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DERIVATIONAL MORPHOLOGY AND SEMANTIC RESTRICTIONS

Bengü SEVER

YÜKSEK LİSANS TEZİ

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Danışman
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SOSYAL BİLİMLER ENSTİTÜSÜ
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SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE,

Bengü SEVER tarafından hazırlanan Derivational Morphology and Semantic Restrictions başlıklı bu çalışma, jürimiz tarafından İngiliz Dili ve Edebiyatı ☐ Ana Bilim / ☐ Ana Sanat Dalında ☐ YÜKSEK LİSANS / ☐ SANATTA YETERLİK / ☐ DOKTORA TEZİ olarak kabul edilmiştir.

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ONAY

Yukarıdaki imzaların, adı geçen öğretim elemanlarına ait olduklarını onaylarım.

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Adı Soyadı
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TÜRETİM BİÇİMBİLİMİ VE ANLAMBİLİMSEL KISITLAMALAR
ÖZET

Bu çalışmanın amacı Türkçe yapım eklerinin birbiri ardına dizilimindeki yapısal ve anlamsal sınırlılıkları tespit etmek ve tanımlamaktır.

Çalışmada Türk Dil Kurumumun 7. baskısından Uzun (ve diğ.1992) tarafından elde edilen yapım ekleri listesi kullanılmış, bu ek listesi üzerinde, ek ve köklerin anlamları ve yapısal özellikleri belirlenmiştir. Her türetim, biçimbirimlerine ayrılmış ve *kök+ek+ek* dizilimleri belirlenmiştir. Böylece her bir yapım ekinin bulunduğu ortamlar; bir başka deyişle yapım ekinin öncesinde ve sonrasında bulunan diğer yapım ekleri dizisi belirlenmiştir.

Çalışmanın ilk bölümünde son yüzyılda İngilizce ve Türkçe yapım ekleri ile ilgili gelişmeler ayrı ayrı özetlenmiş; en belirgin yaklaşımlar öncüleriyle birlikte anılmışlardır.

İkinci bölümde ise Türkçenin biçim dizgesinden kısaca bahsedildikten sonra 191 Türkçe yapım eki arasından 69 yapım eki kendi içinde sınıflanmıştır. Toplamda 4 farklı grupta incelenmiştir:

1. Çatı ekleri
2. Eylemden Türetim Yapan Ekler
3. Addan Türetim Yapan Ekler
4. Her İki Sözcük Grubundan da Türetim Yapan Ekler

4 gruba ayrılan bu ekler kendi içlerinde türettiği sözcük grubuna göre

sınıflanmışlardır. Her ekin kendisinden önce ve sonra gelen ekler işaretlenmiş ve bu seçimin sebepleri irdelenmiştir.

Son bölümde ise eklerin genel eğilimleri ve davranışları, ve seçimlerinin kıstasları belirlenmiştir. Yapım eklerinin genel bir örüntüsü ortaya konmuş ve biçimbilimsel, sebilimsel ve anlambilimsel sınırlılıklar belirtilmiştir.

Yapım eklerinin genel olarak seçim ve sınırlılıkları gösterilmiştir. Ancak, yaşadığımız teknoloji çağında yaptığımız bu araştırmanın bilgisayar üzerinde çalışmaması bir eksikliktir. Daha ileri bir çalışmada bu çalışmanın bilgisayar tabanlı bir sisteme aktarılması kaçınılmaz bir ihtiyaçtır.

Anahtar kelimeler: sözcük yapısı, yapım eki, eklemleme, yapısal ve anlambilimsel kısıtlamalar

DERIVATIONAL MORPHOLOGY AND SEMANTIC RESTRICTION

ABSTRACT

The aim of this study is to determine and describe the structural and semantic restrictions on the suffix sequences in Turkish.

In the study the data derived from the seventh volume of Dictionary of Turkish Language Association by Uzun, et.al. is used. The structural and semantic properties of the suffixes are marked on this suffix list. The suffixes are classified according to the base and derivative categories. Each derivative is separated into its morphemes and root+suffix+suffix order is determined. Thus the environments of each suffix, in other words the other suffixes that before and after a given suffix is determined.

In the first chapter the developments in the derivational morphology in English and Turkish summarized and the most prominent approaches with its pioneers are mentioned.

In the second chapter after mentioning the morphotactics of Turkish briefly, the suffixes are classified among themselves. In sum, there are four classes determined as follows;

1. Voice Suffixes
2. Deverbal Suffixes
3. Denominal Suffixes
4. Affixes attaches to Both Verbal and Nominal roots.

The sequence of each suffixation has been marked and the reasons of this choice is discussed.

In the last section the main attitudes and tendencies of the derivational suffixes and the criterions of this choice is identified. The general pattern of the derivational suffixes is presented and morphological, phonological an semantic constraints are specified.

The general view has been identified but in the technology era that we live in, it is an inevitable need to transfer our study into a computer based system in further studies.

Keywords: word structure, derivational affixes, affixation, semantic and structural constraints

CONTENTS

LIST OF ABBREVIATIONS

N: Noun

V: Verb

AJ: Adjective

AD: Adverb

PN: Pronoun

PL: Plural

NO: Numeral

TDK: Türk Dil Kurumu (Association of Turkish Language).

BNC: British National Corpus

OED: The Oxford English Dictionary

CELEX: Electronic Databases for Linguistic and Language Research. (Lexical Database CD-Rom)

TUDD: Turkçe Ulusal Dil Derlemi (Turkish National Corpus)

Morphemic Representations: The vowels and consonants in the Suffixes

A: Front “e” or Back “a”

I: High Vowels (ı, i, u, ü)

Ç: Voiced “c” or Voiceless “ç”

T: Voiced “d” or Voiceless “t”

K: Voiced “g” or Voiceless “k”

_C: Consonant final bases

_V: Vowel final bases

-_: suffix that attaches to verbal bases

+_: suffix that attaches to nominal bases

±_: suffix that attaches to both verbal and nominal bases

_-: suffix that derives verbal bases

._: suffix that derives nominal bases.

INTRODUCTION

Constraints on affixation is a controversial issue. Currently, there are a number of different approaches on ordering of derivational morphemes in languages. Turkish is an agglutinative language and poses certain interesting questions in this respect. It is exclusively a suffixing language, lacking other types, for example, apart from few unproductive borrowed ones, Turkish does not have prefixes.

Suffixes change either morphological, syntactic or semantic features of the roots. In most of the studies which describes Turkish, the scholars (Banguoğlu 1940, Gencan 1966), classified suffixes in different types and defined them most often as "noun, adjective or verb forming suffixes". The constraints on the order of morphemes in suffixation are unobserved. Recent studies, on the other hand, have become more explicit and satisfying. Yet there is not a fully verified approach or theory of affix order.

American structuralists studied the language separating into the smallest pieces which they called the smallest meaningful form. In the second part of the XX. century, developments following the Generative Grammar as initiated by Chomsky Grammar, have produced such works as represented by Halle (1973), Aronoff (1973), Jackendoff (1975), Roper and Siegel (1978), Fabb (1978). More recently, Plag (1999), Hay (2000) present new approaches to affix ordering in terms of complexity. In the context of Turkish studies, we may also mention a renewed interest on issues of productivity and affix ordering.

The Aim of The Study

Affix ordering has become a challenging issue during the last decade. Linguists who dealt with morphology have developed various approaches on the order of affixes. For Turkish, we may say that the pattern of the suffixes has not been studied in detail, yet. Especially in the domain of derivational morphology, the studies on possible affix combinations and the rules that govern permissible orders is yet to be documented.

Traditional grammar of Turkish approach the suffixes at the level of description and do not concern with rule systems that govern derivational processes. That is this approach do not discuss the possible structures; instead follows a line prone to describe the existing forms. Thus, it does not explain the reasons or motivations of the exceptional structures. In such studies we may find which suffixes attach to which bases but we cannot find out why certain combinations are allowed and some others are not. What are the criteria on these attachments and the constraints of ungrammatical combinations. Thus, we may argue that traditional grammarians interest in the existing forms of the language not the generative competence.

In this thesis study the effects of the behaviors of the roots or affixes on affixation are analyzed. A classification of affixes and constrains on combinations are presented. Meanwhile the existing and possible combinations of suffixes will also be presented. To sum up, what we aim do is to give a general view of the 69 productive suffixes of Turkish language.

Research Questions

We investigate to answer following questions throughout the study:

1. Affixes are specialized according to the their meaning, syntactic category, phonological and morphological features. How do these features restrict/affect the possible output?

2. What are the morphological and other features on the root/stem choice of the affix?

3. On a multiple affixation which affix determine the meaning and category of the derivative?

Hypotheses

1. The phonological, morphological and semantic features of the affixes play a crucial role on the same features of the derivatives.

2. In derivation, morphological and semantic features of the root determine the restrictions on affixation.

3. The last attached affix determine the meaning and category of the derivative.

Data Collection and Methodology

This study is based upon the data of Uzun et. al. (1992) who compiled the derived lexemes of Turkish that are represented in the Dictionary of Turkish Vol. 7. Uzun et al. (1992) marked the derivational suffixes in five fields: “Category of the Base, Structure of the Base, Origin, and Neologism”. The data have been listed according to

the final suffix of the lexeme. The category of the stem and the derivative are also marked. We additionally marked numbers of suffixes in a given input and preceding suffixes of each of them. The semantic, participant roles of the inputs are also investigated to be able to see the possible differences between a bare and suffixed structures.

There are 191 suffixes defined in the inventory. However in this study we have analyzed only 69 suffixes. The suffixes that do not have more than 10 examples are not included. Below, there is a list of suffixes that are analyzed in the study.

Voice Suffixes	7
Deverbal Suffixes	14
Denominal Suffixes	25
Suffixes that attaches to a both verbal and nominal bases	23
Total Number of Suffixes	69

In sum, 13199 lexeme of the TDK (Turkish National Dictionary, Vol 7) have been investigated. Additional Turkish National Corpus (TNC) which is currently under construction, has been used to check if there are any lexemes that do not exist in the data of TDK. The corpus consists of natural and electronic media, books, magazines and newspapers, academic texts etc.

Limitations

In this study, only derivational suffixes of Turkish are analyzed. These suffixes are divided into four groups according to the roots that they are attached. The groups are:

I. Voice Suffixes

II. Denominal Suffixes

III. Deverbal Suffixes

IV. Suffixes attaches to Both Nominal and Verbal roots.

The data of the study is limited to the synchronic data. Historic texts are not included within the study.[1]

Unproductive suffixes are excluded from the study.[2] They are treated as frozen expressions because they are not productive and are not used to produce new words.

Borrowed suffixes such as "-keş$_{N}$, -baz$_{N}$, -ist$_{AJ}$" are also excluded from the study.

Organization of The Study

Initially we will present the discussions and ideas on derivational morphology and affixation in the literature. In the first chapter theories on affixation from pre-generative period from Kruisinga (1932) to Hay, J. and Plag, I. (2004) the most recent theories of affixation in the last century is summarized. In the second part of the first chapter the studies aiming at analyzing Turkish suffixation are briefly mentioned.

In the first part of the second chapter morphotactics of Turkish and phonological constraints are very briefly mentioned. In the second part of the second chapter we discussed the derivational suffixes. They are grouped according to the base and derivative structures. Four main groups which are divided into subgroups among

1 For example "*aldanmak*" (*be deceived*) and "*aldatmak*" (*deceive*) share the same root "*alta*". "*alta*" means trick, cheat historically.

2 Suffixes that has less than 10 examples are excluded.

themselves are constructed and the suffix sequences are determined. Preceding and following suffixes are marked for each suffix to see the environments of a given suffix. Classifying the suffixes enable us to see the morphological, phonological and semantic constraints of the suffixation processes.

In the last part which is the conclusion, the general view and tendency of the derivational suffixes of Turkish are summarized. The constraints mentioned above are listed and discussed.

CHAPTER I. REVIEW OF LITERATURE

What determines to affix-order has been a subject of interest for scholars studying derivational morphology. How do affixes combine together? Is it random or is it subject to strict rules? To what extend are the combinations of affixes subject to the factors besides morphological rules. Does semantics of a base word or an affix affect these combinations?

Leiber (2004) argues that almost all theories of morphological structure agree that there are syntactic/categorical restrictions on affixation process. There are a couple of approaches that aim at explaining this subject matter. There are different claims about the combinations of affixes, especially for English. For example the English suffix *-ness* attaches to the adjectives, so we may expect it to be able to attach to the already suffixed adjectival stems, but we cannot expect it to attach bare or derived noun bases.

Besides categorical classifications, there are some other classifications, too. Each suffix that derives a certain class does not constitute a base for the suffixes selecting that class. Let's examine "*-age*" again an English suffix. It attaches to the nominal roots (*orphanage*, *milage*); but it doesn't attach to the already suffixed roots (**happinessage*).

Siegel (1974), Kiparsky (1982), Straauss (1982), Halle and Mohanan 1985, Mohanan (1986), Giegerich (1999) are some scholars who have developed the theory of Lexical Phonology and Morphology. They have explained the restrictions on the sequence of the derivational rules by organizing the suffixes into different levels and layers. According to the "Level Ordering Hypothesis" (see pg. 19), every single phoneme or morpheme can be separated into levels and layers. These layers are explicitly

separated blocks in which phonological and morphological rules are being applied on suffixes. An affix belonging to the prior level can attach after the affix belonging to posterior level. In contrast a reverse attachment is not allowed.

Another hypothesis that worths mentioning is the “domain hypothesis” which was developed to analyze the derivational constraints. According to this, affixes can be organized according to the derivative fields.

In the following chapters, basic models will be discussed. We will start with pre-generative theories of productivity and move on with Generative period which starts from 1950’s and continue with Level Ordering. Some scholars (e.g., Siegel 1974; Allen 1978; Selkirk 1982; Kiparsky 1982; Mohanan 1986; Giegerich 1999) argue that there are different stratum in language and they have very strict restrictions that determine combinations of affixes. Objecting the Level Ordering, there are scholars (e.g., Fabb 1988; Plag 1999) who discuss that affixes combine together according to phonological, morphological, semantic or syntactic features of lexemes and affixes. They claim that there are *selectional restrictions* of affixes and bases that determine if a combination is possible. In the most recent approach Hay (2000, 2002), claims that restrictions on the morphological structure determine affix combinations and ordering.

I.1. Theories of Word Structure and Productivity

I.1.1. Pre-Generative Theories of Productivity

Kruisinga (1932: 22) labels the productive and the unproductive suffixes as "living" and "dead" suffixes and states that this issue is the interest of historical grammar. Jespersen (1942) analyzed affixes as frequently used and never used ones. (cited in Steakuer and Lieber: 2005).

I.1.2. Generative Grammar Theory

Chomsky (1965, 1970)

Chomsky (1965) presents a clearer word structure and significant innovations to the construction of the grammar. The most prominent aspect of this study is its distinguishing the lexical images which are adhered to the phrase structure and gathering them in another component. With this method, Chomsky thinks that a great amount of idiosyncrasies would be isolated and grammar would be simplified.

Chomsky states that lexicon is a list of unordered lexical items. Every lexical item is determined by a lexical entry which is formed by a model that would show its phonological properties and with a complex symbol that would show semantic and syntactic properties. Lexicon has to define the aspects of the phonetic structure which cannot be reached with the general rules, the features related to the processes of transformational rules, the properties of the strict subcategorization that show the syntactic frame and selectional features that are related to the semantic interpretation of the lexical item. Additionally lexical insertion, that is the rule that can relate this autonomous component, comes into play. This rule and complex symbol, which is

supposed that exists in the phrase determiners, are in interaction. On the other hand the standard phonological or syntactic features of a lexical item can be identified as general rules of lexical items. These are the redundancy rules. For instance, if a continuant consonant converts into a voiced one before a voiced consonant.

With his study in 1970, Chomsky brings new solutions to Chomsky 1965 in which there were some derivational morphology deficiencies. The main attitude is that the derivational processes could be held by extending the lexicon component of the grammar.

Chomsky (1970) has been criticized by a number of scholars. Newmeyer (1971), McCawley (1968), Weinreich (1966) Chafe (1968) criticize him from the point of generative semantics. Hudson (1976) states that "*neutral lexical entry"* analysis conflicts with the standard modal. He also underlines that the *lexical insertion* does not involve a mechanism to eliminate the categories such as noun or verb by reminding lexical insertion rule is a rule that is applied to lexical entry as a block. (cited in Uzun:1993)

Three studies of Chomsky signal the "lexicalist hypothesis" and develop the technical structure of word.

I.1.3. Schultink (1961)

Bauer (2005) translates Schultink's remark on productivity as fallows:

> By productivity as a morphological phenomenon we understand the possibility for language-users, by means of a morphological process which underpins a form-meaning correspondence in some words they know, to coin, unintentionally, a number of new formations which is in principle infinite.
>
> (cited in Steakuer-Lieber: 2005)

According to Schultink (1961) speakers use a restricted number of possible derivations. This productivity is restricted to the speakers' unintentional usage.

I.1.4. Kiparsky (1982)

Kiparsky dealt with the interaction between phonology and morphology. He asserts that derivatives cannot block the existing words according to Level Ordering Hypothesis. In his own words;

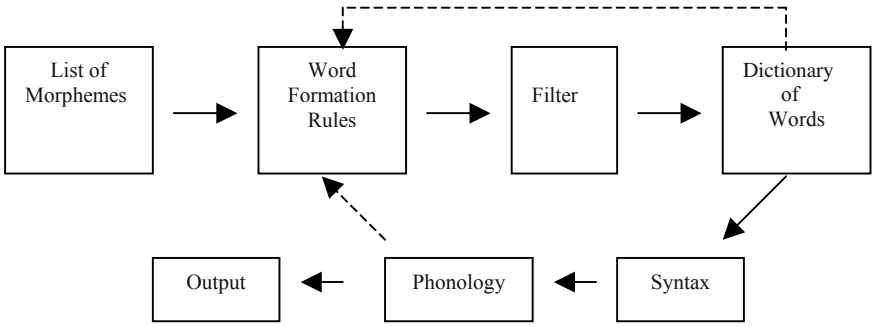
> From this it follows in turn that among processes in a blocking relationship, those with restricted applicability have to be ordered before those with general applicability. This explains why processes at later levels are also typically more productive than functionally related processes at earlier levels.
>
> (cited in Steakuer-Lieber: 2005)

I.2 Theories on Morphological Constraints

I.2.1 Lexical Entry and Lexeme Formation

Halle (1973)

Morris Halle is the first scholar who tried to set up a method from the criticisms of transformational theory of word structure. Halle (1973) suggested to produce all possible words through a series of features (possibly redundancy rules) of simple lexemes which would interact with lexeme formation rules. With the help of a filter inserted only natural lexical entry could be extracted. (cited from Scalise & Guevera in Steakuer-Lieber: 2005)



(cited from Scalise & Guevera in Steakuer-Lieber: 2005)

Halle (1973) used the irregularities or idiosyncrasies of the structure of the words as a starting point. According to Halle, words that wouldn't be abnormal semantically, syntactically and phonologically but still do not exist in the lexicon are meaningful from the point of the formation of grammar. Jackendoff objects to Halle by claiming that entries which do not exist in the lexicon of a language cannot be defended intuitively (1975:646).

