEC, AGRP]. Such a movement would require the presence of AGRP projection.

4.3.3. Exceptions

4.3.3.1. Fully inflected structures

There are a number of cases in the speech samples of the subject in which the verbal complex is fully inflected, i.e. in which the verbs are marked for Tense/Aspect/Modality *and* agreement.

One such context in which E seems to produce a fully inflected structure is given in (13):

(13) R: Sallanıyo musun sen salıncakta?
 Swing-PROG QUE-2S you seesaw
 ‘Do you swing in the seesaw?’

E: [xxx] Ye-sin sen-i!
 Eat-IMP you-ACC
 ‘(He should) eat you’

N: Evet yesin seni
 Yes eat-IMP you-ACC
 ‘(He should) eat you’

E: O:uz abi [...] O:uz abi götür (=O:uz abi-ye götür)
 O:uz brother O:uz brother-Ø take
 ‘Brother O:uz. Take (me to) brother O:uz

N: Götürücem O:uz abiye.
 Take-FUT-1S O:uz brother-ACC

‘I will take you to Brother O:uz’

However, note that in (13), instead of answering the question directed at him, the subject utters another two-word stereotypical phrase he frequently repeats. He frequently utters the phrase without any context at all. His sister explains that this is a phrase one of their acquaintances uses to show affection to the subject. In a way, the expression is like a frozen form for the subject. Structurally, unlike the examples in the section 4.3.1 which lack the agreement marker, this optative verbal expression is marked with the 3rd Sing agreement marker *-sIn*.

The three-word utterance ‘*O:uz abi götür*’, is one of the rare demands of the subject which he *verbally* communicates. Note that the verb *götür* is in the imperative mood. However, since it is 2nd Person Sing, there is no overt agreement marker on this latter structure.

Another example of a verb inflected for agreement is given in (13):

- (14) N: Neyle gidiyoruz Esatpaşa’ya?
 What-INS go-PROG-3P Esatpaşa-DAT
 ‘Which vehicle do we take to go to Esatpaşa?’
- E: Esatpaşa’ya gid-e-lim
 Esatpaşa-DAT go-OPT-1P
 ‘Let’s go to Esatpaşa’

In (14), the subject uses a verbal complex which is marked for 1st Person Plural. The structure is in optative mood. There is one important point related to this particular example: The subject’s intonation indicates that this is likely to be an instance of echolalia; the child sounds like he is reciting something not actually demanding to go to *Esatpaşa*. In fact, he keeps on asking his sister to be taken to a supermarket.

One obvious example of echolalia also includes a fully marked structure:

(15) R: Yiyosun?
 Eat-PROG-2S
 ‘You are eating?’

E: Yiyosun
 Eat-PROG-2S
 ‘You are eating.’

In the context preceding the interchange in (14), the question “Do you eat the hamburger” is directed at the child. When asked once again, the subject repeats the verb ‘*yiyosun*’ rather than answering the question with 1st person singular as ‘*yiyorum*’. The repeated verb is fully inflected with the progressive marker *-Iyor* and 2nd person singular. The repetition seems to be an indication that the subject fails to process the question.

(16) is another full-projection instance that is echolalic in nature.

(16) N: Dondurma-yı ner-den al-dı-k? Market-ten mi al-dı-k pastane-den
 Ice-cream-ACC where buy-PAST-1P Market-ABL QUE buy-PAST-1P baker’s-ABL
 mi?

QUE?

‘Where did we get the ice-cream?’ Did we get it from the market or the patisserie?

Nerden aldık dondurmayı? Dondurmayı nerden aldık?

Where buy-PAST-1P ice-cream-ACC Ice-cream-ACC where buy-PAST-1P

‘Where did we get the ice-cream?’ ‘Where did we get the ice-cream?’

E: Al-dı-k
 Buy-PAST-1P
 ‘We got (it).’

In this example, instead of answering the question, the subject simply repeats the last word his sister has uttered.

The following two examples, on the other hand, do not seem to be instances of echolalic structures or of stereotypical structures:

(17) a. R: Yi-yo mu-sun sen hamburger-i?
 Eat-PROG QUE-2S you hamburger-ACC
 ‘Are you eating the hamburger?’

E: Yi-yo-s
 Eat-PROG-1PL
 ‘We are eating’

- b. R: Gid-icek mi-sin Mekdanıld-sa?
 Go-ACAK QUE-2S McDonald's-DAT
 'Will you go to McDonald's?'
 E: Gid-ce-s
 Go-ACAK-1P
 'We will go'

Here, the subject marks the verbs for both tense *and* agreement. The agreement marker is different from the one that is required by the question (i.e. 1st Person Singular). One might suggest that the subject is referring to himself and his sister/his family in (17b). Yet, the answer the subject gives to (17a) cannot be explained within that particular context.

4.3.3.2 Verbs with no inflection

The instances, in which the structures lack *both* the TAM marker and the Agr marker, form another type of exception.

- (18) R: Sen hiç uçurtma yaptın mı?
 You ever kite make-PAST QUE
 'Have you ever made a kite?'
 E: Yap
 Make-Ø-Ø

In (18), the subject simply produces the verb root *yap* and fails to use the TAM marker *-DI* and the agreement morpheme.

