NON-CANONICAL MORPHOLOGICAL PATTERNS IN TURKISH:

EVIDENCE FROM PERSON-NUMBER MARKERS

MÜNEVVER ERDEM

BOĞAZİÇİ UNIVERSITY

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NON-CANONICAL MORPHOLOGICAL PATTERNS IN TURKISH: EVIDENCE FROM PERSON-NUMBER MARKERS

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DECLARATION OF ORIGINALITY

I, Münevver Erdem, certify that

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ABSTRACT

Non-Canonical Morphological Patterns in Turkish:

Evidence From Person-Number Markers

This study investigates the structure and behavior of the person-number markers in the Turkish verbal inflectional paradigms. It mainly argues against the predominant view that Turkish morphology is highly regular and transparent by providing evidence from the content-form mismatches displayed by the person-number markers on verbal word-forms. There are two novel attempts of this study. First, by extending the notion of inflectional classes, it proposes that Turkish verbal inflectional paradigms function like inflectional classes where the same content is realized by different sets of markers in each paradigm. Second, it models the Turkish verbal inflectional paradigms and analyzes multiple content-form mismatches due to some irregular behavior of the person-number markers within a word-based paradigm function theory - the paradigm-linkage theory (Stump, 2016). The conclusions of this research are as follows: i) When the examples of non-canonical aspects within the nominal paradigms are also taken into consideration, it is observed that all Turkish inflectional paradigms host non-canonical morphological patterns. ii) Turkish has verbal inflectional classes where the stems of different lexemes are replaced by the complex stems: stem+TAM (tense-aspect-mood) marker. iii) Based on the content-form mismatches and the irregularities following a regular pattern within the same paradigm or across paradigms, the data of the study support the view that inflectional paradigms are primitives rather than just descriptive devices.

ÖZET

Türkçe'de Kuraldışı Biçimsel Yapılar:
Kişi Eklerinden Kanıt

Bu çalışmada Türkçe eylem çekimi dizillerindeki kişi eklerinin yapı ve davranışları incelenmektedir. Bu araştırma temel olarak Türkçe'nin biçimsel yapısının oldukça düzenli ve saydam olduğu yönündeki yaygın düşünceye eylem sözcük-biçimleri üzerindeki kişi eklerinin sergilediği anlam-biçim eşitsizliklerinden kanıtlar sunarak karşı çıkmaktadır. Çalışmanın iki yenilikçi yönü vardır: İlk olarak, çekim sınıfları kavramını genişleterek, Türkçe eylem çekim dizillerinin aynı anlamın her bir dizilde farklı bir dizi işaretçi ile gösterildiği çekim sınıfları gibi işlev gördüğünü önermektedir. İkinci olarak, Türkçe eylem çekim dizillerini sözcük-odaklı dizil fonksiyon kuramı (dizil-bağlantı kuramı (Stump, 2016) ile açıklayıp, bu dizillerde kişi eklerine dayanan çeşitli anlam-biçim eşitsizliklerini bu kuram çerçevesinde çözümlemektedir. Araştırma sonrası ulaşılan sonuçlar şunlardır: (i) İsim çekimi dizillerindeki kuraldışı biçimsel yapılar da göz önüne alındığında, tüm Türkçe çekim dizillerinin kuraldışı biçimsel yapılar barındırdığı görülmüştür. (ii) Türkçe'de eylem çekim sınıfları bulunmaktadır. Bu sınıflarda farklı sözcüklere ait köklerin yerini zaman-görünüş-kip ekleri ile işaretlenmiş 'karmaşık kök' almaktadır. iii) Aynı dizil içinde ya da farklı diziller arasındaki anlam-biçim eşitsizlikleri ve düzensiziklerin belli bir düzeni takip ettiği gözlenmiştir. Bu da çalışmada incelenen verinin çekim dizillerinin dilin yapısı içinde sadece tanımlama araçları değil birinciller olduğu görüşüne destek vermektedir.

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this study

is dedicated to

Prof. Sumru Özsoy and Cem

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ABBREVIATIONS

1	first person
2	second person
3	third person
ABL	ablative
ACC	accusative
ACT	active
AGR	agreement
AOR	aorist
COM	comitative
DAT	dative
FEM	feminine
FUT	future
GEN	genitive
IMP	imperative
IMPF	imperfective
IND	indicative
INS	instrumental
LOC	locative
MASC	masculine
NOM	nominative
OBJ	object (agreement)
OBL	obligation
OPT	optative

PASS	passive
PL	plural
POSS	possessive
PRC	pronominal relative clause
PRS	present
PST	past
REL	relativiser
SG	singular
SUBJ	subject
T	tense
VOC	vocative

CHAPTER 1

INTRODUCTION

1.1 The aim of the thesis

This study aims to unearth the non-canonical morphological patterns based on the irregular behavior of the person-number markers in Turkish verbal inflectional paradigms and due to the existence of four different sets of person-number markers, it proposes that Turkish involves inflectional classes. The analyses in this study are framed within the paradigm-linkage theory (Stump, 2016) which is a paradigm-function theory of inflectional morphology. In this respect this research offers to be the first systematical and analytical study on the Turkish verbal inflectional paradigms within a word-based paradigm-function theoretical framework.

When examined closely, Turkish, categorized as a 'typical agglutinating' language, is observed to have a non-uniform morphological character including structures where one-to-one meaning (content) and form correspondence both holds and does not hold. It is known that the notion of agglutination requires a highly transparent structure where each unit of meaning is realized by its own affix. There are, however, constructions in Turkish where this transparency is distorted due to certain irregularities such as content-form mismatches, ambiguous constructions and unpredictable patterns. I believe labeling Turkish as a language with only highly regular morphology and choosing morpheme-based theories to account for the canonical patterns have led to ignoring these irregularities except in only few studies. That is why I focus on a novel exploration and analysis of a subset of the morphological constructions of the non-canonical type in Turkish.

The data of the current study consist of word-forms in the Turkish verbal inflectional paradigms including person-number exponents which have not been analyzed in a paradigm-function model and whose interesting behavior leading to content-form mismatches have not been explored before. Turkish marks the subject with an agreeing exponent on the predicate (1).

(1) Ben gel-iyor-um.

I come-IMPF-1SG

'I am coming.'

Different sets of person-number exponents that are realized in the verbal paradigms of Tense-Aspect-Mood (TAM) constitute the data of this thesis. Four different classes of person-number exponents in verbal inflectional paradigms are displayed in Table 1 below.

Table 1. Four Classes of Person-Number Exponents in Turkish Verbal Inflectional Paradigms (Stems and TAM markers Are Abstracted Away)

	Conditional & Past/Perf	Optative	Imperative	Aorist & Future & Evidential & Imperfective & Obligation
1SG	X*m*	X*yIm*		X(*y)Im*
2SG	X*n*	X*sIn*	X	X*sIn*
3SG	X	X	X*sIn*	X
1PL	X*k*	X*lIm*		X(y)*Iz*
2PL[1]	X*n-Iz*	X*sIn-Iz*	X*ın*	X*sIn-Iz*
3PL	X X*lAr*	X X*lAr*	X*sIn* X*sIn.lAr*	X X*lAr*

It is true that these paradigms are included almost in all grammar books on Turkish and have been part of many studies so far. The connections between the forms of these exponents have been analyzed under the topic of inheritance hierarchies by Göksel (2013). However, the morphological structure of these verbal paradigms have

[1] 2PL forms are used to express the content of second person singular honorific forms as well in Turkish. And following Hankamer (1989) and Kunduracı (2013), I treat *–Iz* as a number exponent in 2PL cells.

not been modelled so far. In addition to this factor, other main reasons for choosing these data as a research area are as follows: The person-number exponents in Turkish accommodate certain significant examples of non-canonical morphological patterns such as the existence of four different sets of person markers in verbal domains or alternative realizations of a word-form corresponding to the same content. Additionally, these various classes of person-number markers provide certain implications about the existence of paradigms. This study will therefore explore answers to the following questions:

(i) Can the notion of inflectional classes be extended to Turkish person-number markers that are realized in various forms in different verbal paradigms?

(ii) What are the content-form mismatches attested in the Turkish verbal inflectional paradigms and what are the implications of these mismatches?

(iii) What can the data analyzed in this study contribute to the debates about the theoretical significance of inflectional paradigms?

To answer these questions, the data were analyzed from a novel perspective. It has been observed that because of the main focus on the regularities of Turkish morphology, many of the non-canonical patterns unearthed in this study have been overlooked. The primary findings of this study are as follows:

(i) Turkish has inflectional classes which are both analogous to and different from the inflectional classes in languages where the lexemes or stems are grouped into different classes based on the form of the inflectional markers realized on them.

(ii) Turkish inflectional classes and lexeme-based inflectional classes are exactly identical in terms of the realization of the same content through different forms of exponents in different classes. And it is the form of the set of exponents which enables us to understand to which class an item belongs.

(iii) Almost all the paradigmatic content-form mismatches attested in Turkish verbal paradigms are due to the irregular behavior of person-number exponents. For example, the existence of various sets of person-number markers in different paradigms is a non-canonical pattern of alternative realizations of the same content in inflectional paradigms. Similarly, the appearance of *–sIn*, which is the default second person marker in Turkish, on third person forms in another paradigm (a kind of deponency), underdetermination of the number property in all third person word-forms, the existence of two alternative forms in some of the cells in the paradigms (overabundance), the realization of different contents with the same form (syncretism), and the inflection of the word-forms with the person-number markers of different classes in a paradigm (heteroclisis) are the content-form mismatches that have been explored by this study.

(iv) There is important amount of support in the data of this study that point at the theoretical significance of inflectional paradigms. Different sets of person-number markers act as a package. Thus, the morphological patterns and the content-form mismatches based on person-number exponents mentioned above are only attested via paradigmatic behavior of these markers. Furthermore, when examined closely, it is understood that even paradigmatic irregularities follow a regular pattern.

1.2 The paradigm-linkage theory (Stump, 2016)

The paradigm-linkage is an exponent-based type word-and-paradigm model of inflectional morphology (see Chapter 5 for further details). Despite sharing its basic principles with other such theories (Anderson, 1992; Stump, 2001 and Brown & Hippisley, 2012 among others), it presents some new perspectives. The primary difference, a novel point, of the paradigm-linkage theory is that it proposes three sorts of paradigms in the structure of a language. This composition is of significance for two main reasons: (i) Inflectional morphology is an interface phenomenon of syntax, semantics and morphology. (ii) Languages accommodate content-form mismatches where the form maps onto the content in an irregular way so this three-paradigm structure is required to be able to account for the stem and property set differences between the content and the form.

Content, form and realized paradigms constitute the paradigmatic structure of inflectional morphology where the content is determined by syntax and semantics and the form is structured by morphology. Since inflectional morphology is an interface phenomenon, the requirement and efficiency of three different paradigms become significant. As for the mapping between these paradigms, the content and form map onto each other via functions and rules of exponence in this theory. Let us first show the three-paradigm structure through a sample inflectional paradigm in Turkish included in Table 2 and then explain the basic tenets of the paradigm-linkage theory.

The cells in the content paradigm (the leftmost column) contains two items: the lexeme and the morphosyntactic property set. The lexeme (capitalized as a common notation) is the abstract unit of the vocabulary item that is inflected for a

Table 2. The Case Paradigm of the Pronoun BEN 'I' in Turkish

The content paradigm of the lexeme BEN	The form paradigm of the stem set SBEN	The realized paradigms of the lexeme BEN
< BEN, {nom}>	< *ben*, {nom}>	< *ben*, {nom}>
< BEN, {acc}>	< *ben*, {acc}>	< *beni*, {acc}>
< BEN, {dat}>	< *ban*, {dat}>	< *bana*, {dat}>
< BEN, {loc}>	< *ben*, {loc}>	< *bende*, {loc}>
< BEN, {abl}>	< *ben*, {abl}>	< *benden*, {abl}>
< BEN, {com}>	< *ben*, {com}> < *benim*, {com}>	< *benle*, {com}> < *benimle*, {com}>
< BEN, {inst}>	< *ben*, {inst}> < *benim*, {inst}>	< *benle*, {inst}> < *benimle*, {inst}>

different morphosyntactic property set in each cell shown in curly braces ({ }) ('values' in common terminology). The morphosyntactic property set in the cells of the content paradigm is determined by syntactic and semantic reasons. In other words, the properties of case such as accusative and dative; or number properties such as singular or plural in a nominal paradigm are syntactic location and semantic properties sensitive.

Each cell in the form paradigm (the middle column), on the other hand, contains an appropriate stem of the lexeme (italicized) which undergoes the related inflection process and the morphosyntactic property set on which morphological form is built on; e.g. <*ben*, {acc}>. In canonical inflectional paradigms, the stems in all the cells of the form paradigm are the same and the morphosyntactic property sets in the form paradigm are identical with the ones in the corresponding cells of the content paradigm. Let us see how these points work in the Turkish paradigm above. Firstly, the morphosyntactic properties (different cases here) are the same in the content and form paradigms as Table 2 demonstrates. This means syntactically

determined accusative property of the lexeme is realized on the appropriate stem of the lexeme via the exponent that marks accusative property by the morphological component. One should note here that there are many different sorts of mismatches where the content and the form paradigms contain dissimilar morphosyntactic property sets that will be illustrated with various examples in Chapters 3, 5 and 6. Secondly, the stems in the cells of the form paradigm are required to be the same in canonical inflection paradigms. However, different stems are attested in the dative, comitative and instrumental case cells. The dative cell accommodates the stem *ban*; the comitative and instrumental case cells have two alternative stems: *ben* and *benim*. This point is also important to understand why to distinguish the stem and the lexeme. The inflected word-form includes the stem which is not necessarily in the same form as the lexeme and there is more than one stem of the same lexeme within the same or different paradigms as can be observed in many cross-linguistic examples of paradigms.

The realized paradigm cells (the rightmost column) contains the fully inflected word-form and the morphosyntactic property set on which the morphological structure (the realization of the word-form) is built on: <*beni*, {acc}>. *beni* is the accuasative case inflected word-form of the lexeme BEN 'I' including its appropriate stem *ben* for this inflection. As explained above, morphology is sensitive to the form cell in this framework. Parallel with this assumption, the realized and the form cells always include the same morphosyntactic property sets within the paradigmatic structure of inflectional morphology. However, as mentioned above in different cases of content-form mismatches, the morphosyntactic property set of the content and form cells may differ. For instance, in the case of deponency in Latin, the content cell includes active as its voice property whereas the morphosyntactic

property cell in the form paradigm includes passive; hence the realization of passive morphology with active meaning on a certain group of lexemes. This points at two issues: (i) The content and the form operate on two different segments. (ii) In addition to the content and realized paradigms, we need a third paradigm: the form paradigm that includes the appropriate stem of the lexeme for this inflection and the morphosyntactic properties that morphology takes into account to form the appropriate word-form. Particularly the dative, comitative and instrumental case cells of the paradigm in Table 2 need closer attention in terms of the existence of different stems of the same lexeme.

As the last point, I would like to explain briefly how the mapping between these three distinct paradigms works in the paradigm-linkage theory. The content-form mismatches point at the requirement for some theoretical mechanisms between these paradigms since the content and form have to map onto each other. Firstly, the mapping between the content (syntax and semantics sensitive paradigm) and the form paradigm (morphology sensitive paradigm) is due to three functions depending on the morphological architecture of the language: Form correspondence, property mapping and stem functions which will be explained with examples in the following chapters. Secondly, the word-form is structured through the rules of exponence that are responsible for the mapping between the form and realized paradigms. The paradigm-linkage theory is an inferential theory in which the realization of the exponents is rule-based as opposed to the lexical theories where the affixes are treated as morphemes, independent lexical items, stored in the lexicon (see Stump, 2001 and Chapter 5 in this study for further details). The rules accounting for the realization of the exponents competing for the same slot are grouped in the same rule blocks (see Chapter 6).

1.3 The outline of the thesis

Chapter 2 gives a brief summary of the previous studies which focus on some structures that set good examples for irregular morphological patterns in Turkish. It emphasizes that these studies give great support to the primary proposal of this thesis that Turkish morphology is not as regular or transparent as it is suggested in many grammar books and typological studies (e.g. Underhill, 1976).

Chapter 3 is a comprehensive presentation of the notion of inflectional paradigms. Introducing the basic concepts related to the paradigmatic dimension of morphology, this chapter then deals with the questions of what an inflectional paradigm is and why grsmmar needs inflectional paradigms. Two kinds of inflectional paradigms, canonical and non-canonical, are presented with illustrative cross-linguistic examples by making reference to the properties of canonical inflection and canonical inflectional paradigms. The last section of the chapter lays out the researchers' different views regarding the theoretical significance of inflectional paradigms.

Chapter 4, consisting of two main parts, first presents the data: the verbal inflectional paradigms that contain person-number agreement markers in Turkish. The data include both different forms of the person-number exponents realized according to the paradigm they occur in and some phonological variants of the affixes due to the consonant and vowel harmony mechanisms in Turkish. In the second part, I first introduce and expand the notion of inflectional classes and then present different paradigms where dissimilar sets of person-number markers appear as they do in inflectional classes. I highlight the significant analogy between the inflectional classes in stem-alternating languages and person-number exponent classes in Turkish.

Chapter 5 demonstrates the theoretical framework of the thesis. The thesis is framed within the paradigm-linkage theory (Stump, 2016) – a paradigm-function model under the group of word-and-paradigm theories of inflectional morphology. The chapter includes the basic tenets of the paradigm-linkage theory and shows how the inflectional paradigms are structured in this theoretical approach. The last section makes brief reference to the views about a fully abstractive (e.g. Blevins, 2006) and an exponence-based (e.g. Stump, 2016) word-and-paradigm model and explores what Turkish data can contribute to the adequacy of these two approaches.

In Chapter 6, I first exhibit how the person-number inflectional classes can be modelled in the paradigm-linkage theory and then I provide analyses of the content-form mismatches (all novel observations of this study) due to the irregular behavior of the person-number markers in Turkish.

Chapter 7 summarizes the claims and findings of this study and suggests certain topics for further research.

CHAPTER 2

NON-CANONICAL MORPHOLOGY IN TURKISH

Before presenting the important concepts of this study such as canonical and non-canonical inflectional paradigms, the verbal inflectional paradigms and analyses based on the non-canonical patterns attested within these paradigms, I would like present some previously explored morphological irregularities in Turkish in this chapter. In most grammar books and typological studies, Turkish is categorized as an agglutinative language. This definition can be regarded both as correct and incorrect. Agglutination, at one level, refers to a structure where words are composed of a linear sequence of distinct parts, which is true for Turkish because of its rich derivational and inflectional suffixation. At another level, however, the notion of agglutination is associated with a highly transparent structure where each unit of meaning is realized by a corresponding form, which is many times not true due to content- form mismatches, ambiguous structures, non-canonical and unpredictable patterns in Turkish. Unearthing some of these non-canonical patterns is the main aim of this work. Before focusing on some of the previously analyzed irregular morphological structures in Turkish, let us first highlight some of the studies where Turkish data are used to show regular morphological patterns.

The inflection affixes in Turkish are given as 'classic examples' that are attached to invariable stems and easily segmentable in a typological study by Pirkola (2001) adding that 'the Turkish word form *köpekleri* can be analyzed into the following morphemes: *köpek* (dog), *ler* (plural suffix), *i* (accusative suffix)'.

Comparing the possessive paradigm of the Turkish lexeme EL 'hand' with its Latin counterpart MANUS, Plank (2001: 1-4) considers morphemic segmentation in the

Turkish paradigm as unequivocal largely based on the easy identification of the stem since it is invariant throughout the paradigm. Kornfilt (1996) marks Turkish as a canonical agglutinative language in her study and she proposes a novel classification in Turkish stating that true agglutination is due to cliticization. Baker uses Turkish data (2) to expose that inflectional morphemes are ordered in such a way that they seem to be syntactically well-motivated.

(2) [[[kol] -lar] -ınız] -dan]

arm-plur-2pPoss-from

'from your arms' (Baker, 1992: 18a)

Similarly, Baker claims that Turkish is a language in which the morphological structures lends support to the existence of successive-cyclic-head raising since the morphological bracketings are similar to a possible syntactic tree (1992).

Now I would like to lay out the basics of some analyses having observed certain irregular patterns in Turkish morphology. The works of this sort have been of significance to develop and support the claim that Turkish morphology is not as regular as it is genearally suggested to be.

2.1 Kornfilt, 1986

Kornfilt (1986) proposes a constraint on morpheme ordering in Turkish, which brings an irregular morphological pattern to our attention. She calls this constraint the ‘Stuttering Prohibition’. This constraint precludes the morphemes of the ‘same kind’ from succeeding each other. In contrast to the general expectation that the same kind refers to the phonological identity, she argues that it actually refers to a grammatical or probably a morphological category with similar semantics. The morpheme ordering constraint observed by Kornfilt is irregular in that Turkish

behaves differently from other languages where morpheme repetition is prohibited by phonological reasons.

To support her claim, Kornfilt bases her primary evidence on phonologically non-identical suffixes. Through the data set (3), (4) and (5) below (her examples (4-2-1) it is demonstrated that the Stuttering Prohibition is due to a much more abstract similarity between morphemes than phonological identity since the two affixes following each other below are not homophonous.

(3) yarış araba-sı

race car-AGR

'race car'

(4) *yarış araba-sı-m

race car-AGR-1SG[2]

(5) yarış araba-m

race car-1SG

'my race car' (Kornfilt, 1986: 60)

Kornfilt argues that since the first person possessive marker *-m* is different in shape from the nominal element *-sI*, the impermissible sequence of these two markers (4) and consequent deletion of the nominal element in (5) are the examples of non-phonological type. The data of this type lead to the conclusion that 'similarity' between the affixes refers to the category and function. In other words, the affixes of the same category and function do not co-occur successively.

[2] The compound marker *–sI(n)* is treated as a nominal element which is homophonous with the third person possessive agreement marker in Kornfilt's study. On the other hand, the compound marker *–sI(n)* is also treated as an agreement suffix and named as "AGR" as in the data above since the function of *-sI(n)* in compounds and possessives is identical for Kornfilt. However, Kunduracı (2013; 2017) argues against their similar functional identity and shows that categorical identity cannot be the reason for the compound marker not to appear before possessives. She, rather, proposes a morphological rule which is based on morphological formal identity (but not functional).

The data are extended to the cases where two homophonous morphemes behave in the same fashion as the non-homophonous ones (*–sI* and *–m* in (4)). The inherent plural and the third person agreement markers both surface as *–lAr* in Turkish. Now let us see the point of her focus on the example she provides (her example 13) given in (6) below:

(6) Komşu-lar-ımız$_1$ (pro$_1$ yeni araba-ların)-ı sat-tı-lar.

Neighbor-PL-1PL new car-3PL-ACC sell-PST-3PL

Reading A: 'Our neighbors sold their new car.'

Reading B: 'Our neighbors sold their new cars.' (Kornfilt, 1986: 62)

As mentioned above *–lAr* has two functions and it can be concluded from Reading B that *–lAr* in this domain carries out both the inherent plurality and the third person agreement functions simultaneously since the Stuttering Prohibition does not allow them to co-occur[3].

Depending on the evidence coming from the illicit sequence of the homophonous and non-homophonous affixes and their interpretation, Kornfilt reaches another conclusion: The choice of the affix to be deleted is related to the alternating versus non-alternating nature of the affix. Whenever one of the affixes is of a non-alternating type, it is this one which deletes. To put it more concretely, while person agreement markers alternate according to the person they agree with, the inherent plural marker *–lAr* or the compound marker *–sI* are examples of non-alternating affixes. That is why they are deleted irrespective of their position as

[3] This data set is used as evidence for another important conclusion as to which of the affixes deletes when Stuttering Prohibition is at work. Following from the 'Reading A' of (6) above where the possessed noun gets singular reading, Kornfilt argues that the plural marker directly attached to the nominal stem is deleted. In other words, she proposes that 'Reading A' shows that *–lAr* on the possessed noun is actually the agreement marker since the possessed noun can be interpreted as singular in this domain.

shown in the examples (5) and (6) above. Kornfilt's further observation is that in the case of two alternating affixes, neither can delete.