Halle does not mention an explicit lexical entry concept. The lexical items listed in the lexicon are simple forms. The filter mentioned above is applied to output of the formation rule of the lexical item. The outputs of the filtered words possibly forms another list. Nevertheless, Halle does not bear upon these two lists. Therefore; there is no list that can be defined as lexical entry.

Two suggestions of Halle are important. The first one is the idea of a separate lexeme formation rule component in the lexicon and the inflectional morphology's being able to be an input to this component. According to Halle, in languages such as English there is no reason not to put the inflectional rules in the list of morphemes. But if the

inflection is included an innovation would be needed. As the inflectional form in question would be clear in a syntactic frame, lexical insertion should be applied not only on a single morpheme but on a whole paradigm. And the inappropriate morphemes would be filtered with an arrangement. Halle's lexeme formation rules identifies not only the category, but also semantic and syntactic features of the lexeme: for example "childhood" child constitutes a main lexical category (A), hood derives nominals from nouns [A+hood] and the derived word is an [+abstract] featured.

Another aspect of the lexeme formation rules of Halle (1973) or the components of the lexeme formation is its being related to the phonological component. This relation is a result of consequences like the "*-en*" suffix deriving inchoative verbs from adjectives attached to the monosyllabic roots and the roots having an obstruent as a final sound. Therefore, lexeme formation rules are related to the phonological output. (1)

(1) a. blacken, whiten, toughen, dampen, harden
b. *dryen, *dimmen, *greenen, *dampen, *laxen

Jackendoff (1975)

Jackendoff (1975) investigated the connection between morphological and semantic aspects of morphological operations through Redundancy Rules. According to Jackendoff (1975) Natural Lexical Entry or filtered data set of Halle (1976) is "weak". One should remove the redundancy rules from the derivation processes and identify the nominals separated from the related verbs but related to each other. Thus the nominative (x) and related verb (w) can be listed in the lexicon as in (2).

(2)

x	w
/y+ion/	/y/
+N	+V
+[NP1'S_(P) NP2]	+[NP1_(P)NP2]
ABSTRACT RESULT OF	NP1Z NP2
ACT OF NP1's Z-ING NP2	

(cited from Jackendoff: 1975 in Uzun: 1993)

In line with the above frame a nominative can be presented in a full lexical entry like;

(3)
/decid+ion/
+N
+[NP1's_on NP2]
abstract result of act of
NP1's DECIDING NP2

However this stage does not cover the cases that we can identify *+ion* but not the other elements (*retribut) yet. In that case, Jackendoff (1975) suggests to form an artificial data set on which the redundancy rules in (2) can be applied to derive the nominative with the rule in (4):

(4)
/retribut/
+V
+[NP1_for NP2]
NP2 RETRIBUTE NP2

(Jackendoff 1975 cited in Uzun 1993)

Uzun (1993), criticizes Jackendoff's approach, and states that although Jackendoff claims that "the main hypothetical innovation" is to remove the lexical entry

from the derivational process and use the redundancy rules; “the derived rule” statement in (5) and the position of the redundancy rules are contradictory. He also underlines that "the artificial lexicon" that Jackendoff derived for the elements like **retribut* wouldn't be in a position different from the abstract element of transformational rule.

Aronoff (1976)

Aronoff (1976)’s lexicalist explanation, against redundancy rules of Jackendoff and Halle’s morpheme list, is a word-based explanation that relates the derivational processes to a series of processes including semantic, syntactic and phonological processes which sees lexical items as phono-semantic unities which are entries of word formation rules. And it can be formulated as:

> Word-Base Hypothesis
>
> All regular word-formation processes are word-based. A new word is formed by applying a regular rule to a single already existing word. Both the new word and the existing one are members of major lexical categories.
>
> (Aronoff 1976: 21).

The results of Aronoff (1976) hypothesis has a couple of challenging outcomes in the direction of Chomsky Grammar. The term “word” has a well, technically defined, theoretical place for the first time. The completion rules which were separated from the rules of syntactic and phonological components but whose position were consciously left opaque were placed into the grammar model more clearly. Another important result is that it is now available to discuss the flexibility of the derivation of the lexicon. Besides, there are still counter and ignored examples in Word Based Hypothesis.

As Aronoff also stated (1976) the most important overlooked aspect of study is the field that is formed with the words which cannot be the input of the formation rules, and still has to be listed in the lexicon but still having a structure like (1). On the other hand, Word Based Hypothesis is based on a clear-cut distinction of derivation-inflection.

Word formation Rule of Aronoff 1976

Aronoff (1976) asserts that the process of word formation is word based not morpheme based.

> Word-Formation Rules
>
> [WFRs] specify a set of words on which [they] can operate. This set [...] we will term the base of that rule. Every WFR specifies a unique phonological operation which is performed on the base. Every WFR also specifies a syntactic label and subcategorization for the resulting word, as well as a semantic reading for it, which is a function of the reading of the base
>
> (Aronoff 1976: 22).

Aronoff excludes inflection categories such as PERSON, NUMBER, and CASE. According to him, INFLECTION includes paradigmatic and syntactic processes beyond derivation. Aronoff's basic claim is that a lexical structure theory in which semantically not compositional words directly listed in the lexicon and the compositional ones are derived with regular lexeme formation rules can explain all derivational processes in language.

The phonological process in Aronoff's “word formation rules” and the truncation and allomorphic rules which are seen as the adjustment rules distinguishes

from each other on the point of being belong to only word formation process and being limited to certain morphemes. These are prior to the rules of phonology in grammar.

Carrier (1979) criticizes Aronoff for not having a list of the outputs of the word formation rules. In this case, in the derivation of a word such as formless#ness input wouldn't be found because *form#less* is not listed. However, listed lexicon is based on the dictionary of the speaker thus the derivation of make-up words wouldn't be realized.

I.2.2. Lexeme Structure Approaches

This period can be characterized with Lieber (1980), Williams (1981) and Selkirk (1982). It claims that lexical structure involves a formation process beginning with lexical insertion like phrase structure (Lieber 1980, 1983).

According to Lieber (1980) lexical entries has all of the morpheme categories consisting stems and affixes, semantic representations, element structure in itself. Lexical insertion applying to the lexical entries is bound to a special four mechanism. The first mechanism enables all of the features of morphemes to apply to the not-branched knot which branches morphemes, which is given in detail in Lieber (1983). The second mechanism applies all of the features of affix morphemes, with category feature, to the first branched knot. If a branched knot, like *counter-,* is empty of category feature, reflecting is done by the next last attached knot automatically. This is the third arrangement. There is a fourth condition for the languages like English. If the two stems are siblings (if they make a compound) the stem on the right is on the charge for projection.

Williams (1981) connects this element to a rule: *"The Rule of Basic Element on the Right"*. In morphology the basic element of a morphologically complex word is the element on the right. This basic element also includes the abstract items that denote time and aspect in words and phrases. What determines to the next knot is this feature.

According to the explanations of Lieber (1980, 1983) and Williams (1981), it is understood that word structure follows binary structure and one of these branches determines to the knot of the branch. Selkirk defines these relations under the name of projection: "If a builder is head noun of a b builder a and b share the identical feature serials" (Selkrik:1982).

This arrangement is very similar to the phrase structure. Selkirk (1982) states that a *word structure* can be formed with syntactic structure with general formal features though they have different categories and combine them in very different ways. What must be done is to arrange rewrite rules like syntactic rules.

According to Selkirk (1982), inflectional morphology shouldn't be separated from the derivational morphology. This can be motivated in some ways. Inflection and derivation cannot be separated in principle. The affixes of the two categories do not go into division semantically. From the point of distribution inflectional position of certain morphemes can be found in and out of the structures including derivational morphemes or combinations.

Moving on from 1980's studies we will continue to analyze the progress of the restrictions of affixation in derivational morphology with the studies of recent decades.

I.2.3 Level-Ordering Hypothesis

Level-ordering hypothesis is proposed by Siegel (1974). He argues that morphemes and phonemes of a language can be divided into two sets. These sets, which are also called as "Level 1-2 affixes" (or "Stratum 1-2 or Class 1-2"), undergo morphological or phonological restrictions. As Fabb (1988) asserts, Siegel (1974)'s argument is based on pairs of affixes which do not appear together e.g., *-ness-ic, *-er -ian. That is Level 1 affixes cannot attach to Level 2 affixes.

Class/Level 1 Suffixes:+ion,+ity,+al,+ic,+ate,+ous,+ive,+able,+ize
Class/Level 1 Prefixes: re+, con+, de+, sub+, pre+, int+, en+, be+
Class/Level 2 Suffixes: #ness, #less, #hood, #ful, #y, #like, #ist, #able, #ize
Class/Level 2 Prefixes: re#, sub#, un#, non#, de#, semi#, anti#
(from Spencer 1991:79 in Plag 2004)

The affixes that belong to the Level 1 (tending to be of foreign origin 'Latinate') share a number of features separating them from the affixes of the Level 2 (mostly Germanic). Namely, Level 1 affixes attach to the words in advance, meanwhile phonological rules are applied, then Level 2 affixes, attach to the word and other phonological rules are applied.

Giegerich (1999) revises the level ordering model and suggests entirely different levels. He underlines that there are numerous affixes in English, and it is not appropriate to put the affixes into a single stratum. In his study "Lexical Strata in English" he discusses the affixes that belong to the both levels at the same time. He summarizes some overlapping examples. In his own model, affixes do not define the level they belong to, instead the bases define the level. This relatively newer model

includes "*suffix-particular base driven restrictions"* (Hay and Plag:2004). As Hay and Plag (2004) say these restrictions are useful to predict the suffix order within levels and it may deal with the inadequate-aspects of the level-ordering model.

Hay and Plag (2004) mention three basic shortcomings of this approach. For instance, according to what basis the two levels are distinguished isn't clear. In addition, some times an affix can belong to two different levels at the same time, with respect to the behavior they display in different environments. The weakest point of the approach is that it does not mention any restrictions within a given level.

I.2.4 Selectional Restrictions

Selectional restrictions hypothesis is purposed by Fabb (1988) and Plag (1996) against level ordering hypothesis. In "English Suffixation is Constrained only by Selectional Restrictions" Fabb (1988) argues that classification in the level-ordering hypothesis is wrong and is not able to rule out a vast number of affix combinations that do not occur. He claims that level-ordering fails to explain the restrictions among suffixes, and it is no longer acceptable. Fabb makes his classification according to affix-driven selectional restrictions.

Fabb points out that there are a number of restrictions, like phonological, morphological, syntactic and semantic restrictions, at work on English suffixation. He asserts counter examples against Siegel (1974) which claim that Siegel's generalization is incorrect.

Fabb gives the examples below to show that level ordering cannot explain pairs which do not fit the stratum restrictions. He presents two cases. One of them is

BRACKETING PARADOX in the example of "*un-grammatical-ity"* where he shows that Level 1 suffix follows Level 2 prefix. Indeed, to agree with selectional restrictions, Level 1 suffix "*-ity"* is to attach after following Level 2 prefix "*un-*". His second example is the case which Level 2 suffixes preceding Level 1 suffixes e. g. *"-abil-ity, -ist-ic, -ment-al"*.

Fabb (1988) aims at studying on a much larger data and suggests that selectional restrictions determine the affix order. He studies on the most frequent 43 affixes attaching to words which would have 1849 possible pairs if there were no restrictions. He reduces possible combinations of affixes to 663 according to selectional restrictions. With other morphological and phonological restrictions he reduces this number to 614 possible combinations.

According to his analysis there are four classes of suffixes, which will later be demonstrated to belong to a single theme by Hay (2002).

Suffixes which Never Attach to an Already Suffixed Word: (28 out of 43)

Fabb claims that

deverbal -age	denominal -age	deverbal -al
noun-forming -an	adjective-forming -an,	noun -forming -ant
adjective-forming -ant,	-ance	-ate
denominal -ed,	denominal -ful,	deverbal -ful,
-hood,	denominal -ify	deadjectival -ly,
-ish	denominal -ism,	denominal -ist
-ive	denominal -ize	deadjectival -ly
denominal -ly,	-ment,	-ory
-ous	adjective-forming -y	deverbal -y
denominal noun-forming -y."		

do not attach to an already affixed word. These suffixes are never found in the [word-suffix-_] environment. In his example; **derivable*-ify

Level ordering hypothesis says that -*ify* as a Level 1 suffix do not attach to a Level 2 suffix. However, Fabb explains it in a different way by giving the example below. He says that "-*ify"* is in the group of words which do not attach to an already suffixed word. That's why the examples below are unacceptable: **person-al-ify*, **destruct-iv-ify*

Suffixes which Attach Outside One Other Suffix: (6 out of 43)

Noun forming -ary	-ionary	e.g. revolutionary (noun)
Adj-forming -ary	-ionary	e.g. revolutionary (adj)
Denominal -er	-ioner	e.g. Vacationer
-ic	-istic	e.g. Modernistic
-(at)ory	-ificatory	e.g. Modificatory
Deadjectival -y	-ency	e.g. residency

As Fabb claims the suffixes above do not attach to a word without a suffix. They always attach to an already affixed words. Fabb continues as saying that these compound affixes share the same selectional features. First "-*ion"* attaches to the word then "-*ary"* attaches to the word affixed with "-*ion*."

Freely Attaching Suffixes (3 out of 43): -able, deverbal -er,-ness

These suffixes are able to attach to a word without undergoing any selectional restrictions. The suffix -*en* is also in this category. It is constrained only by category and monosyllabic restrictions.

A problematic Group of Suffixes (6 out of 43):

Noun-selecting *-al*	combines with *-ion*, -mint, -or
-ion	combines with *-ize* (both) *-ify* (both) *-ate*
-ity	combines with *-ive*, *-ic*, *-al*, *-an*
Adj-selecting *-ism*	combines with *-ive*, *-ic*, *-al*, *-an*
Adj-selecting *-ist*	combines with *-ive*, *-ic*, *-al*, *-an*
Adj-selecting *-ize*	combines with *-ive*, -ic, *-al*, *-an*

As Fabb also states no restriction can be used to generalize the features of the suffixes of this category. Since the restrictions Fabb applies to these suffixes fail to explain occurring and non-occurring pairs of affixes, he has no proposals in this respect.

Plag (1996, 1999) objects Fabb's classification. He points out that this classification has also significant shortcomings. He reanalyses his examples, suggesting that the selectional restriction is base-driven and he presents numerous counter examples (like *-ist-ic* combinations) to the generalizations Fabb has put forward. A group of affixes seem to belong to both levels at the same time. [At this point Plag also thinks other level ordering proposals (except for Giegerich 1995).] As he states these proposals fail to explain ungrammaticality of **sens-uous-ize* whose affixes all belong to Level 1. Another shortcoming of these approaches, Plag criticizes, is that it isn't explicit enough, because it is not certain on what basis do the affixes belong to a certain class, not another one. Lastly, Fabb's classification is not valid for all restrictions on possible combinations. For instance, does the ungrammaticality of **home-less-ity* because of level-ordering violations or because of some other restriction?

According to Plag (1996, 1999) phonological, morphological, semantic and syntactic properties of an affix are altogether determine the restrictions of the given affix with other affixes and/or stems. Plag (1996, 1999) claims that since these features determine the particular behavior of a given affix, level ordering is no longer necessary.

I.2.5. Complexity Based Ordering (Hay 2000, 2002)

Hay approaches to affix ordering in a different way unlike her colleagues. She presents a version of ordering built on parsability, which Plag (2002) later called "complexity based ordering (from now on it would be mentioned as CBO)". She predicts that an affix can behave differently on different bases depending on the phonotactics, frequency of the word and affix, the initial voice of the word. Separability of an affix depends on phonotactics, frequency of the word and affix, the initial voice of the word. She asserts that consonant initial affixes are more easily be decomposed. Hay (2002)'s most important theory is the "more separable affixes will occur outside less separable affixes." Each affix has a separability rank, affixes are sometimes more separable in some words than the others. Hay (2002) proposes that separability features can be the solution to affix ordering. She says that;

> Complexity Based Ordering (CBO):
>
> "While some affixes basically tolerate no internal structure, others will tolerate structure to some minimum degree. The degree of internal structure tolerated by an affix is not determined by selectional restrictions, but, rather, by how much structure that affix itself creates. Phrased in terms of processing, an affix that can be easily parsed out should not occur inside an affix that cannot" (Hay 2002, pp. 527–528)

Hay (2000 & 2002) claims that this restriction can clarify most of the restrictions that couldn't be resolved by other approaches such as Level Ordering. For example Level ordering cannot explain why "*-ity"* cannot attach to adjectives ending with -less: **home+less+ity* but "*ness"* can: *home+less+ness*. Hay (2000) claims that productivity cannot be considered without notions "*relative frequency"* and *"phonotactic patterns"* (Stekauer and Lieber:2005).

The problem of restrictions on affix ordering in English can be largely reduced to parsability: an affix that can be easily parsed out should not occur inside an affix that cannot be easily parsed out (Hay:2002). Phonologically inseparable, opaque, rare and less productive affixes are more resistantly attached to an already affixed words than the others.

In a newer study named "What constrains possible suffix combinations" Hay and Plag (2004) test the predictions about complexity based ordering. They carry out their study using BNC, OED and CELEX lexical database. Investigating 15 English suffixes they try to determine whether complexity based ordering or the individual selectional properties of these suffixes constrains the order. Hay and Plag state that selectional restrictions and parsing restrictions overlap in most of the cases. They also state that affix-affix constrains seem more outstanding than root-affix constrains (Hay and Plag, 2004).

The scholars summarize the attempts explain ordering of affixes as follows. They underline that "The level ordering hypothesis" has serious empirical and theoretical shortcomings and they assert that later models focusing on affix and base driven constraints are more sufficient. However, they still have shortcomings like lack of

generalizations among suffixes within a level. But still, morphologists continue to try to explain affix-base and affix-affix combinations.

The Hierarchy Hypothesis

According to this view there is a hierarchy of complexity. Affixes can be ordered in terms of this hierarchy. In Hay's words;

> Suffixes can be ordered in a hierarchy of juncture strength, such that affixes following an affix A on the hierarchy can be freely added to words containing A, but affixes preceding A on the hierarchy cannot freely attach to words containing A (Hay 2002).

For instance Hay claims that the word “bafflement” can be more easily segmented than the word "government”. As a result “bafflemental” is less acceptable than “governmental” (Hay 2002:572).

Let’s examine Hay (2002)’s samples to discover what is meant by hierarchy of suffixes. She supposes that X-Y-Z-A-B-C-D are suffixes in accord with hierarchy. According to this hierarchy, suffix A, is more separable then X-Y-Z but less separable than B-C-D. So it can be attached to affixes like 5 (b). But cannot attach to affixes like 5 (c).