Similarly in the following example, the subject does not mark the verb with the progressive marker *-Iyor* or the agreement marker.

- (19) N: Kiminle uyuyorsun geceleri?
 Who-INST sleep-PROG-2S nights
 'With whom do you sleep at nights?'
 E: Uyu
 Sleep

These two examples are the only instances in which the subject fails to use the TAM marker. The large amount of data, in which the subject produces the TAM

markers correctly, supports the idea that the acquisition of TAM system has been completed. Thus, we can hypothesize that the deviations observed in these rare cases reflect the idiosyncratic properties of the speech of an autistic child.

Chapter 5

Nominal Functional Categories

5.1. Preliminaries

Nominal Functional Categories in Turkish

As mentioned earlier, noun phrases instantiate a number of inflectional categories. A Turkish nominal form may consist of a nominal root and a number of inflectional suffixes which include plural, genitive-possessive and case markers. In the following subsection the plural, genitive-possessive and case system will be described.

Turkish marks nouns for number by the plural suffix is *-lar*. There is no suffix marking singularity. In a possessive structure, the possessor is marked with the genitive and the possessed with the possessive suffix. Case suffixes indicate the grammatical relations of the NP with the verb. Within the assumed framework here, case is considered to be assigned under government. Within the minimalist program, the nominals are considered to be inserted into structure in their fully inflected form. Turkish has seven case markers. The markers in question are as follows:

Nominative	-Ø
Accusative	-(y)I
Dative	-(y)A
Locative	-DA
Ablative	-DAN
Genitive	-(n)In
Instrumental	-(y)lA

5.2. Nominal Functional Categories in Autism

The speech samples of the subject indicate that not only the verbal but also the nominal functional categories are not well developed in the subject's speech. In the section 5.2.1, deviations in the nominal inflectional categories will be analyzed. Section 5.2.2. will focus on the nominal functional categories the child produces.

5.2.1. Deviations in Nominal Functional Categories

The data indicates that the subject has difficulty in producing particularly case and genitive-possessive markers. Deviations observed in the plural paradigm will be discussed in a later section.

5.2.1.1. Genitive marking

The most common source of deviation in the nominal functional categories is observed to be in the lack of the genitive suffix. This is usually the case when the child is using a pronoun:

- (1) R: E. yi-cek mi-sin pasta-yı? E.cim yi-cek mi-sin?
 E. eat-FUT QUE-2S cake-ACC E eat-FUT QUE-2S
 'E. will you eat the cake? E. will you eat?'
 N: O sev-me-z
 He like-NEG-AOR
 'He does not like (it).'
- E: O beni (=benim)
 It my-Ø
 'It is my'

In (1) in an attempt to indicate that the cake is his, the subject utters *beni*, however, he does not produce the genitive marker *-m*.

In a similar fashion, the subject fails to produce the genitive markers in the following:

- (2)E: Pasta
 Cake
 R: Sen-in mi bu?
 You-GEN QUE this

'Is this yours?'

E: Seni-Ø (=senin)
You-Ø
'Your'

R: Ben-im mi?
I-GEN QUE this
'Is this mine?'

E: Beni (=mine)
Me-Ø
'My'

The course of the dialogue above indicates that the subject has problems processing the question posed to him since the two responses of the subject are inconsistent with respect to the 'possessor' of the cake. Thus, the likelihood of the answers to be echolalic is high. Nevertheless, the subject is still unable to produce the 2nd Sing genitive marker *-n* with 'sen' or the 1st Sing genitive marker *-m* in (2). Elements in [SPEC, NP] which should be marked with the genitive suffix occur without this suffix. The nature of the lexical category of the element in [SPEC, NP] does not seem to have an effect on genitive marking. Pronouns as well as proper and common nouns are produced without the genitive suffix. In the majority of the cases in which the genitive marker is missing, the subject is attempting to utter one of the two pronouns mentioned above.

The following example illustrates lack of genitive with a proper noun.

(3) R: Bu kim-in?
This who-GEN
'Whose is this?'

E: O Ebbu abla (=Ebru abla-nın)
It Ebbu sister-Ø
'It is sister Ebru's'

N: Evet o Ebru ablanın
Yes it Ebru sister-GEN
'Yes it is sister Ebru's'

In (3), the subject fails to produce the genitive marker which would attach to the proper noun 'Ebru abla'. This is an indication that the deviance in (1) and (2) is

not due to the lexical category of the element the marker is attached to. Another source of deviance in nominal functional categories is the overgeneration of the genitive marker:

- (4) a. N: Kola-yı ver sen ban-a. Bu-nu al. Az iç sen
 Coke-ACC give you me-DAT. This-ACC take Little drink you
 ‘Give the coke to me. Take this. You (should) drink a small amount.’
 E: O beni (=beni-m)
 It me-Ø
 ‘It is my’
 N: Tamam
 OK
 E: O Nergiseninin (=Nergis-in)
 It Nergis-GEN-GEN
 ‘It is Nergis’s’
- b. N: N-apı-yo-sun köfte-ler-i deniz kıyı-sı-nda?
 What-do-PROG-2S meatball-PL-ACC sea side-POSS-LOC
 ‘What do you do with the meatballs in the sea side’.
 E: [xxx] O Dilekinin
 It Dilek-GEN-GEN

In both (4a) and (4b), the subject overgenerates the marker. In (4a) he produces an extra vowel, /e/, before the overgenerated affix.