The data and proposals highlighted by Kornfilt (1986) are important for two reasons: Firstly, they provide evidence for the argument that phonological identity is not sufficient for the impermissible sequence of affixes as opposed to the conclusions of other studies on similar cross-linguistic data[4]. Secondly, from a more general perspective, they validate that the image of Turkish morphology as regular is only superficial and many morphological structures can go beyond simple agglutination.

2.2 Göksel, 2006

Göksel (2006) provides important evidence not only for the existence of non-canonical patterns in Turkish morphology but also for some general notions related to the components of morphology and syntax in language. Based on the structure of the participles of headless relative clauses in Turkish, mainly the relation between word structure and syntactic mechanisms are investigated and it is concluded that word-internal elements are accessible by syntax, but the limits of the word structure that syntax operates within are set by morphology. The pronominal participles of the headless relative clauses in Turkish are observed to have a fixed maximum size with a fixed order of suffixes as in (7) (her example 1), whose unpredictable interpretation leads to ambiguity as shown by the data set (8) (her example 2):

(7) VERB-….-*RELATIVISER-PLURAL-POSSESSIVE*

[4] While discussing the impermissible exponent sequences, Kunduracı (2017) adds 'morphological identity' which is different from categorical/functional and phonological identity.

(8) a. sev-di-k-ler-imiz a'. [SUB_j $\_\_\__{i\ (OBJ)}$ sev-di-k-ler_i-$imiz_j$]

like-T-REL-*LAR*-1PL.POSS

'those who we like/liked'

b. sev-en-ler-imiz b'. [$\_\_\__{i\ (SUB)}$ OBJ_j sev-en-ler_i-$imiz_j$]

like-REL-*LAR*-1PL.POSS

'those who like/liked us'

c. (köpek) sev-en-ler-imiz c'. [$\_\_\__{i\ (SUB)}$ OBJ sev-en-ler_i-$imiz_i$]

dog like-REL-*LAR*-1PL.POSS

'those among us who like/liked dogs'

d. köpek ısır-an-lar-ımız d'. [SUB $\_\_\__{i\ (OBJ)}$ ısır-an-lar_i-ımız$_i$]

dog bite-REL-*LAR*-1PL.POSS

'those among us who dogs bite/bit'[5] (Göksel, 2006: 2)

The structures in (8a-d) are nominalized non-finite verb forms acting as participles in headless relative clauses. They lead to certain conclusions not only regarding the structure of Turkish but the role of the components of grammar in language as well. Firstly, let us focus on certain properties of the data set above.

(i) A good example of irregular morphological patterns is displayed by the suffix *–lAr*. The canonical plural marker *–lAr* functions as a 'plural pronominal suffix' co-indexed with the gap in either object (8a') or subject position (8b'). In other words, in these two structures, the same suffix in the same position carries out two different functions.

(ii) (8c) and (8d) host a similar irregular pattern due to again the content of *-lAr*. In these structures *–lArImIz* refers to a subset of the denotation of the possessive marker but again with two different grammatical functions.

[5] Note that the interpretation in (8d) is not available for all speakers.

While in (8c) *–lAr* is linked to the subject, it is linked to the object in (8d) at least for the speakers who get this interpretation.

The data above exhibit both predictable and arbitrary features. The predictable side includes "the combinatorial properties of the relativisers and how they are manifested in the word" (Göksel, 2006: 1). The arbitrary features are of more significance with regard to the roles of morphology and syntax in language. The unpredictability of the structures poses counter-argument against models which treats morphology as an extension of syntax (e.g. Baker, 1985) and consequently supports the view that syntax and morphology are two distinct components (e.g. Di Sciullo & Williams, 1987; Ackema & Neeleman, 2004). The evidence leading to this conclusion is as follows: Pronominal Relative Clause (PRC) participles have fixed ordering of suffixes. Although realization of the suffixes on the word-forms is due to a syntactic function, their ordering is independent of syntax. The same applies to the fixed maximal size of the suffixes the structure can host. This size does not rely on how many syntactic functions the expression requires. Lastly, the structures include only the agreement markers from the nominal paradigm[6] regardless of the syntactic functions that are realized.

A quite interesting structure which sheds doubt on the so-called highly regular and transparent nature of Turkish morphology is analysed by Göksel (2006). The data strongly support the view that Turkish morphology accommodates irregular morphological patterns which have been largely overlooked in the literature and which are not compatible with a purely regular agglutinating language. To summarize, the irregularities observed here are the facts that the inherent plural marker in Turkish marks the third person plural nominality in PRC and this same

[6] See the details and discussion of this issue in section 4.3 (p.14 and 15) of Göksel's paper.

exponent marks dissimilar grammatical functions (object versus subject) in different domains and more interestingly non-subject (object) argument marking is not available in any other structure in Turkish.

2.3 Kabak, 2007

Another irregular morphological pattern is suspended affixation in Turkish on which Kabak (2007) elaborates. Suspended affixation is defined as a morphological process where "certain bound morphemes are omitted from all conjuncts other than the final one while maintaining their scope over the whole construction" (p. 311). The concept of suspended affixation has been a part of the studies to support some other independent analyses (e.g. Hankamer, 1989; Orgun, 1995, 1996; Kornfilt, 1996; Yu & Good, 2000).

Kabak (2007) offers a unified analysis for both verbal or non-verbal structures and accounts for the irregular behavior of the morphemes by resorting to the notion of 'morphological word'. The term morphological word is defined as a unit which can stand in isolation. The fact that not all affixes can be the final affix of a word leads to the classification of the affixes. The writer classifies the morphemes as 'terminal' or 'non-terminal' with regard to their ability to surface word-finally where further suffixation is not necessary. Accordingly, the ungrammaticality of (9b) is due to the 'non-terminal' nature of the Past/Perfective exponent *–DI* as opposed to the 'terminal' nature of the Aorist marker *–Ir* which allows for the suspended affixation of 1PL *–z*, the following affix as shown by the data sets (9) and (10) (his examples (4 and 5) below:

(9) a. Çalış-tı-k ve başar-dı-k.

work-PST-1PL and succeed-PST-1PL

b. *Çalış-tı ve başar-dı-k.

work-PST and succeed-PST-1PL

'We worked and succeeded.'

(10) a. Çalış-ır-ız ve başar-ır-ız.

work-AOR-1PL and succeed-AOR-1PL

b. Çalış-ır ve başar-ır-ız.

work-AOR and succeed-AOR-1PL

c. *Çalış ve başar-ır-ız.

work and succeed-AOR-1PL

'We work and succeed.' (Kabak, 2007: 316)

Based on the data including licit and illicit examples of suspended affixation, Kabak draws some conclusions and shows counter-evidence for the previous analyses. The notion of morphological word is significant in his account because an affix in the final position can only be suspended if the unit which is left can qualify as a morphological word. Thus, the ungrammaticality of the non-final conjunct in (9b) as opposed to the grammaticality of the one in (10b) shows that while the former unit cannot count as a morphological word, the latter one can.

Since the Past and Aorist markers are followed by the person agreement exponents from different paradigms as shown in the data sets (9) and (10) above as well, Yu & Good (2000) accounted for the legitimacy of suspended affixation with the type of agreement marker on the final conjunct. They classify the person markers as clitics and affixes noting that the clitic-group (*-z* paradigm as they call in their

work - inflectional class 4 in my study (see Section 3.2) allows for suspended affixation on the first conjunct.

Kabak (2007), however, includes data with agreement markers from the same paradigm but with different person properties, which poses evidence against this argumentation as in (11) and (12b) (his examples 35-36):

(11) Kumsal-a git-me-z ve top oyna-ma-yız.
beach-DAT go-NEG-AOR and ball play-NEG-1PL
'We don't go to the beach and play ball.'

(12) a. Kumsal-a gid-er ve top oynarım[7].
beach-DAT go-AOR and ball play-1SG
'I go to the beach and play ball.'

b. ?Kumsal-a git-me-z ve top oyna-ma-m.
Beach-DAT go-NEG-AOR and ball play-NEG-1SG
'Intended meaning: I don't go to the beach and play ball.'

(Kabak, 2007: 332)

Kabak argues that but for the phonological similarity between the aorist and person markers in (11), there seems to be no reason for the dissimilar behavior of the structures with the first person singular and plural exponents of the same paradigm above. Moreover, if this is the case, this would need further attention with respect to the interface of morphosyntax with phonology.

It is proposed that for the structures where suspended affixation is not permissible or sounds awkward as in (12b), the reason is the agreement mismatch in the interpretation of the subjects of the conjuncts. While the subject of the first conjunct can be interpreted as the first person plural in (11) despite the absence of

[7] This example has been added by me to make the argumentation clearer.

person marker, it cannot be so in (12b) for most speakers. The issue here is associated with some other points. The default interpretation of subjects in verbal domains without overt person marking is the third person singular in Turkish and unless the structure includes other terminal affixes such as aspect markers, the person marker cannot be suspended in the structure.

Lastly, I would like to add here an interesting pattern of suspended affixation analyzed by Göksel (2006) which would set another example for the irregular nature of Turkish morphology. As shown in the data sets (13) and (14) (her example 31) below, suspended affixation may behave iregularly:

(13) [dil-in-i bil-di-ğ-im ve anla-dı-k]- lar-ım

language-3SG.POSS-ACC know-T-NSR-1SG.POSS and understand-T-NSR-LAR-1PL.POSS

(i) 'those whose language I know and understand'

(ii) 'the one whose language I know and those (people) I understand'

(Göksel, 2006: 20-21)

In (13), *–lAr* which occurs between two unsuspended affixes in the second conjunct is missing in the first conjunct. The much more common interpretation is (i) where both conjuncts are interpreted as pluraland this shows that *–lAr* is interpreted in the omitted slot. In addition, a comparable structure in (14) exhibits a different pattern with regard to its interpretation.

(14) [aslan ısır-an-ımız ve arı sokan]-lar-ımız

lion bite-SR-1SG.POSS and bee-SR-LAR-1PL.POSS

'the one lions/a lion bit and those who bees/a bee stung'

In this phrase, *-lAr* cannot be interpreted as part of the first conjunct, which shows it is not suspended unlike the structure in (13). This is related to the nature of the affix

before *–lAr* which is a non-subject relativiser in (13) but a subject relativiser in (14), yet suspended affixation cannot account for this asymmetry.

Various examples of suspended affixation in Turkish some of which are included in this section demonstrate that the notion of agglutination is not as transparent as it usually seems to be and they constitute an important part of irregularities in Turkish morphology.

2.4 Kunduracı, 2013

-(s)I(n)[8] has generally been treated as "the third person possessive marker" in the literature (Yükseker, 1994; Kornfilt, 1997; Lewis 2000; Göksel and Kerslake, 2005 among others). Arguing against the person agreement analysis of *–sIn*, Kunduracı associates this treatment of the related affix with the structure of the possessive inflectional paradigm in Turkish because *-sIn* occurs in the same slot as and in complementary distribution with the 1POSS and 2POSS suffixes as (15) and (16) (her examples 1 and 2) display respectively:

(15) a. (ben-im) peri-m
I-GEN fairy-1.POSS
'my fairy'

b. (sen-in) peri-n
you-GEN fairy-2.POSS
'your fairy'

c. (on-un) peri-si
(s)he/it-GEN fairy-*sI*
'her/his/its fairy'

[8] This suffix surfaces with an initial *–s* following vowel-final nominal and with a final *–n* before the case markers and some other suffixes; hence its frequent appearance as *-(s)I(n)* in the literature. Following Kunduracı, I present it as *–sI, here.*

(16) a. ben-im peri(*-si)-m b.sen-in peri(*-si)-n

I-GEN fairy(-s*I*)-1.POSS you-GEN fairy(-s*I*)-2.POSS

'my fairy' 'your fairy' (Kunduracı, 2013: 2)

It is Kunduracı's proposal that paradigmatically, the possessor-person value of the suffix on all the other possessed nouns, i.e. first and second persons, leads to the interpretation of *–sI* as 3POSS. Following from this point, she further makes a novel claim that *–sI* does not actually involve a person but only the value of "possessedness" (or possessum) and possessedness is a separate grammatical category in Turkish. While supporting her argumentation, she highlights two points with regard to the morphological architecture of Turkish:

(i) 3rd person is not marked in other domains of agreement in Turkish[9] as shown by the data set in (17) (her example 3) :

(17) a. oku-du-m b. oku-du-n c. oku-du

read-PST-1SG read-PST-2SG read-PST

'I read' 'you read' '(s)he/it read'

(Kunduracı, 2013: 2)

(ii) When compared to the 1st and 2nd persons, so-called 3POSS agreement marker *–sI* acts irregularly in that it cannot precede certain suffixes as displayed by (18) and (19) (her examples 5 and 7):

(18) a. abla-m-lık b. abla-n-lık

(elder) sister-1.POSS-*lIK* (elder) sister-2.POSS-*lIK*

'suitable for / related to my sister' 'suitable for /related to my sister'

[9] See Sections 4.2 for the full verbal inflectional classes in Turkish.

c. *abla-sı-lık

(elder) sister-*sI-lIK*

'suitable for/related to her/his sister' (Kunduracı, 2013: 4)

(19) a. anne-m-ler b. anne-n-ler

mother-1.POSS-PL mother-2.POSS-PL

'my mother and those with her' 'your mother and those with her'

c. *anne-si-ler

mother-sI-PL

'her/his mother and those with her' (Kunduracı, 2013: 5)

Through the data sets above, Kunduracı shows that although *–sI* occupies the same slot as 1POSS and 2POSS in the possessive paradigm, it cannot do so in some other domains. This non-uniform behavior of *–sI* compared to the other possessive exponents in combination with the non-overt marking of the third person in other structures in Turkish leads to her conclusion that *-sI* is not a person agreement marker as opposed to the so far suggested cumulative exponency of the suffix with person and possessive values. And this is one of the primary irregular features of inflectional paradigms.

Now, at this point, let us refer to Kunduracı's analysis (2013; 2017) of *–(s)I(n)* in compounds and impermissible sequence of *-sI-sI* in possessive phrases with compounds. Arguing against Kornfilt's (1986) accounting for the illicit *-sI-sI* (Stuttering Prohibition-Section 4.1) in possessive phrases with the categorical / functional similarity of the affixes, she proposes "morphological identity" to account for the same phenomenon in the structures where a possessive phrase is embedded in a compound as in (20) (her example 12):

(20) bahçe-nin bal arı-sı-(*-sı)

garden-GEN honey bee-(s)I

'the garden's honey bee' (Kunduracı, 2017: 271)

-sI attached to the stem *arı* 'bee' is the compound marker and as can be seen on the data, it cannot be followed by the *–sI* which is the possessedness marker in Kunduracı's terms. Kunduracı states that the ban on the *-sI-sI* sequence is due to the application of the same formal morphological rule for both of the exponents and shows that it is not related to either phonological or categorical identity of the markers. In this study, the analyses show that form and content (meaning) are two different levels which is supported by the theoretical framework of the current study (see in Chapters 5 and 6 at length). Apart from this, based on its behavior, Kunduracı (2013; 2017) draws the following conclusions about *–sI* which forms compounds: (i) It has a different function than the *–sI* in possessive phrases. (ii) The compound marker, but not the possessive marker, is in a derivational paradigmatic relation with certain derivational affixes.

Both the invalidation of the person agreement marker identity of *–sI* and the proposal of possessedness as a separate grammatical (inflectional) category like Person, Number or Tense in Turkish qualify as strong examples of non-canonical features of Turkish morphology.

In this chapter, I focus on the previous studies that have analyzed the structures where the irregular morphological pattern is usually due to the behavior of person number markers. However, in addition to person exponents, tense, aspect and mood *markers* behave in an irregular way in Turkish as well. For instance; depending on the context it appears in *–DI* may map onto past, perfective, past & perfective properties. Similarly *–sA* maps onto the property of conditional in a

structure like *gel–ir-se-m* ‘if I come’; but it maps onto irrealis conditional property in a structure like *gel-se-m* ‘if I came’ due the presence of the aorist marker *–Ir* in the structure.

2.5 Summary

As mentioned, the main aim of this study is to draw attention to a mostly overlooked part of Turkish: morphological irregularities. Thus, before presenting the non-canonical patterns my study focuses on, I demonstrated some cases of the previously observed and analyzed irregularities in Turkish morphology. The studies included in this chapter are of importance in several ways. First, they convincingly invalidate the view that Turkish is a purely regular agglutinative language the primary feature of which is associated with a highly transparent structure where each unit of meaning is realized by its own affix. Second, they help us understand the real architecture of Turkish morphology whose regular patterns have been dominating the literature.

CHAPTER 3

INFLECTIONAL PARADIGMS

This chapter includes information about the definition, basic concepts and structure of the inflectional paradigms. I first explain the basic terms related to paradigmatic relations in morphology and then show what an inflection paradigm is and its theoretical significance. Since what sets limits to the notion of canonical is required to be known, I present the criteria for both canonical inflection and canonical inflectional paradigms proposed by Corbett (2009) and Stump (2016) respectively. I then concretize the terms and concepts about the topic by providing some examples of canonical inflectional paradigms from different languages. Since the structure of paradigms can vary to a great extent cross-linguistically, I include some non-canonical paradigms and explain the problems they pose for the theories other than word-and-paradigm theories of morphology in the following section. The last section of this chapter is devoted to the theoretical significance of inflectional paradigms, which has been a source of debate among researchers for a while.

3.1 What is an inflectional paradigm? Why does grammar need inflectional paradigms?

In line with the focus of morpheme-based theories on morphotactics, i.e. the syntagmatic relation between the units of a word, the paradigmatic dimension of morphology was not given much attention until Matthews (1965). Matthews describes Word-and-Paradigm grammar as conserving “the traditional distinction between morphology and syntax” (1965:139).

Haspelmath & Sims (2013) explain that a language works on syntagmatic and paradigmatic dimensions that are metaphysically vertical and horizontal respectively. The syntagmatic dimension highlights the successive order of the forms and the relation of an item to its neighbors whereas the paradigmatic layer describes the relation of an item to another item that can replace it in the same environment. This relation and the word-forms that can appear in the same position constitute the main notion of inflectional paradigms. An inflectional paradigm is an entire set of all the possible word-forms associated with a lexeme when it is inflected for an inflectional category like tense, number or person. For example, Table 3 displays a case and number paradigm of a declension class in Latin.

Table 3. The Case and Number Paradigm of the Lexeme INSULA 'island' in Latin

	Singular	Plural
Nom	*insula*	*insulae*
Acc	*insulam*	*insulās*
Gen	*insulae*	*insulārum*
Dat	*insulae*	*insulīs*
Abl	*insulā*	*insulīs*

(Haspelmath & Sims, 2013: 16)

This paradigm is interpreted as showing all the possible word-forms of the related lexeme inflected for all the existent morphosynctactic properties[10] of the case and number categories in that language[11]. Horizontally located 'singular' and 'plural' are the values of the number category and vertically located ones are the properties of the case category. The nouns in this declension class are to be inflected in one of the forms in the cells above. No other option is possible. Basically, the word-form in each cell in an inflectional paradigm of a lexeme is the mapping of a different

[10] I will use the term 'morphosyntactic property' instead of 'inflectional values' throughout this study.
[11] Both the existing inflectional categories and inflectional values may vary across languages. For example, there are languages which have dual value in addition to singular and plural.

morphosyntactic property set on the appropriate stem of the lexeme. The system works similarly in a verbal inflectional paradigm as can be observed in Table 4.

Table 4. Spanish Present Indicative Paradigm of the Verb AMAR 'love'

1SG	*amo*
2SG	*amas*
3SG	*ama*
1PL	*amamos*
2PL	*ama'is*
3PL	*aman*

One of the basic characteristics of an inflectional paradigm is that the lexeme's meaning remains constant throughout the paradigm. However, contrary to the expectation from a canonical paradigm where the inflectional markers attach to the same stem, the stem does not always remain invariant throughout the paradigm (see Table 2 in Section 1.2 and the examples in Section 3.3).

Another fact regarding the notion of inflectional paradigms is that they are interface phenomena. The word-forms, the products of inflectional processes that occupy the cells, are the realizations of the morphosyntactic properties due to the syntactic position and semantics of the word. Therefore, inflectional paradigms are at the interface of morphology, syntax and semantics.

Inflectional paradigms may include just one category or the intersection of various categories. For instance, a paradigm including singular and plural inflections of a noun would possess one category: number. The Spanish verbal paradigm in Table 4 above, on the other hand, constitutes the inflection of the chosen tense, aspect or mood (horizontally located within the paradigm) for the two other inflectional categories (vertically located): number and person. In a language, a full verbal paradigm of a lexeme, for instance, would consist of the inflection of all the permissible combinations of the morphosyntactic properties of tense, aspect, mood,

person and number categories to which that lexeme is sensitive. The size of the inflectional paradigms including various word-forms of the same lexeme depends on the language; i.e. English inflectional paradigms are much smaller compared to the inflectional paradigms of lanugages with gender categories or different inflectional classes.

At this point let us display the most common inflectional categories and some of their morphosyntactic properties that are exhibited paradigmatically in Table 5.

Table 5. Inflectional Categories and Morphosynactic Properties

Inflectional category (=feature)	Morphosyntactic property (=value)	Relevant lexical category
Tense	present, past, future, …	Verbs
Aspect	perfective, imperfective, habitual, …	Verbs
Mood	indicative, subjunctive, imperative, …	Verbs
Case	nominative, accusative, dative, …	Adjectives, Demonstatives, Relative Pronouns, Adpositions, Nouns and Pronouns
Number	singular, plural, dual	Adjectives, Demonstatives, Relative Pronouns, Adpositions, Nouns and Pronouns
Person	1^{st}, 2^{nd}, 3^{rd}, …	Adjectives, Demonstatives, Relative Pronouns, Adpositions, Nouns and Pronouns
Gender	masculine, feminine, …	Adjectives, Demonstatives, Relative Pronouns, Adpositions, Nouns and Pronouns

(Adapted from Haspelmath & Sims, 2013: 82)

Although it is possible to arrange inflectional paradigms in multiple ways, there are some established conventions. Verbal inflectional paradigms are generally named after inflectional categories of TAM to exhibit how these categories are inflected for different person and number properties such as Present Indicative paradigm of the lexeme X in a given language (revisit Table 3 above). It should however be noted

that it is not only possible but also perfectly plausible if a paradigm is designed for example as 'the First Person Plural inflection paradigm of a verbal lexeme' to show the behavior of 1PL exponents in different TAM categories within the same paradigm as demonstrated by Table 6 below (Ling 300 class notes-Kunduracı, 2015).

Table 6. The First Person Plural Inflection of the Lexeme GEL 'come' in Turkish

conditional	*gel.se.**k***[12]	'if we came'
perfective	*gel.di.**k***	'we have come'
optative	*gel.e.**lim***	'we shall come'
aorist	*gel.ir.**iz***	'we come'
future	*gel.eceğ.**iz***	'we will come'
evidential	*gel.miş.**iz***	'we came (hear-say'
imperfective	*gel.iyor.**uz***	'we are coming'

No matter how they are structured, inflectional paradigms are essential for observing the behavior of the exponents of morphosyntactic properties, any identical realization of different morphosyntactic properties like in syncretism, any content-form mismatches or defective cells within a paradigm that are all of morphological and theoretical significance. For example, it would become clear only through comparison within a paradigmatic structure that the Turkish person-number exponents of 1PL (*-k, -(I)z, -lIm*) and 2PL (*-n.Iz, -sIn.Iz*) behave differently since 1PL marking in verbal inflection in Turkish is a cumulative exponence (Kunduracı, 2013) whereas 2PL marking is non-cumulative where person and number categories are realized separately (see Chapters 5 and 6).