(5)

a. Hierarchy of suffixes: X-Y-Z-A-B-C-D

b. Possible combinations: BASE-A-B, BASE-X-A-C, BASE-Y-Z-A

c. Impossible combinations: ∗ BASE-A-Z, ∗ BASE-Y-A-Z, ∗ BASE- X-A-Y

Hay and Plag (2004)

Hay (2002) ends her study by asking whether her suggestion can generalize other languages which have different morphological, phonological and different parsing and segmentation strategies.

Plag (2002) objects Hay's hierarchy hypothesis. He asserts that hierarchy by itself is not sufficient, and do not notice possible suffix combinations. Instead, he proposes "selectional restrictions hypothesis" in which he thinks that a set of selectional restrictions determine affix-ordering.

As Hay and Plag (2004) underline the scholars do not agree on the general bases or mechanisms restricting affix-base or affix-affix combination features. Their ideas on this issue are as follows. First of all we may note "stratum-oriented" models (e.g., Siegel 1974; Allen 1978; Selkirk 1982; Kiparsky 1982; Mohanan 1986; Giegerich 1999). Supporters of this model assert that the lexicon is stratified. What determines the features of combination of affixes is this stratified structure. Other than this model, there is the model supporting affix-based selectional restrictions (Fabb 1988; Plag 1999). The selectional restrictions determine which combinations are allowed in lexicon. In the newest approach of Hay (2000, 2002) she claims that morphological structure of a word determines the affix combinations.

I. 3. Theories of the Word Structure in Turkish

The studies related to the derivational suffixes are generally formed trough the point of conventional grammar. We may argue that Banguoğlu (1940) and Gencan (1966) are two most comprehensive studies of Turkish. They categorized the suffixes as inflectional and derivational. The derivational suffixes are classified according to their functions such as noun deriving, or adjective deriving suffixes.

In the field of derivational morphology Demircan (2004) presents a comprehensive work. Demircan (2004) thinks that the combination of affixes is also a field of semantics and syntax besides phonology, morphophonology and morphology. He says that there are two states from the viewpoint of semantics which he describes as dictionary meanings and syntactic meanings.

Hacıeminoğlu (1991) analyzed the structure of the verbs of Turkish and Turkic languages. He doesn't approach to the suffixes from the view point of semantics but presents a remarkable amount of data that can be used in various studies, which makes it an important contribution to the literature of Turkish linguistics. Mungan (2002) studied on root-suffix relations but he does not approach to analyze the constraints but the syntactic structure of the derivatives.

Oflazer, et. al (1994) approaches to the derivational suffixes from the computational linguistics point of view. He presents a general view of Turkish morphology.

In Turkish, suffixes attach to the right of the root or stem. There are a couple of borrowed prefixes but these are not productive and they commonly attach to the borrowed roots or bases:

na+[müsait]

bi+[çare]

anti+[feminizm]

As an agglutinative language Turkish has a quite complex morphotactics, while the rules are reasonably explicit. Inflectional suffixes always precede the derivational suffixes. The right-most derivational suffix determines the category of the lexeme and it is possible for a root to have more than 10 suffixes. There are some exaggerated examples that have 20 or more suffixes such as:

(1) öl-üm-süz-leş-tir-t-tir-il-e-me-yebil-in-en-ler-de-ki-ler-den-mi-ymiş-ler-ce-sin-e
(Sebüktekin, 1974)

(2) çöp+lük+ler+imiz+de+ki+ler+den+mi+y+di
(Hankamer, 1986) c.f. (Sproat, 1992: 20)

(3) osmanlı+laş+tır+ama+yabil+ecek+ler+imiz+den+miş+siniz
(Oflazer, 1994a)

While these suffixes are being attached to the root, phonological rules are at work at the same time. Phonological rules are applied from left to right in Turkish. Namely, the phonological property of an affix attached to a root is determined by root's or stem's phonological property. For example, the vowels of the suffix must be in accordance with vowel harmony. Besides, consonants also undergo change according to the root. Especially the borrowed roots are prone to change (from Persian, Arabic, French, English). Though there are some exceptions that do not obey the rules, phonological constraint is still an important restriction. For example, suffix "-AlA-" cannot be attached to the roots ending with a vowel, because vowel sequences are not

allowed in Turkish. Consequently, we may say that during the suffixation process a series of morphophonemic rules are applied.

Morphotactics of Turkish

Phonological constraints and Vowel Harmony in Turkish

Vowel harmony is a characteristic feature of the Turkic languages. Vowel harmony is the sequence of producing vowels. Native Turkish words are attuned to vowel harmony but borrowed ones can be inharmonic. Words are composed of only front or only back, round or unrounded vowels, and the suffixes attached to these words have to be in accordance with the last vowel of the base word. There are two key points in vowel harmony that are tongue position front or back and mouth shape rounded or unrounded.

Front and Back Vowels

The front vowels are **e**, **i**, **ö**, and **ü** and back vowels are **a, ı, o, and u** Approximate Turkish vowel sounds as follows;

e as in ‘t**e**st‘	front unrounded
i as in ‘b**i**t‘	front unrounded
ö as in ‘h**u**rt’ without any ‘r’ sound	front rounded
ü as in ‘f**u**sion, but short; like German *ü.*	front rounded
a as in ‘c**u**t‘	back unrounded
ı as in ‘determ**i**ne‘	back unrounded
o as in ‘b**o**ss‘	back rounded
u as in ‘p**u**t‘	back rounded

As it is said the attached suffixes must be in accordance with the previous vowel. So we may summarize the table as;

Front base vowels **e i** are followed by front vowel **i**

Front base vowels **ö ü** are followed by **ü**

Back base vowels **a ı** are followed by back vowel **ı**

Back base vowels **o u** are followed by back vowel **u**

Proper nouns, borrowed and monosyllabic words are exceptional groups of words that are not subject to be in harmony with vowel harmony.

Another phonological rule is that in Turkish two vowels are not allowed to appear sequentially. The exceptions like “saat” (watch) or “şiir” (poem) are not native Turkish words. Thus, the vowel initial suffixes can not be attached to the roots ending with a vowel without a consonant between them.

The suffixes are represented with their allomorphs in different phonological environments. Allomorph rule is a rule that coordinates the changes of the certain morphemes in certain morphological frames. This rule realizes 4 variance of the words as in (6).

(6) denominal “*ÇI*”
tekel+ci, *alkış+çı*, *gül+cü*, *afsun+cu*,
+ci,*+çı,+cü,+cu*

CHAPTER II. DERIVATIONAL SUFFIXES OF TURKISH

In this part, we will describe 69 productive derivational suffixes of Turkish. The suffixes are going to be classified and analyzed according to the categories that they attach to and produce.

Each suffix has a characteristic and produce certain types of words. The constraints of affixation can be best figured out by analyzing the sequence of affixation. As we have indicated in Chapter II, there is a huge potential of combination possibilities among the derivational suffixes but only few of them are realized.

The box brackets “[]” indicates free morphemes that are roots/stems. The letters in round brackets are optional sounds which realizes according to the phonological environment of the word. A derivation rule is identified for each combination in terms of the root and derivative categories. Preceding and following suffixes are described with examples. Phonological and Morphological and semantic behaviors of the suffixes are assessed.

II. 1. Voice Suffixes

There are four basic types of voice suffixes:

II. 1. 1. Causative Suffixes

1. *-A/Ir-* (32): Rule: $[\_C]_V$+A/Ir_V

It attaches directly to the monosyllabic, consonant final roots. Thus, the suffix restricts the possible roots. Another distinctive feature of the suffix is that it changes the intransitive roots into transitive, and transitive ones into causative.

$[bit_V]$+$\mathbf{A/Ir_V}$ $[bit\mathbf{ir}]_V$

Following suffixes

$[bit_V]$+A/Ir_V+$\mathbf{Il_V}$ $[bit\mathbf{ir}il]_V$

$[çık_V]$+A/Ir_V+$\mathbf{(y)Im_N}$ $[çık\mathbf{ar}ım]_N$

$[doy_V]$+A/Ir_V+$\mathbf{(y)IcI_{AJ}}$ $[doy\mathbf{ur}ucu]_{AJ}$

$[geç_V]$+A/Ir_V+$\mathbf{KAn_{AJ}}$ $[geç\mathbf{ir}gen]_{AJ}$

$[göç_V]$+A/Ir_V+$\mathbf{t_V}$ $[göç\mathbf{er}t]_V$

$[duy_V]$+A/Ir_V+$\mathbf{I_N}$ $[duy\mathbf{ur}u]_N$

2. *-tIr-* (575): Rule: $[X_V]$+TI_V

It makes intransitive verbs transitive and adds a second Agent to the verb. It is potentially productive. If it attaches to a transitive word then produces ditransitive words.

$[aç_N]$+$\mathbf{tIr_V}$ $[aç\mathbf{tır}]_V$

Preceding suffixes

$[aç_N]$+**(A/I)k$_V$**+tIr$_V$	$[acı\mathbf{k}tır]_V$
$[acı_V]$+**(I)n$_V$**+tIr$_V$	$[acı\mathbf{n}dır]_V$
$[at_V]$+**(I)ş$_V$**+tIr$_V$	$[at\mathbf{ış}tır]_V$
$[birey_N]$+**lAş$_V$**+tIr$_V$	$[birey\mathbf{leş}tir]_V$
$[ad_N]$+**lAn$_V$**+tIr$_V$	$[ad\mathbf{lan}dır]_V$

Following suffixes

$[tut_V]$+tIr$_V$+**(A)ç$_N$**	$[tut\mathbf{tur}aç]_N$
$[çal_V]$+tIr$_V$+**Il$_V$**	$[çal\mathbf{dır}ıl]_V$
$[bil_V]$+tIr$_V$+**I$_N$**	$[bil\mathbf{dir}i]_N$
$[yap_V]$+tIr$_V$+**(y)Im$_N$**	$[yap\mathbf{tır}ım]_N$
$[don_V]$+tIr$_V$+**IcI$_{AJ}$**	$[don\mathbf{dur}ucu]_{AJ}$
$[kay_V]$+tIr$_V$+**(A/I)k$_N$**	$[kay\mathbf{dır}ak]_N$
$[in_V]$+tIr$_V$+**KA$_V$**	$[in\mathbf{dir}ge]_V$
$[in_V]$+tIr$_V$+**KAn$_N$**	$[in\mathbf{dir}gen]_N$
$[değiş_V]$+tIr$_V$+**KAç$_N$**	$[değiş\mathbf{tir}geç]_N$
$[boğ_V]$+tIr$_V$+**t$_V$**	$[boğ\mathbf{dur}t]_V$

3. *-t-* (371): Rule$_1$: [_V$_V$]+t$_V$
Rule$_2$: [_C(liquid)$_V$]+t$_V$

It derives causative form of the verbs. Except for phonological restrictions there are no constraints on attachment of this suffix. If the base is an already causative word then the suffix produce like double causative "$[yap_V]$+tIr$_V$+**t$_{V=}$** $[yap\mathbf{tır}t]_V$".

[acı$_V$]+t$_V$	[acı**t**]$_V$

Preceding suffixes

[tık$_V$]+A$_V$+**t$_V$**	[tık**a**t]$_V$
[ay$_V$]+Il$_V$+**t$_V$**	[ay**ıl**t]$_V$
[göç$_V$]+A/Ir$_V$+**t$_V$**	[göç**er**t]$_V$
[kıtır$_{AJ}$]+dA$_V$+**t$_V$**	[kıtır**da**t]$_V$
[toz$_N$]+I$_V$+**t$_V$**	[toz**u**t]$_V$
[aşı$_N$]+lA$_V$+**t$_V$**	[aşı**la**t]$_V$
[su$_N$]+sA$_V$+**t$_V$**	[su**sa**t]$_V$

Following suffixes

[büyü$_V$]+t$_V$+**(A)ç$_N$**	[büyüt**eç**]$_N$
[üşü$_V$]+t$_V$+**(A/I)k$_N$**	[üşüt**ük**]$_N$
[abar$_V$]+t$_V$+**I$_N$**	[abar**tı**]$_N$
[dene$_V$]+t$_V$+**lA$_V$**	[denet**le**]$_V$
[uyu$_V$]+t$_V$+**Il$_V$**	[uyut**ul**]$_V$
[otur$_V$]+t$_V$+**mA2$_N$**	[oturt**ma**]$_N$
[kuru$_V$]+t$_V$+**mAç$_N$**	[kurut**maç**]$_N$
[oku$_V$]+t$_V$+**mAn$_N$**	[okut**man**]$_N$
[üre$_V$]+t$_V$+**Im$_N$**	[üret**im**]$_N$
[anla$_V$]+t$_V$+**IcI$_N$**	[anlat**ıcı**]$_N$
[belle$_V$]+t$_V$+**(A)n$_N$**	[bellet**en**]$_N$
[yüksek$_{AJ}$]+ (A/I)l$_V$+ t$_V$**+KA$_N$**	[yükselt**ge**]$_N$

II. 1. 2. Passive Suffixes

4. -(I)n- Rule: [X $_{V}$] +(I)n $_{V}$

Preceding suffixes

[umur$_{AJ}$]+**sA$_{V}$**+(I)n$_{V}$ [umur**s**an] $_{V}$

[silk$_{V}$]+**-AlA-$_{V}$**+(I)n$_{V}$ [silk**el**en] $_{V}$

If the object of the root is -animate "-AlA-$_{V}$+(I)n$_{V}$" combination is passive as in

"Örtü silkelendi"

Following suffixes

[acı $_{V}$]+(I)n $_{V}$+**Il $_{V}$** [acı**n**ıl] $_{V}$

[ele $_{V}$]+*(I)n* $_{V}$+**tI$_{N}$** [el**en**ti] $_{N}$

[bil $_{V}$]+*(I)n* $_{V}$+**(y)An$_{N}$** [bil**in**en] $_{N}$

[kapa $_{V}$]+*(I)n* $_{V}$+**(y)Iş$_{N}$** [kap**an**ış] $_{N}$

5. *-Il-* (402)*:* Rule: [_C]$_{V}$+Il $_{V}$

It derives passive voice of the root. As Uzun (1993) argues, it is actually an allomorph of "*-In-*" suffix. It may be seen after any verb producing suffix as long as it ends with a consonant.

[aç$_{V}$]+**Il$_{V}$** [açı**l**] $_{V}$

Preceding Suffixes

[aç$_{AJ}$]+**(A/I)k $_{AJ}$**+Il $_{V}$ [acı**k**ıl] $_{V}$

[oku$_V$]+**t$_V$** +Il $_V$	[oku**t**ul] $_V$
[in$_V$]+**tIr$_V$**+Il $_V$	[in**dir**il] $_V$
[uz$_{AJ}$]+**lAş**+Il $_V$	[uz**laş**ıl] $_V$
[kap$_V$]+**Iş$_V$**+Il$_V$	[kap**ış**ıl] $_V$
[bit$_V$]+**(A/I)r$_V$**+Il$_V$	[bit**ir**il] $_V$

Following Suffixes

[sat$_V$]+Il$_V$ **+(A/I)k$_{AJ}$**	[satıl**ık**]$_{AJ}$
[kız$_V$]+Il$_V$ **+ÇIk$_N$**	[kızıl**cık**]$_N$
[bük$_V$]+Il$_V$ **+KAn$_{AJ}$**	[bükül**gen**]$_{AJ}$
[et$_V$]+Il$_V$ **+KI** $_N$	[edil**gi**]$_N$
[aç$_V$]+Il$_V$ **+mA2**$_N$	[açıl**ma**]$_N$
[bay$_V$]+Il$_V$ **+t$_V$**	[bayıl**t**]$_N$
[kur$_V$]+Il$_V$ **+tAy**$_N$	[kurul**tay**]$_N$
[as$_V$]+Il$_V$ **+tI**$_N$	[açıl**ma**]$_N$
[çarp$_V$]+Il$_V$**+(y)An$_N$**	[çarpıl**an**]$_N$
[eğ$_V$]+Il$_V$**+ (y)Im$_N$**	[eğil**im**]$_N$

II. 1. 3. Reflexive Suffix

6. -(I)n- (113): Rule: [X $_V$]+(I)n $_V$

The derivatives are reflexive and they attach to consonant final words (öv +ün-). In 113 examples, the suffix attach immediately after the bare root. These derivatives are reflexive words.

[ört $_V$]+(I)n $_V$ [ört**ün**]$_V$

[çırp $_V$]+(I)n $_V$ [çırp**ın**] $_V$

[dök $_V$]+(I)n$_V$ [dök**ün**]$_V$

Preceding Suffixes

[mırıl$_N$]+**dA$_V$**+(I)n$_V$ [mırıl**da**n]$_V$

[silk$_V$]+-**AlA$_V$**+(I)n$_V$ [silk**ele**n]$_V$

If the object of the root is +animate "-AlA-$_V$+(I)n$_V$" combination is reflexive as in:

"*Ahmet silkelendi ve kendine geldi"*

Following suffixes

[bula $_V$]+(I)n $_V$+**(A/I)k** $_{AJ}$ [bula**n**ık] $_{AJ}$

[daya $_V$]+(I)n$_V$+**ç** $_N$ [daya**n**ç] $_N$

[öv $_V$]+(I)n $_V$+**ÇA** $_{AJ}$ [öv**ün**ce] $_{AJ}$

[koru $_V$]+(I)n $_V$+**ÇAk** $_N$ [koru**n**cak] $_N$

[sil $_V$]+(I)n $_V$+**(I)ş** $_N$ [sil**in**iş] $_N$

[gör $_V$]+(I)n $_V$+**KI** $_N$ [gör**ün**gü] $_N$

[sev $_V$]+(I)n $_V$+**tIr$_V$** [sev**in**dir] $_V$

[koru $_V$]+(I)n $_V$+**(y)Im$_N$** [koru**n**um] $_N$

II. 1. 4. Reciprocal Suffix

7. *-(I)ş- (132): Rule:* [X$_V$]+(I)ş$_V$

It produces reciprocal words. However, in Turkish there are words which seems reciprocal but do not have two Agents such as "*uçuşmak*, *kaçışmak*" meaning movement to different directions. Cooperative meaning is also expressed other than reciprocal.

[büz$_V$]+**(I)ş$_V$** [büz**üş**]$_V$

Preceding suffixes

[etki$_N$]+**lA$_V$**+(I)ş$_V$ [etki**leş**]$_V$

[cıvıl$_N$]+**dA$_V$**+(I)ş$_V$ [cıvıl**daş**]$_V$

Following suffixes

[dön$_V$]+(I)ş$_V$+**(y)Im$_N$** [dönüş**üm**]$_N$

[bula$_V$]+(I)ş$_V$+**(A/I)k$_N$** [bulaş**ık**]$_N$

[bula$_V$]+(I)ş$_V$+**(y)IcI$_{AJ}$** [bulaş**ıcı**]$_{AJ}$

[çel$_V$]+(I)ş$_V$+**KI$_N$** [çeliş**ki**]$_N$

[gir$_V$]+(I)ş$_V$+**KAn$_{AJ}$** [giriş**ken**]$_{AJ}$

[er$_V$]+(I)ş$_V$+**KIn$_N$** [erişk**in**]$_N$

[çarp$_V$]+(I)ş$_V$+**tIr$_V$** [çarpış**tır**]$_V$

[benze$_V$]+(I)ş$_V$+**(y)An$_N$** [benzeş**en**]$_N$

8. ***-AlA-* (17): Rule: [_C$_V$]+AlA$_V$**

The last suffix that derives verbs from verbal roots is -AlA-. This is not a voice suffix. It has aspectual semantics. The derivatives denote that the action is done

iteratively, repetitively and continually. It is not highly productive, and we have limited number derivatives in the database. There is no preceding or following suffix.