The table below provides the total number of nominal structures which require genitive marking in the speech of the subject. The deviant structures are also indicated in the table.

<i>Gen. Marker</i>	<i>No. of occurrences</i>	<i>%</i>
+	4	21
-	13	68
overgenerated	2	11
Total	19	

Table 3: Genitive markers in the speech of the subject

The subject's failure in the production of the genitive markers seems to indicate that there is a deviation in the movement of the constituent which is in the SPEC position of the NP to [SPEC, AgrP].

5.2.1.2. Case marking

Some of the structures in the speech sample indicate that there are some problems with respect to case marking. Consider the following example:

- (5) a. E: O:uz abi-Ø gotur (=O:uz abi-ye götür)
 O:uz brother-Ø take
 'Take (me to) brother O:uz'
- b. N: Neye biniyoruz?
 What-DAT ride-PROG-1P
 'What do we get on?'
- E: Otobüs (=otobüse)
 Bus-Ø

In both of these examples, the subject fails to produce the dative marker.

One example related to the failure of the accusative marking is interesting:

- (6) E: Gülüfer. Acı-Ø bırak
 Gülüfer Pain-Ø let go
 'Gülüfer (=Nilüfer) Let go of pain'

The subject attempts to utter the name of a song sung by one of his favorite pop stars. Yet, even while producing the name of the song which can be considered to be a frozen form, he fails to produce the accusative marker $-(y)I$.

(7) is an other deviant example in which the accusative marker is missing:

- (7) N: Hadi anlat bakalım, çocuk napıyo?
 Come on tell look-OPT-1P, child what-do-PROG?
 'Come on tell us, what does the child do?'
- E: Yata: topluyo.
 Bed-Ø tidy-PROG
 '(He is) tidying the bed'

Looking at his picture book, the subject is describing the drawing he sees. The answer would require him to use an NP marked with the accusative i.e. *yatağ-ı*

[*bed-Acc*]or *yatağ-t-ni* [*bed-Poss-Acc*] yet the subject produces a structure without either of the markers.⁵

The following table provides the number of deviant and correct usages of the accusative and dative markers in the language samples of the subject. (Since these two are the only markers the subject uses, the other case markers are not included in the table)

	<i>Dative</i>	<i>Accusative</i>
+	2	5
-	2	2
Total	4	7

Table 4: Case Markers in the speech sample of the subjects

5.2.2. Nominal Functional Categories Projected

5.2.2.1. Possessive markers

Unlike the deviations observed in the marking of genitive, the subject seems to be able to produce possessive markers with minimal problem.

With respect to the occurrence of possessive markers, the structures are limited to those cases in which the head noun is the name of a body part.

(8) N: Evet. Bu?

Yes. This?

E: (shouting)A:s-I

Mouth-POS

'His mouth'

In (8), the sister of the subject draws the face of a cartoon character and pointing at the mouth, asks the question above. When answering the question, the subject produces the noun marked with the possessive marker.

⁵ It is possible that the child is attempting at producing "*yatağı*" since the word can be pronounced through the lengthening of the final vowel i.e. "*yata:*".

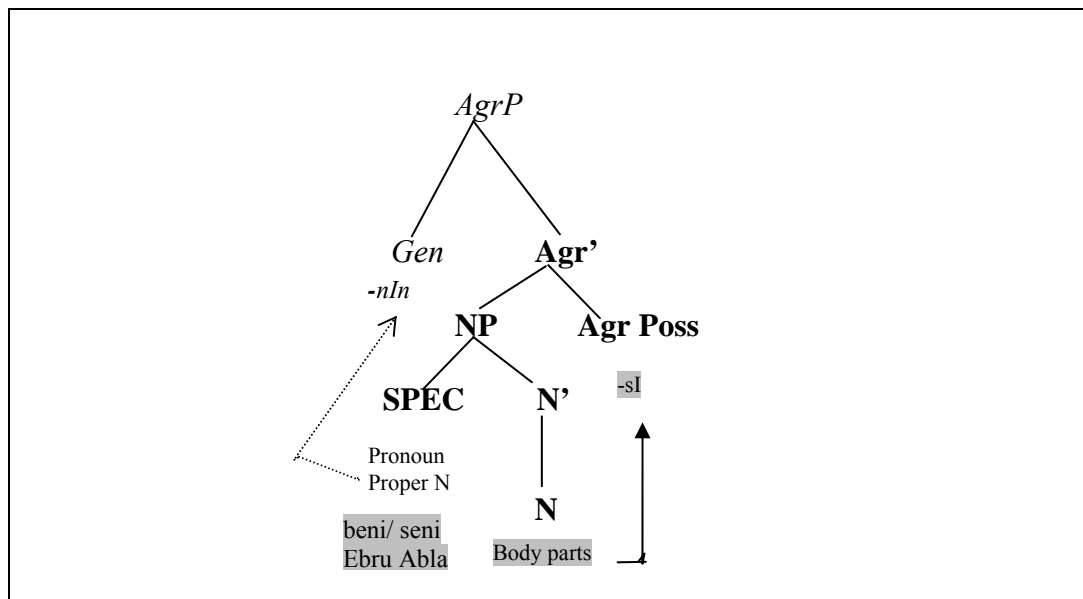
The following table indicates the number of correct, overgenerated and missing cases of possessive markers in the data:

<i>Poss. Marker</i>	<i>No. of occurrences</i>	<i>%</i>
-	1	17
+	5	83
overgenerated	-	

Table 5: Possessive markers in the speech sample of the subject

The sole example in which the possessive marker is missing will be discussed in Section 5.2.3.

The following structure illustrates the internal structure of an NP and the projection of nominal agreement phrase in Turkish:



Similar to the acquisition of verbal functional categories acquisition of nominal functional categories by the autistic subject of the present study differs significantly from his normally developing peers. Furthermore, the two sets of functional categories reflect a difference in their properties in the speech of the

autistic subject. In contrast to verbal functional categories in which the subject failed in carrying out head-to-head movement to the higher projection AGRP, raising the question whether AGRP is projected at all, the derivation of a noun phrase has deviance in SPEC-to-SPEC movement. Note that as mentioned before, SPEC-to-SPEC movement seems to be possible in the instances in which the internal argument of the verb moves up to [SPEC, AGRP].

5.2.2.2. Plural marker

The subject seems to be able to produce the plural marker with minimal problem. In five of the six instances of plural marking, the subject produces the plural marker *-lar* correctly.

(9) a. N: Bun-lar ne? El-ler-i mi?
 This-PL what? Hand-PL-POSS QUE?
 ‘What are these? (Are these) his hands?’

E: El-ler-i
 Hand-PL-POSS

b. N: Kulak-lar-ı:
 Ear-PL-POSS
 ‘His ears’

E: Şaç-çar-ı (=Saçları)
 Hair-PL-POSS
 ‘His hair’

In (9a), the subject successfully produces the marker in question. In (9b), on the other hand, the subject fails to produce the initial /l/ sound of the marker and through assimilation to the final sound of the root, that is /ç/, is produced. Nevertheless, it is obvious that he is trying to produce the plural marker. The plural marker is overgenerated in one instance and that example will be analyzed in Section 5.2.3.3.

5.2.2.3. Case markers

As indicated by Table 4, there are cases in which the subject is able to produce the correct case markers.

In (10) the subject produces the dative marker:

- (11) N: Nereye gittik? [...]
 Where go-Past-1P
 ‘Where did we go?’
 E: Bursala (=Bursaya).
 Bursa-DAT
 ‘To Bursa.’

Note that the subject answers the question posed to him with a dative marked NP, although the phonological form the “buffer sound” /j/ preceding the dative marker $-(y)A$ is distorted.

An example of a noun inflected for accusative is given in (10)

- (11) N: Köfteci [...] Her Allahın günü köfte yiyor.
 Meatball-CI Each God-GEN day-POSS meatball eat-PROG.
 ‘(He) loves meat balls . Each and everyday he eats meatballs’
 E: Köfke-ler-i (=köfteleri)
 Meatball-PL-ACC
 ‘Meatballs’

In (11), the subject produces a noun marked with plural marker and the accusative.

The other instances of accusative marking are all echolalic structures and those structures will be discussed in section 5.2.3.

5.2.3. Exceptions

5.2.3.1. Genitive markers produced

Although the subject fails to produce the genitive marker in most of the cases, there are rare instances in which he produces it:

(12) R: Senin olmasın bu? E'in?

Yours be-NEG this E-GEN

'Can this be yours? E.'s?'

E: E.'m.

E-GEN

E's

Similar to the example above, three out of four correct genitive usages are instances of proper name marking. Yet, the subject successfully marks the noun with the genitive in the following example as well:

(13) N: Hayır o senin değil, o ablanın

No that yours NEG that sister-GEN

No that is not yours, that is the sister's

E: O annanın (i.e. ablanın)

That sister-GEN

That is the sister's.

5.2.3.2. Possessive marker not produced

Similarly, although the subject does not seem to have any problem producing the possessive marker in general, in the following example the marker is missing:

(14) N: Tamam a:zı

OK mouth-POSS

'OK his mouth'

E: Kulat (=kulakları)

Ear-Ø

(His) ear(s)

N: Kulakları:

Ear-PL-POSS

'His ears'

Although the subject does not produce the possessive marker (or the plural marker) in this instance, in all other question- answer interchanges in which he is required to name one of the body parts of the cartoon character, the possessive marker is produced. In fact, this is the sole example he fails to utter the possessive.

5.2.3.3. Overgenerated plural marker

In the following instance, the subject overgenerates the plural marker:

(15) N: Ne bu? Bu ne?
 What this This what
 ‘What is this? What is this?’