Other than this, there are two more reasons for the significance of the inflectional paradigms. Firstly, frequently attested deviations from canonical inflection (Sections 3.3 and 6.3) can only be detected in a paradigmatic structure through the comparison of the cells in a specific paradigm and the cells of different

[12] The 1PL markers on the word-forms are shown in bold.

paradigms of a similar lexical item. Secondly, paradigms are essential to see how the contents (morphosyntactic properties) are realized within the same paradigm or across various paradigms. To exemplify, heteroclisis, i.e. inflection of the same lexeme by the markers of different inflectional classes (each class substitutes a paradigm) can only be identified by assigning a complete pack of markers to a specific inflectional class. It also gives support to the fact that the pack of word-forms in the same paradigm acts as an individual entity in itseld as well. This is also related to the existence of different conjugation and declension classes in certain languages. These classes act as sub-paradigms where different materialization of the same morphosyntactic properties are observed (see Section4.2 for further details on inflectional classes).

Now let us proceed with first introducing the properties of canonical paradigms with cross-lingual examples and then move to the notion and examples of non-canonical inflectional paradigms.

3.2 Canonical inflectional paradigms

Before introducing or focusing on the non-canonical paradigms and non-canonical morphological patterns, it is necessary to explain the term ‘canonical’ in the field of inflection to understand the phenomena deviating from this canonical ideal.

The typology of canonical inflection and the notion of morphological canonicity have most widely been worked on by Corbett (2005, 2007, 2009). Since the notions of ‘canonical’ and ‘non-canonical’ inflection and inflectional paradigms will be used extensively in this study, first I would like to introduce the properties of canonical inflection as outlined by Corbett in Table 7 below (2009:2).

Table 7. The Properties of Canonical Inflection

	Comparison across cells of a lexeme's paradigm	Comparison of corresponding cells across paradigms (of different lexemes)
1. Composition/structure (morphotactics)	same	same
2. Lexical material (=shape of stem)	same	different
3. Inflectional material (=shape of inflection)	different	same
Outcome (=shape of inflected word form)	different	different

It is understood from the table above that both the structure of the word-forms occupying the cells of a lexeme's paradigm and the structure of the word-forms in different lexemes' paradigms are important. Let us clarify these points with some examples from the Turkish data included in Table 8.

Table 8. The Partial Case Paradigms of EV 'house', OKUL 'school' and KUŞ 'bird' in Turkish[13]

	Singular			Plural		
Nominative	ev	okul	kuş	ev-ler	okul-lar	kuş-lar
Accusative	ev-i	okul-u	kuş-u	ev-ler-i	okul-lar-ı	kuş-lar-ı
Dative	ev-e	okul-a	kuş-a	ev-ler-e	okul-lar-a	kuş-lar-a
Locative	ev-de	okul-da	kuş-ta	ev-ler-de	okul-lar-da	kuş-lar-da
Ablative	ev-den	okul-dan	kuş-tan	ev-ler-den	okul-lar-dan	kuş-lar-dan
Genitive	ev-in	okul-un	kuş-un	ev-ler-in	okul-lar-ın	kuş-lar-ın

When we compare the cells within the paradigm of EV 'house', it is observed that the composition (morphotactics) of the word-forms inflected for all cases are the same (except nominative where there is no phonological exponent); that is the stem is followed by the case exponent as in *ev-i* 'house-ACC' and *ev-den* 'house-ABL'. Similarly, when the paradigms of two comparable lexemes such as EV 'house' and

[13] The case paradigm is displayed partially in this section. It does not include comitative and instrumental cases which deviate from the notion of canonicity not meeting some of the canonical inflection criteria. See the full case paradigm in Section 3.3.

OKUL ‘school’ are analyzed, the structure of the word-forms are the same, i.e. the stems are followed by the case markers in both paradigms.

As for the lexical material (shape of the stem), it is the same within the paradigms of the same lexeme; e.g. the stem is always *ev* ‘house’ or *okul* ‘school’ within the paradigms of the related items. Naturally the stems in the paradigms of different lexemes are dissimilar; i.e. *ev* ‘house’ as a stem does not exist in any other lexeme’s paradigm.

The inflectional material of different cases is realized dissimilarly within the same paradigm whereas the exponents of the same case remains invariant (except phonological alternants) across the paradigms of different lexemes. That is to say, the accusative case marker is materialized as *–I* in the paradigms of not only the lexemes in Table 8 but on all nominal lexical items in Turkish. Canonically, the shape of the different case markers is expected to be different (e.g. accusative, dative and locative are marked with *–I, A* and *–DA* respectively), which would classify the paradigms including syncretism as not canonical.

A significant point has to be made here about the form of the inflectional material. Phonologically conditioned alternations in the markers such as the plural exponents on *bus.es* and *table.s* are not considered as different inflectional material. As can be observed in Table 8 above, Turkish exhibits both vowel and consonant harmony; hence the sound alternations in the affixes both due to the final vowel and the final consonant of the stem. For example, the locative marker is realized as *–de* and *–ta* on the word-forms *evde* ‘house-LOC’ and *kuşta* ‘bird-LOC’ respectively. These variations are naturally not treated as different forms of the same inflectional content. This is, however, not what happens in inflectional classes where the same

morphosyntactic property is materialized in different forms where a pack of markers is assigned to a specific class (see the details of this issue in Section 4.2).

Lastly, in accordance with the previous criteria of canonical inflection, all the word-forms within the same paradigm and in different paradigms are expected to be different from each other. In other words, *ev-i* 'house-ACC' can only occupy the accusative cell of the singular case paradigm of the lexeme EV 'house' in Turkish. In canonical inflection, the last criterion in Table 7 above suggests that this word-form cannot exist in any other cell of the paradigm of this lexeme or those of other lexemes. On the whole, embodying all the properties outlined in Table 7 above, the partial case paradigm of Turkish (Table 8) is used to exemplify canonical inflection in studies (e.g. Stump, 2016). We will, however, see the full case paradigm which includes comitative and instrumental cases is non-canonical (Section 3.3). The irregular nature of inflectional paradigms supports one of the main proposals of this research that Turkish morphology is only partly regular.

As for the structure of the case paradigms in Turkish included in Table 8, there are two morphosyntactic properties realized on the word-forms. The first property is various cases in the language where the nominative case is marked by the absence of an exponent. The second one is number category where the morphosyntactic property of singularity is marked by the absence of the plural marker *–lAr*.

While inflectional paradigms including some of the case markers behave truly regularly in this respect, it will be seen in the following sections and chapters that the full case paradigm and verbal inflection paradigms do not completely align themselves with the notion of canonicity due to some different types of irregularities.

In addition to the criteria proposed by Corbett (2009) (Table 7), Stump (2016) adds seven characteristics to define specifically canonical inflectional paradigms. The seven characteristics of canonical inflectional paradigms as explained by Stump (2016) are the following:

(i) No constraints on combining morphosyntactic properties: Every morphosyntactic property of each combinable inflectional category in a language should have a cell (word-form) for this combination. For example, Turkish case paradigm in Table 8 is canonical in this sense as it includes a cell for every case/number combination.

(ii) No underdetermination: Every property related to the realized word-form has an overt exponence in canonical paradigms. For instance, if an affix appears in the word-forms of both subjunctive and present indicative moods and it is overridden by other affixes in certain cells, the function of this exponent is underdetermined unless it surfaces in a certain context, which is a form of non-canonicity.

(iii) No extended exponence: A morphosyntactic property is expected to map onto one exponent not onto multiple exponents as in the examples of extended exponence where, for instance, the past tense property may be expressed by three separate exponents on a word-form in a language.

(iv) No cumulative or overlapping exponence: Canonically, an exponent expresses only one morphosyntactic property. In cumulative or overlapping exponence a marker maps onto multiple morphosyntactic properties such as person and number or tense and aspect which is a very frequently attested inflectional pattern cross-linguistically.

(v) No homophonous exponents: No phonologically identical exponents are expected to mark two distinct morphosyntactic properties in a paradigm.

(vi) No allomorphy: Canonical inflectional paradigms do not host variably materialized markers (except phonologically conditioned allomorphs) for the same morphosynctactic property across paradigms.

(vii) The dual function of morphosyntactic property sets: A morphosyntactic property set (e.g. {acc pl}) has two functions: It determines the syntax and semantics of the word-form and also it determines the realization of the word-form inflectionally[14]. This canonical dual function of the same morphosyntactic property set is disrupted in the case of content-form mismatches where morphology is sensitive to another set of properties.

Turkish partial case paradigm (Table 8) exhausts the characteristics listed by Stump (2016) to define particularly canonical inflectional paradigms. Regularity is more frequently attested in case paradigms compared to verbal inflectional paradigms. I believe this is related to the fact that more morphosyntactic properties and their different combinations are at work in the verbal inflection domain. A case paradigm generally includes the morphosyntactic properties of number and case categories. I would like to illustrate what I mean by providing a verbal inflection paradigm in Latin in Table 9:

Table 9. Present Indicative Paradigm of the Lexeme PARARE 'prepare' in Latin

1sg	parō
2sg	parās
3sg	parat
1pl	parāmus
2pl	parātis
3pl	parant

(Adapted fromStump, 2016: 37)

[14] This is explained at length in Chapter 5 as the theoretical framework of this study.

This paradigm fulfills the canonical inflection criteria proposed by Corbett (2009) in terms of morphotactics, stem consistency (phonological alternation is disregarded), differently materialized inflectional markers and the existence of word-forms in each cell within the paradigm. However, with regard to the features of canonical inflectional paradigms, the paradigm includes certain irregular inflectional patterns such as cumulative exponence of tense, aspect, person and number on the inflectional markers in each cell. For example, the exponent *–t* on the 3SG word-form maps onto the properties of present, indicative, third person and singular. Now let us continue with some examples and analyses of non-canonical inflectional paradigms in the following section.

3.3 Non-canonical inflectional paradigms

As the general framework of canonical inflection and canonical inflectional patterns have been outlined in the previous section, it is now time to see how the paradigms very frequently deviate from this ideal on various examples. It is worth reemphasizing here that canonical paradigms are outnumbered by non-canonical ones cross-linguistically. In this section, I provide some paradigms exhibiting different kinds of irregularities.

Paradigms of the same lexeme can deviate from canonicity by not complying with the criterion of having the same stem and the same morphotactics in their cells as in the case of suppletion, a good example of which can be seen in Table 10 on the next page.

The Latin verbal paradigms below behave irregularly as they include suppletion, non-similar morphotactics of the forms within the same paradigm along with the cumulative exponents. For example, morphotactically all the word-forms in

Table 10. Present Indicative and Subjunctive Paradigm of the lexeme ĪRE ‘go’ in Latin

	Indicative	Subjunctive
1sg	ēo	eam
2sg	īs	eās
3sg	it	eat
1pl	īmus	eāmus
2pl	ītis	eātis
3pl	eunt	eant

(Aski, 1995: 409)

the same paradigm are expected to behave similarly in canonical inflection, which is not observed within the Latin paradigms above.

Some paradigms exemplify that a paradigm can be non-canonical by their incompliance with almost all the criteria of canonical inflection. And at this point let us remember that compared to canonical ones, non-canonical inflectional paradigms are attested much more commonly cross-lingustically. Let us analyse the German verbal paradigm in Table 11 in this respect:

Table 11. Present Indicative Paradigm of the Lexeme FINDEN ‘find’, ESSEN ‘eat’ and HABEN ‘have’ in German

1sg	finde	esse	habe
2sg	findest	isst	hast
3sg	findet	isst	hat
1pl	finden	essen	haben
2pl	findet	esst	habt
3pl	finden	essen	haben

To begin with, the person and number markers are expressed cumulatively in the paradigm. The inflectional marking of each cell is not different as can be observed through the homophonous exponents and naturally homophonous word-forms of 3SG and 2PL within the paradigm of FINDEN ‘find’ and 2SG and 3SG within that of ESSEN ‘eat’ besides the forms of 1PL and 3PL in all three paradigms, which consequently causes underdetermination of the related word-forms in these cells. Stem alternation in the paradigms of ESSEN ‘eat’ and HABEN ‘have’ is another source

of irregularity exhibited by inflectional paradigms. Based on the word-forms of the corresponding cells in the other comparable paradigms in Table 11 above, one can conclude that 1SG and 3SG exponents are *–e* and *–t* respectively. Under this condition, the stems in 1SG and 3SG word-forms (*habe* and *hat*) are not the same in the paradigm of HABEN 'have'.

As another example, let us analyze some other forms of irregularity in the Russian case paradigm displayed in Table 12.

Table 12. The Case Paradigm of the Lexeme STUDENT 'student' in Russian

	Singular	Plural
Nominative	student	studenty
Accusative	studenta	studentov
Genitive	studenta	studentov
Dative	studentu	studentam
Instrumental	studentom	studentami
Prepositional	studente	studentax

(Bonet & Harbour, 2012: 221)

The non-canonicity of the Russian case paradigm becomes more evident when it is compared to the regular part of the case paradigm in Turkish (Table 8) presented in the previous section. In contrast to the fragment of the Turkish case paradigm, we can observe the homophonous exponence of the accusative and dative inflections on both singular and plural word-forms in the Russian paradigm. Moreover, unlike the Turkish paradigm where the same case is marked identically in both singular and plural cells, the Russian paradigm hosts many non-phonological alternants of the same case marker in the singular and plural paradigms such as accusative-singular properties being marked with *–a* whereas accusative-plural properties being marked with *–ov*. As these examples and all the other inflectional markers within the paradigm, case and number properties are expressed cumulatively, which is another irregularity.

As the last example of this section, I would like to include the full case paradigm of Turkish in Table 13 including comitative and instrumental cases, which transforms the partially represented regular case paradigm into a non-canonical type.

Table 13. Full Case Paradigms of the Lexemes EV 'house', OKUL 'house', KUŞ 'bird' in Turkish

	Singular			Plural		
Nominative	ev	okul	kuş	ev-ler	okul-lar	kuş-lar
Accusative	ev-i	okul-u	kuş-u	ev-ler-i	okul-lar-ı	kuş-lar-ı
Dative	ev-e	okul-a	kuş-a	ev-ler-e	okul-lar-a	kuş-lar-a
Locative	ev-de	okul-da	kuş-ta	ev-ler-de	okul-lar-da	kuş-lar-da
Ablative	ev-den	okul-dan	kuş-tan	ev-ler-den	okul-lar-dan	kuş-lar-dan
Genitive	ev-in	okul-un	kuş-un	ev-ler-in	okul-lar-ın	kuş-lar-ın
Comitative	ev-le	okul-la	kuş-la	ev-ler-le	okul-lar-la	kuş-lar-la
Instrumental	ev-le	okul-la	kuş-la	ev-ler-le	okul-lar-la	kuş-lar-la

Compared to the partially represented case paradigm where comitative and instrumental cases are excluded[15] (Table 8), the full case paradigm in Turkish hosts an irregular morphological pattern[16]. The inflectional material of Comitative and Instrumental cases are the same, which is expected to be dissimilar in a canonical paradigm since different content (meaning) is to map on a different form. Additionally, Comitative and Instrumental cases cannot be treated as the same case because of the different meaning they convey.

Since the interesting patterns in Turkish verbal paradigms that stem from the irregular behavior of the person-number markers will be analyzed in Chapter 6 at length, I do not include extra examples of the same kind in this chapter. The morphological patterns in both canonical and non-canonical paradigms and their structure have been a source of the debate about the theoretical significance of the paradigms, which is discussed in the following section.

[15] See Taylan (2015) for the details of cases in Turkish.

[16] There is another kind of peculiarity with regard to the exponent *–(y)lA* marking both comitative and instrumental cases. Unlike other cases markers, it has a free form which is *ile*. Since its bound form is a clitic, it is not stressed. All the other case markers behave as affixes and they are stressed.

3.4 Theoretical significance of inflectional paradigms

Paradigms are an important part of particularly inflectional morphology[17]. However, when it comes to the question whether paradigms are of theoretical significance or just a descriptive by-product, there are opposing views. In this section, I give the basics of both views referring to the studies of the researchers working on this topic.

3.4.1 Paradigms are epiphenomenal

Unlike word-based theories, morpheme-based models, center their morphological analysis on the notion of morpheme. Since morphemes are accepted to be the smallest morphological unit with specific form and meaning and these models focus on how a word is structured syntagmatically, the paradigmatic behavior of the word-forms is not taken into consideration. Whenever the syntactic context requires, depending on the morphological architecture of a language, a morpheme of an inflectional category adds to the word. In line with this perspective, one can conclude that morpheme-based theories regard paradigms only as a descriptive way of showing the word-forms structured by the concatenation of individual morphemes.

Bobaljik (2002; 2008) focuses on the question of whether paradigms are of theoretical significance or not within Distributed Morphology by trying to provide evidence from different languages. Rather than referring to the notion of paradigms, in Distributed Morphology the content-form mismatches like syncretism or cumulative exponence are accounted for by concepts such as underspecification,

[17] The notion of paradigms and their potential existence in derivational morphology have also been added to the topics being discussed about the paradigms. Since the scope of this study is inflectional morphology, derivational paradigms and related issues are excluded. The reader is referred to Pounder, 2000; Beecher, 2004; Kunduracı, 2013; Štekauer, 2014 (among others) and the references therein.

impoverishment rules or fusion[18] where the notions of insertion and competition of vocabulary items form the basis of analysis. Based on the core theoretical arguments of Distributed Morphology, the question of whether grammar makes necessary use of paradigms is answered negatively by Bobaljik (2002) who concludes that only the pieces listed in the form of a paradigm and rules generating them are included in the knowledge of language. Syncretism is accounted for by the notion of underspecification by Bobaljik and relying mainly on the Russian data, he argues against the existence of an Instantiated Basic Paradigm proposed by Williams (1994; 2004) as a requirement of UG. Some other conclusions of Bobaljik are the following: Paradigmatic structure is not necessitated by any grammatical principle or rule; the only crucial properties are those of the vocabulary items; paradigms are just a way of listing the inflectional forms produced by the processes mentioned above; and irregular morphological patterns can be analyzed through these processes such as underspecification or impoverishment without making any reference to paradigms.

Müller (2004) is another researcher who studies in Distributed Morphology framework and his studies are parallel to those of Bobaljik. Since syncretism is one of the most important morphological irregularity shown as evidence for the theoretical existence of paradigms by the word-and-paradigm approaches, like Bobaljik, Müller (2004) also concantrates on some paradigms including syncretism. In his study, after an analysis of the transparadigmatic and intra-paradigmatic patterning of syncretic forms in Russian, he concludes that paradigms are by-

[18] Underspecification is a term used when a vocabulary item does not include all the features specified in the node. In this case, some of the features the vocabulary item should bear in the node in which it is inserted are regarded as underspecified. Impoverishment, on the other hand, refers to the deletion of some of the features before vocabulary insertion takes place, which is analogous to neutralization. Fusion is a term used for explaining cumulative exponence i.e. synthetic forms. Separate terminal nodes are thought to be fused in syntax and become a single node for vocabulary insertion. The reader is referred to Halle & Marantz (1993), Bobaljik (2002; 2008) for further details on Distributed Morphology and analyses of the data within this framework.

products since both types of patterning can be explained when “inflectional class features are decomposed into combinations of more abstract, binary features” (2004:1). His analysis regarding the syncretic patterns depends on a form of underspecified case and some competition of inflectional markers where the most specific one wins.

Although not focusing on the question of the theoretical significance of paradigms as directly as the works mentioned above, Halle & Marantz (1993) and Harley & Noyer (1999) also frequently emphasize that paradigms are just descriptive devices while structuring and developing the arguments of Distributed Morphology. Now let us turn our attention to the opposite view which treats paradigms as a crucial part of morphological theory.

3.4.2 Paradigms are primitives

Word-and-paradigm models make direct reference to paradigms due to the significance of paradigmatic patterning of the word-forms that are the primitive units of morphological analysis in these theories of morphology. Following from the absence of the notion of morpheme in these frameworks, words are not decomposed into morphemes; hence the inability of reducing the paradigms to simpler objects. However, it is worth-mentioning here that word-based theories are classified into two in terms of how they treat affixes. Unlike fully abstract word-based models (Blevins 2006, O’Neill 2014, among others) in which the smallest unit of morphological analysis is the fully inflected word-form, exponence-based word-and-paradigm theories (Matthews, 1972; Zwicky 1985; Stump 2001, among others) do not exclude the behavior of affixes from morphological analysis but they do not assign morpheme identity to the affixes. And they assume that unless affixes appear on

word-forms paradigmatically, they have neither a function nor a content; that is why they cannot be treated as independent units like vocabulary items. In both perspectives, the notion of paradigm that word-forms appear in is of great importance.

First, inflectional paradigms are at the interface of morphology, syntax and semantics. On one hand, syntax and semantics are at work in building the content of a word-form. Content, i.e. meaning, is due to the morphosyntactic property set of the related inflectional categories (distributed by the syntactic principles) in a cell within an inflectional paradigm (Stump, 2016). On the other hand, the form of the word occupying the related cell is structured by morphology.

Second, as opposed to the arguments that paradigms are just lists of the word-forms, in this view paradigms are indispensable devices to see the correspondence between the content and the form of a word-form within a paradigm and across distinct paradigms. The regularities and more importantly irregularities of the paradigmatic behavior of the word-forms tell us a lot about not only the morphological architecture of a language but also the morphological component[19] of grammar. These paradigmatic regularities and irregularities cannot be reduced to any smaller unit than the word-form.

Third, the attempt to account for the content-form mismatches word-forms display through morphemic analyses is not adequate. For instance, take the most commonly focused mismatch syncretism which refers to the identical realization of some of the word-forms with dissimilar contents occupying different cells of the same paradigm. As mentioned in the previous section, syncretism is analyzed as a

[19] Zwicky (1985), Pounder (2000), Göksel (e.g. 2009) and Kunduracı (2013) (among others) consider morphology as an autonomous component.

form of underspecification and via impoverishment rules within Distributed Morphology, one of the models where paradigms are treated as non-primitive objects. Word-and-paradigm theories generally criticize the underspecification and impoverishment accounts since not all syncretism examples are well-motivated. In other words, cross-linguistically while 3SG and 3PL syncretism can be explained by the underspecification of the number feature, syncretic DAT and GEN forms do not have any similar motivation.

After having laid down the basics of the two opposing views regarding the role and the theoretical significance of paradigms, at this point I would like to hint that the structure and, particularly, non-canonical morphological patterning in Turkish inflectional paradigms analyzed in this study (Chapter 6) support the theoretical significance of paradigms. The observations in this study make direct reference to the paradigmatic patterning of the word-forms and exponents[20].

3.5 Summary

This chapter introduced the concept of inflectional paradigms since the data of this study compromise Turkish verbal inflectional. I first outlined the structure and significance of inflectional paradigms and explained some key terms necessary to understand the notion of inflectional paradigms in Section 3.1. With respect to the structure of word-forms and exponents, inflectional paradigms can be categorized as 'canonical' and 'non-canonical'. Accordingly, I devoted Section 3.2 to canonical inflectional paradigms. To be able to show the basis of this distinction, I first included the criteria regarding canonical inflection as proposed by Corbett (2009)

[20] See the weaknesses of a morpheme-based analysis as opposed to a paradigmatic model in section 6.3.4.

and then I added the criteria formed by Stump (2016) expanding the notion of ‘canonical’ to inflectional paradigms. Some examples of canonical inflectional paradigms which are attested relatively rarely in the languages of the world were presented in the same section. I provided non-canonical paradigms from various languages with different types of irregularity in Section 3.3. The theoretical significance of paradigms as a debated issue has been at the center of studies about particularly inflectional morphology, which explains the reason why the last section of the chapter presented the basic arguments of two opposing views about the issue.

CHAPTER 4

INFLECTIONAL CLASSES IN TURKISH

This study investigates the structure, paradigm-internal and trans-paradigmatic patterning of person-number markers in verbal inflectional paradigms in Turkish. These paradigms include both forms of transparent agglutination and non-canonical inflection types, the latter of which are of more significance within the scope of this study. The behavior of the Turkish person-number agreement markers recently observed and analyzed in this study is crucial for two primary reasons: (i) The content-form mismatches these person-number exponents display are good examples of non-canonical morphological properties pointing at deviations from simple agglutination nature by which Turkish morphology is generally defined. (ii) Similar to inflectional classes in stem-alternating languages where each class is assigned a specific set of markers, Turkish verbal inflectional paradigms of different TAM (Tense-Aspect-Mood) markers act as separate classes where the same properties of person-number categories are realized by different exponents.