$[it_V]$+**AlA$_V$** $[it\textbf{ele}]_V$

Following Suffixes

$[silk_V]$+AlA$_V$+**(I)n$_V$** $[silkele\textbf{n}]_V$

II. 1. 5. Concluding Remarks

Syntactically each word must be a member of some major lexical category such as noun, verb or adjective. Suffixes generally change these classes of the root/stem or they change the meaning of the root/stem. Only voice suffixes produce the same category with the root/stem. If the category of the output is the same with the root/stem, then some other feature of the derivative such as the meaning, category, is different. Voice suffixes do not change either category or the meaning of the roots but they change grammatical roles of the roots. As can be seen from the data of lexemes presented above, various derivational affixes can follow the voice suffixes.

The first group is causative suffixes. These suffixes derives transitive words from intransitive roots. If the root is already transitive the suffixes changes it into causative. The second group passive suffixes attach to transitive verbs. The derivatives of this group denote perfective aspect of the root. The third group reflexive suffixes derives words denoting the agent and affected of the verb refer to the same subject. Lastly "-AlA-" is not in the groups described above, and doesn't change the grammatical categories or participant roles. It doesn't change the meaning of the root either but gives iterative or continuity meaning to the root/stem.

II.2. Deverbal Suffixes

The Suffixes in this group attach to verb base of different types and categories, ie., transitive and intransitive, stative or active verbs and they derive nominal lexemes that express various meanings mostly depending on the meaning and the type of the root verb.

Roughly, there are two basic types in this group: noun deriving affixes and adjective deriving affixes. The distinction between noun and verb is sometimes difficult in Turkish. Syntactically they may substitute each other, that is a noun can be used as a modifier of another noun, and most adjectives can act as nouns.

The derived nouns may refer to various semantic roles of the base verb, that is to say, either referring to the Agent, Instrument, Theme or Location. The derived adjectives also derive lexemes that refer to arguments of the root verbs or aspectual classes, for example, they derive stative adjectives.

II. 2. 1. Noun Deriving Suffixes

1. ***-(A/I)r.*** **(20): Rule: [X_V]+(A/I)r_N**

According to the syntactic structure of the sentence the derivatives can be both noun and adjective. It derives nouns oriented to the Agent, roles of the root word.

[aç$_V$] +**(A/I)r$_N$** [aç**ar**]$_N$

Following Suffixes

[değ$_V$] +(A/I)r$_N$+**lI$_{AJ}$** [değer**li**]$_{AJ}$

[ol$_V$]+(A/I)r$_N$+**lIk $_N$** [olur**luk**]$_N$

[çık$_V$]+(A/I)r$_N$+**ÇI$_N$** [çıkar**cı**] $_N$

[duy$_V$]+(A/I)r$_{AJ}$+**sIz $_{AJ}$** [duyar**sız**] $_{AJ}$

[kayna$_V$]+(A/I)r$_N$+**ÇA$_N$** [kaynar**ca**] $_N$

[duy$_V$]+(A/I)r$_N$+**KA$_N$** [duyar**ga**] $_N$

2. ***-AmAmAzlIk* (~)**: **Rule: [X $_V$]+*AmAmAzlIk* $_N$**

This is a potentially productive suffix. However, there is only one sample in the database. As Uzun (1993) also states only one derivative is lexicalized and could be an entry in the dictionary.

[çek $_V$]+***AmAmAzlIk* $_N$** [çek**ememezlik**] $_V$

***3. -gIç* (10): Rule : [X $_V$]+*gIç* $_N$**

It derives Agent or doer of the root verb. It doesn't attach to the roots ending with a vowel. It is remarkable that there is *"-(I)n-"* suffix between a vowel final root and "*gIç"*.

[sil $_V$]+gIç $_N$ [sil**giç**] $_N$

[sor $_V$]+gIç $_N$ [sor**guç**] $_N$

Preceding suffixes

[patla $_V$]+**(I)n**+gIç $_N$ [patlan**gıç**] $_N$

4. -In. (11): **Rule : [_C_V]+*In*$_N$**

This suffix attaches to consonant final, monosyllabic roots. Most of the derivatives are neologisms.

[yığ $_V$]+**In$_{AD}$** [yığ**ın**]$_N$

Following suffixes

[yaz$_V$]+In$_{AD}$+**sAl$_{AJ}$** [yazın**sal**]$_{AJ}$

5. **-mA2 (123): Rule: [X_V]+mA2**$_N$

It is normally a suffix producing infinitive of verbal root/stem. However some words are lexicalized and became a name of or an action.

[böl $_V$]+**mA2$_N$** [böl**me**]$_N$

Preceding suffixes

[iş$_N$]+**lA$_V$**+mA2$_N$ [iş**le**me]$_N$

[aç$_V$]+**Il$_V$**+mA2$_N$ [açı**l**ma]$_N$

[göç$_V$]+**Iş$_V$**+mA2$_N$ [göç**üş**me]$_N$

[art$_V$]+**A/Ir$_V$**+mA2$_N$ [art**ır**ma]$_N$

[söz$_N$]+**lAş$_V$**+mA2$_N$ [söz**leş**me]$_N$

[tür$_N$]+**A$_V$**+mA2$_N$ [tü**re**me]$_N$

[don$_V$]+**tIr$_V$**+mA2$_N$ [don**dur**ma]$_N$

[çığır$_N$]+**t$_V$**+mA2$_N$ [çığır**t**ma]$_N$

Following suffixes

[böl$_V$]+mA2$_N$+**lI$_{AJ}$**	[bölme**li**]$_{AJ}$
[kıy$_V$]+mA2$_N$+**sIz$_{AJ}$**	[kıyma**sız**]$_{AJ}$
[göster$_V$]+mA2$_N$+**lIk$_{AJ}$**	[göstermelik]$_{AJ}$
[çel$_N$]+mA2$_N$+**lA$_V$**	[çelme**le**]$_V$
[yap$_V$]+mA2$_N$+**ÇIk$_{AJ}$**	[yapma**cık**]$_{AJ}$
[oy$_V$]+mA2$_N$+**ÇI$_{AJ}$**	[oyma**cı**]$_{AJ}$
[seç$_V$]+mA2$_N$+**ÇA$_{AJ}$**	[seçme**ce**]$_{AJ}$

6. ***-mIş*** **(9): Rule: [X$_V$]+mIş$_N$**

It is not a potentially productive suffix. It derives the result of the action denoting root. Except for "yet-iş-miş" (-(I)ş-+mIş) there is no preceding suffix. It generally attaches monosyllabic words.

[dol$_V$]+mIş$_N$	[dol**muş**]$_N$

Preceding suffixes

[yet$_V$]+**(I)ş$_V$**+mIş$_N$	[yet**iş**miş]$_N$

Following suffixes

[er$_V$]+mIş$_N$+**lIk$_N$**	[ermiş**lik**]$_N$
[ye$_V$]+mIş$_N$+**ÇI$_N$**	[yemiş**çi**]$_N$

7. ***-TI*** **(5): Rule: [X$_V$]+TI$_N$**

This suffix is actually past tense marker. The derivatives denote the perfective aspect of the verbal base. However the derivatives in this category are specialized for some actions or concepts. Therefore, we may say that the derivatives are

innovative. Thus the number of derived words are limited in the lexicon, yet it potentially productive for neologisms. Except for “alındı” “***(I)n***$_{\mathbf{V}}$+TI$_{N}$” there is not any prior suffix.

Following suffixes

[al$_{V}$]+(I)n$_{V}$+TI$_{N}$+lI$_{AJ}$ [alındı**lı**]$_{N}$

[al$_{V}$]+(I)n$_{V}$+TI$_{N}$+sIz$_{AJ}$ [alındı**sız**]$_{AJ}$

8. ***-(y)AcAk:*** **Rule: [X $_{\mathbf{V}}$]+(y)AcAk $_{\mathbf{N}}$**

In the database, there is no prior suffix. It attaches to the root itself and derives nouns denoting, Patient, Theme and Instrument of the verb.

[yak $_{V}$]+**(y)AcAk $_{\mathbf{N}}$** [yak**acak**] $_{N}$

Following suffixes

[al $_{V}$]+(y)AcAk $_{N}$+**lI $_{\mathbf{AJ}}$** [alacak**lı**] $_{AJ}$

[al $_{V}$]+(y)AcAk $_{N}$+**sIz $_{\mathbf{AJ}}$** [alacak**sız**] $_{AJ}$

9. ***-(y)Iş*** **(26): *Rule:* [X$_{\mathbf{V}}$]+(y)Iş$_{\mathbf{N}}$**

The derivatives are the event nouns.

[dik$_{V}$]+**(y)Iş$_{\mathbf{N}}$** [dik**iş**]$_{N}$

Preceding suffixes

[aç$_{V}$]+**lI$_{\mathbf{V}}$**+(y)Iş$_{N}$ [aç**ı**lış]$_{N}$

[kapa$_{V}$]+**(I)n$_{\mathbf{V}}$**+(y)Iş$_{N}$ [kapa**n**ış]$_{N}$

Following suffixes

$[dik_V]+(y)Iş_N+\mathbf{ÇI_N}$	$[dik\mathbf{işçi}]_N$
$[dürt_V]+(y)Iş_N+\mathbf{lA_V}$	$[dürt\mathbf{üş}le]_V$
$[in_V]+(y)Iş_N+\mathbf{lI_{AJ}}$	$[in\mathbf{işli}]_{AJ}$
$[in_V]+(y)Iş_N+\mathbf{sIz_{AJ}}$	$[in\mathbf{işsiz}]_{AJ}$
$[bil_V]+(y)Iş_N+\mathbf{(y)Im_N}$	$[bil\mathbf{işim}]_N$

II. 2. 2. Adjective Deriving Suffixes

10. -*III* (20): Rule: $[X_V]+IlI_{AJ}$

The derivatives display stative adjective of the root (*yayılı*, *örülü*). In the database, all of the examples are monosyllabic. It can be argued that this suffix selects only monosyllabic roots. It attaches directly to the bare root, do not accept any already suffixed bases. In addition it has no following suffix attaching to itself.

$[yay_V]+[IlI_{AJ}]$ $[yay\mathbf{ılı}]_{AJ}$

II. 2. 3. Both Noun and Adjective Deriving Suffixes

11. -*KAç* (18): $Rule_1$: $[stative_V]+KAç_{AJ}$

$Rule_2$: $[action_V]+KAç_N$

Most of the derivatives are nouns; only 3 of 18 are adjectives. It restricts the suffix before and after it. In the database, it can only be found after *"-(I)n-,-tır-"* and before *"+lIk, +lA"*. The derivatives are Agents, Themes or Instruments. If it attaches to the words denoting stative verbs such as feelings like "*utan*-" (*embarrass*), it derives

adjectives. If it attaches to the action words it derives nouns which are generally Instruments.

Following Suffixes

[utan$_{V}$]+KAç$_{V}$+**lIk$_{N}$**	[utan**gaç**lık]$_{N}$
[düz$_{AJ}$]+KAç$_{N}$+**lA$_{V}$**	[düz**geç**le]$_{V}$

12. ***-KAn*** **(74): Rule: [X$_{V/N}$]+KAn$_{N/AJ}$**

The verbal base of the suffix relies on only four examples such as "bıcır +gan" "*akış+kan*". 18 of 74 samples are nouns; it generally derives adjectives. It selects transitive or reciprocal bases. It attaches to either bare root or a stem suffixed with a voice suffix. The derivatives are the nouns of the repetitive action. They denote habitual actions.

[ısır$_{V}$]+KAn$_{N}$	[ısır**gan**]$_{N}$
[değiş$_{V}$]+KAn$_{N}$	[değiş**ken**] $_{N}$
[ak$_{V}$]+Iş$_{V}$+KAn$_{AJ}$	[akış**kan**]$_{AJ}$

Following Suffixes

[değiş$_{V}$]+KAn$_{N}$+lIk$_{N}$	[değiş**ken**lik]$_{N}$
[savur$_{V}$]+KAn$_{N}$+CA$_{AJ}$	[savur**gan**ca]$_{AJ}$

13. ***-(y)An*** **(27): Rule: [X$_{V}$]+(y)An$_{N/AJ}$**

Derivatives mostly denote Agent or Affected of the root. The suffix attaches to derived bases if they are suffixed with a voice suffix.

[çarp$_V$]+(y)An$_N$ [çarp**an**]$_N$

Preceding suffixes

[bil$_V$]+**(I)n$_V$**+(y)An$_N$ [bil**in**en]$_N$

[benze$_V$]+**(I)ş$_V$**+(y)An$_N$ [benz**eş**en]$_N$

[tam$_{AJ}$]+**lA$_V$**+(y)An$_N$ [tam**la**yan]$_N$

[eri$_V$]+**t$_V$**+(y)An$_N$ [eri**t**en]$_N$

Following suffixes

[düz]+(y)An$_N$+**sIz$_{AJ}$** [düzen**siz**]$_{AJ}$

[düz]+(y)An$_N$+**lA$_V$** [düzen**le**]$_V$

[düz]+(y)An$_N$+**ÇA$_N$** [düzen**ce**]$_N$

"(y)An$_N$" has following suffixes in only one stem "*düz+en*" meaning "*order*" is remarkable.

14. ***-(y)IcI*** **(251): Rule: [X$_V$]+(y)IcI$_{N/AJ}$**

[çek$_V$]+(y)IcI$_N$ [çek**ici**]$_N$

Nominal derivatives are Agent nouns. They indicate regular activities, such as "okuyucu". If the derivative denotes manner then the lexical category is adjective.

Preceding suffixes

[aç$_V$]+(A/I)k$_N$+**lA$_V$**+(y)IcI$_{AJ}$ [açık**la**yıcı]$_{AJ}$

[dene$_V$]+**t$_V$**+(y)IcI$_N$ [dene**t**ici]$_{AJ}$

[doy$_V$]+**A/Ir$_V$**+(y)IcI$_N$ [doy**ur**ucu]$_{AJ}$

$[cay_V]$+**tIr$_V$**+(y)IcI$_N$ $[cay$**dır**ıcı$]_{AJ}$

$[ak_V]$+**tAr$_V$**+(y)IcI$_N$ $[ak$**tar**ıcı$]_{N/AJ}$

Following suffixes

$[çek_V]$+(y)IcI$_N$+lIk $_N$ $[çekici$**lik**$]_N$

II. 2. 4. Concluding Remarks

Deverbal suffixes derives nouns and adjectives from verbal roots/stems. The suffixes in this group may be summarized as follows:

Those that commonly refer to the external argument of the root verb are:

-gIç, (*çalgıç*), -KAç (*utangaç*), -KAn (*somurtgan*), -(y)IcI (*içici*), -(y)An (*kapan*), **-**(A/I)r (*okur*)**,** -In. (*tütün*) etc.

Those that commonly refer to the internal argument of the root verb are

-(y)AcAk (*yakacak*), -KAç (*süzgeç*), ±I (*duyuru*), ±(I)t (*yakıt*), ±mAç (*karmaç*),

-IlI and -(y)Iş are not included in the above lists. "-IlI" derives stative adjectives and "-(y)Iş" derives are the event nouns.

II.3. Denominal Suffixes

The suffixes in this group commonly derive nominals from roots of the same syntactic category. They may roughly be grouped as follows:

a. verbs from nouns: *+(A/I)r-, +dA-, +kIr-, +lA-, +lAn, +lAş, +sA-,*

b. adverb from noun/adjectives: *+(s)I.*, *+(y)lA, (s)InA, +lAmA,*

c. nouns from nouns: *+lAk, +**lAr**, +gil, +ÇI, +**lIk***

d. nouns from adjectives: *+lI, +**lIk**, **ÇI**, **ÇIl**, **lAr**,*

e. adjectives from noun/adjectives: *+sIz, +**ÇI** , +**ÇIl**, +(ş)Ar,, +lI, +**lIk***

The above suffixes written in bold exists in at least two groups. In contrast, verb or adverb producing suffixes do not behave in this way. The distinction between noun and verb is difficult in Turkish. The denominal suffixes may act in both ways. They can produce both nouns and adjective roots/stems.

II. 3. 1. Verb Deriving Suffixes

1. **+(A/I)r- (20): Rule: $[X_{N/AJ}]+(A/I)r_V$**

This suffix does not choose already suffixed bases and attaches to the root itself. When it attaches to the color adjectives the derivative is a change of state verb.

$[toz_N]+(A/I)r_V$ $[tozar]_V$

$[kara_{AJ}]+(A/I)r_V$ $[karar]_V$

Following suffixes

$[iç_N]+(A/I)r_V+\mathbf{(A/I)k_N}$ $[iç\mathbf{er}ik]_N$

$[kara_{AJ}]+(A/I)r_V+\mathbf{tI_N}$ $[kara\mathbf{r}tı]_N$

[baş$_N$]+(A/I)r$_V$+**I$_N$** [başarı]$_N$

[baş$_N$]+(A/I)r$_V$+**Il$_V$** [başarı**l**]$_V$

2. **+*dA*- (71)*:* Rule: [onomatopoeic$_N$]+dA$_V$**

It derives verbs from onomatopoeic words. The roots are always disyllabic and bare. The derivatives are motion or movement sound emitted by the object.

[kikir$_N$]+dA$_V$ [kikir**de**]$_V$

Following suffixes

[kımıl$_N$]+dA$_V$+**(I)n$_V$** [kımılda**n**]$_V$

[kıpır$_N$]+dA$_V$+**(I)ş$_V$** [kıpırda**ş**]$_V$

[çıtır$_N$]+dA$_V$+**t$_V$** [çıtırda**t**]$_V$

3. **+*kIr*- (12): Rule: [onomatopoeic$_N$]+kIr$_V$**

"+*kIr*" is also restricted to onomatopoeic words. The suffix attaches to the monosyllabic bare roots, it doesn't attach to an already suffixed words.

[puf$_N$]+**kIr$_V$** [puf**kur**]$_V$

Following suffixes

[püs$_N$]+kIr$_V$+**t$_V$** [püskür**t**]$_V$

4. **+*lA*- (841): Rule:[X$_{N/AJ}$]+lA$_V$**

It is the most productive verb producing suffix. It can combine with a great amount of suffixes. Generally the derivatives are the actions of the nominal base.