E: Gös, kaş-lala-rı
 Eye, eye brow-PL-PL-POSS
 ‘Eye, eye brows’

As can be seen in the example, the plural marker *-lar* is overgenerated as *lalar*.

This example is the only example in which the child overgenerates the plural marker.

5.2.3.5 Case marking

Most of the examples the subject uses a noun overtly marked with a case marker is echolalic structures. (16) is one of such examples:

(16) N: Sesli söyle E.. Kolayı seviyo musun?
 Aloud say E. Coke-ACC like-PROG QUE-2S
 ‘Say it aloud E. Do you like coke?’

E: Kolayı seviyo (=seviyorum)
 Coke-ACC like-PROG
 ‘(I) like coke’

After he answered the question whether or not he enjoys drinking coke, the subject is prompted to repeat his answer. When answering the question for the second time, the subject produces the noun *kola* with the accusative marker. Given that it would be sufficient if the subject simply answered the question with the verb *seviyorum*, the subject’s answer is considered to be echolalic.

Another example of echolalic structures which includes an accusative marked NP is aforementioned “*yesin seni*”. The NP “*seni*” which is the complement of the verb “*yesin*” is marked with accusative.

Chapter 6

Conclusions

According to the Principles and Parameters approach (Chomsky, 1981), the central element related to the explanation of language acquisition is the genetic endowment human beings have in the area of grammar. The theory imposes limits on grammars of particular languages and specifies abstract systems that constitute possibly fully acquired adult grammars of natural languages. The abstract system that underlies all natural languages is referred to as “universal grammar” (UG). UG is a system of principles that place restrictions on the possible grammars of languages and through a system of parameters it allows for variation among the grammars of languages. While acquiring the language, the child sets the value of the parameters of UG according to his/her linguistic experience i.e. according to the parameters of the language s/he is exposed to.

There are two opposing views with respect to the degree of “innateness” in language acquisition. These are Continuity and Discontinuity hypotheses.

According to the Strong Continuity Hypothesis which is proposed by Baker, 1979; Chomsky, 1975; Pinker, 1984 (cited in Bickerton, 1999) all principles of UG are available to the child from the very beginning of the language acquisition process and UG remains unchanged during the course of language acquisition (Lust, 1999). Strong continuity hypothesis assumes that the changes in the child’s linguistic knowledge over time is due to developmental changes observed in the child’s language, not due to changes in UG.

On the other hand, according to Discontinuity Hypothesis, the UG principles change during the language acquisition process. The assumption is that certain principles mature thus the principles that are not available at certain stages of a

child's development become available at a later stage (Borer & Wexler, 1987 cited in Lust, 1999). The absence of passives or overt functional categories in early English child speech is considered to be evidence for the "maturation" hypothesis. Given that these structures are not available in child speech but are available in adult speech, a "maturing UG" account would be plausible. (Lust, 1999) It is also argued that young children have grammars which are under the influence of UG although they have certain deviations with respect to the adult UG. UG constraint maturation hypothesis thus claims that all child grammatical representations are available in UG (Borer and Wexler, 1992 cited in Wexler 1999).

Although there is little controversy related to the claim that language acquisition is possible as a result of a certain type of genetic endowment in human beings, the precise contribution of this genetic endowment to language learning capacity is an issue of debate. One group of linguists support *special nativism* which proposes human mind is equipped with certain mechanisms that are specifically linguistic in nature and the "acquisition device" includes the UG. The *general nativism* approach, on the other hand, suggests that innate knowledge required for language acquisition is more general in nature and does not include any kind of linguistic categories, principles or strategies (O'Grady, 1999).

Due to the nature of autism, the subject of the present study differs from his normally developing peers with respect to language acquisition and development. The child faces a delay in language development. Although the subject is 7 years old at the time of the recording, he has an MLU of 1,26 in the recordings of the therapy sessions which is equal to the performance of normally developing

children at the chronological age of 15-30 months. According to Brown's (1973) four-phased scale, which utilizes MLU to define levels of syntactic development of children, the subject's syntactic development is within the limits of the first stage.⁶ Considering that even the children between 15 and 30 months are expected to have an MLU of 1.75, the degree of language delay in the subject becomes apparent. (Bowen, 1998)

As mentioned in chapter 4 and 5, deviation in verbal and functional categories is the most outstanding problem in the linguistic performance of the subject. Although it is considered to be normal for English speaking children to produce 'telegraphic' structures which lack tense/agreement markers in Stage 1, Turkish speaking children manage to use verb and noun inflections productively as early as 15 months of age (Bowen, 1998, Aksu-Koç & Slobin, 1985). Thus, the inability of the subject's use of functional categories is strong evidence for the developmental delay in the linguistic acquisition of the subject.

The nature of the deviations observed in the use of verbal functional categories may lead to certain hypotheses about the grammar of the subject.

The general lack of agreement markers on the verbs can be considered to be an indication that in the subject's grammar, the verbal AGR phrase is not projected at all. There seems to be, however no such restriction on projection of functional categories lower than agreement, i.e. T/AP and Neg P.

⁶ Note that the MLU of the subject in the spontaneous speech session is 1,79 which is significantly higher.