This chapter with two main parts is structured as follows: In Section 4.1, I first include all the inflectional paradigms in which person-number exponents appear aiming at showing how the forms of these markers exhibit alternation due to the class they belong to and additionally vowel or consonant harmony in Turkish. Then in Section 4.2, while focusing on the forms of the person-number markers and the environment they occur in separately, I lay out my proposal that differently realized person-number exponents within separate paradigms support the existence of a type of inflectional class in Turkish.

4.1 Verbal inflectional paradigms in Turkish

Verbal inflectional word-forms in Turkish include a verbal stem and the exponents that realize the categories such as tense, aspect, mood, person and number. Unlike person-number markers, TAM markers do not have different realizations except their shape alternants due to vowel and consonant harmony, which makes Turkish TAM markers good examples for canonical inflection (see Chapter 2, Section 2.2). It is, however, not correct to label TAM markers as types of canonical morphology just by looking at their form. As for content, the same exponent usually realizes more than one inflectional category in Turkish. For instance, *-DI* marks past tense in one environment (19a) (along with perfectiveness aspectually); but does not do so in another (19b).

(21) a. Dün Ankara'ya git-ti.
yesterday Ankara-DAT go-PST/PERF
'(S)he went to Ankara yesterday.'

b. Şimdi gel-di-m.
just come-PERF-1SG
'I've just come.'

As shown through the example of *–DI* above a frequently attested non-canonical feature of Turkish TAM markers is that the same suffix denotes more than one morphosyntactic category (Taylan, 1996 among others). Now, let us present the verbal inflectional paradigms in Turkish[21] in Table 14 including all the TAM and person-number markers inflected on verbal domains.

[21] Turkish refers to Standard Turkish spoken in Turkey in this study.

Table 14. Inflectional Paradigms of the Lexeme GEL 'come' in Turkish[22]

	Conditional	Perfective / Past	Optative	Imperative
1SG	gel-se-m	gel-di-m	gel-e-yim	
2SG	gel-se-n	gel-di-n	gel-e-sin gel	gel
3SG	gel-se	gel-di	gel-e gel-sin	gel-sin
1PL	gel-se-k	gel-di	gel-e-lim	
2PL	gel-se-n-iz	gel-di-n-iz	gel-e-sin-iz gel-in	gel-in
3PL	gel-se gel-se-ler	gel-di gel-di-ler	gel-e gel-e-ler gel-sin gel-sin-ler	gel-sin gel-sin-ler

	Future	Evidential	Imperfective	Aorist	Obligation
1SG	gel-eceğ-im	gel-miş-im	gel-iyor-um gel-mekte-yim	gel-ir-im	gel-meli-yim
2SG	gel-ecek-sin	gel-miş-sin	gel-iyor-sun gel-mekte-sin	gel-ir-sin	gel-meli-sin
3SG	gel-ecek	gel-miş	gel-iyor gel-mekte	gel-ir	gel-meli
1PL	gel-eceğ-iz	gel-miş-iz	gel-iyor-uz gel-mekte-yiz	gel-ir-iz	gel-meli-yiz
2PL	gel-ecek-sin-iz	gel-miş-sin-iz	gel-iyor-sunuz gel-mekte-siniz	gel-ir-sin-iz	gel-meli-sin-iz
3PL	gel-ecek gel-ecek-ler	gel-miş gel-miş-ler	gel-iyor gel-iyor-lar gel-mekte gel-mekte-ler	gel-ir gel-ir-ler	gel-meli gel-meli-ler

[22] Turkish verbal stems have two different slots for two groups of TAM markers. Therefore, they can be inflected with two TAM markers as well on the same word as in *gel-ir-se-k* 'come-AOR-COND-1PL' 'if I come' (through the mediationof a covert capula). If so, person-number exponent is determined according to the final element (TAM marker) of the complex stem on which the person-number exponent is realized shown as follows: [[gel-ir-se]-k]. However, as the focus of this study is different realizations of person-number markers and their paradigmatic patterning, I exclude the TAM II markers in this study. Accordingly, I include only the paradigms of TAM I marker inflected verbal word-forms.

The behavior of the TAM and person-number suffixes explained above can be observed in this table. Turkish does not have classes of lexemes or stems, which would lead to the conclusion that the suffixes realizing TAM and person-number properties are the same with all the verbal lexemes and stems in Turkish except their phonological variants due to harmonization which will be elaborated on later.

Let us take the first paradigm, conditional inflection, as an example to make the realized word-forms in Table 14 more understandable. The verbal stem *gel-* remains invariant through all the cells and likewise the exponent of conditional mood *–se*. Accordingly, *gel-se-m* is the realization of the morphosyntactic properties COND and 1SG on the verbal stem *gel* 'come' through the conditional marker *–se* and person-number marker *-m*. The same applies to the second person singular cell where the person-number property is realized by the exponent *–n* and the output is the word-form *gel-se-n*. Regularly in general, the verbal stem (*gel-*) becomes a complex stem as [*gelse*]after the realization of the mood marker (*-se*). I propose that it is this complex stem on which the appropriate set of person-number exponents are realized in Turkish, which will be explained in section 4.2 and Chapter 5.

There are three patterns within this paradigm that need further attention. Firstly, it can be observed that third person singular word-form *gel-se* does not have any person-number exponent since in certain domains third person category is not marked via an overlapping exponent regarding this category in Turkish. Secondly, 3PL cells have always have two word-forms: *gel-se* and *gel-se-ler*. The former is the number neutral form which also occupies 3SG cell. The latter on which *–ler* is the 3PL exponent is sometimes an alternative and sometimes an obligatory (especially when the 3PL subject is not overt in the domain) form of realization. Thirdly, unlike the other cells, person and number properties are realized non-cumulatively on the

word-form *gel-se-n-iz* in 2PL cell where *–n* realizes the second person and *–iz* realizes the plural number property for this person.

Past/Perfective paradigm where the related tense/aspect property is expressed with the exponent*–di* exactly patterns with the conditional paradigm in terms of the structure of the word-forms and person-marker forms. Optative paradigm, on the other hand, exhibits some differences from the previous paradigms. The second and third person cells have more than one word-form that realizes the same content. For example, as can be observed in Table 14 above, the content {opt 2 sg} can be realized either as *gel-e-sin* or *gel*. What is more, unlike the first two paradigms in the table, a different set of person-number markers is realized on the word-forms in the Optative paradigm. For instance, whereas the exponent of the content {1 pl} is *–k* within the first two paradigms, the same content is realized with the exponent *–lim* in the optative paradigm, which is clear when we compare the word-forms *gel-di-k* 'come-PST/PERF-1PL' and *gel-e-lim* 'come-OPT-1PL' (see the further details and implications of this in Section 4.2).

Imperative paradigm can be described as follows: There is no mood marker in parallel with the general behavior of imperative mood across languages. The word-forms are realized with a third different set of person-number markers specific to this paradigm. As an example, the default second person marker *–sIn* marks the third person in this paradigm: *gel-sin* 'I order that he come'.

The remaining five paradigms pattern with each other in terms of the structure of the word-forms and the forms of the person-number markers within these paradigms. As Table 14 displays the TAM exponents of the Future, Evidential, Imperfective, Aorist and Obligation paradigms of the related lexeme surface as *–ecek, -miş, -iyor/-mekte, -ir* and *–meli* respectively. Like in the previously described

paradigms, TAM exponents are realized before the person-number markers and they form a complex stem when combined with the verbal stem, which can be illustrated as [[gel] ecek] sin] '[[come] FUT] 2SG]'. The word-forms within these last five paradigms are inflected with a fourth different set of person-number exponents. When we focus on the imperfective paradigm, we see that there are two word-forms corresponding to each content. For example, as for the lexeme GEL 'come', the content {imperf 1 sg} can be realized as *gel-iyor-um* or *gel-mekte-yim* 'I am coming'. The reason is that imperfective aspect can be expressed either with *–Iyor* or *–mAktA* in Turkish with only some pragmatic differences in certain contexts. Parallel with all the previously mentioned paradigms, there are two alternatively or obligatorily realized word-forms in 3PL cells within these paradigms as well such as *gel-miş* and *gel-miş-ler* as the realization of {evid 3 pl}. And the person and number properties are expressed non-cumulatively only on the second person plural word-forms in these paradigms too as in *gel-iyor-sun-uz* 'come-IMPF-2-PL or *gel-ir-sin-iz* 'come-AOR-2-PL'.

To summarize, except for their phonologically-conditioned alternants in each paradigm, there are four dissimilar sets of person-number exponents that appear in the eight inflectional paradigms of a verbal lexeme in Turkish. Setting an example for regularity, TAM markers of each paradigm are realized right after the simple verbal stem (except the imperative paradigm where there is no mood exponent). Whereas some cells are occupied with only one realized word-form, there are two word-forms that occupy the same cell; hence two alternative realizations of the same content, which poses evidence for irregularity. Now let us show some phonological alternants of the TAM and person-number exponents on different verbal lexemes in Table 15 below.

Table 15. Inflectional Paradigms of the Lexemes KOY ‘put’ and ÖĞÜT ‘ground’in Turkish

	Conditional	Past/ Perfective	Optative	Imperative
1SG	koy-sa-m öğüt-se-m	koy-du-m öğüt-tü-m	koy-a-yım öğüt-e-yim	
2SG	koy-sa-n öğüt-se-n	koy-du-n öğüt-tü-n	koy-a-sın koy öğüt-e-sin öğüt	koy öğüt
3SG	koy-sa öğüt-se	koy-du öğüt-tü	koy-a koy-sun öğüt-e öğüt-sün	koy-sun öğüt-sün
1PL	koy-sa-k öğüt-se-m	koy-du-k öğüt-tü-k	koy-a-lım öğüt-e-lim	
2PL	koy-sa-n-ız öğüt-se-n-iz	koy-du-n-uz öğüt-tü-n-üz	koy-a-sın-ız koy-un öğüt-e-sin-iz öğüt-ün	koy-un öğüt-ün
3PL	koy-sa koy-sa-lar öğüt-se öğüt-se-ler	koy-du koy-du-lar öğüt-tü öğüt-tü-ler	koy-sun koy-sun-lar öğüt-sün öğüt-sün-ler	koy-sun koy-sun-lar öğüt-sün öğüt-sün-ler

	Future	Evidential	Imperfective	Aorist	Obligation
1SG	koy-acağ-ım öğüt-eceğ-im	koy-muş-um öğüt-müş-üm	koy-uyor-um koy-makta-yım öğüt-üyor-um öğüt-mekte-yim	koy-ar-ım öğüt-ür-üm	koy-malı-yım öğüt-meli-yim
2SG	koy-acak-sın öğüt-ecek-sin	koy-muş-sun öğüt-müş-sün	koy-uyor-sun koy-makta-sın öğüt-üyor-sun öğüt-mekte-sin	koy-ar-sın öğüt-ür-sün	koy-malı-sın öğüt-meli-sin
3SG	koy-acak öğüt-ecek	koy-muş öğüt-müş	koy-uyor koy-makta öğüt-üyor öğüt-mekte	koy-ar öğüt-ür	koy-malı öğüt-meli
1PL	koy-acağ-ız öğüt-eceğ-iz	koy-muş-um öğüt-müş-üm	koy-uyor-um koy-makta-yım öğüt-üyor-um öğüt-mekte-yim	koy-ar-ız öğüt-ür-üz	koy-malı-yım öğüt-meli-yim
2PL	koy-acak-sın-ız öğüt-ecek-sin-iz	koy-muş-sun öğüt-müş-sün	koy-uyor-sun koy-makta-sın öğüt-üyor-sun öğüt-mekte-sin	koy-ar-sın-ız öğüt-ür-sün-üz	koy-malı-sın öğüt-meli-sin
3PL	koy-acak koy-acak-lar öğüt-ecek öğüt-ecek-ler	koy-muş koy-muş-lar öğüt-müş öğüt-müş-ler	koy-uyor koy-makta öğüt-üyor-lar öğüt-mekte-ler	koy-ar koy-ar-lar öğüt-ür-ler öğüt-ür-ler	koy-malı koy-malı-lar öğüt-meli öğüt-meli-ler

The phonologically-conditioned alternants of the TAM and person-number suffixes and most of the vowel and constant harmony processes in Turkish can easily be seen in the data above. To understand the behavior of the exponents better, let us briefly include the vowel and consonant harmonization of Turkish suffix and clitics in this section.

As explained in many studies (e.g. Demircan, 1978; Özsoy, 1999) there are two kinds of vowel harmony in Turkish: Fronting and rounding harmony. Fronting harmony requires a front vowel's being followed only by a suffix with a front vowel whereas rounding harmony appeals to only suffixes and clitics with high vowels. In other words, non-high vowel including markers do not undergo rounding harmony in Turkish; however, suffixes with high vowels are shaped by both fronting and rounding harmonization, the examples of which can be observed in the conditional and evidential paradigms respectively. For this reason, suffixes are classified as I-type and A-type suffixes by Göksel &Kerslake (2005) among others.

As for the consonant alternation, most suffixes have two alternants (one with a voiced and the other with a voiceless initial sound) in Turkish, the choice of which is made according to the final sound of the stem the suffix attaches to. For example, the past/perfective suffix *–DI* surfaces as *–ti* after the stem *öğüt* 'ground' but as *–du* after the stem *koy* 'put'. Naturally, the voiced-final stems are followed by the voiced-initial pair of the suffix and the voiceless ones follow the voiceless-final stems[23]. As mentioned before, except for their phonological alternants, the TAM markers are not realized in different forms depending on the lexeme in Turkish; however, when it comes to the person-number agreement markers, they do have different forms

[23] The only suffix that is subject to consonant alternation is *–DI* in the verbal inflectional paradigms included in this study; hence, the brief explanation of the issue here.

depending on the paradigm they appear in as displayed in Tables 13 and 14 above. In the following sections, I will show how the notion of inflectional classes applies to Turkish verbal inflectional paradigms that accommodate different sets of person-number markers; so I first want to explain the basic properties of inflectional classes.

4.2 Expanding the notion of inflectional classes

Like many terms in morphology, the term 'inflectional class' has different interpretations besides its some well-established characteristics. Aronoff (1994:64) defines an inflectional class as "a set of lexemes whose members each select the same inflectional realizations." While Matthews (1991) and Carstairs (1998) also refer the term to the set of lexemes, Stump (2016) argues that inflectional classes are not of lexemes but of stems based on the cross-linguistic data. Apart from this opposition, it is generally agreed that the distinction of each inflectional class is based on the inflectional morphology and inflectional classes exist in languages where lexemes or stems are grouped into classes. On the other hand, Stump & Finkel (2007) highlight the notion of "maximal transparency" of inflectional classes which refers to the predictability of the other forms in a class based on the form of each cell in a paradigm. Two significant facts about the paradigms of inflectional classes are as follows:

i) The identical morphosyntactic properties (content) are expressed with the same exponents (only phonological alternation is permissible) in the same inflectional class.

ii) It is the distinctness of the realization of the same morphosyntactic properties which separates inflectional classes from each other.

Let us see these points clearly in Table 16 where case endings of two Latin words from different inflectional classes are displayed.

Table 16. Case Paradigms of the Lexemes HORTUS 'garden' and GRADUS 'step' in Latin

		o-declension	u-declension
SG	NOM	hort-us	grad-us
	ACC	hort-um	grad-um
	GEN	hort-ī	grad-ūs
	DAT	hort-ō	grad-uī
	ABL	hort-ō	grad-ū
PL	NOM	hort-ī	grad-ūs
	ACC	hort-ōs	grad-ūs
	GEN	hort-ōrum	grad-uum
	DAT	hort-īs	grad-ibus
	ABL	hort-īs	grad-ibus

(Haspelmath & Sims, 2013: 159)

In the nominal inflection data above, the inflectional category is case and the morphosyntactic properties are different cases. The nouns belonging to the o-declension class are inflected the same as *hortus* 'garden' whereas the nouns belonging to the u-declension class are inflected with the case markers in the same way as *gradus* 'step'. While nominative and accusative case markers of these two lexemes are identical in their singular form, the exponents of the other cases such as singular genitive, nominative plural or dative plural are dissimilar in the two paradigms.

As mentioned before, the diverse and complex architecture of languages leads not only to canonical but also to more frequently attested non-canonical types of morphological structures. This is true for inflectional classes as well. Corbett (2009: 3-5) sets up a canonical typology for inflectional classes. He develops two general principles and some criteria for canonical inflectional classes. The first principle is 'distinctiveness' is based on the assumption that "canonical inflectional classes are

fully comparable and are distinguished as clearly as possible". In other words, canonical inflectional classes are "equivalent in their functions, and yet they are distinct in their form". This means that the same morphosyntactic properties such as different case, person, number or gender properties are expressed with distinct forms of exponents in each inflectional class. The second principle of canonicity in inflectional classes is the principle of 'independence' which is defined as "the distribution of lexical items over inflectional classes is synchronically unmotivated". This principle refers to the fact there is generally no underlying reason why a certain group of items belongs to a certain inflectional class. For example, in Latin inflectional classes, there is no motivation for the lexeme HORTUS 'garden' to be in o-declension class but the lexeme GRADUS 'step' to be in u-declension class (Table 16 above).

Like the notions of 'canonical inflection' and 'canonical paradigms' that were explained in the previous chapter, it is hard to find canonical inflectional classes cross-linguistically. Shared forms between classes, semantically reduced or structurally overdifferentiated paradigms due to some of defective or overabundant forms in some classes, stem differences in the paradigms reduce the possibility of the canonicity and a uniform behavior of inflectional classes (Corbett, 2009).

Depending on the non-uniform structure of canonical inflectional classes, an unignorably high number of non-canonical patterns in inflectional classes cross-linguistically and different treatment of inflectional classes either as classes of lexemes or stems, I show in this study that the notion of inflectional classes can be expanded. As I showed in the previous chapter, I propose that different realizations of person-number exponents corresponding to the same content within Turkish verbal inflectional paradigms are comparable to inflectional classes leading to the

conclusion that Turkish has inflectional classes. Just like in Latin case paradigms (Table 16) where the properties of {nom pl} are expressed with *–ī* in o-declension class but with *–ūs* in u-declension class, the properties of {1 pl}is realized as *–k, -lim* or *-Iz* in different verbal paradigms in Turkish (see Table 14 above).

When the Latin and Turkish word-forms are examined, an important difference is evident. In Latin differently materialized exponents of the same content attach directly to the stem of different lexemes as can be observed in the word-forms *hort-ī* 'garden-NOM.PL' and *grad-ūs* 'step-NOM.PL'. In Turkish, however, inflectional class distinction depends on a 'complex stem' which is inflected for a tense, aspect or mood property rather than a simple stem of different lexemes. The complex stems can be shown as *[gel-di]-k* 'come-pst/perf-1PL'; *[gel-e]-lim* 'come-OPT-1PL' and *[gel-ir]-iz* 'come-AOR-1PL'.

It is worth noting here that Turkish verbal inflectional paradigms are distinct and independent in compliance with the aforementioned definitions of the basic principles of inflectional classes proposed by Corbett (2009). They are distinct since the set of person-number exponents in each class are equal in their function but distinct from each other in their form. They are independent as there is no convincingly proposed and proven motivation why the same set of person-number exponents are realized in the Conditional and Past/Perfective paradigms; but a different set of markers in the Optative paradigm or the complex stems (stem+TAM marker) in Aorist, Future, Evidential, Imperfective and Obligation paradigms form a distinct class (see Table 14).

Based on the points I have clarified so far, I propose the notion of inflectional class can be expanded and based on the data from languages different types of inflectional paradigms can be regarded as inflectional classes. Accordingly, the

formal realization of the inflectional categories ‘person’ and ‘number’ being the key element setting up the distinct conjugation paradigms of Turkish, I consider these paradigms behave as inflectional classes where the same content is realized differently across paradigms (e.g. three different realizations of {1 pl} content across verbal paradigms as *–k, –lIm* and *–Iz* as exemplified above). Another evidence that supports the potential existence of inflectional classes in verbal paradigms is that case paradigms in Turkish do not behave so. More clearly, there is no alternating forms of the case markers except for their phonological variation (see Table 13).

Haspelmath and Sims (2013) highlight some important facts about inflectional classes. Their starting point is Latin declension classes. Firstly, the distribution of the same inflectional markers within the same class but different ones among different classes is arbitrary, which makes an inflectional class different from phonological allomorphy. Secondly, a vocabulary item cannot be inflected with any of the markers from different classes, i.e. only a full package of suffixes can be chosen. The second point gives rise to a third one: an inflected form can be used to predict other inflected forms. For example, the nominative plural form of a noun in Latin (Table 16 above) would tell us whether it is in *o*- or *u*- declension class and accordingly one can predict all the other case markers. All these points apply to the Turkish verbal inflectional paradigms as well. Let us display this analogy by comparing two inflectional classes (I introduce as inflectional class 1 and 4 in Sections 4.2.1 and 4.2.4) below in Table 17:

Table 17. Past/Perfective and Aorist Paradigms of the Lexeme GEL ‘come’ in Turkish

	Past/Perfective	Aorist
1SG	gel-di-m	gel-ir-im
2SG	gel-di-**n**	gel-ir-**sin**
3SG	gel-di	gel-ir
1PL	gel-di-**k**	gel-ir-**iz**
2PL	gel-di-**n**-iz	gel-ir-**sin**-iz
3PL	gel-di	gel-ir
	gel-di-ler	gel-ir-ler

The person-number suffixes marking the first person plural and second person are specific to the inflectional class they appear in and this is not phonological allomorphy. The suffixes in each class come as packages; they can be used to predict the other person-number suffixes within that inflectional class and the exponents in class 1 cannot be used interchangeably with the ones in class 4. As noted previously, the main difference of Turkish inflectional classes from the mainly Indo-European data dominating the literature is that it is not the lexemes (or stems) but, crucially, the TAM inflected complex stem that determines the compatible set of person-number exponents.

There are some languages that also deviate from the canonical notion of inflectional classes where vocabulary items are grouped according to the affixes realized on them. For instance, in Tagalog, a Philippine language, derivational affixes of voice determine the perfective inflectional form of the verb, where there are four perfective patterns in the language. Some of these patterns are exhibited in Table 18:

Table 18. Derivational Affixes Determining Inflectional Classes in Tagalog

root	basic form with voice affix	perfective	gloss
takbo	tumakbo	tumakbo	'run'
tulog	matulog	natulog	'sleep'
hugas	hugasan	hinugasan	'wash'
basah	basahin	binasah	'read'

(Haspelmath and Sims, 2013: 161)

Another analysis that points at the non-uniform structure of inflectional classes cross-linguistically and supports the present proposal extending the notion of inflectional class to Turkish verbal inflection paradigms is given in Finkel & Stump (2007). They classify inflectional classes as 'global' and 'segregated'. In global inflectional classes, a lexeme belongs to only one class. Some morphological systems, however, contain some sort of modularity. A lexeme can appear in not only one but more inflectional classes simultaneously in segregated classes (Finkel & Stump, 2007). When the inflectional classes are segregated, only the exponence of a proper subset of the cells in a paradigm are determined by the inflection class. For example, traditional Latin verbal lexemes are classified according to the type of their imperfective inflection on one hand. On the other hand, the lexemes belong to a different inflectional class system based on their perfective inflection. As I show in this study, in Turkish, it is not the lexemes but the TAM exponent inflected stems that are classified in inflectional classes each of which has a specific package of person-number markers.

In summary, I propose that Turkish verbal inflectional paradigms form inflectional classes where the categories of person and number are expressed differently in each class. And it is this distinction which separates one class from another.