[alçı$_N$]+**lA$_V$** [alçı**la**]$_V$

Preceding suffixes

[sark$_V$]+**(A)ç$_N$**+lA$_V$ [sark**aç**la]$_V$

[dur$_V$]+**(A/I)k$_N$**+lA$_V$ [dur**ak**la]$_V$

[yaban$_N$]+**ÇI$_N$**+lA$_V$ [yaban**cı**la]$_V$

[dip$_N$]+**ÇIk$_N$**+lA$_V$ [dip**çik**le]$_V$

[kıs$_V$]+**(I)t$_N$**+lA$_V$ [kıs**ıt**la]$_V$

[im$_N$]+**KA$_N$**+lA$_V$ [im**ge**le]$_V$

[düz$_{AJ}$]+**KAÇ$_N$**+lA$_V$ [düz**geç**le]$_V$

[bul$_N$]+**KI$_N$**+lA$_V$ [bul**gu**la]$_V$

[er$_V$]+**KIn$_N$**+lA$_V$ [er**gin**le]$_V$

[şiş$_V$]+**mAn$_N$**+lA$_V$ [şiş**man**la]$_V$

[yan$_{AJ}$]+**sI$_N$**+lA$_V$ [yan**sıl**a]$_V$

[öz$_N$]+**TAş$_N$**+lA$_V$ [öz**deş**le]$_V$

[düz$_V$]+**(y)An$_N$**+lA$_V$ [düz**en**le]$_V$

[çöz$_V$]+**(y)Im$_N$**+lA$_V$ [çöz**üm**le]$_V$

Following suffixes

[bağ$_N$]+lA$_V$+**(A)ç$_N$** [bağla**ç**]$_N$

[göz$_N$]+lA$_V$+**(A)m$_N$** [gözle**m**]$_N$

[çın$_N$]+lA$_V$+**(A/I)k$_N$** [çınla**k**]$_N$

[av$_N$]+lA$_V$+**(I)n$_V$** [avla**n**]$_V$

[eş$_N$]+lA$_V$+**(I)ş$_V$** [eşle**ş**]$_V$

[aşı$_N$]+lA$_V$+**t$_V$** [aşıla**t**]$_V$

[tam$_{AJ}$]+lA$_V$+**(y)An$_N$** [tamla**yan**]$_N$

[ateş$_N$]+lA$_V$+**(y)IcI$_N$** [ateşle**yici**]$_N$

5. ***+lAn* (277): Rule: [X$_N$]+*lAn*$_V$**

This suffix is also controversial like "***+lAmA.***" it might be argued that this suffix is a combination of "lA+(I/A)n" suffixes. On the contrary, there is no base that is free with "+lA" suffix. The suffix causes change of state on the root as in "*güçlen-*" (to become powerful).

[dal$_N$]+**lAn$_V$** [dal**lan**]$_V$

Preceding suffixes

[ak$_{AJ}$]+**çIl$_N$**+lAn$_V$ [ak**çıl**lan]$_V$

[bil$_V$]+**(I)nç$_N$**+lAn$_V$ [bil**inç**len]$_V$

[bağ$_N$]+**(I)t$_N$**+lAn$_V$ [bağ**ıt**lan]$_V$

[duy$_V$]+**KI$_N$**+lAn$_V$ [duy**gu**lan]$_V$

[ip$_V$]+**lIk$_N$**+lAn$_V$ [ip**lik**len]$_V$

[rahat$_V$]+**sIz$_N$**+lAn$_V$ [rahat**sız**lan]$_V$

[yük$_V$]+**(y)Im$_N$**+lAn$_V$ [yük**üm**len]$_V$

Following suffixes

[bağ$_N$]+lAn$_V$+**(y)Im$_N$** [bağlan**ım**]$_N$

[iz$_N$]+lAn$_V$+**ÇA$_{AD}$** [izlen**ce**]$_{AD}$

[ad$_N$]+lAn$_V$+**tIr$_V$** [adlan**dır**]$_V$

[borç$_N$]+lAn$_V$+**Il$_V$** [borçlan**ıl**]$_V$

[biz$_N$]+lAn$_V$+**gIç$_N$** [bizlen**giç**]$_N$

6. ***+lAş* (515): Rule: [X_N]+lA$ş_V$**

This suffix also derives "Change of State Verb"s. The derivatives denote to become or turn into or to start to be the root such as "*güzelleş-*, *canavarlaş-*". Some derivatives has a reciprocal aspect such as "*vedalaş*" and "*randevulaş*". However it seems that this is because the roots need at least two person predicates. It can be argued that this suffix is originally formed by "lA+(I)ş" nevertheless, root-suffix relation displays an opposite picture. To prove our idea we may examine the examples above.

**veda+la+ş* This separation is wrong because there is not a word such as **vedala*

**randevu+la+ş* The same reason with "*vedalaş*"

Preceding suffixes

[kur$_V$]+**(A)m$_N$**+lA$ş_V$	[kur**am**laş] $_V$
[gel$_V$]+**(A)nAk$_{N+}$**lA$ş_V$	[gel**enek**leş]$_V$
[boğ$_V$]+**(A/I)k$_{N+}$**lA$ş_V$	[boğ**uk**laş]$_V$
[buz$_N$]+**(A/I)l$_{N+}$**lA$ş_V$	[buz**ul**laş]$_V$
[ol$_V$]+**AğAn$_{N+}$**lA$ş_V$	[ol**ağan**laş]$_V$
[ana$_N$]+**ç$_{N+}$**lA$ş_V$	[ana**ç**laş]$_V$
[gün$_N$]+**ÇAl$_N$**+lA$ş_V$	[gün**cel**leş]$_V$
[yaban$_N$]+**ÇI$_N$**+lA$ş_V$	[yaban**cı**laş]$_V$
[ak$_N$]+**ÇIl$_N$**+lA$ş_V$	[ak**çıl**laş]$_V$
[an$_N$]+**I$_N$**+lA$ş_V$	[an**ı**laş]$_V$
[gül$_V$]+**(I)nç$_{N+}$**lA$ş_V$	[gül**ünç**leş]$_V$

[koş$_V$]+**(I)t$_N$**+lAş$_V$ [koş**ut**laş]$_V$

[bez$_V$]+**KIn$_{AJ}$**+lAş$_V$ [bez**gin**leş]$_V$

[fark$_N$]+**lI$_{AJ}$**+lAş$_V$ [fark**lı**laş]$_V$

[uz$_{AJ}$]+**mAn$_N$**+lAş$_V$ [uz**man**laş]$_V$

[evren$_N$]+**sAl$_{AJ}$**+lAş$_V$ [evren**sel**leş]$_V$

[geniz$_N$]+**sIl$_{AJ}$**+lAş$_V$ [geniz**sil**leş]$_V$

[huy$_N$]+**sIz$_{AJ}$**+lAş$_V$ [huy**suz**laş]$_V$

[çağ$_N$]+**TAş$_{AJ}$**+lAş$_V$ [çağ**daş**laş]$_V$

[de$_V$]+**(y)Im$_N$**+lAş$_V$ [de**yim**leş]$_V$

Following suffixes

[nöbet$_N$]+lAş$_V$+**A$_N$** [nöbetleş**e**] $_N$

[bağ$_N$]+lAş$_V$+**(A/I)k$_N$** [bağlaş**ık**]$_N$

[bir$_{AJ}$]+lAş$_V$+**Il$_V$** [birleş**il**]$_V$

[başka$_{AJ}$]+lAş$_V$+**(y)Im$_N$** [başkalaş**ım**]$_N$

[uz$_{AJ}$]+lAş$_V$+**(y)IcI$_N$** [uzlaş**ıcı**]$_N$

[bir$_{AJ}$]+lAş$_V$+**(A/I)k$_N$** [birleş**ik**]$_N$

[abide$_N$]+lAş$_V$+**tIr$_V$** [abideleş**tir**]$_V$

7. **+*sA*- (38): Rule: [X$_{N/AJ}$]+sA$_V$**

The suffix only attaches to "*±(y)Im"* and can be seen before "*-mAz, ±(A/I)k, -(I)n-, -t-"*. The relation between root and derivative is assumption and wish of the root.

[su$_N$]+sA$_V$ [su**sa**]$_V$

Preceding suffixes

$[dur_V]$+**(A/I)k$_N$**+sA_V $[dur\mathbf{ak}sa]_V$

Following suffixes

$[umur_N]$+sA_V+**(I)n$_V$** $[umursa\mathbf{n}]_V$

$[su_N]$+sA_V+**t$_V$** $[susa\mathbf{t}]_V$

II. 3. 2. Noun Deriving Suffixes

8. ***+lAk* (12): Rule: [bare root$_N$]+lAk$_N$**

Rule: [body part$_N$]+lAk$_{AJ}$

It derives adjectives referring to related root from body parts. From nouns it derives Place names. It doesn't attach to an already suffixed base. Following it only *"+ÇI"* and *"ÇA"* can be attached. However the derivative "otlakçı" with "+ÇI" is figurative; meaning "*scrounger*".

$[ot_N]$+**lAk$_N$** $[\mathbf{ot}lak]_N$

$[diş_N]$+**lAk$_{AJ}$** $[\mathbf{diş}lek]_{AJ}$

Following suffixes

$[öd_N]$+lAk_N+**ÇA$_{AD}$** $[ödlek\mathbf{çe}]_{AD}$

$[ot_N]$+lAk_N+**ÇI$_{AJ}$** $[otlak\mathbf{çı}]_{AJ}$

9. ***+lAr.* (153): Rule: [X$_{N/AJ}$]+*lAr*$_N$**

It explicitly derives kind names from adjectival and nominal roots. "+lAr" generally combines with *"+lI, (I)n-, -KAn, +ÇI"* but doesn't allow any derivational suffix after it. It is a potentially productive suffix.

$[bir_N]+lAr_N$ $[bir\mathbf{ler}]_N$

$[dinozor_N]+lAr_N$ $[dinozor\mathbf{lar}]_N$

II. 3. 3. Adjective Deriving Suffixes

10. **+gil (~): Rule: $[X_{Proper\ noun}]+gil_{AJ}$** [Ahmetgil]

Rule: $[Plant\ or\ Animal_N]+gil_{AJ}+lAr_{PL}$ [kedigiller]

It is not restricted with phonological rules and has no allomorph. The derivatives denote a group of people; mostly family or people living together like "annemgil" (my mother and her family), "Ahmetgil" (Ahmet and his family). As it attaches proper nouns or pronouns it is the first suffix attaching to a word, and do not allow any further suffix. We can say that this a closing suffix. Lewis (1967) claims that this is a *provincialism*.

It is also used for innovations. By adding plural morpheme "ler", "giller" used to derive kind names such as plant and animal families; terms and classes in Biology.

Like "+*gil"* above "giller" attaches proper nouns or pronouns it is the first suffix attaching to a word, and do not allow any further suffix. "*gil*" and "*giller*" are closing suffixes.

11. ***+(I)mtırak*** **(~)**: **Rule: $[X_{AJ}]+mtırak_{AJ}$**

The derivatives obviously denotes similarity with the root. It doesn't prefer a roots more than one syllable like "lacivertimsi", however they are still possible

derivatives. This restriction may come from the articulation difficulty of the word. Except these color adjectives it is seen on adjectives describing taste like sweet, sour etc.

[sarı$_{AJ}$]+**mtırak$_{AJ}$** [sarı**mtırak**]$_{AJ}$

[acı$_{AJ}$]+**mtırak$_{AJ}$** [acı**mtırak**]$_{AJ}$

12. ***+(ş)Ar~:*** **Rule: [Numeral$_{AJ}$]+(ş)Ar$_{AJ}$**

It derives adjectives from numerals, thus it attaches underived roots/stems. Potentially it may come after all numerals. "*+lI, +lIk"* are the suffixes that can be attached to this suffix. It does not accept any other suffix.

[altı$_{AJ}$]+(ş)Ar$_{AJ}$ [altı**şar**]$_{AJ}$

Following suffixes

[beş$_{AJ}$]+**(ş)Ar$_{AJ}$**+lI$_{AJ}$ [beş**er**li]$_{AJ}$

13. ***+sIz*** **(743)*:* Rule: [X$_{N/AJ}$]+sIz$_{AJ}$**

It is a quite productive suffix and can be seen after any noun root or stem. The derivatives denote "lack of" the root.

Preceding suffixes

[tıka$_{V}$]+**(A)ç$_{N}$**+sIz$_{AJ}$ [tıka**aç**sız]$_{AJ}$

[anla$_{V}$]+**(A)m$_{N}$**+sIz$_{AJ}$ [anla**m**sız] $_{AJ}$

[gör$_{V}$]+**(A)nAk$_{N}$**+sIz$_{AJ}$ [gör**enek**siz] $_{AJ}$

[sür$_{V}$]+**(A/I)k$_{N/AJ}$**+sIz$_{AJ}$ [sür**ek**siz] $_{AJ}$

[benze$_{V}$]+**(A/I)r$_{N}$**+sIz$_{AJ}$ [benze**r**siz] $_{AJ}$

[düşün$_V$]+**ÇA$_N$**+sIz$_{AJ}$ [düşün**ce**siz] $_{AJ}$

[kıs$_V$]+**(I)ntI$_N$**+sIz$_{AJ}$ [kıs**ıntı**sız] $_{AJ}$

[eş$_N$]+**(I)t$_N$**+sIz$_{AJ}$ [eş**it**siz] $_{AJ}$

[diz$_V$]+**KA$_N$**+sIz$_{AJ}$ [diz**ge**siz] $_{AJ}$

[bur$_V$]+**KI$_N$**+sIz$_{AJ}$ [bur**gu**suz] $_{AJ}$

[uy$_V$]+**KIn$_N$**+sIz$_{AJ}$ [uy**gun**suz] $_{AJ}$

[ara$_V$]+**lIk$_N$**+sIz$_{AJ}$ [ara**lık**sız] $_{AJ}$

[kıpır$_N$]+**tI$_N$**+sIz$_{AJ}$ [kıpır**tı**sız] $_{AJ}$

[geç$_V$]+**(y)Im$_N$**+sIz$_{AJ}$ [geç**im**siz] $_{AJ}$

[dik$_V$]+**(y)Iş2**+sIz$_{AJ}$ [dik**iş**siz] $_{AJ}$

Following suffixes

[yer$_N$]+sIz$_{AJ}$**+lIk$_N$** [yersiz**lik**] $_N$

[sabır$_N$]+sIz$_{AJ}$**+lAn$_V$** [sabırsız**lan**] $_V$

[huy$_N$]+sIz$_{AJ}$**+lAş$_V$** [huysuz**laş**] $_V$

[gönül$_N$]+sIz$_{AJ}$**+ÇA$_{AJ}$** [gönülsüz**ce**] $_{AJ}$

14. ***+ÇI* (1208): Rule$_1$: [X$_{N/AJ}$]+ÇI$_{N/AJ}$**

Rule$_2$: [Abstract$_N$]+ÇI$_{AJ}$

This suffix is one of the most productive suffixes of the Turkish morphology. The derivatives denote people who are habitually or professionally concerned with or devoted to the object. (Lewis:1967).

In general it derives occupation names from objects. It can also derive Agent nouns from events (*seyirci*). Some derivatives denotes the supporter of the root

(*Atatürkçü*, *çoğulcu*, *Yeşilaycı*) or some one who is fond of the "root" (*intikamcı*), or habit (*ispiyoncu*).

If the base is an abstract word then the derivative with "*ÇI"* is adjectival. There is an exception for this condition; "*kibrit*" is a concrete root, but the derivative is an adjectival one: "*kibritçi* $_{AJ}$". However "*kibritçi*" is figuratively used meaning "*a mean person*".

Preceding suffixes

[gel $_{V}$]+**(A)nAk**$_{N}$+ÇI $_{N}$	[gel**enek**çi] $_{N/AJ}$
[aç $_{V}$]+**(A/I)k**$_{N}$+ÇI $_{N/AJ}$	[aç**ık**çı] $_{N/AJ}$
[öz $_{N}$]+**(A/I)l**$_{N}$+ÇI $_{N/AJ}$	[öz**nel**ci] $_{N/AJ}$
[dön $_{V}$]+**(A/I)r**$_{N}$+ÇI$_{N}$	[dön**er**ci] $_{N}$
[oyun $_{N}$]+**ÇAk**$_{N}$+ÇI$_{N}$	[oyun**cak**çı] $_{N}$
[sömür $_{V}$]+**I**$_{N}$+ÇI $_{N/AJ}$	[sömür**ü**cü] $_{N/AJ}$
[bağ $_{N}$]+**(I)ntI**$_{N}$+ÇI$_{N}$	[bağ**ıntı**cı] $_{N}$
[iste $_{V}$]+**(I)nç**$_{N}$+ÇI $_{N}$	[iste**nç**çi] $_{N}$
[ek $_{V}$]+**(I)n**$_{N}$+ÇI $_{N}$	[ek**in**ci] $_{N}$
[eş $_{V}$]+**(I)t**$_{N}$+ÇI $_{N}$	[eş**it**çi] $_{N}$
[böl $_{V}$]+**KA**$_{N}$+ÇI$_{N}$	[böl**ge**ci] $_{N}$
[al $_{V}$]+**(y)Im**$_{N+}$ÇI $_{N}$	[al**ım**cı] $_{N}$
[diz $_{V}$]+**KI**$_{N}$+ÇI $_{N}$	[diz**gi**ci] $_{N}$
[bas $_{V}$]+**KIn**$_{N}$+ÇI$_{N}$	[bas**kın**cı] $_{N}$
[ol $_{N}$]+**lAk**$_{N}$+ÇI $_{N}$	[ot**lak**çı] $_{N}$
[ay $_{N}$]+**lIk**$_{N}$+ÇI $_{N}$	[ay**lık**çı] $_{N}$

[kak $_V$]+**mA2**$_N$+ÇI$_N$ [kak**ma**cı] $_N$

[ye $_V$]+**mIş**$_N$+ÇI $_N$ [ye**miş**çi] $_N$

[dik $_V$]+**(y)Iş**$_N$+ÇI$_N$ [dik**iş**çi] $_N$

Following suffixes

[ad $_N$]+ÇI$_N$+**lIk**$_N$ [ad**cı**lık] $_N$

[yaban $_N$]+ÇI$_N$+**lA** $_V$ [yaban**cı**la] $_V$

[yaban $_N$]+ÇI$_N$+**lAş** $_V$ [yaban**cı**laş] $_V$

15. **+*ÇIl* (49)*:* Rule: [$X_{N/AJ}$]+$ÇIl_{AJ}$**

The derivatives have a sense of tending towards, accustomed to or addicted to. Some derivatives denote someone who is fond of the "root" like (*anacıl*), or something that belongs to the root (sesçil), or kind relating to living or nutrition habits (*kumcul*, *leşcil*, *nemcil*).