The lack of Agreement marker has an additional implication. The phenomenon of pronoun reversal which is mentioned in Section 1.2.2 and which is among the characteristics of autistic speech may be related to the inability of the autistic speaker to project AgrP in Turkish.

We can hypothesize that rather than being unable to identify people (i.e. themselves and second or third parties) Turkish speaking autistic children simply do not project agreement and consequently do not produce the agreement marker. This might explain the instances the subject seems to be using 3rd Sing- which is phonologically null- when referring to 1st Sing, which is marked with *-m*.

Another type of deviation observed is the overgeneration and lack of genitive markers in the nominal paradigm of Agreement. This observation can be considered to be an indication that the subject has not yet fully acquired the nominal agreement system.

As mentioned earlier, within the assumed framework here, case is considered to be assigned under government. Within the minimalist program, the nominals are considered to be inserted into the structure in their fully inflected form. The overgeneralizations observed in the genitive and plural markers in the data might suggest that both the syntax and the lexicon of this Turkish autistic child are heavy. That is, the structures are present in their inflected form in the lexicon and after the merge operation is completed, they are marked syntactically and thus they have more than one marker on them. This, in turn suggests that the grammar of the autistic child differs significantly from the grammar of a normally developing child in terms of the nature of the economy principles that govern the components of grammar.

The language characteristics of the subject of the present study indicate that certain principles of universal grammar are violated in the subject's *I* grammar. However, longitudinal data analysis is necessary to identify the stages of the language acquisition process the subject is going through. Such a study will also uncover significant evidence to determine whether it is Continuity or Discontinuity Hypothesis that makes correct prediction for language acquisition. When considering the conclusions, the limitations of the present study should be kept in mind. The limited volume of the data and the fact that the study is a case study restricts reaching conclusive results. Further data collected from other autistic children will confirm the degree of generalizability of the observations and explanations proposed for the language performance of the subject of this study.

Further Research Issues

There are certain limitations of the present study. Because of the nature of the disorder, a study aiming at profiling the linguistic features of autistic individuals rather than attempting at drawing conclusive generalizations related to the whole group would be necessary.

Moreover, the linguistic characteristics and abilities of children who are newly diagnosed to have autism should be examined. This would help us understand the natural process of acquisition the subject goes through before intervention i.e. therapy.

The comparison of performances of children within therapy sessions and in spontaneous conversation situation might also be helpful in determining the language level of the autistic children. Moreover, levels of language performance at various stages of therapy can be examined.

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Appendix I**The data**

N: Nergis (The subject's sister)

M: Mother

E: E.

R: Researcher

M: Hadi Ebru ablaya Sivas'ın yollarını söyle

E: Ebbu abla

N: Hadi gel söyle, Karfur'a gideceğiz

E: Adda

N: Evet Arda abi

E: O:uz abi

N: O:uz abi

R: Aşağıda ne yedin hatırlıyor musun?

E: Donduma

R: Naptın dondurmayı?

E: Tesekkuledeli teşekkulederi

R: Neyli?

E: Teşekkül edeli

M: Teşekkür edermiş

R: Dondurma

E: Dilanın [...]

M: Dilan küçük abla

E: Dilan işe gitti

R: Sen nereye gittin?

E: Yesin seni

M: Akşam nereye gittik? Biz akşam nereye gittik?

E:-

[...]

R: Bunlar senin mi E.? Kimin pastası bu?

E: Pasta

R: Senin mi bu?

E: Seni

R: Benim mi?

E: Beni

R: Senin olmasın bu? E.'in?

E: E.nin!!

R: Yicek misin sen pastayı? E.cim yicek misin?

N: O sevmez

E: O beni:

N: E. yer misin sen?

E:Yer

N:Gel o zaman yanıma gel

R:Ablanın yanına git hadi. [E. bana

E: [neler o beni]

R: Hangisi senin? (x2)

E: O [xxx]

N: O Ebru ablanın

E: O:uz abi

R: O:uz abi kim?

E: Arda

N: Ablamın arkadaşları [...]

R: Bu seninse yiyebilirsin. Senin mi bu? Yemek ister misin?

E: O beni

[...]

M: Üç, üç çeyrek gibi ilacını ver

E: Baba baba bitti bitti

N: Bitti tamam

R: Ama bitmedi

E: Baba bitti bitti

R:[...]

E: Kafu

N: Tamam karfura gitcez

E: Patte

N: Patates başka

E: Ambuge

N: Hamburger başka

R: Napıyosun hamburgeri? Söyle bana

E: Hambuge

N: Nası yiyoruz göster

E: Ham!

N: Ham!

R: Yiyo musun sen hamburgeri?

E: Yiyos

R: Yiyosun?

E: Yiyosun

[...]

E: Yessin seni, yessin seni

R: Kim yesin seni? Kim kimi yesin?

E: Fatih

N: Fatih E.'ı yesin

[...]

N: E. ben gidiyim mi?

E: [Shouts]

N: Naptım ben şaka mı?

E: Şaka şaka

N: Şaka şaka

[...]

E: O beni:!