4.3 Inflectional classes in Turkish

The existence of inflectional classes means the existence of parallel and diversified systems to carry out the same function in a language. As shown in the previous chapter and will be discussed in this section, person marking is realized in different set of forms in each class. The partition among the paradigms rests on the set of person markers that appear on the word-forms. Let us first show in Table 19 some inflectional classes from Sanskrit, a language where the stems are grouped into classes according to the form of the affixes with the same function:

Table 19. Declension of MARUT 'wind' and GAJA 'elephant' From Two Inflectional Classes in Sanskrit

	Singular	Dual	Plural		Singular	Dual	Plural
NOM	marut	marut-au	marut-as		gaja-s	gaja-u	gajā-s
VOC	marut	marut-au	marut-as		gaja-s	gaja-u	gajā-s
ACC	marut-am	marut-au	marut-as		gaja-m	gaja-u	gajā-n
INST	marut-ā	marud-bhyām	marud-bhis		gaje-na	gajā-bhyām	gaja-is
DAT	marut-as	marud-bhyām	marud-bhyas		gajā-ya	gajā-bhyām	gaje-bhyas
ABL	marut-as	marud-bhyām	marud-bhyas		gajā-t	gajā-bhyām	gaje-bhyas
GEN	marut-as	marut-os	marut-ām		gaja-sya	gaja-yos	gajā-nām
LOC	marut-i	marut-os	marut-su		gaje	gaja-yos	gaje-şu

(Stump, 2016: 85)

As can be clearly seen in the Table 18 above, the same content, case, is realized similarly in some cells, but differently in some other cells when the juxtaposed declension paradigms of two lexemes are compared. As an example, while the singular form of *marut* 'wind' is inflected with *–as* in ABL, the same function is carried out with the exponent *–t* in the same paradigm of *gaja* 'elephant'. Although some of the inflectional classes are phonologically or gender oriented, some are not motivated by any conditioning; therefore, a class system organization seems rather arbitrary in a group of languages.

Before introducing verbal inflectional paradigms as inflectional classes where the same morphosyntactic properties are realized in dissimilar forms, I would like to revise the four different verbal classes of person-number markers presented in Table 20 in its basics, for ease of comparison.

Table 20. Partial Verbal Inflection of the Lexeme GEL 'come' in Turkish

	Conditional	Optative	Imperative	Future
1SG	gel-se-**m**	gel-e-**yim**		gel-eceğ-**im**
2SG	gel-se-**n**	gel-e-**sin** gel	Gel	gel-ecek-**sin**
3SG	gel-se	gel-e gel-**sin**	gel-**sin**	gel-ecek
1PL	gel-se-**k**	gel-e-**lim**		gel-eceğ-**iz**
2PL	gel-se-**n-iz**	gel-e-**sin-iz** gel-**in**	gel-**in**	gel-ecek-**sin-iz**
3PL	gel-se gel-se-**ler**	gel-**sin** gel-**sin-ler**	gel-**sin** gel-**sin-ler**	gel-ecek gel-ecek-**ler**

As an example, Table 20 displays that the content {2 pl} is realized as *–n.iz, –sin.iz* or *–in* in the first, second/fourth and third paradigms respectively, which is comparable to the realization of singular ablative case in Sanskrit inflectional classes illustrated in Table 19.

As will be explained at length in Chapter 5, the theoretical framework of this thesis is a word-and-paradigm model in which inflectional morphology is regarded to be realizational (Stump, 2001). In realizational theories, it is the morphosyntactic property set (e.g.{pst 1 sg}) that determines how a word-form is to be realized. In paradigm-function models the mapping between the content and the form is thanks to paradigm functions, property mappings and rules of referral (exponence) that are to be elaborated in Chapter 5. In other words, in inflection, a syntax-semantics-morphology interface phenomenon, the content is determined due to semantic reasons and syntactic positions and the form is mapped onto this content via the realization of the necessary exponents on the appropriate stem of a lexeme. The properties in the morphosyntactic property set are interdependent.

As for the verbal inflectional paradigms in Turkish used in this study, as I mentioned formerly, the TAM property in the morphosyntactic property set is of significance. Since TAM properties are realized right after the stem in Turkish, a complex stem is formed with the simple verbal stem + TAM exponent on which person-number exponents are realized. However, as the relevant TAM property is determined by the morphosyntactic property set (e.g. past in a property set like {pst 1 sg}, actually morphosyntactic property set acts as the primary inflectional class determiner. After emphasizing this point, I will go through the verbal inflectional classes in Turkish one by one below.

4.3.1 Inflectional class 1

When the morphosyntactic property set includes 'Conditional' or 'Past/Perfective' properties, this class of person-number markers are realized on the word-forms of the Turkish verbal paradigms (the data of this study) shown in Table 13. Class 1 person-number exponents are illustrated in Table 20:

Table 21. Inflectional Class 1 (With Stems and TAM Markers Abstracted Away)

Sg	1	X*m*	Pl	1	X*k*
	2	X*n*		2	X*n-Iz*
	3	X		3	X X*lAr*

This set of person-number markers can attach to verbal stems in Turkish inflected with the Conditional exponent *–sA* or Past/Perfective exponent *–DI*. Let us now show inflectional class 1 on a lexeme in Table 22 below:

Table 22. Inflectional Class 1 of the Lexeme GEL ‘come’ in Turkish

	Class 1 (Cond: -sA; past/perf: -DI)		
1SG	gel-se-**m** gel-di-**m**	1PL	gel-se-**k** gel-di-**k**
2SG	gel-se-**n** gel-di-**n**	2PL	gel-se-**n-iz** gel-di-**n-iz**
3SG	gel-se gel-di	3PL	gel-se gel-di gel-se-ler gel-di-ler

4.3.2 Inflectional class 2

This set of person-number markers is compatible with the verbal items in optative mood the exponent of which is *–yA* attached to a verbal stem. In other words, inflectional paradigms that have optative property in their morphosyntactic property set appear in this inflectional class; hence the realization of class 2 person-number exponents on these word-forms. Table 23 shows Class 2 verbal inflectional patterns in Turkish:

Table 23. Inflectional Class 2 (With Stems and Mood Markers Abstracted Away)

Sg	1	X*yIm*	Pl	1	X*lIm*
	2	X*sIn*		2	X*sIn-Iz*
	3	X		3	→ X ↘ X*lAr*

Let us illustrate Class 2 inflection of a lexeme in Table 24 below to see the patterns.

Table 24. Inflectional Class 2 of the Lexeme GEL ‘come’ in Turkish

	Class 2 (Opt: -A)
1SG	gel-e-**yim**
2SG	gel-e-**sin**
3SG	gel-e
1PL	gel-e-**lim**
2PL	gel-e-**sin-iz**
3PL	gel-e gel-e-**ler**

There are two points that need to be highlighted here: i) The simple verbal stem *gel-* ‘come’ combined with the optative exponent *–(y)A* form a complex stem as *gele-* on which class 2 person-number markers are realized. ii) The third singular optative form *gele* is currently used only in some expressions such as *rast gele* ‘luck come.OPT’ ‘good luck’ (in some suitable contexts) or in some regional dialects.

4.3.3 Inflectional class 3

This class of person-number exponents are realized in the imperative mood contexts; i.e. when the morphosyntactic property set of content includes the property {imp}. Table 25 demonstrates the forms of the person-number exponents of class 3.

Table 25. Inflectional Class 3 (With Stems Abstracted Away)

Sg	1		Pl	1	
	2	X		2	X*In*
	3	X*sIn*		3	→ X*sIn* ↘ X*sIn-lAr*

As will be analyzed in Section 6.3.4, the patterning of this set of person-number exponents poses challenge for morpheme-based models by including a crucial type of morphological content-form mismatch. Without going into details in this section, let us point out that the second and third person singular forms in Table 25 need closer attention since they are the reverse pattern of default second and third person forms in Turkish person-number inflectional classes (see Section 4.3.4). Compare the forms *gel-ir-sin* 'come-AOR-2SG' vs *gel-sin* 'come-3.IMP' where *–sIn* realizes the second and the third person properties respectively. Table 26 includes exemplary inflected word-forms in class 3.

Table 26. Inflectional Class 3 of the Lexeme GEL 'come' in Turkish

	Class 3 (imperative mood)		
1SG	no form	1PL	no form
2SG	gel	2PL	gel-**in** gel-**in-iz**
3SG	gel-**sin**	3PL	gel-**sin** gel-**sin-ler**

And lastly, let us introduce the last verbal inflectional class in Turkish which hosts the most verbal word-forms since it is the class compatible with the largest number of TAM markers.

4.3.4 Inflectional class 4

This class of person-number exponents are realized on the word-forms inflected with the Aorist, Future, Evidential, Imperfective and Obligation TAM markers which are subsumed under 'participles' (Kornfilt, 1997 among others) in Turkish. The set of person-number exponents in this class behaves as clitics evolved from person pronouns (Erdal, 2000 among others). Their environment is larger than that of the

other classes since this set of person-number markers are realized on a higher number of complex stems which has led me to call them default inflectional class. Unlike the others, this class from the others is that they impose stress on the preceeding syllable.

Based on the elsewhere conditions, I treat this class as the 'default class' of the verbal inflectional classes. The formal realization of Class 4 person-number markers are provided in Table 27:

Table 27. Inflectional Class 4 (Default Class - With Stems and TAM Markers Abstracted Away)

Sg	1	X*(y)Im*	Pl	1	X*(y)Iz*
	2	X*sIn*		2	X*sIn-Iz*
	3	X		3 →	X
				↘	X*lAr*

Some examples of word-forms in this class are displayed in Table 28 below:

Table 28. Inflectional Class 4 (Default Class) of the Lexeme GEL 'come' in Turkish

	Class 4 'participles' (Aor: –Ir; Imp: -Iyor / -mAktA; Fut: -AcAK; Evid: -mIş; Obl: -mAlI)		
1SG	gel-ir-**im** gel-iyor-**um** gel-mekte-**yim** gel-eceğ-**im** gel-miş-**im** gel-meli-**yim**	1PL	gel-ir-**iz** gel-iyor-**uz** gel-mekte-**yiz** gel-eceğ-**iz** gel-miş-**iz** gel-meli-**yiz**
2SG	gel-ir-**sin** gel-iyor-**sun** gel-mekte-**sin** gel-ecek-**sin** gel-miş-**sin** gel-meli-**sin**	2PL	gel-ir-**sin-iz** gel-iyor-**sun-uz** gel-mekte-**sin-iz** gel-ecek-**sin-iz** gel-miş-**sin-iz** gel-meli-**sin-iz**
3SG	gel-ir gel-iyor gel-mekte gel-ecek gel-miş gel-meli	3PL	gel-ir /gel-ir-**ler** gel-iyor / gel-iyor-**lar** gel-mekte / gel-mekte-**ler** gel-ecek / gel-ecek-**ler** gel-miş / gel-miş-**ler** gel-meli / gel-meli-**ler**

4.4 Summary

This chapter first introduced the data, the verbal inflection paradigms in Turkish which include only one TAM marker on the word-forms. After describing the paradigms and showing some phonologically conditioned alternants of the markers, I emphasized that four different sets of person-number exponents which appear in different paradigms need investigation. In the second part of this chapter, I presented my proposal and I showed how the notion of inflectional class can be expanded to languages like Turkish. Rather than different lexemes, complex stems (verbal stem+TAM marker) are grouped into the classes where different sets of person-number markers are realized. Accordingly, in the following section, I introduced four different inflectional classes in verbal inflection in Turkish each of which are compatible with a dissimilar set of person-number exponents. The basic motivation of this proposal is based on the assumption that the key element of 'inflectional classes' is carrying out the same function (here person-number content) through different exponents in a language.

CHAPTER 5

THE PARADIGM-LINKAGE THEORY

Different divisions exist among the theories of morphology. The theories are classified into two on a more general basis according to their main target of morphological analysis: 'morpheme-based' (e.g. Siegel, 1974; Lieber, 1992; Halle and Marantz, 1993; Bobaljik, 2002; Müller 2002) or 'word-based' (e.g. Stump 2001; Blevins, 2006) [24]. A further distinction is as follows: 'item-and-arrangement' (e.g. Halle & Marantz, 1993), 'item-and-process' (e.g. Anderson, 1992; Aronoff 1994) or 'word-and-paradigm' models (Stump, 2001; Blevins, 2006; Brown and Hippisley, 2012 among others). The second distinction relies on the different views of theories about the suffixes, the construction of words, the treatment of the subunits in a word and what is stored in the lexicon.

Different from the aforementioned classifications, Stump (2001:1) distinguishes the theories of inflectional morphology in terms of two different dimensions: The first dimension separates the theories as 'Lexical' or 'Inferential'. The association within the units of a complex word is made in the lexicon in lexical theories since all the units are assumed to be stored in the lexicon. In inferential models, on the other hand, the association is made via rules since the lexicon does not include the affixes (Aronoff, 1994; Pounder, 2000 among others). The second dimension offers a distinction as 'Incremental' or 'Realizational'. As the name suggests, incremental theories view inflection as 'information adding' where word-forms acquire morphosyntactic properties only through the inflection of the

[24] See also lexeme-based approaches in Beard, 1995; Pounder, 2000; Kunduracı, 2013.

exponents mapping onto these properties. For instance, the word-form *'goes'* acquires the property of 3.SG.PRES.IND through the inflection of the suffix *–s*. In contrast to incremental models, realizational theories of inflection hold the view that it is a word's association with a specific set of morphosyntactic properties that licenses the appearance, the realization, of inflectional morphology. Operating on these two dimensions, theories of morphology have two qualities. A lexical morphological theory is either lexical-realizational (e.g. Distributed Morphology (Halle & Marantz, 1993)) or lexical-incremental (e.g. Selkrik, 1982). Similarly, an inferential theory is either inferential-realizational (e.g. Stump, 2001) or inferential-incremental (e.g. Steele, 1995).

Resting on the structure of inflectional paradigms in Turkish and following Stump (2001 and 2016), I also consider inferential-realizational models to be conceptually more adequate for three primary reasons: i) Morphological complexity often goes much beyond word-internal morphotactics in a language (e.g. syncretism) ii) A wide range of systematic relations exists among the word-forms within not only just one but also distinct paradigms of a language (e.g. deponency). iii) Accordingly, I adopt the paradigm-linkage theory (Stump, 2016) - an inferential-realizational theory of inflectional morphology - as the framework of this study. The following sub-sections highlight the basic tenets of the paradigm-linkage theory.

5.1 Content – form – realized paradigms

As demonstrated in Chapter 3, few inflectional paradigms are canonical where there is merely regular (one-to-one) mapping between form and meaning. It is the main motivation for the existence of three different paradigms in the paradigm-linkage theory. What makes an inflectional paradigm 'non-canonical' is the non-isomorphic

nature of the relations between meaning (content) and form paradigms due to commonly attested cross-linguistic content-form mismatches.

A formal morphological approach, the paradigm-linkage theory bases the inflectional morphology of a language on three interlocking paradigms:

(i) A lexeme L's content paradigm: This paradigm exists independent of any morphological operation. It is the paradigm to which syntax and semantics are sensitive. In parallel with this view, content paradigm consists of the lexeme which is the abstract form of a word, and the set of morphosyntactic properties with which this lexeme is associated in syntax. The semantic interpretation of the lexeme is also determined by its combination with the morphosyntactic property set within this content paradigm. This combination can be formally conceptualized as a pairing $<L, \sigma>$, where L stands for the lexeme and σ for the morphosyntactic property set the lexeme is inflected for (e.g. {1 sg pst}).

(ii) A stem X's form paradigm: This is the paradigm to which morphology is sensitive. Two possible and common mismatches explain the need for the form paradigm within the architecture of inflectional morphology of a language. Firstly, it is not the lexeme as an abstract unit that undergoes a morphological operation but the 'stem'. It is known that a lexeme may have multiple stems within the same or distinct paradigms of that lexeme as illustrated on the examples *ağaç-ta* 'tree-LOC' and *ağac-ı* 'tree-ACC' from Turkish. Secondly, as in the cases of syncretism or deponency, which Section 6.3 elaborates on, the morphosyntactic property set σ is not always the same set in the form paradigm, hence the formulation of the pairing in the form cell as $<Z, \tau>$. Z represents the stem that pairs with

the morphosyntactic property set τ, which leads to the realization of the word-form (in the realized cell below) as a result of the related inflectional operation. For example, for the lexeme *BEN* 'I' (represented by L in the content paradigm), it is the stem *ban* (represented by Z in the form paradigm) that undergoes the dative inflection operation in Turkish (see Table 2 in Chapter 1).

(iii) A lexeme's realized paradigm: This paradigm includes the cells where each of the lexeme's fully inflected word-forms are associated with the morphosyntactic properties they express. Within the pairing of the realized cell, $<w, \tau>$, the word-form is represented by *w* and since the same morphosyntactic property set is included in the form and the realized cells, the property set is represented by τ in both. This is due to the fact that the morphosyntactic property set τ in the form and realized paradigms is responsible for the morphological form (formal realization) of the fully inflected word-form. The meaning, on the other hand, is associated with the morphosyntactic properties in the content cells (see Section 6.2 for the representative data showing how this works). This crucially indicates that morphology is insensitive to content cells whereas syntax and semantics are insensitive to form and realized cells, which strongly supports that morphology is an autonomous component (Di Sciullo & Williams, 1987; Aronoff, 1994, 2005; Göksel, 2009; Pounder, 2000; Kunduracı, 2013 among others).

Let us present the three-paradigm structure of the paradigm-linkage theory with an exemplary data set from English in Table 29:

Table 29. Three Types of Paradigms of the Lexeme SING

I	II	III
The content paradigm of the lexeme SING	The form paradigm of the stem set S_{SING}	The realized paradigms of the lexeme SING
<SING, {prs}>	<*sing*, {prs}>	<sing, {prs}>
<SING, {3sg prs ind}>	<*sing*, {3sg prs ind}>	<sings, {3sg prs ind}>
<SING, {pst}>	<*sing*, {pst}>	<sang, {pst}>
<SING, {prs ptcp}>	<*sing*, {prs ptcp}>	<singing, {prs ptcp}>
<SING, {pst ptcp}>	<*sing*, {pst ptcp}>	<sung, {pst ptcp}>

(Partially taken from Stump, 2016: 105)

This table explains the architecture of the inflectional morphology related to this data set. English is not a language with stem-alternation, the stem set S_{SING} has only one invariant stem *'sing'* in its all form cells, which is a property of canonical inflectional paradigms. Additionally, as there is no content (meaning) – form mismatches in this paradigmatic system, content (I) and form (II) paradigms are identical in terms of morphosyntactic properties. Under these conditions, one can wonder why there is need for a form paradigm.

If all the inflectional phenomena were like the English data above, inflectional morphology might not require form paradigms. As explained and exemplified in Chapter 3, non-canonical inflectional paradigms and content-form mismatches in the languages of the world are not uncommon, which is the main reason for the paradigm-linkage theory to have included form paradigms in addition to content and realized paradigms. Stem alternation through paradigms is frequently attested cross-linguistically. Even in a language that is thought to have highly regular morphology like Turkish, stem alternation particularly in nominal lexemes is not

uncommon. A Turkish paradigm including alternating stems is seen in Table 30 (a fragment of Table 2 in Chapter 1):

Table 30. A Fragment of Three Types of Paradigms of the Lexeme BEN 'I' in Turkish

The content paradigm of the lexeme BEN	The form paradigm of the stem set SBEN	The realized paradigms of the lexeme BEN
< BEN, {nom}>	< *ben*, {nom}>	< *ben*, {nom}>
< BEN, {acc}>	< *ben*, {acc}>	< *beni*, {acc}>
< BEN, {dat}>	< *ban*, {dat}>	< *bana*, {dat}>

Unlike the English paradigm in Table 29, the form paradigm of the Turkish data in Table 30 above includes transparently alternating stems of *ben* ~ *ban* to which exponents mapping on the morphosyntactic properties of the related cell attach. As previously mentioned, the morphological operation takes the stem in the form paradigm as its base.

In addition to stem alternation that is shown on the Turkish data in Table 30 above, there is another significant reason why a separate form paradigm is required in the paradigmatic structure of inflectional morphology: different morphosyntactic property sets in content and form paradigms. I would like to explain this through an inflectional paradigm in Bhojpuri displayed in Table 31.

Table 31. A Brief Fragment of Three Types of Paradigms of the Lexeme DĒKH 'see' in Bhojpuri

The content paradigm of the lexeme DĒKH	The form paradigm of the stem set S DĒKH	The realized paradigms of the lexeme DĒKH
< DĒKH, {prs masc 1sg}>	< *dēkh*, {prs 1}>	< *dēkhīlā*,{prs 1 }>
< DĒKH, {pst masc 1sg}>	< *dekh*, {pst 1}>	< *dekhalĩ*, {pst 1}>

(Adapted from Stump, 2016: 53)

Firstly, let us point out that when we analyze the data, we see that the form paradigms (the second column) include different stems of the same lexeme: *dēkh ~ dekh*. While the present tense inflection operates on the stem *dēkh*, the past tense inflection does so on the stem *dekh*; hence the resulting word-forms *dēkhīlā* 'I/we see' and *dekhalĩ* 'I/we saw'. Secondly, the morphosyntactic property sets in content and form cells are not identical, unlike the English and Turkish paradigms. The realizations of masculine and feminine besides plural and singular forms of 1st person are the same in present and past tense (present and past tense 1st person forms are insensitive to gender and number). For this reason, while the morphosyntactic property set in the content cell (the one that is determined independent of morphology) is {prs masc 1 sg}, the form paradigm set includes only {prs 1}. This shows that morphology does not distinguish the gender and number properties in this domain.

To sum up, as can be observed in all the three inflectional paradigms above in different languages (Table 29, 30 and 31), the realized paradigms (the third column) of the lexemes have the same property set as the form paradigm (the second column) since the realized word-form, structured by morphology, is based upon the property set of the form paradigm not the content paradigm. Therefore, the realized paradigms contain the fully inflected word-form of the lexeme which is the output of the pairing of the property set with the operational stem in the form paradigm.

5.2 Irreducibility and interface hypotheses

As a paradigm-based theory of inflection, the paradigm-linkage theory argues against the view that paradigms are just descriptive devices without any theoretical significance and that word-forms are just morpheme combinations that are defined

by the morphotactic principles of a language. To show the weaknesses of morpheme-based theories of inflection, the paradigm-linkage theory proposes two core hypotheses to emphasize the theoretical significance of inflectional paradigms and the adequacy of the paradigm-linkage theory respectively: the irreducibility and the interface hypotheses.

The irreducibility hypothesis suggests that "some morphological regularities are, irreducibly, regularities in a paradigm structure" (Stump, 2016: 1). Let us explain this with an example. In a language including inflectional classes like Latin, there may exist systematic syncretism of dative and genitive inflection in all inflectional classes. Note that the same morphosyntactic properties are realized through different sets of exponents in each inflectional class. Under this condition, the morphological regularity (systematic dative and genitive syncretism in all classes) is observed by the behavior of the forms not only in the same but also across different paradigms. And this paradigm-internal and transparadigmatic regularity cannot be reduced to the individual exponents (as the name of the irreducibility hypothesis suggests) by assuming that there are tens of homophonous dative and genitive exponents in this language. Moreover, cross-linguistic data show that most morphological irregularities (mismatches) do follow a regular pattern which is only detected by observing the behavior of the paradigms rather than the sub-units of the word-forms occupying the cells.

The interface hypothesis, on the other hand, suggests that "paradigms are the interfaces of inflectional morphology with syntax and semantics" (Stump, 2016: 1). This hypothesis is integrated into the machinery of the paradigm-linkage theory by structuring the three-paradigm system (content-form-realized). As explained and exemplified in detail in the previous section, the content paradigm is syntax and

semantics sensitive whereas form paradigm is morphology sensitive. The mapping between these paradigms is due to paradigm functions and rules of exponence which are explained in the following sections and Chapter 6.

Morpheme-based theories view morphology as just a system of syntagmatic relations among morphemes below the word level, which is refuted by paradigm-based theories, since a morphemic approach inevitably overlooks and cannot account for fundamental systematic relations among the cells within the same or distinct paradigms. The paradigm-linkage theory, by contrast, focuses on the indispensability of paradigmatic relations in inflectional morphology through the irreducibility hypothesis. Let me again use the example above and consider a language with systematic syncretism of two cells (for example dative and genitive) in all inflectional classes. I consider the weaknesses of a morphemic approach to account for this kind of phenomena are as follows: First, a morpheme-based theory would not capture the generalization regarding the systematically syncretic dative and genitive word-forms in all the inflectional classes without making reference to inflectional paradigms. Furthermore, it may seem plausible to assume that some homophonous morphemes are stored in the lexicon with different meanings in languages where there are just few exponents that have the same form but different function. However, it is known that languages differ widely in terms of their morphological complexity. There are languages with a high number of inflectional classes where many sets of different materialization of the exponents with the same function besides systematically syncretic word-forms exist. When these languages are taken into consideration, conceptually it would be rather difficult to assume that many exponents are stored in the lexicon as individual morphemes compatible with a group

of lexemes disregarding their paradigmatic patterning within the same paradigm or word-forms patterning across parallel paradigms.