[nem$_N$]+**ÇIl$_{AJ}$** **[**nem**cil]$_{AJ}$**

Preceding suffixes

[bat$_V$]+**(A/I)k**+ÇIl$_{AJ}$ [akcil]$_{AJ}$

[sür$_V$]+**I$_N$**+ÇIl$_{AJ}$ [sür**ü**cül] $_{AJ}$

[öz$_N$]+**KA$_N$**+ÇIl$_{AJ}$ [öz**ge**cil] $_{AJ}$

[öl$_V$]+**(y)Im$_N$**+ÇIl$_{AJ}$ [öl**üm**cül] $_{AJ}$

Following suffixes

[ben$_{PN}$]+ÇIl$_{AJ}$+**CA$_{AJ}$** [bencil**ce**]$_{AJ}$

[ben$_{PN}$]+ÇIl$_{AJ}$+**lIk$_N$** [bencil**lik**]$_N$

[ev_N]+ÇIl$_{AJ}$+**lAş$_V$** [evcil**leş**]$_V$

II. 3. 4. Adverb Deriving Suffixes

16. ***+(s)I.* (14)**: **Rule: [$X_{AD/AJ}$]+(s)I_{AD}**

It derives pronouns from adjectival roots. The root is restricted to pronouns. It doesn't attach to an already suffixed base. There is no suffix prior to or following it.

[bazı$_{AJ}$]+**(s)I$_{AD}$** [bazı**sı**]$_{AD}$

[hep$_{AD}$]+**(s)I$_{AD}$** [hep**si**]$_{AD}$

[bir$_{AJ}$]+**(s)I$_{AD}$** [biri]$_{AD}$

17. **+(I)n (12)**: **Rule: [X_N]+(I)n$_{AD}$**

Mostly it derives adverbs from nominal roots (10 of 15 samples). There isn't any prior suffix in the database. However there are some suffixes that can be attached after it.

[güz$_N$]**+(I)n$_{AD}$** [güz**ün**]$_{AD}$

Following suffixes

[dem$_N$]+(I)n$_{AD+}$**ÇAk $_{AD}$** [demin**cek**] $_{AD}$

[ak$_V$]+(I)n$_{N+}$**ÇI$_N$** [akın**cı**] $_N$

[üst$_V$]+(I)n$_{N+}$**lIk $_N$** [üstün**lük**] $_N$

18. ***+(y)lA* (28): Rule: [X_N]+*(y)lA*$_{AD}$**

It can attach after *"+lIk"* suffix but doesn't allow any suffix after it. It may be argued that this is a closing suffix. The derivatives have a sense of togetherness or through.

[avuç$_N$]+**(y)lA$_{AD}$** [avuç**la**]$_{AD}$

Preceding suffixes

[ivedi$_{AJ}$]+**lIk$_N$**+(y)lA$_{AD}$ [ived**lik**le]$_{AD}$

[tatlı$_{AJ}$]+**lIk$_N$**+(y)lA$_{AD}$ [tatlı**lık**la]$_{AD}$

19. ***(s)InA (9):* Rule: [X_N]+(s)InA$_{AD}$**

It doesn't allow any suffix to be attached after it. It can be seen only after infinitival "+*mA2*". In this example there is a phonological change too. In the example below the last sound of the root, voiceless stop "t" transforms into a voiced one "d" before a vowel.

[inat$_{AJ}$]+**(s)InA$_{AD}$** [ina<u>d</u>ına]$_{AD}$

[yan$_{AJ}$]+**lAmA$_{AD}$**+(s)InA$_{AD}$ [yanlamasına]$_{AD}$

20. ***+lAmA.* (26): Rule: [$X_{N/AJ}$]+*lAmA*$_{N/AD}$**

This suffix is a controversial one. It may be argued that it is "lA+mA" not "*+lAmA.*". However the following examples prove the "lAmA" form. For example in the lexicon there isn't such a word as "balıkla" or " köpekle". It doesn't allow any suffixation preceding it.

[güzel$_{AJ}$]+lAmA$_{AD}$ [güzel**leme**]$_{AD}$

[çivi$_N$]+lAmA$_{AD}$ [çivi**leme**]$_{AD}$

Following suffixes

[yan$_N$]+lAmA$_{AD}$+**(s)InA$_{AD}$** [yanlama**sına**]$_{AD}$

II. 3. 5. Both Noun and Adjective Deriving Suffixes

21. ***+lArI*** **(36): Rule: [X$_{N/PN}$]+*lAr*$_{N/PN}$**

"+lArI" derives kind names like "+lAr" but it attaches to only compound words. When it attaches to a personal pronoun it derives words having an uncertain referent "bazıları, kimiler, birileri" This suffix is also potentially productive on compound bases. It doesn't allow any derivational suffix to attach after it. This is also a closing suffix.

[ağustosböcek$_N$]+**lArI$_N$** [ağustosböcek**leri**]$_N$

[bir$_N$]+(s)I$_{PN}$**+lArI$_{PN}$** [biri**leri**]$_{PN}$

[kim$_N$]+(s)I$_{PN}$+**lArI$_{PN}$** [kimi**leri**]$_{PN}$

22. ***+II*** **(1644): Rule: [X$_{N/AJ}$]+lI$_{N/AJ}$**

This is the second most productive suffix of Turkish. It attaches to almost all of the nominal roots. The derivatives are hard to be classified according to their meaning because the root is remarkably productive. We may say the biggest groups are possession, as in "*adeleli*, *diplomalı"* and origin (from place names) as in "*İsveçli*, *Diyarbakırlı"*.

Some derivatives denote having the property or feature of the base like;

$[tuz_{N}]$+**lI**$_{\mathbf{AJ}}$ $[tuz\mathbf{lu}]_{AJ}$

$[şapka_{N}]$+**lI**$_{\mathbf{AJ}}$ $[şapka\mathbf{lı}]_{AJ}$

Some derivatives denote having the property or feature of the base in a high degree like;

$[yaş_{N}]$+**lI**$_{\mathbf{AJ}}$ $[yaş\mathbf{lı}]_{AJ}$

$[paha_{N}]$+**lI**$_{\mathbf{AJ}}$ $[paha\mathbf{lı}]_{AJ}$

Some derivatives denote belonging to a place or organization or shows the origin of person or objects;

$[Afrika_{PlaceN}]$+**lI**$_{\mathbf{AJ}}$ $[Afrika\mathbf{lı}]_{AJ}$

$[İzmir_{PlaceN}]$+**lI**$_{\mathbf{AJ}}$ $[İzmir\mathbf{li}]_{AJ}$

$[kasaba_{PlaceN}]$+**lI**$_{\mathbf{AJ}}$ $[kasaba\mathbf{lı}]_{AJ}$

$[Eğitim\text{-}Sen_{OrganizationN}]$+**lI**$_{\mathbf{AJ}}$ $[Eğitim\text{-}Sen\mathbf{li}]_{AJ}$

If the suffix is attached to a color adjective it derives adjectives that can be used instead of the noun itself like “kırmızılı” instead of “kırmızılı kadın”.

$[kırmızı_{AJ}]$+lI_{AJ} $[kırmızı\mathbf{lı}]_{AJ}$

Preceding suffixes

$[ara_{N}]$+**lIk**$_{\mathbf{N}}$+lI_{AJ} $[ara\mathbf{lık}lı]_{AJ}$

$[çiz_{V}]$+**mA2**$_{\mathbf{N}}$+lI_{A} $[çiz\mathbf{me}li]_{AJ}$

$[yaz_{N}]$+**I**$_{\mathbf{N}}$+lI_{AJ} $[yaz\mathbf{ı}lı]_{AJ}$

$[sür_{V}]$+**A**$_{\mathbf{N}}$+lI_{AJ} $[sür\mathbf{e}li]_{AJ}$

$[yağ_{V}]$+**(y)Iş**$_{\mathbf{N}}$+lI_{AJ} $[yağ\mathbf{ış}lı]_{AJ}$

[yara$_V$]+**(A/I)r$_N$**+lI$_{AJ}$	[yar**ar**lı]$_{AJ}$
[üz$_V$]+**KI$_N$**+lI$_{AJ}$	[üz**gü**lü]$_{AJ}$
[üz$_V$]+**Inç$_N$**+lI$_{AJ}$	[üz**ünç**lü]$_{AJ}$
[uy$_V$]+**Im$_N$**+lI$_{AJ}$	[uy**um**lu]$_{AJ}$
[ürper$_V$]+**tI$_N$**+lI$_{AJ}$	[ürper**ti**li]$_{AJ}$
[süz$_V$]+**KAç$_N$**+lI$_{AJ}$	[süz**geç**li]$_{AJ}$
[bağ$_N$]+**IntI$_N$**+lI$_{AJ}$	[bağ**ıntı**lı]$_{AJ}$
[bil$_V$]+**(I)nç$_N$**+lI$_{AJ}$	[bil**inç**li]$_{AJ}$
[duy$_V$]+**(A/I)r$_N$**+lI$_{AJ}$	[duy**ar**lı]$_{AJ}$
[eyle$_V$]+**(A)m$_N$**+lI$_{AJ}$	[eyl**em**li]$_{AJ}$

Following suffixes

[top$_N$]+lI$_N$+**(I)m$_N$**	[top**lu**m] $_N$
[us$_N$]+lI$_{AJ}$+**lIk$_N$**	[us**lu**luk] $_N$
[bağ$_N$]+lI$_{AJ}$+**lAş$_V$**	[bağ**lı**laş]$_V$
[mut$_N$]+lI$_{AJ}$+**lAn$_V$**	[mut**lu**lan] $_V$
[gurur$_N$]+lI$_{AJ}$+**ÇA$_{AD}$**	[gurur**lu**ca]$_{AD}$

23. ***+lIk*** **(3167)**: **Rule: [X$_{N/AJ}$]+lIk$_{N/AJ}$**

*"**+lIk**"* is the most productive suffix of Turkish morphology and derives abstract nouns. In Turkish morphology there is no suffix that attaches a stem ending with itself. "*lIk*" is the only example of this situation. If it attaches after "ÇI$_N$*"* or a person denoting suffix it generally produces occupation names, otherwise generally derives

object or place names. Most of the derivatives have a stative meaning. If it attaches to a numeric or a measure word it generally means consisting one unit of the root “like ellilik”, “kiloluk”.

[güzel$_{AJ}$]+**lIk$_{N}$** [güzel**lik**]$_{N}$

[doktor$_{AJ}$]$_{+}$**lIk$_{N}$** [doktor**luk**]$_{N}$

It derives nouns and sometimes adjectives denoting specific, suitable or intended for the root.

[adak$_{N}$]+**lIk$_{AJ}$** [adak**lık**]$_{AJ}$

[ayakkabı$_{N}$]+**lIk$_{N}$** [ayakkabı**lık**]$_{N}$

[kira$_{N}$]+**lIk$_{AJ}$** [kira**lık**]$_{AJ}$

If it attaches to numericals it derives adjectives. Sometimes the base is in locative case.

[seksen$_{NO}$]+lIk$_{AJ}$ [seksen**lik**]$_{AJ}$

[onda$_{N}$]+lIk$_{AJ}$ [onda**lık**]$_{AJ}$

Preceding suffixes

[ana$_{N}$]+**(A)ç$_{N}$**+lIk$_{AJ}$ [an**aç**lık] $_{AJ}$

[eyle$_{N}$]+**(A)m$_{N}$**+lIk$_{N}$ [eyl**em**lik]$_{N}$

[ay$_{V}$]+**(A/I)k$_{N}$**+lIk $_{AJ}$ [ay**ık**lık] $_{AJ}$

[dişi$_{N}$]**+(A/I)l$_{N}$**+lIk $_{AJ}$ [diş**il**lik] $_{AJ}$

[değ$_{V}$]+**(A/I)r$_{AJ}$**+lIk $_{AJ}$ [değ**er**lik] $_{AJ}$

[ayrı$_{N}$]+**ÇA$_{AD}$**+lIk $_{AJ}$ [ayrı**ca**lık] $_{AJ}$

[akıl$_{N}$]+**ÇI$_{N}$**+lIk$_{N}$ [akıl**cı**lık]$_{N}$

[bil$_V$]+**gIç$_N$**+lIk $_{AJ}$	[bil**giç**lik] $_{AJ}$
[kork$_V$]+**I$_N$**+lIk$_N$	[kork**u**luk]$_N$
[üst$_{AJ}$]+**(I)n$_{AJ}$**+lIk$_N$	[üst**ün**lük]$_N$
[kıskan$_V$]+**ç$_{AJ}$**+lIk$_N$	[kıskan**ç**lık]$_N$
[utan$_V$]+**KAç$_{AJ}$**+lIk$_N$	[utan**gaç**lık]$_N$
[değiş$_{AJ}$]+**KAn$_{AJ}$**+lIk$_N$	[değiş**ken**lik]$_N$
[çiz$_V$]+**KI$_{AJ}$**+lIk$_N$	[çiz**gi**lik]$_N$
[yurt$_N$]+**TAş$_N$**+lIk$_N$	[yurt**taş**lık]$_N$
[doy$_V$]+**KIn$_{AJ}$**+lIk$_N$	[doy**gun**luk]$_N$
[su$_N$]+**lAk$_{AJ}$**+lIk$_N$	[su**lak**lık]$_N$
[can$_N$]+**lI$_{AJ}$**+lIk$_N$	[can**lı**lık]$_N$
[ön$_{AJ}$]+**lIk$_N$**+lIk$_N$	[ön**lük**lük]$_N$
[sür$_V$]+**mA2$_N$**+lIk$_N$	[sür**me**lik]$_N$
[şiş$_{AJ}$]+**mAn$_{AJ}$**+lIk$_N$	[şiş**man**lık]$_N$
[gör$_V$]+**mAz$_N$**+lIk$_N$	[gör**mez**lik]$_N$
[oku$_V$]+**mIş$_{AJ}$**+lIk$_N$	[oku**muş**luk]$_N$
[kum$_N$]+**sAl$_N$**+lIk$_N$	[kum**sal**lık]$_N$
[öz$_N$]+**TAş**+lIk$_N$	[öz**deş**lik]$_N$
[yak$_V$]+**(y)IcI$_N$**+lIk$_N$	[yak**ıcı**lık]$_N$
[at$_V$]+**(y)Im$_N$**+lIk$_N$	[at**ım**lık]$_N$

Following suffixes

[ay$_N$]+lIk$_N$+**ÇI$_N$**	[aylık**çı**]$_N$
[ara$_N$]+lIk$_N$+**lI$_{AJ}$**	[aralık**lı**]$_{AJ}$

[an$_N$]+lIk$_N$+**sAl$_{AJ}$** [anlık**sal**]$_{AJ}$

[sağ$_{AJ}$]+lIk$_N$+**sIz$_{AJ}$** [sağlık**sız**]$_{AJ}$

24. ***+TAş* (26): Rule: [X$_N$]+TAş$_{N/AJ}$**

It produces nouns that have sense of belonging to the concept of the base or having the same point of view with the base.

[öz$_N$]+**TAş** $_{AJ}$ [öz**deş**]$_{AJ}$

Preceding suffixes

[anla$_N$]+**(A)m$_N$**+TAş$_{AJ}$ [anla**m**daş]$_{AJ}$

[duy$_N$]+**KI$_N$**+TAş$_{AJ}$ [duy**gu**daş]$_{AJ}$

Following suffixes

[arka$_N$]+TAş$_N$+**lIk$_N$** [arkadaş**lık**]$_N$

[çağ$_N$]+TAş$_N$+**lAş$_V$** [çağdaş**laş**]$_V$

[arka$_{AJ}$]+TAş$_N$+**ÇA$_{AD}$** [arkadaş**ça**]$_{AD}$

II. 3. 6. Concluding Remarks

From the viewpoint of semantics, there are relatively clear cases. The more productive suffixes are relatively less constrained suffixes thus they derive lexemes that most often are not semantically related. In other words, it is very difficult to assign outputs of productive processes into unified classes. Below we intend to identify the most outstanding shared properties of the affix groups.

Suffixes deriving change of state verbs: *+(A/I)r-, lAn, lAş,*

Suffixes attaching onomatopoeic roots selects monosyllabic and underived roots: -dA, -kIr,

Suffixes that do not attach to an already suffixed base: *lAmA, (s)InA, +(I)n., +(s)I., (ş)Ar, +(I)mtırak, +gil, +lAk, +kIr-, +dA-, +(A/I)r-*

Closing suffixes: *+lAr., +lArI , +gil, +(I)mtırak, +(s)I., (s)InA*

II.4. Affixes That Attach to Both Verbal and Nominal Roots.

The largest groups of suffixes belong to this final group as the bases and derivatives are relatively less restricted.

II. 4. 1. Verb Deriving Suffixes

1. **±*(A/I)l*- (24): Rule: [$X_{N/V/AJ}$]+(A/I)l_V**

It doesn't attach to an already suffixed base. However, *"±KA, -t-, ±tI, ±(y)Im"* can be attached after it. The derivatives denote change of state verbs. The state of the argument is changed. For example "*doğrul-*" means to become "*doğru*". Another special feature of this suffix is that it deletes the final "k" sound of the root as in the examples "*yüksel* and *küçül*".

[yükse**k**$_{AJ}$]+(A/I)l_V	[yükse**l**]$_V$
[küçü**k**$_{AJ}$]+(A/I)l_V	[küçü**l**]$_V$

Following suffixes

[bük$_V$]+(A/I)l_V+**KAn$_{AJ}$**	[bük**ül**gen]$_{AJ}$
[yay$_V$]+(A/I)l_V+**(y)Im$_N$**	[yay**ı**l**ı**m]$_N$
[boş$_{AJ}$]+(A/I)l_V+**t$_V$**	[boş**al**t]$_V$
[oy$_V$]+(A/I)l_V+**KA$_V$**	[oy**ul**ga]$_N$
[ay$_V$]+(A/I)l_V+**tI$_V$**	[ay**ı**l**t**ı]$_N$

II. 4. 2. Noun Deriving Suffixes

2. **±*(A)ç* (46)*:* Rule: [$X_{N/V}$]+*(A)ç*$_N$**

The suffix is more common on verbal roots. (13 of 46 are nominal roots, the others are verbal roots.) There are examples in different roles such as Instrument (yansıtaç), or Locatives (kayaç, güneç).

[gün$_{\mathbf{N}}$**]+*(A)ç*$_{\mathbf{N}}$** [güneç]$_{N}$

Preceding suffixes

[büyü$_{V}$]+**t$_{\mathbf{V}}$**+(A)ç$_{N}$ [büyü**t**eç]$_{N}$

[tüm$_{AJ}$]+**lA$_{\mathbf{V}}$**+(A)ç$_{N}$ [tüm**le**ç**]**$_{N}$

Following suffixes

[bağ$_{AJ}$]+lA$_{V}$+(A)ç$_{N}$+**lI$_{\mathbf{AJ}}$** [bağlaç**lı**]$_{AJ}$

[ana$_{N}$]+(A)ç$_{N}$+**lIk$_{\mathbf{N}}$** [anaç**lık**]$_{N}$

[tıka$_{V}$]+(A)ç$_{N}$+**lA$_{\mathbf{V}}$** [tıkaç**la**]$_{V}$

[tıka$_{V}$]+(A)ç$_{N}$+**sIz$_{\mathbf{AJ}}$** [tıkaç**sız**]$_{AJ}$

3. ±(A)m (10): Rule: **[X$_{\mathbf{V}}$]+(A)m$_{\mathbf{N}}$**

It doesn't attach after any suffix but "+lA". The derivatives are resultative states of the action root.