R: Hayır o senin değil ablanın

E: O a:nnanın

R: Bu Nergis ablanın. Bu senin olabilir istersen

E:[xxx]

R: Bu kimin?

E: Ebbu abla

N: Evet o Ebru ablanın

R: Yicek misin?İster misin?

E: O:uz abi

N: Hayır de

E: Hayır

R: İstemiyor musun?

N: İstemiyorum söyle E. istemiyorum

E: İstemiyö

[...]

(turns on the TV)

E: Gülüfer

R: Gülüfer ne yapıyor gülüfer?

E: Gülüfer acı bırak

N: Acılara son. Bu şarkıyı çok seviyo

[...]

(talking about vacation)

R: Napıyoruz denizde?

E:Yüsmeye

R:Yüsmeye napıyoruz? Yüzmeye gidiyo muyuz?

E:-

N: Neyle gittik biz Bursa'ya

E: Gemi

N: Evet gemiyle

R: Ben anlamadım ablan söyleyince nereye gittiniz?

N: Nereye gittik? [...]

E: Bursala

[...]

E: Denis denis

N: Yüzmeye bayılıyo

R: Sen napıyorsun denizde

E:Yüzmeyi

R: Başka ne yapıyorsun denizde? Dondurma yiyor musun deniz kıyısında?

N: Köfteci... [...] Her Allah'ın günü köfte yiyor

E:Köfkeleri

R: Napıyorsun köfteleri deniz kıyısında?

E:[xxx] O Dilekinini

N: Çok seviyo ekleri kullanmayı şimdi

E: O Dile:

N: Hep diyoruz bu kimin? Dileğin dondurması

E: O Dilei:

N: Dondurması

E: Dile:i

R: O kimin gitarı? O kimin?

E: Ben

N: İıı benim, nergisin

E:[xxx]

[...]

E: Arda

N: Arda [...]

R: Nerde oturuyorlar

E: Karfur

N: Orda

E:Karfur

[...]

R:Kolayı napıyosun kolayı?

E:-

R:Yiyo musun kolayı?

E:Yiyo

R:Yemiyosundur bence

E:Yemizo

R: İçiyo olabilir misin?

E: İçiyo

R: İiyo musun kolayı? Kolayı içiyo musun sen? Seviyo musun kolayı?

E: Seviyo

R: Bir daha söyler misin?

N: Sesli söyle E.. Kolayı seviyo musun?

E: Kolayı seviyo [...]

R: Sen parka gidiyo musun E.?

N: Evet gidiyo muyuz

E: Gidozu

R: Ne var parkta? Kaydırak var mı?

E: Kay-dı-rak

R: Kayıyo musun sen kaydırdaktan? (x2)

E: Kayyo

R:Başka ne var? Salıncak var mı?

E:Var salıncak (...)

R:Seviyo musun sen salıncağı?

E: Sal

R: Sallanıyor musun salıncakta

E: [xxx]Yesin seni!

N:Evet yesin seni

E: O:uz abi

E: O:uz abi götür

N:Götürücem O:uz abiye götürücem seni

E: Karfur

N: Karfur'a da götürücem. Güzel otur, bizim

E: Karfur Ebru abla Esatpaşa

N: Esatpaşa'ya neyle gidiyoruz?

E: Ne

N: Neyle gidiyoruz Esatpaşa'ya?

E: Esatpaşaya gidelim

N: Neye biniyoruz

E: Otobüs

N: (indicates the answer is not correct)

E: Milibüs

N: Evet minibüs

R: Sen minübüse biniyor musun?

E: Milibüs

R: Biniyo musun sen minübüse?

E: Biniyo [...]

N: Dün akşam nerdeydik? Dün akşam nereye gittik?

E: Mezine [i.e. Medine, a person]

N: Başka kim vardı?

E: Lahlacun yedi

N: Evet lahmacun yedik başka?

E: Su içti

N: Evet başka

E:??Dozuye kuziye

R: Kuzu mu yediniz yoksa

E:Yeddi

N: Fasulye mi demek istiyosun

E: Fasuye

N: Fasulye demeye çalışıyo. Başka ne yedik? Üzüm yedik mi?

E:Üzü:

N: Bi de ne yedik?

E: Ne yedik

N: Ne yedik

E: Çeki

N: Çekirdek [...]

E: Efefak

N: Efefak da vardı. Efekan [...] Efekan'a gidelim mi?

E: [Shouts] Ka:fu:r. O:uz abi götür

N: Tamam, Oğuz abiye götürüyüm [...]

N: Ne bu? Bu ne?

E: Gös, kaşlaları

N: Evet. Bu?

E: A:sı (shouts)

N: Tamam a:zı

E: Kulat

N: Kulakları:

E: Saççarı

N:Saçları: Sonra? Bunlar ne? Kolları

E: Kolları

N:Bunlar ne? Elleri mi?

E: Elleri

N: Parmakları kaç tane?

E:Beş tane

N: Bir iki [üç dört beş]

E: [üç dö:t bes]

N: Bu

E: Beş tane

N: Bu? Bir iki üç dört beş

E: Beş tane [...]