To show the potential inadequacy of a morpheme-based model, let us consider the case of deponency. In its most widely known form, deponency refers to a significant content-form mismatch in Latin due to content switch of a complete set of exponents between two paradigms. The same set of exponents marking the morphosyntactic property –passive- in the paradigm of non-deponent verbs is used exactly as the same set in the active paradigm of deponent verbs to mark the property of active (see Section 6.3.4). This complete content switch of the same set of markers between the paradigms of two different lexemes can only be detected by comparing these two distinct paradigms. Crucially, the language refers to a set of deponent and non-deponent verbs because exactly the same set of affixes marking active voice in one paradigm marks passive voice in the other. This cross-paradigmatic generalization of Latin active and passive inflectional paradigms is irreducible to any other smaller unit because this generalization "identifies a pattern that is recurrently instantiated by cells in different paradigms" (Stump, 2016: 26). Without making reference to their paradigmatic behavior, it is impossible to observe the reverse function of the full set of exponents in two distinct paradigms, which also support the view that irregularities generally follow a regular pattern in languages.

The existence of three types of paradigms and the pairings of the lexeme and stem with the morphosyntactic properties in the cells of these paradigms (content and form paradigms respectively) support that inflectional morphology is an interface phenomenon. The fact that the content is determined by syntax and semantics and the form is determined by morphology lends support to the interface hypothesis.

5.3 Form-correspondence and the realization of the word-forms

As previously mentioned, the cells in each paradigm (content / form / realized) are lexeme/stem and morphosyntactic property set pairings. The canonical relation between the content-form-realized paradigms is defined by the notation '<L, σ> ⟹ <Z, σ> ⟶ <*w, σ*>'. <Z, σ> is the form correspondent of '<L, σ> and <*w, σ*> is the realization of <Z, σ>. In case of the lack of any content-form mismatch in a paradigm, the same morphosyntactic property set (σ) occupies each cell as demonstrated in Table 32.

Table 32. A Fragment of the Paradigms of the Lexeme SING in English

The content paradigm of the lexeme SING	The form paradigm of the stem set S_{SING}	The realized paradigms of the lexeme SING
<SING, {3 sg prs ind}>	<*sing*, {3 sg prs ind}>	<sings, {3 sg prs ind}>

All three paradigms contain the morphosyntactic property set {3 sg prs ind}in this structure since the inflected word-form *sings* is the pairing of these properties both in terms of content (meaning) and form.

It has, however, been emphasized several times that the canonical paradigmatic structure in Table 32 above is less frequently attested than non-canonical paradigms where the content and form paradigms do not include the same morphosyntactic property set. Let us repeat that the non-isomorphism of content and form paradigms and the different stems of the same lexeme in some languages undergoing morphological operation (as in Bhojpuri data in Table 31) are two reasons explaining why there is need for separate content and form paradigms in the morphological architecture of languages. The existence of these separate paradigms raises an important question: How are meaning and form mapped onto each other when the content and form paradigms are not isomorphic? The form-correspondence and the realization relations between the paradigms are defined by three functions:

- PF is the paradigm function. PF(<L, σ>) and PF(<Z, τ>) are the realized cells that realize <L, σ> and <Z, τ> respectively.
- *Corr* is a form-correspondence function and for any content cell *Corr*(<L, σ>) is the form correspondent of <L, σ> and PF(<L, σ>) = PF(*Corr*(<L, σ>)).
- *pm* is a property mapping. A content cell <L, σ> that has <Z, τ> as its form-correspondent is represented as *pm*(σ) = τ, which means that the property set determined by syntax and semantics (σ) is morphologically expressed by the exponent(s) of another property set (τ) thanks to property mapping.

I would like to utilize two data sets to show how *pm* works and its significance. Firstly, a fragment of Bhojpuri data is given below in Table 33 as the data justify the need for a form paradigm:

Table 33. Content-Form-Realized Paradigms in Bhojpuri

The content paradigm of the lexeme DĒKH 'see'	The form paradigm of the stem set S DĒKH	The realized paradigms of the lexeme DĒKH
< DĒKH, {pst masc 1sg}> <L, σ>	< *dekh*, {pst 1}> <Z,τ>	< *dekhalĩ*, {prs 1}> <w, τ>

In past tense gender and number properties are neutralized[25]. So *dekhalĩ* is the formal realization of 'I saw' or 'We saw' in both genders. The neutralization of gender and number categories is reflected on the morphosyntactic property set of the form paradigm by excluding the properties to which morphology is not sensitive, which is thanks to the property mapping between the content and form paradigms.

A more extreme example of content-form mismatch where property mapping becomes essential is deponency. Deponency (form deponency) is "the use of the

[25] One can wonder why the content cell should include the gender property in this language. This is due to the fact that in some other domains the gender is marked in Bhojpuri.

same inflectional morphology to realize distinct morphosyntactic content in distinct paradigms" (Stump 2016: 197). This mismatch is mostly known for Latin deponent verbs which are inflected with passive markers in their active voice and which do not have any passive meaning. Table 34 represents how this morphological phenomenon is represented in content and form paradigms.

Table 34. Deponency on a Latin Verb

The content paradigm of the lexeme CŌNĀRĪ 'attempt'	The form paradigm of the lexeme CŌNĀRĪ
< CŌNĀRĪ, {1 sg act prs ind}> <L, σ>	< cōnā, {1 sg pass prs ind> <Z,τ>

The property set in the content cell includes an active property since the meaning of this form is active not passive. The form paradigm, however, has passive in its property set showing that the active voice is inflected through passive morphology (which normally expresses passive meaning in non-deponent verbs in Latin) in the inflectional paradigm of this lexeme. Let us recall that the group of deponent verbs do not have any passive meaning. This supports two points: The semantics of the active voice is mapped on to the passive morphology via property mapping (***pm***), and meaning and form operate on two different levels justifying the existence of different content and form paradigms within the architecture of inflectional morphology in a language.

Other than the functions defined above, the realization relation between a form cell and its realized cell is due to the 'rules of exponence' in the paradigm-linkage theory. The exponents in a word-form have both syntagmatic relations between each other and they are in paradigmatic opposition with some other exponents that can be realized in the same slot. The paradigm-linkage theory is an

exponence-based word-and-paradigm model; therefore, it offers some machinery to account for the realization of the exponents syntagmatically on a word-form: Rules of exponence. Within the paradigm-linkage theory, rules of exponence are what map form cells onto realized cells. Let us state that rules of exponence exist in other paradigm-function theories as well. "The rules are grouped into ordered blocks such that members of the same block are in competition" (Anderson, 1992: 129). The competition among the exponents is mediated through some sort of elsewhere condition (Pāṇini's principle in the paradigm-linkage framework-see Chapter 6.1).

The paradigm functions and rules of exponence will become clearer in the following chapter while some Turkish paradigms are modelled in the frame of the paradigm-linkage theory. Now let us focus on two different word-and-paradigm approaches and their compatibility with the Turkish data.

5.4 An abstractive or an exponence-based paradigmatic model for Turkish?

The framework of my study, the paradigm-linkage theory is an 'exponence-based' word and paradigm model contrary to the 'fully abstractive' models (Blevins, 2006; O'Neill 2014 among others) where morphology deals with only word-forms rather than stems, affixes or morphological operations. The distinction as exponence-based and fully abstractive points at a distinction in the word-based models of morphology. In exponence-based models, the 'realization of <L, σ> is the systematic result of the realization of the exponents related to the morphosyntactic property set 'σ' on the appropriate stem of the lexeme 'L'. Due to the view of morphology in this nature, these exponence-based models are regarded as 'constructive' approaches by Blevins (2006). The abstractive approaches, on the other hand, adopt an implicative definition of inflectional morphology, according to which "the realization of the

content cell <L, σ> is inferred from the realization of some contrasting cell <L, τ>" (Stump, 2016: 257).

I would like to show the distinction of two approaches on a Turkish inflectional pattern. The realization of the content cell <GEL, {1 pl aor}> 'we come' can be due to two successive rules applied to the appropriate stem *gel*: The first rule realizes the property AOR by the concatenation of *–ir* and the properties 1 PL are realized cumulatively by the second rule which concatenates *–iz* to the base. The realized form of the inflectional operation is *gel.ir.iz.* Alternatively, an implicative approach regards the realization of <GEL, {1 pl aor}> as determined from the realization of <GEL, {2 pl aor}>. The second-person plural inflection of aorist *gel.ir.sin.iz* implies its first-person plural form as *gel.ir.iz* since in the class where *–sIn-Iz* marks the second person, the first person is always marked with *–Iz* this is the implicative nature of the cell within paradigms.

These two different approaches are defined as constructive and abstractive models respectively by Blevins (2006). Stump (2016) and Blevins (2006) adopt two opposite views regarding this issue. Blevins views a word-based approach as either constructive or abstractive. According to Blevins constructive theories "surface word forms are built from sub-word units" (2006:531). Conversely, a purely implicative abstractive theory does not segment words into its parts as it deals with the "phonological similarities and differences among whole word forms" (Stump, 2016: 259). Stump (2016), on the other hand, is against this dichotomous choice between theories. He opts for an exponence-based word and paradigm model. Inferential-realizational theories in general and specifically the paradigm-linkage theory, can simultaneously accommodate implicative principles as well since these theories do not view word forms as built from smaller independent units unlike morpheme-based

theories. Remember that in the paradigm-linkage theory it is the paradigm function (PF) of a language which "applies to the content cell <L, σ> to yield the phonological representation of the full word-form *w* as its value" (Stump, 2016: 258). It is true that more specific rules of exponence that map the form cells onto realized cells are included in this paradigm function to capture generalizations about the inflectional pattern of a language. These rules are, however, only part of the definition of PF.

When I compare the different views of Blevins (2006) and Stump (2016) about the word-based models taking the morphological structure of Turkish into account, I also regard a fully 'abstractive' model' which is not exponence-based as a too strong alternative to account for the morphology of a language like Turkish with regular and productive affixation processes. Although there are many overlooked content-form mismatches in Turkish which are significant components of this study (see section 6.4), there are also many generalizations about the affixes or other morphological processes to be caught. I consider being inexplicable in a purely abstractive theory, these generalizations are only possible thorough an exponence-based word-and-paradigm model.

5.6 Summary

After presenting different classifications among the theories of morphology, I focused on the basic features of the paradigm-linkage theory which is the theoretical framework of this thesis. The theory was summarized by providing information about the three-paradigm structure of the model, how content (meaning) and form are mapped, the functions realizing this mapping, irreducibility and interface hypotheses which necessitate a model like the paradigm-linkage for inflectional morphology.

The concepts were explained briefly through some examples from different languages since in the next chapter the data from Turkish person-number inflectional classes are modelled and the mismatches are analyzed in the paradigm-linkage theory. Based primarily upon the structure of the Turkish data, I finally compared and contrasted the two versions of word-and-paradigm models: fully abstractive or exponence-based. I concluded that while a fully-abstractive model where the sub-units of a word-form are not analyzed would be too strong, an exponence-based paradigmatic model can sufficiently account for the Turkish morphological patterns in this study.

CHAPTER 6

ANALYSIS

This study focuses on the irregular patterns exhibited by the person-number exponents in Turkish verbal domains, which shows that Turkish accommodates various non-canonical morphological structures. As mentioned before, this often overlooked part of Turkish morphology requires closer attention. The analyses of the Turkish inflectional paradigms including person-number markers and the content-form mismatches in these paradigms within a paradigm-function type word-and-paradigm model are the novel aspects of this study.

The organization of this chapter is as follows: Section 6.1 shows how the rules of exponence account for the realization of word-forms in certain Turkish inflectional paradigms. The content-form relation in a sample Turkish verbal paradigm and the structures of the content-form-realization paradigms are demonstrated in Sections 6.2 and 6.3 respectively. The following section is dedicated to the content-form mismatches resulting from the irregular pattering of person-number markers within the paradigms. Such data set interesting examples for non-canonicity due to underdetermination, alternative realizations of the same content, overabundance, a form of deponency and heteroclisis.

6.1 Rules of exponence for Turkish verbal inflectional paradigms

As shown in the previous chapter, the paradigm-linkage theory regards the paradigmatic structure of inflectional morphology as three-parted: content, form, and realized paradigms (see Section 5.1). As an interface phenomenon, inflection requires mapping between these paradigms. Property mapping (*pm*) and form

correspondence function *(Corr)* are responsible for the mapping between content (first paradigm) and form (second paradigm) cells. The rules of exponence, on the other hand, mediate the relation between form realized cells (third paradigm) in the paradigm-linkage theory. The finally realized word-forms frequently consist of a stem and some sequence of affixes particularly in languages with rich morphology. These word-forms are the output of the rules of exponence that account for the ordering of the exponents in a domain. I will show the mechanism of these rules first on a data set of a smaller scale from Turkish included in Table 34:

Table 35. The Past/Perfective Paradigm of the Lexeme GEL 'come'

Singular	1	gel-di-m
	2	gel-di-n
	3	gel-di
Plural	1	gel-di-k
	2	gel-di-n-iz
	3	gel-di gel-di-ler

The data set above has the following paradigm function (Stump 2001, 2016):

Paradigm function: PF (<L,σ>) = [III : [II : [I : <X,σ>]]], where X is the stem of L appropriate for the realization of σ.

This paradigm function whose definition is the description of the inflectional morphological system in a language can be interpreted as follows: The Roman numbers I, II, III indicate that there are maximally three slots, accordingly three rule blocks, for the exponents on the word-forms in this paradigm. The innermost bracket shows that the first exponent (chosen from the first Rule Block-Block I) maps onto the appropriate stem of the related lexeme. The stem (X) is the one which undergoes

a morphological operation when the lexeme is inflected for the related morphosyntactic properties (σ) in this inflectional paradigm. And the other numbers, II and III, stand for the other successive rule blocks for the exponents that would compete for the second and third slot on the word-form. As can be concluded from the bracketing notation in the paradigm function above ([III : [II : [I : <X,σ>]]]), the exponent from Block II is realized on the complex stem (stem + the exponent from Block I); and the same applies to the last operation regarding the exponent from Block III that takes the complex stem (stem + exponent I + exponent II) that is realized by the previous function.

In summary, PF stands for the paradigm function mapping <L,σ>, the pairing of the lexeme 'L' with the morphosyntactic property set 'σ' (e.g. {1sg cond}), onto the form cell using the appropriate stem and the property set for the inflection. This function, additionally, identifies how many rule blocks exist for the given inflectional process depending on the morphological architecture of the language. In other words, the structure of the rule blocks is related to how the related morphosyntactic properties are expressed in that language. Each rule block consists of realization rules for the exponents that are eligible for the relevant slot which entails a paradigmatic relation between each other as shown in Table 36.

In the Table 36 on the next page, X stands for the 'stem' used in the related inflectional paradigm of this lexeme. Since this is the Past/Perfective paradigm, the stem is a verb, which is represented by 'V'. Morphosyntactic properties expressed by an exponent in the rule block stand in curly brackets '{ }'. The crucial point to be kept in mind regarding this representation is that the given exponents are realized only if the morphosyntactic property cell in the content cell includes the property (the one in curly brackets {}) as its subset. This means, whereas *–n* in the second block is

Table 36. Rules of Exponence for the Past/Perfective Paradigm in Turkish

Block I (TAM)	Block II (cumulative person-number or person)	Block III (number)
a. X, V, {past ∧ perf} ⟶ Xdi	a. X, V, {1 sg} ⟶ Xm	a. X, V, {2 pl}⟶Xiz
	b. X, V, {2}⟶Xn	
	c. X, V, {3}⟶X	
	d. X, V, {3 pl}⟶Xlar[26]	
	e. X, V, {1 pl}⟶Xk	

realized when the content cell includes the person property '2' in its property set, *-iz* in the third block is only realized if both '2' and 'pl' properties are included in the content cell. Single arrow '⟶' indicates that the relation is from the form cell to the realized cell.

The rule in Block I indicates that if the morphosyntactic property set in the content cell has past/perfective property, is marked with the affix *–di* on a verbal stem in Turkish. Block II includes the rules that realize person-number or simply person exponents that are in a paradigmatic opposition with each other. In this block X stands for the complex stem inflected for the relevant TAM property. In the second person, the plural property is expressed non-cumulatively in Turkish. Since second person property is realized by *–n* regardless of the number property, i.e. whenever the content cell of the related inflectional class includes '2' as an element of its morphosyntactic property, it appears in Block II. On the other hand, the rule that realizes the number plurality which applies when the content cell has both '2' and

[26] I treat *–lAr* as 3PL, a cumulative exponent; hence its appearance in Block II.

'pl' as a subset of its properties is in Block III because it is realized as the third exponent in this paradigmatic domain.

In Table 36 above, the morphosyntactic property sets in the rule blocks need further attention. The morphosyntactic property sets here are the sets in form cells (and consequently in realized cells) to which morphology is sensitive as mentioned in details in Chapter 5. For this reason, when look at Block II, we see that in second (b) and one of the third person forms (c) number properties (singular and plural) are excluded. It means that these rules are applied to both 2SG and 2PL (likewise 3SG and 3PL) inflection and the related exponents are realized on both second or third person singular and plural word-forms.

Now let us list the rules of exponence of a sample verbal paradigm (one of the sets of data in this study) in Turkish and see how they account for the transparadigmatic relations among the Turkish verbal inflectional classes where the same morphosyntactic property (person-number) is realized dissimilarly[27]. Table 14 in Section 4.1 is repeated below as Table 37 to re-observe the inflectional paradigms of the lexeme GEL 'come' where all four verbal person-number classes are visible.

[27] One should renote here that the paradigm-linkage theory is an exponence-based word-and-paradigm theory of inflectional morphology as outlined in the previous chapter in Section 5.5. That is why, the organization of the exponents are due to the rules of exponence which are the mapping tools between the form and the realized cells. While the paradigm functions like property mapping and stem functions relate the content cells to the form cells, rules of exponence relate the morphology sensitive form cells to the realization of the appropriate word-forms. Having rules in its arcihitecture does not make paradigm function theories similar to the incremental models since the relation in the paradigm function theories are realizational and from the content to the form.

Table 37. Inflectional Paradigms of the Lexeme GEL ‘come’ in Turkish (Table 14 Repeated)

	Conditional	Perfective / Past	Optative	Imperative
1SG	gel-se-m	gel-di-m	gel-e-yim	
2SG	gel-se-n	gel-di-n	gel-e-sin gel	gel
3SG	gel-se	gel-di	gel-e gel-sin	gel-sin
1PL	gel-se-k	gel-di	gel-e-lim	
2PL	gel-se-n-iz	gel-di-n-iz	gel-e-sin-iz gel-in	gel-in
3PL	gel-se gel-se-ler	gel-di gel-di-ler	gel-e gel-e-ler gel-sin gel-sin-ler	gel-sin gel-sin-ler

	Future	Evidential	Imperfective	Aorist	Obligation
1SG	gel-eceğ-im	gel-miş-im	gel-iyor-um gel-mekte-yim	gel-ir-im	gel-meli-yim
2SG	gel-ecek-sin	gel-miş-sin	gel-iyor-sun gel-mekte-sin	gel-ir-sin	gel-meli-sin
3SG	gel-ecek	gel-miş	gel-iyor gel-mekte	gel-ir	gel-meli
1PL	gel-eceğ-iz	gel-miş-iz	gel-iyor-uz gel-mekte-yiz	gel-ir-iz	gel-meli-yiz
2PL	gel-ecek-sin-iz	gel-miş-sin-iz	gel-iyor-sunuz gel-mekte-siniz	gel-ir-sin-iz	gel-meli-sin-iz
3PL	gel-ecek gel-ecek-ler	gel-miş gel-miş-ler	gel-iyor gel-iyor-lar gel-mekte gel-mekte-ler	gel-ir gel-ir-ler	gel-meli gel-meli-ler

Accordingly, Table 38 introduces the rules of expoence for the verbal inflectional paradigms included in Table 37 above.

Table 38. Rules of Exponence for Turkish Verbal Inflectional Paradigms

Block I	Block II	Block III
a. X, V, {cond}⟶Xse	a. X, V, {1sg}⟶X(y)(i)m	a. X, V, {2pl}⟶Xiz
b. X, V, {fut}⟶Xecek	b. X, V, {1pl}⟶Xiz	
c. X, V, {evid}⟶Xmiş	c. X, V, [[{cond}∨{pst}]∧{1 pl}]⟶Xk	
d. X, V, {impf}⟶Xiyor ↘ Xmekte	d. X, V, {1 pl opt}⟶Xlim	
e. X, V, {aor}⟶Xir	e. X, V, {2}⟶Xsin	
f. X, V, {opt}⟶Xe	f. X, V, [[{cond}∨{pst}]∧{2}]⟶Xn	
g. X, V, {imp}⟶X	g. X, V, {2 imp}⟶X	
h. X, V, {oblg}⟶Xmeli	h. X, V, {3}⟶X	
	i. X, V, {3 imp}⟶Xsin	
	j. X, V, {2pl imp}⟶Xin	

Let us reemphasize that the number and the order of rule blocks indicate the number and the order of the exponents realized on the word-forms in the related paradigms[28]. Within the paradigms where the same morphosyntactic property (content) is realized in alternative ways, certain rules of exponence compete. For instance, rule ‘c’, ‘d’ and ‘e’ in the Block II above entail that the content {1pl} is expressed in three alternative ways. The competition between the rule ‘c’ and the rule ‘d’ or ‘e’ is resolved by Pāṇini’s principle which is defined in (21). It is the principle of elsewhere condition.

[28] Since the main focus of this study is the paradigmatic patterning and different realizations of person-number markers, I include simpler verbal inflectional paradigms in which properties of voice, negation, other TAM markers classifying as a different block are excluded. Depending on the properties in the morphosyntactic property set, the number of blocks increase. For instance, for a maximally inflected verbal word-form in Turkish like *görüştürülmeyebilirmişiz* ‘we might not have been allowed to see each other’ there are 9 rule blocks.

(21) Pāṇini's principle (cf. Stump 2001:23): When two rules compete, the narrower rule overrides the more general rule. (Rule A is narrower than Rule B if and only if the set of stem pairings to which A is applicable is a proper subset of those to which B is applicable.)

Let us first explain how this principle works on a general example. The environment for the exponent to be realized is determined by the morphosyntactic properties in the set of form cells. So when there are two morphosyntactic property sets such as {1 sg} and {1 sg past} in the rules of exponence, the second rule is narrower than the first one since it is realized on the word-forms inflected for the past tense only. However, the first rule applies elsewhere (all other environments except past tense), which means 1SG exponent is realized differently only in past tense inflection but the same in other verbal inflectional paradigms of the related lexeme in this language.

I would like to give a specific example for the Turkish verbal paradigms whose rules of exponence have been presented in Table 37. There are three rules for the realization of '1 pl' as can be seen in Block II which are rules b, c and d. Rule d is the narrowest one since it only applies to the cells which has the property 'optative' in its morphosyntactic property set. Rule c defines that the property '1 pl' is realized in another form when the morphosyntactic property set includes either 'past' or 'conditional'. Rule b is the least narrow rule and is defined as the default realization of the content of '1 pl' unless rule c or d is applied (elsewhere condition).

To put it more clearly, for example, the rules may be defined by using the set operations as in the rule 'd' in Block II. Here, X, V, [[{cond}∨{pst}]∧{1 pl}] ⟶Xk is interpreted as when the morphosyntactic property set consists of either 'conditional' or 'past' and '1pl' as its content, it is realized as *–k* in the verbal

inflectional paradigms in Turkish as in *gel-se-k* ‘come-cond-1PL’ and *gel-di-k* ‘come-pst-1PL’.

