

# The paradigmatic aspect of compounding and derivation<sup>1</sup>

AYSUN KUNDURACI

*Yeditepe University*  
ORCID: 0000-0001-5250-7899

(Received 8 September 2016; revised 6 September 2018)

This study aims to show the dynamic aspect of word-formation paradigms in autonomous morphology by examining the compound marker in Turkish Noun–Noun compounds, as in *buz paten-i* ‘ice-skate (ice skate-CM)’, and its relation to derivational suffixes. The study proposes a process-based morphological paradigm structure which involves compounding and derivational operations. In this system, the compound marker has a formal paradigmatic function: it creates correct lexeme forms based on bare Noun–Noun compounds, which would otherwise serve as input to certain derivational operations. The current system thus accounts for both permitted and unpermitted suffix combinations involving compounding and the optionality in certain combinations, such as *buz paten-ci(-si)* ‘a/the ice skater (ice skate-AGT-CM)’, where the compound marker may (not) appear in combination with the (derivational) agentive *-CI*. The study also presents a survey which implies that a group of derivational affixes is in a paradigmatic relation with the compound marker, and all of these affixations constitute alternative paths in a dynamic paradigm structure. The findings of the study are considered to contribute to the understanding of the nature of the autonomous morphological operations and paradigms, which cannot be restricted to the lexicon or manipulated by syntax.

KEYWORDS: autonomous morphology, compounding, derivation, morphological process, paradigm

## 1. INTRODUCTION

Paradigms are considered descriptively and theoretically essential for explaining inflectional relations and inflectional morphology in the Word-and-Paradigm

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[1] Special thanks go to Amanda Pounder, the editors and three anonymous referees of *Journal of Linguistics*.

Selected abbreviations used in the paper: AGT = agent(ive)/actor, ASN = association function(s), ATN = attenuative, CM = compound marker, CR = Categorical Rule, DIM = diminutive, FA = Function Application, FR = Form Rule, GEN = genitive (case), LIP = Lexical Integrity Principle, LNG = language (suffix), NNC = Noun–Noun compound, NPC = No Phrase Constraint, NZ = nominalizer, OP = operation, OPc = operation condition, ORN = ornative/propriative, PC = possessive construction, PM = Predicate Modification, POSS = possessive, PRIV = privative/deprivative, Rc = rule condition, Sc = stem/base condition, SR = Semantic Rule, STA = status (noun).

(WP) approach (e.g. Anderson 1982; Stump 1991, 2016; Pounder 1996; Carstairs-McCarthy 1998; Spencer 2001) and other (word-based) approaches (such as those proposed by Wurzel 1989, Plank 1991, and Williams 1994). Importantly, paradigms are proposed also for derivational morphology (e.g. Guilbert 1975, Pounder 2000, Blevins 2001, Booij 2007).

Whereas the current study also concerns itself with the notion of paradigm, it scrutinizes (i) a word-formation (derivational) paradigm (rather than inflection), (ii) the dynamism of the paradigm based on rules (in contrast to a static schema with word-form entries, for example), and (iii) the (paradigmatic) relation of compounding and derivation in Turkish. The data are based on my native knowledge of (Modern Spoken) Turkish and it mostly involves Noun–Noun compounding and derivations involving compounding in Turkish.

For the purposes of this study, it is important to give an account of the so-called compound marker (CM)  $-(s)I^2$  in Turkish novel Noun–Noun compounds, such as *su peri-si* ‘water-fairy’, presented in (1a) below.<sup>3</sup> An adequate account of this item, i.e.  $-(s)I$ , will bring along a semantic and a formal analysis of Noun–Noun compounds (NNCs) including this suffix and derivations involving such NNCs. Derivations including such NNCs are at the heart of this study. They are interesting because some of these formations exclude the compound marker, as seen in (1b), whereas others may necessarily or optionally include it, as seen in (2a) and (2b), respectively.

- |         |   |     |   |
|---------|---|-----|---|
| (1) (a) | su    peri*(- <b>si</b> )<br>water fairy-CM<br>‘water-fairy’                  | (b) | su    peri-li<br>water fairy-ORN<br>‘with (a) water-fairy’                |
| (2) (a) | su    peri-liğ*(- <b>i</b> )<br>water fairy-STA-CM<br>‘being (a) water-fairy’ | (b) | su    peri-ci(- <b>si</b> )<br>water fairy-AGT-CM<br>‘water-fairy expert’ |