[dön$_{\mathbf{V}}$**]+(A)m$_{\mathbf{N}}$** [dön**em**]$_{N}$

Preceding suffixes

[iş$_{N}$]+**lA$_{\mathbf{V}}$**+(A)m$_{N}$ [iş**le**m]$_{N}$

Following suffixes

[anla$_{V}$]+(A)m$_{N}$+**lI$_{\mathbf{AJ}}$** [anlam**lı**]$_{AJ}$

$[anla_V]$+(A)m_N+**TAş$_N$** $[anlam$**daş**$]_N$

$[kavra_V]$+(A)m_N+**sAl$_{AJ}$** $[kavram$**sal**$]_{AJ}$

$[eyle_V]$+(A)m_N+**sI$_N$** $[eylem$**si**$]_N$

$[iste_V]$+(A)m_N+**sIz$_{AJ}$** $[istem$**siz**$]_{AJ}$

4. ***±(y)Im*** (196): **Rule: [X$_{N/V}$]+(y)Im$_N$**

Only 3 of the 196 examples are denominal. Lewis (1967) states that the derivatives generally denote a single action.

Preceding suffixes

$[at_V]$+**(A/I)l$_V$**+(y)Im_N $[at$**ı**lım$]_N$

$[art_V]$+**A/Ir$_V$**+(y)Im_N $[art$**ı**rım$]_N$

$[koru_V]$+**(I)n$_V$**+(y)Im_N $[koru$**n**$um]_N$

$[benze_V]$+**(I)ş$_V$**+(y)Im_N $[benze$**ş**$im]_N$

$[kal_V]$+**(I)t$_N$**+(y)Im_N $[kal$**ı**tım$]_N$

$[eğ_V]$+**Il$_V$**+(y)Im_N $[eğ$**il**$im]_N$

$[yer_N]$+**lAş$_V$**+(y)Im_N $[yer$**leş**$im]_N$

$[dene_V]$+**t$_V$**+(y)Im_N $[dene$**t**$im]_N$

$[ak_V]$+**TAr$_V$**+(y)Im_N $[ak$**tar**ım$]_N$

$[bağ_N]$+**TAş$_N$**+(y)Im_N $[bağ$**daş**ım$]_N$

$[sür_V]$+**tIr$_V$**+(y)Im_N $[sür$**dür**üm$]_N$

Following suffixes

$[ay$**ı**$r_V]$+(y)Im_N+**lI$_{AJ}$** $[ayrım$**lı**$]_{AJ}$

$[ay$**ı**$r_V]$+(y)Im_N+**sA$_V$** $[ayrım$**sa**$]_V$

$[at_V]$+(y)Im_N+**lIk$_N$**	[atım**lık**]$_N$
$[çek_V]$+(y)Im_N+**sIz$_{AJ}$**	[çekim**siz**]$_{AJ}$
$[dil_V]$+(y)Im_N+**lA$_V$**	[dilim**le**]$_V$
$[yük_N]$+(y)Im_N+**lAn$_V$**	[yüküm**len**]$_V$
$[de_V]$+(y)Im_N+**lAş$_N$**	[deyim**leş**]$_N$
$[öl_V]$+(y)Im_N+**ÇIl$_{AJ}$**	[ölüm**cül**]$_{AJ}$
$[ör_V]$+(y)Im_N+**ÇAk$_N$**	[örüm**cek**]$_N$
$[bil_V]$+(y)Im_N+**sAl$_{AJ}$**	[bilim**sel**]$_{AJ}$
$[öl_V]$+(y)Im_N+**sI$_{AJ}$**	[ölüm**sü**]$_{AJ}$

5. ±***(A)nAk* (25)**: **Rule: [$X_{N/V}$]+*(A)nAk*** $_N$

There is only one deverbal example, "*göz+enek*". The other 24 inputs are denominal. Some derivatives are either Instrument or Place names. It is doesn't attach to an already suffixed base. On the other hand it can be seen before some suffixes.

$[ol_V]$+*(A)nAk* $_N$	[olanak] $_N$

Following suffixes

$[ol_V]$+(A)nAk_N+**sIz$_{AJ}$**	[olanak**sız**]$_{AJ}$
$[kes_V]$+(A)nAk_N+**ÇI$_N$**	[kesenek**çi**]$_N$
$[gel_V]$+(A)nAk_N+**sAl$_{AJ}$**	[gelenek**sel**]$_{AJ}$
$[gör_V]$+(A)nAk_N+**lI$_{AJ}$**	[görenek**li**]$_{AJ}$

6. **±*I* (91)*:* Rule: [X_V]+I_N**

There is only one denominal example, "*tasar+ı*". Other derivatives are deverbal and they have participant roles such as Theme, Agent or Patient noun of the

verbal root. Another exception is the word “sıkı” which is an adjective. This suffix generally attaches directly to the roots and the roots are generally monosyllabic. The derivatives denotes the result of the action.

$[an_V]+\mathbf{I_N}$ $[an\mathbf{ı}]_N$

Preceding suffixes

$[dona_V]+\mathbf{t_V}+I_N$ $[dona\mathbf{t}ı]_N$

$[duy_V]+\mathbf{A/Ir_V}+I_N$ $[duy\mathbf{ur}u]_N$

$[eğle_V]+(I)n_V\mathbf{+tIr_V}+I_N$ $[eğlen\mathbf{dir}i]_N$

Following suffixes

$[diz_V]+I_N+\mathbf{lI_{AJ}}$ $[dizi\mathbf{li}]_{AJ}$

$[kork_V]+I_N+\mathbf{llk_N}$ $[korku\mathbf{luk}]_N$

$[sömür_V]+I_N+\mathbf{ÇI_N}$ $[sömür\mathbf{ücü}]_N$

$[yat_V]+I_N+\mathbf{sIz_{AJ}}$ $[yatı\mathbf{sız}]_{AJ}$

$[sık_V]+I_{AJ}+\mathbf{CA_{AD}}$ $[sıkı\mathbf{ca}]_{AD}$

$[say_V]+I_{AJ}+\mathbf{sAl_{AJ}}$ $[sayı\mathbf{sal}]_{AJ}$

7. ***±(I)nç* (14)**: **Rule: $[X_V]+(I)nç_N$**

It doesn’t attach to already suffixed bases. Most of the derivatives are the motivations of the root. That is “-gül” is to laugh; “gülünç” is something that make you laugh.

$[bil_V]+\mathbf{(I)nç_N}$ $[bi\mathbf{linç}]_N$

Following suffixes

$[bil_V]$+(I)$nç_N$+**lI**$_{\mathbf{AJ}}$ $[bilinç\mathbf{li}]_{AJ}$

$[gül_V]$+(I)$nç_N$+**lIk**$_{\mathbf{N}}$ $[gülünç\mathbf{lük}]_N$

$[iste_V]$+(I)$nç_N$+**ÇI**$_{\mathbf{N}}$ $[istenç\mathbf{çi}]_N$

$[dire_V]$+(I)$nç_N$+**sIz**$_{\mathbf{AJ}}$ $[direnç\mathbf{siz}]_{AJ}$

$[iste_V]$+(I)$nç_N$+**sAl**$_{\mathbf{AJ}}$ $[istenç\mathbf{sel}]_{AJ}$

$[bil_V]$+(I)$nç_N$+**lAn**$_{\mathbf{V}}$ $[bilinç\mathbf{len}]_V$

$[gül_V]$+(I)$nç_N$+**lAş**$_{\mathbf{V}}$ $[gülünç\mathbf{leş}]_V$

8. ***±(I)ntI* (73): Rule: [X$_{\mathbf{V}}$]+(I)ntI$_{\mathbf{N}}$**

It is generally deverbal, denominals limited to only 2 examples. The derivatives are generally the result of the root. It does not attach to an already suffixed root.

$[ak_V]$+(I)ntI_N+**lI**$_{\mathbf{AJ}}$ $[akıntı\mathbf{lı}]_{AJ}$

$[sark_V]$+(I)ntI_N+**lIk**$_{\mathbf{AJ}}$ $[sarkıntı\mathbf{lık}]_{AJ}$

$[al_V]$+(I)ntI_N+**lA**$_{\mathbf{V}}$ $[alıntı\mathbf{la}]_V$

$[süp\underline{\ddot{u}}r_V]$+(I)$ntI_N$+**ÇI**$_{\mathbf{N}}$ $[süprüntü\mathbf{cü}]_N$

In the last example "*süprüntü*" the vowel of the second syllable of the root is deleted.

9. ***±(I)t* (27): Rule: [X$_{\mathbf{N/V}}$]+(I)t$_{\mathbf{N}}$**

Deverbals are limited to 4 in 27 examples. It attaches to monosyllabic, bare roots. The roles of the derivatives are Affected, Theme or Place.

$[geç_V]$+**(I)t**$_{\mathbf{N}}$ $[geç\mathbf{it}]_N$

Following suffixes

[böl$_V$]+(I)t$_N$+**lI$_{AJ}$**	[bölüt**lü**]$_{AJ}$
[eş$_N$]+(I)t$_N$+**ÇI$_{AJ}$**	[eşit**çi**]$_{AJ}$
[tanı$_V$]+(I)t$_N$+**sIz$_{AJ}$**	[tanıt**sız**]$_{AJ}$
[kıs$_V$]+(I)t$_N$+**lA$_V$**	[kısıt**la**]$_V$
[kal$_V$]+(I)t$_N$+**(y)Im$_N$**	[kalıt**ım**]$_N$
[boy$_N$]+(I)t$_N$+**lAn$_V$**	[boyut**lan]$_V$**
[an$_V$]+(I)t$_N$+**lAş$_V$**	[anıt**laş**]$_V$

10. ***±KA* (23): Rule: [X$_{N/V}$]+KA$_N$**

Only two examples are denominal. The derivatives refer to various semantic roles such as Location "*sömürge*", Theme "*süpürge*" Agent "*bilge*" etc.

[sömür$_V$]+**KA$_N$**	[sömür**ge**]$_N$

Preceding suffixes

[oy$_V$]+**lI$_V$**+KA$_N$	[oy**ul**ga]$_N$
[duy$_V$]+**(A/I)r$_N$**+KA$_N$	[duy**ar**ga]$_N$
[yüksek$_{AJ}$]+(A/I)l$_V$+**t$_V$**+KA$_N$	[yüksel**t**ge]$_N$

Following suffixes

[im$_N$]+KA$_N$+**lA$_V$**	[imge**le**]$_V$
[böl$_V$]+KA$_N$+**sAl$_{AJ}$**	[bölge**sel**]$_{AJ}$
[öz$_N$]+KA$_N$+**ÇIl$_{AJ}$**	[özge**cil**]$_{AJ}$
[diz$_V$]+KA$_N$+**sIz$_{AJ}$**	[dizge**siz**]$_{AJ}$

11. **±*KI*. (83): Rule: [X_V]+KI_N**

The suffix selects monosyllabic roots. However if the base is an already derived one, then it may attach polysyllabic bases. The derivatives denote the result of the action "*sev*+*gi*" or the instrument of the action "*keski*". Thus the derivatives refer semantically the Theme or Instrument roles.

[aç$_V$]+**KI$_N$** [aç**kı**]$_N$

Preceding suffixes

[böl$_V$]+**(I)n$_V$**+KI$_N$ [böl**ün**gü]$_N$

[çel$_V$]+**(I)ş$_V$**+KI$_N$ [çeli**ş**ki]$_N$

[bes$_V$]+**lAn$_V$**+KI$_N$ [bes**len**gi]$_N$

[et$_V$]+**Il$_V$**+KI$_N$ [e**dil**gi]$_N$

In "e**dil**gi" The final consonant of the root voiceless "t" transforms into a voiced consonant "d" before a vowel initial suffix.

Following suffixes

[gör$_V$]+KI$_N$+**lI$_{AJ}$** [görgü**lü**]$_{AJ}$

[bıç$_V$]+KI$_N$+**ÇI$_N$** [bıçkı**cı**]$_N$

[bul$_V$]+KI$_N$+**lA$_V$** [bulgu**la**]$_V$

[duy$_V$]+KI$_N$+**lAn$_V$** [duygu**lan**]$_V$

[as$_V$]+KI$_N$+**lIk$_N$** [askı**lık**]$_N$

[sez$_V$]+KI$_N$+**sAl$_{AJ}$** [sezgi**sel**]$_{AJ}$

[duy$_V$]+KI$_N$+**TAş$_{AJ}$** [duygu**daş**]$_{AJ}$

[çiz$_V$]+KI$_N$+**sIz$_N$** [çizgi**siz**]$_N$

II. 4. 3. Adjective Deriving Suffixes

12. ±*sAl* (179): Rule: $[X_{N/V}]$+sAl_{AJ}

Only six of the derivatives are deverbal, the others are denominal. Potentially it is productive. The derivatives denote belonging to the root or familiarity.

$[açı_N]$+**sAl$_{AJ}$** $[açı\mathbf{sal}]_{AJ}$

Preceding suffixes

$[doğ_V]$+**A$_N$**+sAl_{AJ} $[doğ\mathbf{a}sal]_{AJ}$

$[anla_V]$+**(A)m$_N$**+sAl_{AJ} $[anla\mathbf{m}sal]_{AJ}$

$[gel_V]$+**(A)nAk$_N$**+sAl_{AJ} $[gel\mathbf{enek}sel]_{AJ}$

$[er_V]$+**(A/I)k$_N$**+sAl_{AJ} $[er\mathbf{ek}sel]_{AJ}$

$[kök_N]$+**An$_N$**+sAl_{AJ} $[kök\mathbf{en}sel]_{AJ}$

$[say_V]$+**I$_N$**+sAl_{AJ} $[say\mathbf{ı}sal]_{AJ}$

$[ek_V]$+**(I)n$_N$**+sAl_{AJ} $[ek\mathbf{in}sel]_{AJ}$

$[iste_V]$+**(I)nç$_N$**+sAl_{AJ} $[iste\mathbf{nç}sel]_{AJ}$

$[an_V]$+**(I)t$_N$**+sAl_{AJ} $[anı\mathbf{t}sal]_{AJ}$

$[böl_V]$+**KA$_N$**+sAl_{AJ} $[böl\mathbf{ge}sel]_{AJ}$

$[duy_V]$+**KI$_N$**+sAl_{AJ} $[duy\mathbf{gu}sal]_{AJ}$

$[sağ_{AJ}]$+**lIk$_N$**+sAl_{AJ} $[sağ\mathbf{lık}sal]_{AJ}$

$[bil_V]$+**(y)Im$_N$**+sAl_{AJ} $[bil\mathbf{im}sel]_{AJ}$

Following suffixes

$[bütün_{AJ}]$+sAl_{AJ}+**lIk$_N$** $[bütünsel\mathbf{lik}]_N$

$[evren_N]$+sAl_{AJ}+**lAş$_V$** $[evrensel\mathbf{leş}]_V$

$[uy_V]+sAl_{AJ}+\mathbf{ÇA_{AD}}$ $[uysal\mathbf{ca}]_{AD}$

II. 4. 4. Both Noun and Adjective Deriving Suffixes

13. ***±(A/I)l.* (29): Rule$_1$: [X$_N$]+(A/I)l$_{AJ}$**

Rule$_2$: [X$_V$]+(A/I)l$_N$

5 of the 25 samples are deverbal the others are denominal. It doesn't attach to already suffixed bases. The meanings of the derivatives are concerned with the root.

Following suffixes

$[özne_N]+(A/I)l_N+\mathbf{ÇI_N}$ $[öznel\mathbf{ci}]_N$

$[yer_N]+(A/I)l_N+\mathbf{lAş_V}$ $[yerel\mathbf{leş}]_V$

$[buz_N]+(A/I)l_N+\mathbf{lI_{AJ}}$ $[buzul\mathbf{lu}]_{AJ}$

$[töre_N]+(A/I)l_N+\mathbf{sIz_{AJ}}$ $[törel\mathbf{siz}]_{AJ}$

14. ***±(A/I)k* (228): Rule: [X$_{N/V}$]+(A/I)k$_{N/AJ}$**

The denominal inputs are quite limited. (13 of 228 samples). It has a large scale of derivative types. "*Ik*" and "*Ak*" derives different categories of words. "*Ik*" derives adjectives, and "*Ak*" derives Locative, Agentive or Thematic nouns. The "Ik" derivatives are past participle of the verbs, so they have passive meaning and denotes the result of the action. Some derivatives are place or instrument "*durak*, *tarak*" [(bus) stop, comb] of the roots.

Preceding suffixes

$[iç_N]+\mathbf{(A/I)r_V}+(A/I)k_N$ $[içe\mathbf{r}ik]_N$

$[yan_{AJ}]+\mathbf{Aş_V}+(A/I)k_N$ $[yan\mathbf{aş}ık]_N$

[bula$_V$]+**(I)n$_V$**+(A/I)k$_N$ [bula**n**ık] $_N$

[çat$_V$]+**(I)ş$_V$**+(A/I)k$_N$ [çat**ış**ık] $_N$

[sat$_V$]+**Il$_V$**+(A/I)k$_N$ [sat**ıl**ık] $_N$

[yer$_N$]+**lAş$_V$**+(A/I)k$_N$ [yer**leş**ik] $_N$

[üşü$_V$]+**t$_V$**+(A/I)k$_N$ [üşü**t**ük] $_N$

[uy$_V$]+**tIr$_V$**+(A/I)k$_N$ [uy**dur**uk] $_N$

Following suffixes

[ayrı$_{AJ}$]+(A/I)k$_N$+Ilk [ayr**ık**lık] $_N$

15. **±*ç* (21)*:* Rule: [_n$_V$]+ç$_{N/AJ}$**

It does not allow any prior suffix and attaches directly to the root itself. All the roots end with a final "n" sound. The only suffix it can be attached to is (I)n$_N$ suffix. Thus we may say that it attaches either "n" final or reflexive roots. The derivatives denotes the result "kazanç" or reason "iğrenç" of the root.

Following suffixes

[kazan$_V$]+ç$_N$+**lI$_{AJ}$** [kazanç**lı**]$_{AJ}$

[inan$_V$]+ç$_N$+**sIz$_{AJ}$** [inanç**sız**]$_{AJ}$

16. **±*ÇA* (280)*:* Rule$_1$: [X$_{N/AJ}$]+ÇA$_{AJ/AD}$**

Rule$_2$: [X$_V$]+ÇA$_N$

It's a quite productive suffix. The adverbial derivatives denote "manner". It nominalize the content of the verb.

From adjectives it derives adverbs of manner and it derives nouns after following infinitive "-mA2" in some words as in;

$[bul_{AJ}]+\mathbf{mA2_N}+ÇA_N$	$[bul\mathbf{maca}]_N$
$[bil_{AJ}]+\mathbf{mA2_N}+ÇA_N$	$[bil\mathbf{mece}]_N$

Lewis (1967) states that the derivatives sometimes means "in respect of" such as "*adanın arazisi toprakça zayıftır*" (The island's land is weak in respect of soil.) Sometimes the derivatives denote "on the part of" as in "*Oyunlarını okulca beğendik*." (*We loved their play by school*).

It productively produces language names from nations.