There are some conclusions that can be drawn from the rule blocks of Turkish verbal inflection paradigms illustratred in Table X. Person and number properties are expressed non-cumulatively only for the second person plural forms in Turkish as can be seen in *gel-iyor-sun-uz* ‘come-impf-2-pl’. In this case the person property for the second person is realized via the rule of exponence in Block II whereas plurality is realized by a separate rule in Block III. For the remaining persons that are marked with a person-number marker, these properties are expressed cumulatively as in *gel-iyor-uz* ‘come-impf-1PL’ or *gel-iyor-lar* ‘come-impf-3PL’.

6.2 Content-form relation in a sample Turkish verbal paradigm

In the three-type paradigm model of the paradigm-linkage theory, there are two sorts of linkages: one is between the content and form paradigms which is through the functions of pm ‘property mapping’ and Corr ‘form correspondence’ and the other is between the form and realized paradigms which is through the rules of exponence. As explained with examples in Chapter 5 (Section 5.3), in a canonical content-form relation, the morphosyntactic properties in the content (syntax and semantics sensitive) and form paradigms (morphology sensitive) are identical. However, this rarely holds true; hence the frequently attested content-form mismatches cross-linguistically. The content-form mismatches and the content’s realization autonomously by morphology crucially support the inadequacy of morpheme-based theories and the adequacy of a paradigmatic model in which content and form paradigms are separated.

Now let us first illustrate the content-form relation in the conditional paradigm of the lexeme GEL ‘come’ in Figure 1 and then continue with other sample paradigmatic illustrations to display the basics of the paradigm-linkage theory and how it models the Turkish data.

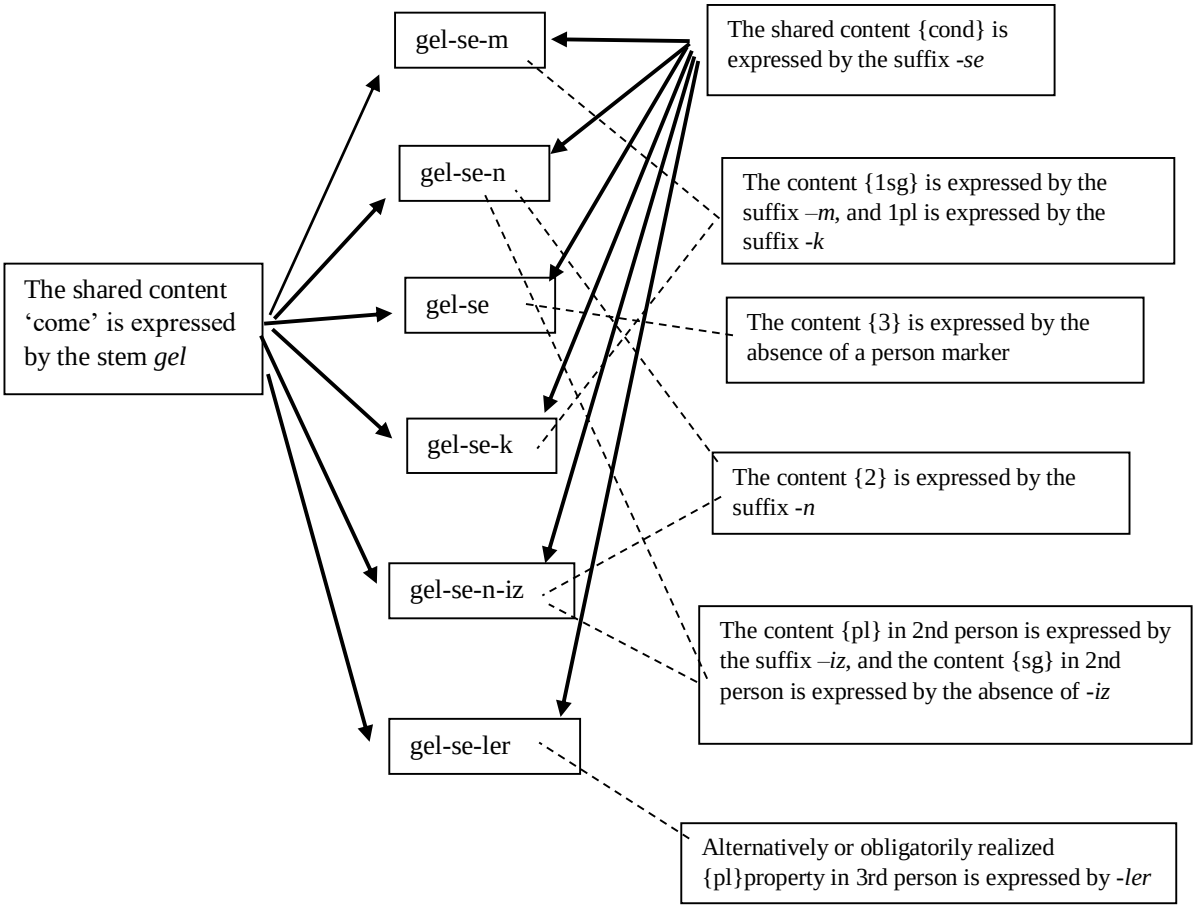

Figure 1. Content-form relation in the conditional paradigm of the lexeme GEL ‘come’ in Turkish

Since the non-canonical patterning in Turkish person-number inflectional classes are displayed and analyzed in the following section, I proceed with providing a sample of three types of paradigms based again on the conditional paradigm of the lexeme GEL ‘come’ in Turkish in Table 38:

Table 39. Three Types of Paradigms for the Conditional Paradigm of the Lexeme GEL ‘come’ in Turkish

Content cells (syntax and semantics sensitive) <L, σ>		Form cells (morphology sensitive) <Z, τ>		Realized cells (morphology sensitive) <w, τ>
<GEL, {1 sg cond}>	⇒	<*gel*, {1 sg cond}>	→	<*gelsem*, {1 sg cond}>
<GEL, {2 sg cond}>	⇒	<*gel*, {2 cond}>	→	<*gelsen*, {2 cond}>
<GEL, {3 sg cond}>	⇒	<*gel*, {3 cond}>	→	<*gelse*, {3 cond}>
<GEL, {1 pl cond}>	⇒	<*gel*, {1 pl cond}>	→	<*gelsek*, {1 pl cond}>
<GEL, {2 pl cond}>	⇒	<*gel*, {2 pl cond}>	→	<*gelseniz*, {2 pl cond}>
<GEL, {3 pl cond}>	⇒	<*gel*, {3 cond}>	→	<*gelse*, {3 cond}>
	⇒	<*gel*, {3 pl cond}>	→	<*gelseler*, {3 pl cond}>

As mentioned above the canonicity of a paradigm is mostly in accordance with the sameness of the morphosyntactic property sets in the content cell with those in the form cell. If there is a mismatch between these sets, a non-canonical pattern occurs, which can be observed in the paradigmatic structure above. Let us first take the example of the second person person singular. As I highlighted while explaining the rules of exponences for Turkish verbal inflectional paradigms, number feature is neutralized in the realization of second person exponent *–n* which is realized through a Block II rule. In other words, whenever there is the person property ‘2’ in the set independent of the number property, -n is realized in the second slot via this Block II rule. Consequently, it is realized on both second person singular and plural word-forms; hence, the exclusion of the property singular from the morphosyntactic property set in the form cell of the second person in Block II. However, since second person plural is additionally marked for the number property by a consecutive rule in Block III, the property set of the form cell in Block III includes an additional ‘pl’ property as in {2 pl}.

As for the third person, another form of non-canonicity is attested. Since it is elaborated on in Section 6.3.1, I will briefly return to it here. Two important aspects of non-canonical behavior of third persons are as follow: i) Since the number property is neutralized, it is excluded from the property set in the form cell; hence the inflection of both 3SG and 3PL word-forms as *gel-se* 'come-COND'. ii) In addition to the number neutral word-form of third person, depending on the context, {3 pl} content is either alternatively or obligatorily realized via the exponent *–lAr* as well, which leads to two different realizations of the same content (overabundance) (see Section 6.3.1).

In summary, two non-canonical patterns of inflectional paradigms are observed in Table 38 above. First, the morphosyntactic property sets in content and form paradigms are not the same in second person singular and third persons. Secondly, for the content {3 pl cond} there are more than one corresponding form cell. Now let us proceed with the analyses of content-form mismatches attested due to the behavior of person-number markers in Turkish inflectional paradigms.

6.3 Content-form mismatches in Turkish verbal inflectional paradigms

The paradigm–linkage theory proposes that the canonicity is granular at three different levels where sameness is expected in content and form cells: i) at the level of morphosyntactic properties ii) at the level of stems iii) at the level of paradigms (Stump 2016). Additionally, Stump groups the non-canonical morphological patterns of word-forms or exponents under six kinds of content-form mismatches, which are summarized in (22):

(22)

(i) Underdetermination: The morphosyntactic property set of the form cell (τ) differs from that of content cell in that at least one of the properties is not marked morphologically, which causes underdetermination of that property on the word form as in syncretism.

(ii) Overt form-content conflict: A morphosyntactic property in the content cell is expressed with the usual exponent of a different property morphologically as in deponency.

(iii) Extended exponence: A morphosyntactic property is expressed with more than one exponents in a word-form, which also poses counter-evidence for the assumption of morpheme-based theories that there is one-to-one content-form mapping in affixes.

(iv) Overlapping (cumulative: my addition) exponence: An exponent marks more than one morphosyntactic property in a word-form.

(v) Amorphousness: As opposed to phrasal structures generally shaped by Phrase Structure Rules in a similar fashion cross-linguistically, morphological properties are expressed in quite different ways across languages. This condition is linked to Anderson's (1992) 'amorphousness hypothesis': Noncompound word forms have no internal hierarchical structure other than their prosodic or phonological structure.

(vi) Non-concatenatively inflected word-forms

After having laid out the parameters for non-canonical morphological patterns in the introduction of this section, in the following sub-sections, I show how Turkish person-number agreement system deviates from the canonicity by focusing on the content-form mismatches summarized above.

6.3.1 Underdetermination of the third person forms

As stated in Stump (2016), in canonical paradigms, the word-form is supposed to include markers of all the morphosyntactic properties in its content paradigm; in other words, it is supposed to carry exponents of all the categories it is inflected for. This is not a commonly attested phenomenon within the paradigms though. Most inflected words do not always contain an overt exponent for all the morphosyntactic properties it realizes. Syncretism is the clearest example of underdetermination of one or more properties in the realized word-forms in a paradigm.

Third person word-forms behave irregularly in multiple ways: Firstly, except inflectional class 2 (Imperative paradigm), third person property does not have an overlapping exponent whereas the canonical inflection criterion assumes an exponent for each of the category as defined above. Secondly, in all of the inflectional classes the third person singular and plural forms exhibit syncretism in certain contexts where the number property is underdetermined. Let us illustrate this by repeating a fragment of Table 38 as Table 39 and repeat that this behavior of third person is uniform in all the inflection paradigms in Turkish.

Table 40. A Fragment of the Conditional Paradigm of the Lexeme GEL 'come' in Turkish

Content Cell		Form Cell		Realized Cell
<GEL, {3 sg cond}>	⟹	<*gel*, {3 cond}>	⟶	<*gelse*, {3 cond}>

The representation above illustrates the following: The property singular in the content cell does not appear in the property set of the form cell. Since the number feature is not distinguished morphologically in the property set of the form cell, 3SG and 3PL forms can be realized identically in Turkish in certain contexts, which sets

an example for syncretism. Additionally, the patternof the 3rd person forms is a source of another non-canonicity in terms of the lack of an overt exponence mapping onto one of the morphosyntactic properties, i.e. person, in the content cell.

6.3.2 Alternative realizations of the same person-number properties in different paradigms

This study proposes that dissimilar realizations of person-number markers within different inflectional paradigms pattern with inflectional classes that are known to exist in stem alternating languages such as Georgian, Latin and Greek (see Section 4.2). So far, Turkish person-number markers have been classified into groups according to the paradigms they appear in. However, this study makes new proposals regarding the behavior of the person-number markers in different paradigms. I propose Turkish has four verbal inflectional classes (laid out in the introduction and Chapter 4) which is supported by the fact that the existence and patterning of different classes of person-number markers in Turkish are analogous to the well-known cross-linguistic examples of inflectional classes[29] (Section 4.2).

Now let us show how the same person-number properties are expressed in different forms across paradigms on an example. In Turkish the first-person plural content has three different realizations in three different verbal paradigms as Table 40 displays:

[29] In most typical case of inflectional classes is that the lexemes (vocabulary items) in a language is partitioned in different classes depending on the set of exponents the lexemes in that language is inflected for. However, due to the variety and complexity of morphological architectures of languages, many concepts like the notion of inflectional classes have neither a clear definition in the literature nor a uniform structure cross linguistically. The key point of inflectional classes is that the same content is realized in different forms acting as multiple sets paradigmatically. This is what happens in Turkish inflectional paradigms as well.

Table 41. Different Realizations of {1pl} across the Inflectional Paradigms of the lexeme GEL 'come' in Turkish

Class	example word-form	meaning
Inflectional class 1	gel-se-**k**	'if we came'
Inflectional class 2	gel-e-**lim**	'we shall come'
Inflectional class 3	no form	
Inflectional class 4	gel-eceğ-**iz**	'we will come'

This pattern poses non-canonicity in terms of expressing the same morphosyntactic property in three different forms as explained in Sections 3.2, 3.3, 6.3. Below I compare the verbal paradigms to Turkish declensional paradigms some examples of which are illustrated in Table 41.

Table 42. Turkish Case Paradigms of the Lexemes KADIN 'woman' and YAZ 'summer'

Nom	kadın	yaz
Acc	kadın-ı	yaz-ı
Dat	kadın-a	yaz-a
Abl	kadın-dan	yaz-dan
Loc	kadın-da	yaz-da
Gen	kadın-ın	yaz-ın
Com	kadın-la	yaz-la
Inst	kadın-la	yaz-la

Unlike the verbal paradigm, the same case properties are expressed in the same way in the two paradigms above. However, note that the expression of comitative and instrumental cases with the same exponent and the stem alternation in the case paradigm of the pronouns (see Table 2 in Chapter 1) poses evidence against the generalization 'Turkish case paradigms are canonical'.

One can claim that lternative realizations of the same content (person-number) in different paradigms are somehow analogous to the 'shape alternants' (Zwicky, 1990; 1992). Shape alternation is the result of having more than one form cell corresponding to a content cell in the paradigm. As is well known, French adjectives agree with the noun in number and gender (23). But when a vowel-final adjective precedes a vowel-initial masculine noun, the consonant-final shape alternant of the adjective is used which is homophonous with the feminine form as shown in (24):

(23)

a. *un beau* [bo] *tableau* 'fine painting'

b. *une belle* [bɛl] *peinture* 'a fine painting'

(24)

a. *un bel* [bɛl] *ami* 'a fine friend (male)'

b. *une belle* [bɛl] *amie* 'a fine friend (female)' (Stump, 2016: 152)

[bɛl] in (24a) is the phonologically conditioned alternant of [bo] in (23a). Shape alternants are either phonologically or syntactically conditioned.

The existence of different realizations of the same person-number properties in different paradigms has a significant difference though. In verbal inflection paradigms person and number properties are always included in a content cell including a tense, aspect or mood property as well. So a full content cell like <GEL, {1 pl cond}> has only one corresponding form and realized cell which are <*gel*, {1 pl cond}> and <*gelsek*, {1 pl cond}> respectively. Person-number properties such as first person plural are a subset of the set of the all morphosyntactic properties in the content cell. In this case, it would not be correct to call this phenomena a shape alternation. Nonetheless, let us state here that there are two similarities between

shape alternants and alternative realizations of the person-number markers in Turkish inflectional paradigms: Firstly, different forms of the person-number exponents are determined by the presence of an adjacent "trigger" (TAM marker in our case) similar to the syntactically conditioned alternants. Secondly, the alternative realizations of the same property are in complimentary distribution.

6.3.3 Overabundance in Turkish inflectional paradigms

Overabundance arises when there are more form or realized cells mapping onto a single content cell. All of the Turkish verbal inflectional paradigms are non-canonical in this respect since there two form cells (either one or both of which can be realized in the same context (see Section 6.3.1) in each paradigm. This behavior of the third person plural sets examples for overabundance. Let us illustrate the overabundant forms by providing one exemplary paradigm from each inflectional class in Table 42.

Table 43. Third Person Plural Inflection of the Lexeme GEL 'come' in Different Turkish Paradigms

	Inflectional class 1 (past/perf)	Inflectional class 2 (optative)	Inflectional class 3 (imperative)	Inflectional class 4 (future)
3PL	gel-di gel-di-ler	gel-e gel-e-ler gel-sin gel-sin-ler	gel-sin gel-sin-ler	gel-ecek gel-ecek-ler

As outlined in detail in Section 6.3.1, overabundant forms of third person plural inflected verbs are also the source of another non-canonical patterning: underdetermination where the word-forms without the exponent *–lAr* lack the number property {pl} in their form cells as these word-forms occur in 3SG and 3PL cells as opposed to the other person cells in the full paradigm of the verbal lexemes.

Another case of overabundance is attested in the inflection of optative mood. There are two realized word-forms for the second and third persons in this paradigm (see Table 37). Let us continue exemplifying this on the optative mood paradigm of the lexeme GEL 'come'. The two word-forms for the content {2 sg opt} are: *gel-e-sin* or *gel*. The former is with the optative marker *–A(y)* and the latter includes only the verbal stem. The same applies to the third person cells in the optative paradigm. {3 sg opt} content can be realized as *gel-e* or *gel-sin.*

Lastly, overabundant forms are attested in the imperfective paradigm of the verbal lexemes. There are two exponents realizing the content of imperfective aspect in Turkish: *-Iyor* and *–mAktA*, which leads to overabundant forms in all the cells of imperfective paradigm in verbal inflection. For example, the content {1 sg impf prs} can be realized as *gel-iyor-um* and *gel-mekte-yim* 'I am coming' (see Table 37) or similarly the content {2 sg impf pst} has *gel-iyor-du-n* and *gel-mektey-di-n* 'you were coming' word-forms in the realized paradigms.

6.3.4 Deponency-like behavior of *–sIn* in Turkish

The most obvious overt form-content mismatch is deponency. 'Deponere' in Latin corresponds to 'to lay aside' in English, which suggests that deponent verbs in Latin have laid aside their passive meaning in favor of active meaning (Stump, 2016). Deponency in morphology is best known for a group of Latin verbs on which the formal passive exponents in the language denote active meaning. This group of verbs does not have any other forms with passive voice as Table 43 exhibits.

Table 44. A Fragment of the Present Indicative Inflection of a Non-Deponent and Deponent Verb of Second-Conjugation in Latin

	MONĒRE ‘advise’ (non-deponent)		FATĒRĪ ‘confess’ (deponent)
	Active	Passive	Active
1SG	moneō	moneor	fateor
2SG	monēs	monēris	fatēris
3SG	monet	monētur	fatētur
1PL	monēmus	monēmur	fatēmur
2PL	monētis	monēminī	fatēminī
3PL	monent	monentur	fatentur

(Stump, 2016: 200)

Form deponency is defined as “the use of the same inflectional morphology to realize a distinct morphosyntactic content in a distinct paradigm” (Stump, 2016: 197). This definition and the replacement of active morphology with passive markers in Latin deponency motivate my proposal that the appearance of *–sIn* (the second person marker in the default inflectional class) on the 3rd person in Imperative (inflectional class 3) paradigm behaves similarly to the mismatch type of form deponency. Since morphological phenomena do rarely have a clear-cut definition and only one form, I consider that the notions can always be extended based on cross-linguistic data. Like the case of inflectional classes and shape alternation in the previous chapters and sections, this deponency-like behavior of *–sIn* bears both similarities to and differences from the canonical deponency. The similarities are as follows: *–sIn* is the second person exponent in the default inflectional class (Class 4) and it is a clitic which is diachronically the reduced form of the second person pronoun *sen* ‘you’ in Turkish (Erdal, 2000) as the affixes in the passive paradigm of non-deponent verbs are default passive markers in Latin. Additionally, where *-sIn* marks the third person, the second person forms do not have an overt person exponent, which is a typical behavior of the third person forms in Turkish. Likewise, in Latin deponent verbs with passive markers denoting active meaning do not have passive counterparts. In other

words, this bears some similarity to the replacement of active meaning with the passive meaning in deponent Latin verbs as formulized in Table 44.

Table 45. Deponency of *–sIn* in Turkish Verbal Paradigms

Default Inflectional class (4)	{2} ⟶ X*sIn* (Default exponence of 2nd person)
	{3} ⟶ X (Default form of 3rd person)
Inflectional class (3)	{2} ⟶ X (Default form of 3rd person)
	{3}⟶ X*sIn* (Default exponence of 2nd person)

The paradigms of these two classes are exhibited in Table 45 to observe the deponent-like patterning:

Table 46. Inflectional Class 3 and a Sample Paradigm from Class 4 of the Lexeme GEL 'come' in Turkish

	Imperative (Class 3)	Aorist (Class 4)
1SG		gel-ir-im
2SG	gel	gel-ir-**sin**
3SG	gel-**sin**	gel-ir
1PL		gel-ir-iz
2PL	gel-in	gel-ir-**sin**-iz
3PL	gel-**sin** gel-sin-ler	gel-ir gel-ir-ler

There are two main differences of this case from the form deponency observed with the Latin deponent verbs. First, the default passive exponents of all persons occupy exactly the same cells in the same form in the active paradigm of deponent verbs in Latin. That is, they act as a full set whereas in Turkish the meaning switch of the person exponents is between the second and third persons. However, this point is not a type of strong counter-evidence given that there are no first person forms in the imperative paradigm. Second, while Latin deponent verbs do not have a Passive paradigm, the Imperative paradigm in Turkish has second person forms. Again this

may not be so relevant as what we talk about in Turkish paradigms is the form switch of the default second and third person exponents in inflectional class 3.

The significance and the similarity of the second and third person patterning in inflectional class 3 to deponency can be summarized as follows: In Turkish Imperative paradigms, the second and third persons have laid their default exponents on the word-forms which are X*sIn* and X respectively. Moreover, the third person is marked with the second person default exponent whereas the second person is marked in the same way the third person is marked in the other verbal paradigms, which is analogous to the active-passive morphology switch in Latin deponent paradigms. Another interesting point regarding *–sIn* is that it only appears in either the second person cells or the third person cells in a paradigm, not in both, which is similar to the passive morphology appearing only in active paradigms of Latin deponent verbs.

As noted before, the mapping between the content and the form cell is through property mapping '*pm*' in the paradigm-linkage theory. It is the property mapping function which replaces the person properties of '2' and '3' in the content cells with and '3' with '2' in the form cells in Inflectional Class 3 in Turkish.

Inflectional class marking is normally subject to a regular property-mapping which simple adds the morphosyntactic property set (σ) to the inflection-class index c. The realization of the morphosyntactic properties in that class is determined in accordance with the inflection-class index, which shows which inflection-class is at work for that inflection process. As for the Turkish Imperative paradigm, when 'imperative' property is in the set, however, the realization is subject to another property mapping which replaces the default person marking of the second and third

persons and results in a deponency sort of non-canonicity in Turkish inflectional paradigms.

A morpheme-based theory would analyze this phenomenon by assuming that there exist two homophonous *–sIn* morphemes in the lexicon: the first one mapping onto the second person content and the second one mapping onto the third person. However, a morpheme-based analysis cannot capture the following interesting and important points about this patterning: i) Without making reference to the paradigms, it is not possible to say in which contexts *–sIn* maps onto the second or the third persons. ii) There is a role switch of *–sIn* from its default content to the third person in another inflectional class. A non-paradigmatic analyses would miss the relatedness of *–sIn* to *sen* 'you'. iii) The default formal realization of the third person (without a person-number exponent) is taken over by the second person in Class 3. This pattern switch is also not attestable in a morphemic analysis which only focuses on the syntagmatic composition (morphotactics) of the morphemes in a non-paradigmatic approach.