Note that the compound *su peri-si* (1a) would be ungrammatical without  $-(s)I$ , \**su peri\_* ‘water-fairy’, and that the derivation *su peri-li*, which includes the derivational (ornative/propriative) suffix *-li*, would not be grammatical with the compound marker  $-(s)I$ : \**su peri-si-li* ‘with (a) water-fairy’. This means that whereas  $-(s)I$  is necessarily affixed to compounds, as in (1a), it cannot co-occur with, for example, the derivational suffix *-li* seen in (1b). In contrast, there are instances in which  $-(s)I$  must appear in combination with a derivational suffix, e.g. with the derivational (status) suffix *-lik*, as in (2a). Furthermore, there is a variation in derivations, such as (2b), where  $-(s)I$  may be added and both forms are acceptable. This variation often involves the derivational (agentive/actor)

[2]  $-(s)I$  surfaces as *-t, -i, -u, -ü, -st, -si, -su, -sü* based on Turkish phonotactics, and as  $-(s)In$  before case suffixes.

[3] The current study investigates novel formations like this, which are created by myself based upon my native knowledge; there are also some (novel) expressions from other sources, such as movies, soap operas, casual speech.

suffix *-CI*. Another case of this variation, i.e. the possibility of formations with and without *-(s)I*, is compounds with the term *bilim* ‘science’ as the compound head, such as *felsefe bilim(-i)* ‘philosophical science (philosophy science-CM)’. Such compounds are also examined in the current study. Proposing a paradigmatic word-formation system in Turkish, this study accounts for why certain sequences including *-(s)I* are permitted, and other such sequences are not permitted, and why there is optionality/variation in the case of forms like *su peri-ci(-si)* ‘water-fairy expert (water fairy-AGT-CM)’ or *buz paten-ci(-si)* ‘ice-skater (ice skate-AGT-CM)’ and *felsefe bilim(-i)* ‘philosophical science (philosophy science-CM)’ or *anlam bilim(-i)* ‘meaning science: semantics (meaning science-CM)’.

Briefly, in this paper, I deal with (i) what *-(s)I* does in Turkish NNCs; (ii) how it is relevant to complex derivations involving NNCs like the key expressions *su peri-li*, *su peri-liğ-i*, *su peri-ci(-si)* above; and (iii) what such expressions show about paradigms in morphology, i.e. why such data are important in describing paradigms and their theoretical status.

The fact that the *-(s)I* suffix also appears in possessive constructions/phrases (PCs), such as the one in (3b), makes this suffix interesting for inflectional morphology.

- |   |   |
|---|---|
| (3) (a) su peri-si (NCC)<br>water fairy-CM<br>‘a/the water-fairy’ | (b) suy- <b>un</b> peri- <b>si</b> (PC)<br>water-GEN fairy-POSS<br>‘the fairy of the water’ |
| (c) çocuk şarkı-sı<br>child song-CM<br>‘a/the children’s song’    | (d) çocuğ- <b>un</b> şarkı(- <b>si</b> )<br>child-GEN song-POSS<br>‘the child’s song’       |

As can be seen above, Turkish NNCs (3a) and PCs (3b) are morphologically similar because they both include *-(s)I*, but they are not identical: the PC includes also the genitive suffix (*-(n)In*). Their syntactic behavior is also different: unlike the constituents of NNCs, the constituents of PCs are separable.<sup>4</sup> I will investigate what such a formal contrast between NNCs and PCs shows about the structure and localization of compounding in the grammatical architecture in Section 5. Moreover, (3c) and (3d) show that the *-(s)I* in a PC may be omitted when pragmatically allowed, in contrast to the *-(s)I* in NNCs, which cannot be omitted based on pragmatics. Another relevant formal contrast between the two formations with *-(s)I* is that while the CM cannot occur in NNCs in the context of certain derivations, such as the *-II* derivation in (1b), in PCs, the POSS *-(s)I* may freely follow derivations (see Section 4.2, example (8)). I treat both the structure of compounds and the function of *-(s)I* in compounds as different from those of possessive constructions. As the focus of the current study is word formation

[4] The differences between Turkish NNCs and possessive constructions/phrases have been addressed before. See Kornfilt (1984), Yüksek (1994, 1998), Hayasi (1996), van Schaaiik (1996), Bozşahin (2002), Arslan-Kechriotis (2006), Göksel (2009), Kharytonava (2011), and Kunduracı (2013, 2017), among others, for various analyses in distinct frameworks.

and the role of *-(s)I* in a word-formation paradigm, the PC formation and the (inflectional) role of *-(s)I* in PCs is not discussed here.<sup>5</sup>

One approach to *-(s)I* claims that *-(s)I* is the 3rd person possessive marker in NNCs as well as in PCs (e.g. Underhill 1976, Yüksek 1998, Lewis 2000). Another view claims that *-(s)I* is a compound marker in NNCs and is distinct from the *-(s)I* in PCs (Swift 1963, Hayasi 1996, van Schaaik 1996, Kornfilt 1997, Schroeder 1999, Bozşahin 2002, Göksel & Kerslake 2005, Göksel 2009, Kharytonava 2011, Kunduracı 2013). Based on the relationships between derivational suffixes and *-(s)I*, this study lends support to the latter view.