N: Bu ne: ayakları

E: Ayakkarı

N: Kaç parmak

E: Beş tane

N: Bir iki üç dört beş söyle hadi

E: Bir iki üç dört beş

R+N: Aferin alkış

(look at his book)

N:Hadi anlat bakalım, çocuk napıyo?

E:Yata topluyo

R: Sen topluyo musun yatađını?

E: (Shouts)

R: Bak amca napıyo? Yemek yapıyo [...]

E: Otobüs (turning the pages)

R: Otobüs [...] Bak koşuyorlar. Sen koşuyo musun?

E:Koşuyo

R: Bitti mi?

E: Bitti

R: Gel bi daha bakalım

E: (Shouts)

R: Bak patates var ama burda. Sen gördün mü patatesi? Sen patates yiyo musun?

E: (Mutters)

R: Bak... Bak napıyo teyze? Patates yapıyo. Sen yiyo musun patates?

E: Patates yiyo

N: Evet de. Patatesi neye banyoruz? Ketçap bi de mayanoz

R: Yiyo musun bi söyle bana? Seviyo musun? Sevmiyosun sen o zaman patatesi

E: (Shouts) Mustafa sanda...

[...]

[They go and buy ice-cream]

R: Ne o elindeki? Dondurma mı aldın?

E: Aldı

R: Aldınız mı dondurma?

E:

R: Kim aldı dondurmayı sana?

E: Nergis al (unintelligible)

R: Napıyosun dondurmayı?

E:

R:Yiyo musun? [...]

E:Yiyo

N: Kolayı ver sen bana. Bunu al az iç sen

E: O beni

N:Tamam

E:O Nergiseninin

[...]

N: E. kurabiye yer misin bak bu fıstıklı?

E: O fıstıklı

R: Yalıyo musun dondurmayı E.?

N: Göster ablaya E.. Dondurmayı nasıl yiyoruz?

E: Yiyo

N: Dondurmayı nerden aldık? Marketten mi aldık pastaneden mi? Nerden aldık dondurmayı? Dondurmayı nerden aldık

E: Aldık

[...]

N: Bu ne?

E: Fati

N: Ne bu?

E: Dodu:ma

N: Dondurma [...]

R: Napıyosun dondurmayı?

E:Yiyo [...]

R:E. parka gitmek istiyoy musun?

E: Ka:fu:

R: Napcaksın karfur'da? Mekdanılds var mı karfur'da?

E: Mekdas var

R: Napıyosun mekdanılds'da? Ne yiyosun mekdanılds'da?

E:Yiyo

R: Ne yiyosun?

E:Amburge:

R: Hamburger yiyosun. Başka ne yiyosun? Patates yiyo musun?

E:Yiyo

R: Peki. Kola içiyoy musun?

E: Kola içiyoy

[...]

R: Bak bu çocuk napıyo? Çocuk uyumuş

E: Uyumuş

R: Sen uyuyoy musun E.?

E: Uyumuş

R: Sen de böyle uyuyoy musun?

N: Kiminle uyuyosun geceleri?

E: Uyu

[...]

R: O kimin telefonu?

N: O kimin telefonu Ebru

E: Ebbu abbanın

[...]

R: Sen hiç uçurtma yaptın mı?

E:Yap

N: Hayır de yalan söyleme

[...]

(looking at the recorders)

R: Bak kırmızı ışık yanıyo burda gördün mü?

E: Gördü

[...]

R: Çamaşır makinasının sesini duyuyor musun?

E: Çamaşır makinası [...]

R: Karfur'da napcaksın? Mekdanılds'a mı gidiceksin?

E: Mekdanıss'a

R: Gidicek misin mekdanılds'a?

E:Gidices

[...]

R: Aç bakalım paketi ne çıkacak içinden

E: Baket

Appendix II

The following are the MLU's of the subjects according to the data obtained from the therapy sessions or the classes. S4 is the subject whose spontaneous speech samples are used for the present study. Note that the subject's MLU is relatively higher (1.79) in spontaneous speech samples.

Subject	Age	MLU
S1	5	2,71
S2	5,5	2,71
S3	7	2,50
S4	7	1,26
S5	9	2,34
S6	10	1,04
S7	13	1,39
S8	17	3,8

Table 1: The MLU's of the initial subjects

Appendix III

The deviant and correct usages of TAM markers in the large group of subjects' speech samples

Marker	Correct Use		Deletion		Deviation			
					Phonological		Partial	
<i>-dl</i>	87	89%	9	9,2%	1	1%	-	-
<i>-Iyor</i>	125	72,6%	32	18,6%	3	1,7%	12	6,9%
<i>-AcAk</i>	34	87,1%	4	10,2%	1	2,5%	-	-
<i>-mlş</i>	51	86%	5	8,4%	2	3,3%	1	1,6%
<i>-Ir</i>	8	88,8%	1	11,2%	-	-	-	-
<i>-Ebil</i>	3	100%	-	-	-	-	-	-
Imp.	15	100%	-	-	-	-	-	-
Opt.	5	100%	-	-	-	-	-	-

Table 2: The percentages related to the usage of TAM markers