Broadly speaking, there are two important weaknesses of morpheme-based analyses of the content-form mismatches, which would appeal to the ones in the following sections as well. Firstly, the affixes never surface independently in language and their function is actually interpreted through their paradigmatic behavior by observing the full word-forms. Secondly, an inflectional word-form is the output of the mapping of a morphosyntactic property set onto a stem of a given lexeme in a canonical or non-canonical way. A morpheme-based theory would only be problem-free in concatenated word-forms where one-to-one form-meaning mapping holds. On the other hand, non-concatenated forms or content-form

mismatches would not be a problem for a word-based paradigmatic account in which language-specific paradigm functions allows for all kinds of property mappings.

6.3.5 Heteroclitic second person forms

In some languages with stem alternation and inflectional classes, some lexemes have heteroclitic inflectional paradigms. Heteroclisis occurs when a lexeme's inflectional paradigm is hybrid, that is some of the cells are inflected with the markers of one class, and other cells are inflected with the markers of another class. A sample of a heteroclitic paradigm is illustrated in Table 46.

Table 47. A Fragment of a Heteroclitic Declension of Latin ARX 'citadel'

		TUSSIS (f.) 'cough'	ARX (f.) 'citadel'		PRĪNCEPS (m.) 'chief'
Declension:		3rd, i-stem			3rd, c-stem
Sg	NOM	tussis		ar[ks]	prīnceps
	GEN	tussis	←arcis→		prīncipis
	DAT	tussī	←arcī→		prīncipī
	ACC	tussim		arcem	prīncipem
	VOC	tussis		ar[ks]	prīnceps
	ABL	tussī		arce	prīncipem
Pl	NOM	tussēs	←arcēs→		prīncipēs
	GEN	tussium	arcium		prīncipum
	DAT	tussēs	←arcēs→		prīncipēs
	ACC	tussīs, ēs	arcīs, ēs		prīncipēs
	VOC	tussēs	←arcēs→		prīncipēs
	ABL	tussēs	←arcibus→		prīncipibus

(Stump, 2016: 185)

As can be observed from the paradigm, TUSSIS 'cough' and PRĪNCEPS 'chief' belong to i-stem and c-stem declension classes respectively. As for the lexeme ARX 'citadel', it has a hybrid paradigm; i.e. whereas ACC, VOC and ABL singular word-forms are inflected with the exponents of c-stem declension class, GEN and ACC plural forms are inflected with those of i-stem inflectional class. The exponents that realize the case and number properties of other cells are the same in i- and c-stem paradigms.

Stump defines heteroclisis as "the property of a suppletive paradigm whose independent stems belong to distinct inflectional classes" (2016:185). Based on the key concept of distinct inflectional classes in this definition and the heteroclitic behavior of the data in Table 46 above, I propose that the second person cells in the casual imperfective paradigm (Class 4) exhibit a pattern of this sort[30] since they have alternative forms inflected with the Class 1 second person forms *gel-iyo-<u>sun</u>* ~ *gel-iyo-n* 'you are coming'. The paradigms of Class 1 and Class 4 including the heteroclitic ones are displayed in Table 47.

Table 48. Heteroclitic Second Person Forms in Turkish

		Class 1 Past / Perf	Heteroclitic (hybrid) paradigm Casual Imperf (-Iyo)	Class 4 Casual Imperf (-Iyo)
Sg 1		gel-di-m	←gel-iyo-m→	gel-iyo-m
2		gel-di-n	gel-iyo-n	gel-iyo-sun
3		gel-di	←gel-iyo→	gel-iyo
Pl 1		gel-di-k	gel-iyo-z	gel-iyo-z
2		gel-di-n-iz	gel-iyo-n-uz	gel-iyo-sun-uz
3		gel-di gel-di-ler	←gel-iyo→ ←gel-iyo-lar→	gel-iyo gel-iyo-lar

Within the heteroclitic paradigms, Class 1 second person-number exponent, *-n* is realized on the word-forms that originally belong to Class 4 as in *gel-iyo-n-uz* (instead of *gel-iyo-sun-uz*) 'you're coming'. On the other word-forms, however, Class 4 person-number exponents remain some of which are common in both paradigms as in Latin data in Table 46. This also provides strong evidence for the

[30]My observation as a native speaker of Turkish is that this type of inflection is used by some speakers as the default paradigm, and by some only in casual speech. The heteroclitic paradigms in Turkish differ from the ones displayed in Table 46 since the Turkish heteroclitic inflection is an alternative to the standard paradigms of the related inflections.

interaction between the inflectional paradigms in a language and the theoretical significance of paradigms discussed in Chapter 3 Section 3.4.

To summarize, the content-form mismatches attested in the person-number exponence patterns in Turkish inflectional paradigms are significant indicators for the overlooked irregularities in Turkish morphology. These mismatches crucially point at the necessity of a paradigmatic approach to account for the data, a primary reason of which is the fact that when examined closer, irregularities are observed to follow a regular pattern.

6.4 Summary

In this chapter I first showed how some of the inflectional paradigms and the structure of certain Turkish data can be modelled within the paradigm-linkage theory. I then presented the content-form mismatches that are my own observations resulting from the irregular behavior of Turkish person-number exponents and some theoretical analyses of these mismatches within the paradigm-linkage theory. It was demonstrated that the irregularities mostly attested in stem-alternating languages which point at the existence of non-canonical inflection paradigms exist in a supposedly transparent and highly regularly agglutinating language, Turkish.

CHAPTER 7

CONCLUSION

7.1 Summary of the claims and findings

This study has provided evidence for the existence of non-canonical morphological patterns. The focus of the study is on the paradigmatic structure of the Turkish verbal inflectional domains and the patterns of the person-number markers within these structures. When examined closer, these mostly overlooked irregular morphological patterns were observed to accommodate various types of content-form mismatches mostly analyzed in stem-alternating languages. What makes these Turkish non-canonical patterns important is the fact that they show the requirement to reconsider the partially wrong label that Turkish morphology has been given in most grammar books and typological studies. The primary contribution of this study is as follows:

Firstly, it shows that inflectional classes can be extended to a language like Turkish where different lexemes are not grouped into different classes based on the specific set of inflectional affixes that are realized on them. Regarding the Turkish verbal paradigms, the complex stem (stem+TAM marker) or the non-inflected stem with any TAM marker (in the Imperative paradigm) function like the stems of different vocabulary items in typical inflectional classes. The TAM marker inflected stems are classified according to the set of person-number markers that are realized on them as property exponents. At this point, it is important to emphasize that since the TAM marker on the complex stem is determined by the morphosyntactic property set in the form cell (e.g.{1 sg past}), the morphosyntactic property set acts as the primary class assigner.

Secondly, both the structures of the Turkish verbal inflectional paradigms and the content-form mismatches resulting from the irregular behavior of person-number exponents in these paradigms were modelled and analyzed within a word-based paradigm-function theory systematically for the first time.

On the other hand, the data and analyses in this study have implications about the architecture of grammar. As known, there are different views about the place of morphology in grammar. Briefly speaking, not all researhers consider morphology as an autonomous component. Rather than an individual combinatorial module, in certain frameworks morphology is regarded as part of syntax or lexicon. One of the main motivations to integrate morphology into another component is to have a less complicated grammar. However, as stated in Fábregas and Scalise (2012) it should be noted that regarding morphology whose principles are rather dissimilar as part of another component of grammar would make this component too complicated. As emphasized frequently throughout this study, inflectional morphology is at the interface of syntax, semantics and morphology and there is enough evidence for the autonomy of morphology in the literature (see Anderson, 1992; Göksel, 2006 and Kunduracı, 2013 and for an overview).

Morphologically conditioned alternative realizations of person-number markers, their distribution among different inflectional classes, stem alternations within the same paradigm of a lexeme (e.g. *ben-i* 'me' ~ *ban-a* 'to me' in the case paradigm of pronouns in Turkish), underdetermination of some morphosyntactic properties in the formal realizations (e.g. number property in the 3rd person cells) justify that morphology is an independent autonomous computational sysem. The content-form mismatches and the way they are accounted for in this study show that morphology has its own internal architecture and this architecture is not reducible to

or can be integrated into any other component of grammar. I believe this independency of morphology, to a great extent, overlaps with Aronoff's (1994) concept of 'morphomic level' which is the module of morphology proper that lets morphological patterns act in various unpredicatable ways.

Treating Turkish verbal inflectional paradigms as inflectional classes has some theoretical implications. It supports the view that inflectional paradigms are primitives (see Chapter 3, Section 3.4) for two main reasons. Firstly, Turkish verbal paradigms act exactly in the same way as the inflectional paradigms of a language with different lexeme-based inflectional classes since rules of different exponents with the same content compete within the same rule blocks. Secondly, the regularities and irregularities that follow a regular pattern can only be analyzed through the behavior and structure of the word-forms within the same paradigm and across different paradigms[31].

In Chapter 2, some previous studies that deal with the mostly overlooked non-canonical part of Turkish morphology were summarized to provide evidence against the predominant view about Turkish morphology as highly canonical.

Chapter 3 presented the main concepts and terms about the inflectional paradigms and provided cross-linguistic examples of both canonical and non-canonical inflectional paradigms and showed that inflectional paradigms are important to attest the relations of the word-forms along with the intra- and trans-paradigmatic behavior of the exponents. Turkish data supported the view that inflectional morphology, a syntax-morphology-semantics interface phenomenon, is

[31] See Kunduracı (2013) for the derivational paradigm structure in Turkish which highlights the descriptive and theoretical need for paradigms.

paradigmatic by its nature, which may contribute to the debate about the theoretical significance of inflectional paradigms.

Chapter 4 provided the data: Inflectional classes in Turkish where various packs of person-number exponents are realized on the word-forms depending on the morphosyntactic property set of the content. I emphasized that the forms of these markers have a lot more to say than their phonological shape in different environments or their identity as clitics or affixes. I proposed that different sets of person-number markers in different paradigms function as inflectional classes where the same morphosyntactic property is realized dissimilarly. I argued that 'stem+TAM marker' in Turkish verbal inflection paradigms corresponds to 'stem' in the languages where inflectional classes of different lexemes exist.

Chapter 5 presented the preliminaries, basic tenets and key concepts of the paradigm-linkage theory (Stump, 2016), the theoretical framework of this current study, through cross-linguistic data. It was observed that the inflectional data from different languages with content-form mismatches of the exponents and stem alternations support the existence of three different paradigmatic structure (content-form-realized) in the inflectional morphological architecture of a language.

In Chapter 6, firstly, the Turkish verbal inflectional paradigms were modelled within the paradigm-linkage theory. Secondly, I demonstrated that these paradigms accommodate nearly all of the content-form mismatches that would count as good examples of irregular morphological structures in a language. I argued for the existence of paradigmatic mismatches resulting from the irregular patterning of person-number agreement markers such as underdetermination, overabundant forms, alternative realizations of the same properties, heteroclisis and deponency and presented their analyses within the paradigm-linkage theory.

7.2 Suggestions for further research

The aim of this study was to explore the behavior of different sets of person-number markers within the Turkish verbal inflection paradigms. Due to this scope, some important and interesting issues that took our attention during this research had to be left for further studies. Firstly, another pack of person-number markers exists in the possessive paradigm of Turkish as well. The interesting point about this paradigm is that the structure and the materialization of the person-number exponents here are fairly similar to and even identical in most cells with the ones in the verbal inflectional paradigms as can be seen in Table 48.

Table 49. Conditional and Aorist Paradigms of the Lexeme GEL 'come' and Possessive Paradigms of the Lexemes EV 'house' and ARABA 'car' in Turkish

	Inflectional Class 1 (conditional)	Inflectional Class 4 (aorist)		Possessed Noun	Possessed Noun
1SG	gel-se-**m**	gel-ir-**im**		ev-**im**	araba-**m**
2SG	gel-se-**n**	gel-ir-**sin**		ev-**in**	araba-**n**
3SG	gel-se	gel-ir		ev-**i**	araba-**sı**
1PL	gel-se-**k**	gel-ir-**iz**		ev-**im-iz**	araba-**m-ız**
2PL	gel-se-**n-iz**	gel-ir-**sin-iz**		ev-**in-iz**	araba-**n-ız**
3PL	gel-se	gel-ir		ev-**i**	araba-**sı**
	gel-se-**ler**	gel-ir-**ler**		ev-**ler-i**	araba-**lar-ı**

One should note here that many diachronic studies point at the evolution of Inflection Class 1 person-number exponents in the verbal domain from the Possessive paradigm. That is why, in many linguistic and grammar books written in Turkish, this set of person markers are called 'possessive-originated' person markers (Korkmaz, 2003; Yavuzarslan, 2011 among others). I consider that three points are really interesting about this issue: (i) The set of person markers of a nominal paradigm is noted to have been copied onto a verbal paradigm except for some (diachronic) changes, which is not a commonly attested phenomenon cross-

linguistically. (ii) This may have direct implication about the cross-categorial transparadigmatic relations within the grammatical architecture. (iii) In a broader sense, there may be conclusions to be drawn from this phenomenon about the occasionally questioned distinction between the two main word categories: nouns and verbs.

Secondly, as many times mentioned in this study, it is not only the person-number exponents that lead to content-form mismatches in Turkish inflectional paradigms. TAM markers also need a systematic and comprehensive theoretical analysis in this respect since they behave non-canonically in terms of marking more than one category in different environments or being cumulative exponents of more than one property among other factors.

Thirdly, the verbal inflectional paradigms in this study were limited to the one TAM marker including domains. However, it is known that depending on the content, a Turkish verbal word-form can accommodate more than ten exponents and the paradigms consisting of more complex word-forms need analysis as well.

Lastly, this study includes only the person-number markers used in Standard Turkish spoken in Turkey. When different regional dialects are taken into consideration, the form of the person exponents and the structure of the paradigms show great variety. For example, whereas the third person singular word-forms are not marked with a person exponent in some paradigms in Standard Turkish, the third person is marked in some dialects either alternatively or permanently. The structure of these paradigms and the forms of person-number markers are waiting to be explored as new research topics.

REFERENCES

Ackema, P., & Neeleman, A. (2004). *Beyond morphology: Interface conditions on word formation* (Vol. 6). Oxford: Oxford University Press.

Anderson, S. R. (1992). *A-morphous morphology*. Cambridge: Cambridge University Press.

Aronoff, M. (1994). *Morphology by itself: Stems and inflectional classes*. Cambridge, MA: MIT Press.

Aronoff, M., & Fudeman, K. A. (2005). *What is morphology?*. Malden, MA: Blackwell.

Aski, J. M. (1995). Verbal suppletion: an analysis of Italian, French, and Spanish to go. *Linguistics 33.* 403-432.

Baker, M. (1985) The mirror principle and morphosyntactic explanation. *Linguistic inquiry, 16*(3), 373-415.

Baker, M. C. (1992). Morphological classes and grammatical organization. In *Yearbook of Morphology 1991* (pp. 89-106). Dordrecht: Springer.

Beecher, H. (2004). *Derivational paradigm in word formation*. Retrieved from http://pdfcast.org/pdf/researchpaper-i-derivational-paradigm-in-word-formation).

Beard, R. (1995). *Lexeme-morpheme base morphology*. Albany: State University of New York Press.

Blevins, J. P. (2006). Word-based morphology. *Journal of Linguistics, 42*(3), 531-573.

Bobaljik, J. D. 2002. Syncretism without paradigms: Remarks on Williams 1981, 1994, in G. Booij & J. van Marle (eds.), *Yearbook of Morphology 2001*. Dordrecht: Kluwer. 53-85.

Bobaljik, J. D. (2008). Missing persons: A case study in morphological universals. *The Linguistic Review, 25*(1-2), 203-230.

Bonet, E., & Harbour, D. (2012). Contextual allomorphy. In J. Trommer (Ed.), *The morphology and phonology of exponence* (pp. 195-235). Oxford: Oxford University Press.

Carstairs-McCarthy A. (1998). Paradigmatic structure: Inflectional paradigms and morphological classes. In A. Spencer & A. Zwicky (Eds.), *The Handbook of Morphology* (pp. 322-334). Oxford: Blackwell.

Corbett, G. G. (2005). The canonical approach in typology. In Z. Frajzyngier, A. Hodges & D. S. Rood (Eds.), *Linguistic diversity and language theories* (pp. 25–49). Amsterdam: John Benjamins.

Corbett, G. G. (2007). Canonical typology, suppletion, and possible words. *Language, 83*(1), 8-42.

Corbett, G. G. (2009). Canonical inflectional classes. In F. Montermini, G. Boyé & J. Tseng (Eds.), *Selected proceedings of the 6th Décembrettes: Morphology in Bordeaux*, 1-11. Somerville, MA: Cascadilla Proceedings Project.

Demircan, Ö. (1978). Türkiye Türkçesinde vurgulama ve odaklama. *Türk Dili Araştırmaları Yıllığı Belleten, [1981], 1979*, 157-163.

Di Sciullo, A. & Williams, E. (1987). *On the Definition of Word*. Cambridge, MA: MIT Press.

Erdal, M. (2000). Clitics in Turkish. *Studies on Turkish and Turkic Languages*, 41-55.

Fábregas, A., & Scalise, S. (2012). *Morphology: From data to theories.* Edinburgh: Edinburgh University Press.

Finkel, R., & Stump, G. (2007). Principal parts and morphological typology. *Morphology*, *17*(1), 39-75.

Finkel, R., & Stump, G. (2007). Principal parts and morphological typology. *Morphology*, *17*(1), 39-75.

Good, J., & Yu, A. C. (2005). Morphosyntax of two Turkish subject pronominal paradigms. *Clitic and Affix Combinations: Theoretical Perspectives, 74*, 315-374.

Göksel, A. & Kerslake, C. (2005). *Turkish: A comprehensive grammar*. London: Routledge.

Göksel, A. (2006). Pronominal participles in Turkish and lexical integrity. *Lingue e Linguaggio*, (1), 105-126.

Göksel, A. (2009). Compounds in Turkish. *Lingue e Linguaggio*, (2), 213-236.

Göksel, A. (2013). *Ling 300 Morphology.* Personal Collection of A. Göksel, Boğaziçi University, İstanbul

Halle, M. & Marantz, A. (1993). Distributed Morphology and the Pieces of Inflection. In K. Hale & S. J. Keyser (Eds.), *The ViewFrom Building 20* (pp. 111-176). Cambridge, MA: MIT Press.

Hankamer, J. (1989). Morphological parsing and the lexicon. In *Lexical representation and process* (pp. 392-408). MA: MIT Press.

Harley, H. & Noyer, R. (1999). State-of-the-Article: Distributed Morphology, *Glot International* 4.4, 3-9

Haspelmath, M., & Sims, A. (2013). *Understanding morphology*. London: Routledge.

Kabak, B. (2007). Turkish suspended affixation. *Linguistics*, 45(2), 311-347.

Korkmaz, Z. (2003). *Türkiye Türkçesi grameri*. Ankara: TDK Yay.

Kornfilt, J. (1986). The stuttering prohibition and morpheme deletion in Turkish. In A. Aksu-Koç & E. Erguvanlı-Taylan (Eds.), *Proceedings of the second conference in Turkish linguistics* (pp. 58-83). Istanbul: Boğaziçi University Publications.

Kornfilt, J. (1996). Turkish and configurationality. *Current Issues in Turkish Linguistics*, 1, 111-125.

Kornfilt, J. 1997. *Turkish grammar*. New York: Routledge.

Kunduracı, A. (2013). *Turkish noun-noun compounds: A process-based paradigmatic account* (Unpublished PhD Thesis). Available from University of Calgary database.

Kunduracı, A. (2015). *Ling 300 Morphology*. Personal Collection of A. Kunduracı, Boğaziçi University, İstanbul

Kunduracı, A. (2017). Process morphology in concatenation. In N. Büyükkantarcıoğlu & E. Yarar (Eds.) *45. Yıl Yazıları* (pp. 255-278). Ankara: Hacettepe University Press.

Lewis, G. (2000). *Turkish grammar* (2nd ed.). NY and Oxford: Oxford University Press.

Lieber, R. (1992). *Deconstructing morphology: Word formation in syntactic theory*. Chicago: University of Chicago Press

Matthews, P. H. (1965). The inflectional component of a word-and-paradigm grammar. *Journal of Linguistics, 1*(2), 139-171.

Matthews, P. H. (1972). *Inflectional morphology: A theoretical study based on aspects of Latin verb conjugation* (Vol. 6). Cambridge: Cambridge University Press

Matthews, P. H. (1991). *Morphology* (2nd ed.). Cambridge: Cambridge University Press

Müller, G. (2002). Remarks on nominal inflection in German. In I. Kaufmann & B. Stiebels (Eds.), *More than words: Festschrift for Dieter Wunderlich* (pp. 113-145). Berlin: Akademie Verlag.

Müller, G. (2004). A distributed morphology approach to syncretism in Russian noun inflection. In O. Arnaudova, W. Browne, M. L. Rivero & D. Stojanovic (Eds.), *Proceedings of FASL 12* (pp. 353-373). Ottowa: University of Ottawa

O'Neill, P. (2014). The morphome in constructive and abstractive models of morphology. *Morphology*, *24*(1), 25-70.

Orgun, C. O. (1995). Flat vs. branching morphological structures: The case of suspended affixation. *Papers of the 21st Annual Meeting of the Berkeley Linguistics Society* (pp. 252-261). Berkeley: Berkeley Linguistics Society.

Orgun, Cemil Orhan (1996). Sign-based morphology and phonology with special attention to Optimality Theory (Doctoral dissertation, University of California). Available at ROA-171-0197, Rutgers Optimality Archive.

Özsoy, A. S. (1999). *Turkish* (No. 657). Istanbul: Bogazici University Press.

Pirkola, A. (2001). Morphological typology of languages for IR. *Journal of Documentation*, *57*(3), 330-348.

Plank, F. (Ed.). (1991). *Paradigms: The economy of inflection* (Vol. 9). Berlin: Mouton de Gruyter.

Pounder, A. (2000). *Processes and paradigms in word-formation morphology*. Berlin: Mouton de Gruyter.

Selkirk, E. (1982). *The syntax of words*. Cambridge, MA: MIT Press

Siegel, D. C. (1974). Topics in English morphology (Doctoral dissertation, Massachusetts Institute of Technology). Available from MIT theses database.

Steele, S. (1995). Towards a theory of morphological information. *Language 71*(2), 260-309.

Stump, G. T. (2001). *Inflectional morphology: A theory of paradigm structure* (Vol. 93). Cambridge: Cambridge University Press.

Stump, G.T. (2016). *Inflectional paradigms: Content and form at the syntax-morphology interface* (Vol. 149). Cambridge: Cambridge University Press.

Taylan, E. E. (1996). On the parameter of aspect in Turkish. In A. Konrot (Ed.), *Proceedings of the 6th international conference on Turkish linguistics* (pp. 153-169). Eskişehir: Anadolu Üniversitesi.

Taylan, E. E. (2015). *The phonology, and morphology of Turkish*. Istanbul: Boğaziçi University Press.

Underhill, R. (1976). *Turkish grammar*. Cambridge, MA: MIT Press.

Williams, E. (1994). Remarks on lexical knowledge. *Lingua* 92, 7-34.

Yavuzarslan, P. (2011). Türk dilinde kişi eklerinin tarihsel gelişimi ve değişimi. *38. ICANAS (10-15.09. 2007) Bildiriler (Dil Bilimi, Dil Bilgisi ve Dil Eğitimi)* (pp. 1953-1966).

Yükseker, H. (1994). Possessive constructions in Turkish, in L. Johanson (Ed.), *Proceedings of the Seventh International Conference on Turkish Linguistics* (pp. 458-477). Wiesbaden: Harrassowitz.

Zwicky, A. M. (1985). How to describe inflection. In M. Niepokuj, M. van Clay, V. Nikiforidou & D. Feder (Eds.), *Proceedings of the Eleventh Annual Meeting of the Berkeley Linguistics Society* (pp. 372–86). Berkeley: Berkeley Linguistics Society.

Zwicky, A. M. (1990). Inflectional morphology as a (sub)component of grammar. In W. U. Dressler, H. C. Luschützky, O. E. Pfeiffer & J. R. Rennison (Eds.), *Contemporary morphology* (pp. 217-236). Berlin: Mouton de Gruyter.

Zwicky, A. M. (1992). Some choices in the theory of morphology, in R. Levine (Ed.), *Formal grammar: Theory and implementation* (pp. 327-371). Oxford: Oxford University Press.