$[Türk_N]+\mathbf{ÇA_N}$	$[Türk\mathbf{çe}]_N$
$[Uygur_N]+\mathbf{ÇA_N}$	$[Uygur\mathbf{ca}]_N$

Preceding suffixes

$[aç_V]+\mathbf{(A/I)k_{AJ}}+ÇA_{AD}$	$[aç\mathbf{ık}ça]_{AD}$
$[kayna_V]+\mathbf{(A/I)r_N}+ÇA_{AD}$	$[kayn\mathbf{ar}ca]_{AD}$
$[ben_{AD}]+\mathbf{ÇIl_{AJ}}+ÇA_{AD}$	$[ben\mathbf{cil}ce]_{AD}$
$[sık_V]+\mathbf{I_{AJ}}+ÇA_{AD}$	$[sık\mathbf{ı}ca]_{AD}$
$[öv_V]+\mathbf{(I)n_V}+ÇA_{AD}$	$[öv\mathbf{ün}ce]_N$
$[sav_V]+(A/I)r_V+\mathbf{KAn_{AJ}}+ÇA_{AD}$	$[savur\mathbf{gan}ca]_{AD}$
$[taş_V]+\mathbf{KIn_{AJ}}+ÇA_{AD}$	$[taş\mathbf{kın}ca]_{AD}$
$[akıl_N]+\mathbf{lI_N}+ÇA_{AD}$	$[akıl\mathbf{lı}ca]_{AD}$
$[düz_V]+\mathbf{mA2_N}+ÇA_{AJ}$	$[düz\mathbf{me}ce]_{AJ}$
$[uy_V]+\mathbf{sAl_{AJ}}+ÇA_{AD}$	$[uy\mathbf{sal}ca]_{AD}$

[arka$_{AJ}$]+**TAş$_{N}$**+ÇA$_{AD}$ [akra**daş**ça]$_{AD}$

Following suffixes

[gerek$_{AJ}$]+ÇA$_{AJ}$+**lI$_{AJ}$** [gerekçe**li**]$_{AJ}$

[ayrı$_{AJ}$]+ÇA$_{AD}$+**lIk$_{N}$** [ayrıca**lık**]$_{N}$

[usul$_{AJ}$]+ÇA$_{AD}$+**ÇIk$_{AD}$** [usulca**cık**]$_{AD}$

17. **±*ÇAk* (18): Rule$_1$: [X$_N$]+ÇAk$_{N/AD}$** [ev$_N$]+ÇAk$_{AD}$

Rule$_2$: [X$_{AJ}$]+ÇAk$_{N/AJ}$ [ılı$_{AJ}$]+ÇAk$_{AD}$

Rule$_3$: [X$_{AD}$]+ÇAk$_{AD}$ [demin$_{AD}$]+ÇAk$_{AD}$

Rule$_4$: [X$_V$]+ÇAk$_N$ [koru$_V$]+(I)n$_V$+ÇAk$_{AD}$

There are 8 denominal and 5 deverbal inputs, but denominals are more productively used.

Preceding suffixes

[ör$_V$]+**(y)Im$_N$**+ÇAk$_N$ [ör**üm**cek]$_N$

Following suffixes

[oyun$_N$]+ÇAk$_N$+**ÇI$_N$** [oyun**cak**çı]$_N$

18. **±*ÇIk* (77):Rule$_1$: [X$_N$]+ÇIk$_N$**

Rule$_2$: [X$_{AJ}$]+ÇIk$_{AJ}$

The derivatives have diminutive meaning. After this suffix only "*+lI" and "+lA-*" suffixes can be attached to the word.

As Lewis (1991) also states the final “k” sound of the bases like “alçak, ufak” and most of the nouns like “köpek, bebek” drops before this suffix. It may be argued that "k" drop is driven by articulation difficulty.

[küçü**k**$_{AJ}$]+**ÇIk**$_{\mathbf{AJ}}$ [küçü**cük**]$_{\mathbf{AJ}}$

[bebe**k**$_{AJ}$]+**ÇIk**$_{\mathbf{N}}$ [bebe**cik**]$_{\mathbf{N}}$

It may also attach to the proper nouns denoting a younger like or pretty person.

[Zehra$_{PN}$]+**ÇIk** $_{\mathbf{PN}}$ [Zehracık] $_{\mathbf{PN}}$ (little Zehra)

Sometimes it gives a negative connotation to the base and the derivative means that the inadequacy of the base.

[hemşire$_{N}$]+**ÇIk**$_{\mathbf{N}}$ [hemşire**cik**]$_{\mathbf{N}}$

[kadın$_{N}$]+**ÇIk**$_{\mathbf{N}}$ [kadın**cık**]$_{\mathbf{N}}$

Preceding suffixes

[kapa$_{V}$]+**(A/I)k**$_{\mathbf{N}}$+ÇIk$_{AJ}$ [kap**ak**çık]$_{\mathbf{AJ}}$

[kolay$_{AJ}$]+**ÇA**$_{\mathbf{AD}}$+ÇIk$_{AD}$ [kolay**ca**cık]$_{\mathbf{AD}}$

[kız$_{V}$]+**(A/I)l**$_{\mathbf{N}}$+ÇIk$_{AJ}$ [kız**ı**lcık]$_{\mathbf{AJ}}$

There are some exceptions. There is only one deverbal example; “*kabarcık*$_{\boldsymbol{N}}$”. On the other side there is also an adverbial derivative [biraz$_{\mathbf{AD}}$]+ÇIk$_{\mathbf{AD}}$

19. **±*KIn* (80): Rule: [X$_{\mathbf{V}}$]+KIn$_{\mathbf{N/AJ}}$**

There are only two denominal words "*iç+kin*, *öz+gün*". The others are all deverbal words. The derivatives are Thematic, Patient, Agentive roles of the root. They are generally related to the content of the verb. The derivatives usually have a perfective aspect.

[gez]+**KIn**$_{\mathbf{N/AJ}}$ [gez**gin**]$_{N/AJ}$

Preceding Suffixes

[er$_V$]+**(I)ş$_V$+KIn$_{AJ}$** [er**iş**kin]$_{AJ}$

[et$_V$]+**(I)l$_V$+KIn$_{AJ}$** [e**dil**kin]$_{N}$

In the last example the final vowel of the root transformed into a voiced one before a vowel initial suffix.

Following suffixes

[dal$_V$]+KIn$_N$+**ÇA$_{AD}$** [dalgın**ca**]$_{AD}$

[bas$_V$]+KIn$_N$+**ÇI$_N$** [baksın**cı**]$_N$

[er$_V$]+KIn$_N$+**lA$_V$** [erkin**le**]$_V$

[dol$_V$]+KIn$_N$+**lAş$_V$** [dolgun**laş**]$_V$

[bit$_V$]+KIn$_N$+**lIk$_N$** [bitkin**lik**]$_N$

[uy$_V$]+KIn$_N$+**sIz$_{AJ}$** [uygun**suz**]$_{AJ}$

[bay$_V$]+KIn$_N$+**tI$_N$** [baygın**tı**]$_N$

20. ±***mAç* (20): Rule: [X$_V$]+mAç$_N$**

There is only one denominal word "dilmaç". The others are deverbal words. The suffix derives nouns of Patient, Theme participant roles.

[dil$_N$]+mAç$_N$ [dilmaç]$_N$

Preceding suffixes

$[kuru_V]+t_V+\mathbf{mAç_N}$ $[kuru\mathbf{t}maç]_N$

$[kat_V]+(I)ş_V+\mathbf{mAç_N}$ $[kat\mathbf{ış}maç]_N$

Following suffixes

$[yırt_V]+mAç_N+\mathbf{sIz_{AJ}}$ $[yırtmaç\mathbf{sız}]_{AJ}$

$[eğ_V]+mAç_N+\mathbf{lI_{AJ}}$ $[eğmeç\mathbf{li}]_{AJ}$

21. ***±mAn* (14): Rule: $[X_{V/N/AJ}]+mAn_N$**

Denominal derivatives generally denote an Agent and require a "+human" subject. Deadjectivals are directed to the content of the root. The deverbals denote occupation names such as "*sayman*, *öğretmen*" etc. In general both "*mAn*" and "*ÇI*" derives Agentive words or occupation names from nominal roots. Thus, the suffix blocks "*ÇI*" following it. We may argue that "*±mAn*" restricts the "*ÇI*" as they share the same function on nominal roots.

$[eğit_V]+mAn_N$ $[eğit\mathbf{men}]_N$

$[koca_{AJ}]+mAn_N$ $[koca\mathbf{man}]_N$

Preceding suffixes

$[oku_{AJ}]+\mathbf{t_V}+mAn_N$ $[oku\mathbf{t}man]_N$

Following suffixes

$[kat_N]+mAn_N+\mathbf{lI_{AJ}}$ $[katman\mathbf{lı}]_{AJ}$

$[çevir_V]+mAn_N+\mathbf{lIk_N}$ $[çevirmen\mathbf{lik}]_N$

$[koca_{AJ}]+mAn_N+\mathbf{ÇA_{AD}}$ $[kocaman\mathbf{ca}]_{AD}$

$[uz_{AJ}]+mAn_N+\mathbf{lAş_V}$ $[uzman\mathbf{laş}]_V$

[şiş$_V$]+mAn$_N$+**lA$_V$** [şişman**la**]$_V$

[kat$_N$]+mAn$_N$+**lI$_{AJ}$** [katman**lı**]$_{AJ}$

22. **±*sI*. (61): Rule$_1$: [X$_{N/AJ}$]+sI$_{AJ}$**

Rule$_2$: [X$_V$]+sI$_N$

There are only 4 denominal examples of 61 examples. The derivatives certainly denote familiarity.

[ot$_N$]+sI$_{AJ}$ [ot**su**]$_{AJ}$

[giy$_V$]+sI$_N$ [giy**si**]$_N$

Preceding suffixes

[eyle$_V$]+**(A)m$_N$**+sI$_{AJ}$ [eyle**m**si]$_{AJ}$

[ayrı$_{AJ}$]+**(A/I)k$_N$**+sI$_{AJ}$ [ayrı**k**sı]$_{AJ}$

[öl$_V$]+**(y)Im$_N$**+sI$_{AJ}$ [öl**üm**sü]$_{AJ}$

Following suffixes

[kadın$_N$]+sI$_{AJ}$+**lIk$_N$** [kadınsı**lık**]$_N$

23. **±*tay*** (4): **Rule: [X$_{N/V}$]+tAy$_N$**

The derivatives are innovative. Lewis (1967) asserts that this suffix is driven by Mongol "*quriltai"*. After Turkish Language Society first used this term for its annual congress the suffix has been used for innovative terms. It is also remarkable that almost all of the derivatives of "*tAy"* are used in official language. There is no following suffix after "*tAy"* in the database, however there are potentials such as "*kurultay+cı*". The roles of the derivatives are generally Affected, or Theme.

[danış$_V$]+tAy$_N$ [danış**tay**]$_N$

[kamu$_N$]+tAy$_N$ [kamu**tay**]$_N$

Preceding suffixes

[kur$_V$]+**Il$_V$**+tAy$_N$

[yar$_V$]+**KI$_N$**+tAy$_N$

24. ***±tI* (124): Rule: [X$_{N/V}$]+tI$_N$**

There is only one deadjectival example "*baygın+tı*". The suffix derives nouns from onomatopoeic nouns, and except for them it doesn't attach to a bare root. The deverbal bases are already suffixed words ending either "*l*", "*r*" or "*n*" consonants. The derivatives which are not derived with onomatopoeic words nominalize the content of the root aiming at the Affected, on some words Theme participant role.

Preceding suffixes

[mor$_{AJ}$]+**(A/I)r$_V$**+tI$_N$ [mor**ar**tı]$_N$

[ay$_V$]+**(A/I)l$_V$**+tI$_N$ [ay**ıl**tı]$_N$

[öde$_V$]+**(I)n$_V$**+tI$_N$ [öde**n**ti]$_N$

[as$_V$]+**Il$_V$**+tI$_N$ [as**ıl**tı]$_N$

[bay$_V$]+**KIn$_{AJ}$**+tI$_N$ [bay**gın**tı]$_N$

Following suffixes

[cızıl$_N$]+tI$_N$+**lI$_{AJ}$** [cızıltı**lı**]$_{AJ}$

[gıcır$_N$]+tI$_N$+**sIz$_{AJ}$** [gıcırtı**sız**]$_{AJ}$

II. 4. 5. Concluding Remarks

Verb deriving suffixes: There is only one verb deriving suffix "*±(A/I)l-*" in this group.

Suffixes that attach to only monosyllabic, underived roots: *±(I)t, ±KI, ±(A/I)l.*

Suffixes that do not attach to already suffixed bases: *±(A)nAk, ±(I)nç, ±(I)ntI, ±(I)t, ±(A/I)l., ±ç*

Suffixes that derives only nominal derivatives: ±tI, ±tay, ±mAn, ±mAç, ±KI., ±KA, ±(I)t, ±(I)ntI, ±(I)nç, ±I, (A)nAk, ±(y)Im, (A)m, ±(A)ç

Suffixes that derives only adjectival derivatives: There is only one adjective*±sAl.*

CONCLUSION

Analyzing 69 suffix has given us a general pattern of suffixes and suffix combinations in Turkish. We may summarize these patterns as follows.

The suffixes are analyzed in four groups according to the bases they select to attach. Besides, these suffixes are grouped according to the derivative category among themselves. 15 suffix of the 69 suffixes produce verbal derivatives. The rest 53 suffixes produce nominal, adjectival and adverbial derivatives.

The summary of the four groups are:

Voice Suffixes (5): -A/Ir- , -(I)n-, -Il-, -tIr-, -t-

Deverbals (14): -(A/I)r., (I)ş -AmAmAzlIk, -(A)nAk, -gIc, -In., -lIl, -KAç, KAn, -mIş, -TI, -(y)AcAk, -(y)IcI , -(y)Iş,

Denominals (24): +(A/I)r-, +ÇI, +ÇIl, +dA, +gil, +(I)mtırak, +(I)n, +kI, +kIr-, +lA , +lAk , +lAmA., +lAn, +lAr. , +lArI, +lAş, +lI, +lIk, +(ş)Ar~, +(s)I., sA-, +sIz, +TAş, +(y)lA,

Affixes attaches to Both Verbal and Nominal roots (24): ±(A)ç, ±(A)m, (A)nAk , ±(A/I)k, ±(A/I)l, ±(A/I)l., ±ç, ±ÇA , ±ÇAk, ±ÇIk, ±I , ±(I)nç, ±(I)ntI, ±(I)t , ±KA, ±KI., ±KIn, ±mAç, ±mAn, ±sAl, ±sI, +tay, ±tI, ±(y)Im

The most frequently used suffixes

1. +lIk: 3167	6. -tIr-:576	11. ±ÇA: 280	16. ±sAl: 156
2. +lI: 1665	7. -(I)n-: 572	12. +lAn-: 270	17. +lAr.: 153
3. +ÇI: 1208	8. +lAş-: 515	13. -(y)IcI: 251	18. -(I)ş-: 132
4. +lA-:841	9. -Il-: 402	14. ±(A/I)k: 228	19. ±tI: 124
5. +sIz:749	10. -t-: 371	15. ±(y)Im: 196	20. -mA2: 123

The most frequent suffix combinations

1. +ÇI+lIk: 582	5. +lI+lIk:100	9.+(y)IcI+lIk:40
2. +lA+(I)n-: 402	6. +lAn-+tır:100	10. +lA+(y)IcI:38
3. +sIz+lIk: 217	7. +lA+(I)ş: 55	11. +lIk+ÇI:26
4. +lAş+tIr: 125	8. -tIr+ıl: 50	12. +sIz+ÇA: 24

The suffixes that do not attach to an already suffixed base

1. +(A/I)r-	8. +AlA-	15. +gil	22. +kIr-
2. ±(A/I)l-	9. ±(I)ntI	16. +(y)lA	23. +dA-
3. +(I)mtırak	10. ±A-	17. +lAk	24. ±*(A)nAk*
4. ±(A/I)l.	11. ±A.	18. -IlI	*25. ±(I)t*
5. +(s)I.	12. -A/Ir-	19. lAmA	*26. ±(A/I)l.*
6. ±(I)nç	13. -AlA-	20. (s)InA	*27. ±ç*
7. +(ş)Ar	14. -In.	21. +(I)n.	

The suffixes that may be argued to be closing suffixes

1. +(y)sA	6. +gil/ler
2. -IlI	7. +lAr
3. +(y)lA	8. +(I)mtırak
4. +kI	9. +(s)I.
5. +lAr/I	10. (s)In

The suffixes that attache only monosyllabic syllable roots

1. -A/Ir-	5. ±I	9. ±(I)t
2. -In.	6. ±KI.	10.±KI
3. -IlI	7. +dA-	11. ±(A/I)l.
4. mIş	8. -kIr	

Those that commonly refer to the external argument of the root verb are:

1. -gIç, (çalgıç) *5. -KAç (utangaç)*

2. -KAn (somurtgan) *6. -(y)IcI (içici)*

3. -(y)An (kapan) *7. -(A/I)r (okur)*

4. -In. (tütün) etc.

Those that commonly refer to the internal argument of the root verb are (5)

1. -(y)AcAk (*yakacak*) 4. -KAç (*süzgeç*)

2. ±I (*duyuru*) 5. ±(I)t (*yakıt*)

3. ±mAç (*karmaç*)

Suffixes deriving change of state verbs (3):

1. *+(A/I)r-* *2. lAn* *3. lAş,*

Suffixes attaching onomatopoeic roots: -dA, -kIr, They select monosyllabic and underived roots.

Some phonologic constraints are:

Some velar initial suffixes attach to only velar end alveolar consonant ending bases.

[root_C]+**Il** $_{V}$	[root_C +**(A/I)r** $_{N}$	[root_C] +**AdAk** $_{AD}$
[root_C] +**An** $_{N}$	[root_C] ±**(A/I)k** $_{N/AJ}$	[root_C] +**IncA** $_{AD}$
[root_C] +**(A/I)l** $_{V}$	[root_C] ±**A** $_{V}$	[root_C] +**A** $_{N}$
[root_C] +**I** $_{N}$	[root_C]-**(A/I)r** $_{N}$	[root_C] +**AlA** $_{V}$
[root_C] +**AlgA** $_{N}$	[root_C]-**Ağ An** $_{AJ}$	[root_C] +**Ill** $_{AJ}$

[root_C] +**In** $_{V}$

The following suffixes always attach to a root or base ending with an alveolar or palatal sound.

[root_C [alveolar, palatal +**ç** $_{AJ}$ [root_C[alveolar, palatal] +**kIr** $_{V}$

[root_C [alveolar, palatal +**KA** $_{N}$ [root_C [alveolar, palatal] +**KI** $_{N}$

[root_Calveolar, palatal] +**tI** $_{N}$ [root_C [alveolar, palatal] +**tIr** $_{V}$

"-dA-" has a special feature. This verb forming suffix attaches to only onomatopoeic words ending with "r", "l" and "ğ". And the roots are always disyllabic.

"ç" suffix attaches only words ending in "n" consonant.

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