As in the theory of compounding in general, the structure of NNCs in Turkish and their formation are also controversial. Under analyses such as Dede (1978), Yüksek (1987, 1994, 1998), Bozşahin (2002), Kharytonava (2011), and Ralli (2011), Turkish NNCs and PCs are syntactic formations. In another approach, e.g. Aslan & Altan (2006), Turkish compounds are lexical formations. There is also an intermediate view, such as Hayasi (1996) and Göksel (2009), which suggests that compounding cannot be ascribed to a single component: NNCs and PCs have both similarities and differences.

While the current study does not describe the differences between NNCs and PCs (see the studies cited above), it shows the relation between compounding and derivations, and explains the form and the meaning of complex derivatives. The analysis is framed within a process-based (processual) approach to morphology in line with Anderson (1992), Aronoff (1994), Beard (1995), and Pounder (2000). I aim to show the advantages of an indirect mapping of form and meaning in a processual approach, such as the current one, in accounting for the (paradigmatic) suffixation of the compound marker *-(s)I* in the formation of Turkish NNCs and its (unexpected) absence in certain derivatives. Note that the fact that the two compounded nouns in all the expressions in (1) and (2) have identical meanings although only (1a) includes *-(s)I* has not been examined previously. The current study highlights and accounts for this intriguing puzzle of form and meaning, and, importantly, shows why and when the compound marker *-(s)I* must or must not appear.

The outline of the paper is as follows: in Section 2, I present the results of a data-gathering survey conducted for the problems noted above. In Section 3, a processual analysis of the semantics and the form of NNCs with *-(s)I* in Turkish is provided. Section 4 presents a word-formation paradigm involving Turkish Noun–Noun compounding and reveals the relationship between the compound marker and derivational suffixes. Finally, Section 5 discusses the experimental and theoretical outcomes of the data within the present analysis.

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[5] I assume that *-(s)I* in PCs is only the possessive, i.e. POSS, but not a person/agreement suffix (Kunduracı 2013: Chapter 6).

## 2. SURVEY

### 2.1 *Description of the survey*

The survey investigated the relation of compounding, derivation and paradigm structures outlined in [Section 1](#). It tested the acceptability of derivational suffixes following novel NNCs in the absence of the compound marker, such as seen in (1b) above, in the presence of the compound marker, seen in (2a) above, and the optionality in the suffixation of the compound marker, seen in (2b) above. The survey explored whether there are other suffixes that are similar to the compound marker in terms of the affixation conditions (i.e. bases that they attach to) and whether there is really optionality/variation in the addition of *-(s)I* to compounds in some cases.

The survey comprised an acceptability judgement task, conducted through an online questionnaire administered by FluidSurveys. There were 120 multiple-choice questions (experiment questions and distractors). Most of the data included novel Turkish N–N compounds and derivatives which include these. The expressions were made up by myself on the basis of my native knowledge of Turkish; there were also a small number of expressions collected from movies and online sources. The survey sought answers to the following research questions:

1. How does the compound marker interact with other derivational suffixes (those apart from *-II* (and *-sIz*)? Namely, are there other derivational suffixes which
  - a. may attach to N–N compounds without *-(s)I* (like *-II* (1b))?
  - b. may not attach to N–N compounds without *-(s)I* (like *-IIK* (2a))?
2. Is *-CI* (the agentive suffix), like the suffixes *-II* and *-sIz*, acceptable following N–N compounds without *-(s)I*? Namely, do derivations with the *-CI* suffix following N–N compounds necessarily need *-(s)I* after *-CI* or not, i.e. N–N-*CI-(s)I* vs. N–N-*CI*, and are there suffixes other than *-CI* (in (2b)) which show optionality when followed by *-(s)I*?
3. Given the example *felsefe bilim(-i)* ‘philosophical science’, do native speakers need *-(s)I* in N–N compounds with the head noun *bilim* ‘science’: N-*bilim*-CM vs. N-*bilim\_*?

These research questions will be discussed in [Section 2.2](#) below.

Twenty-five native speakers of Turkish between the ages of 15 and 35 years, from different professional and educational backgrounds (four undergraduate students, nine postgraduates, ten with a master’s degree, and two with a doctoral degree), participated in the survey. Thirteen subjects were females and twelve were males.

In the sentences in the survey, the expressions which the participants were to make judgements on were highlighted. The participants were asked to evaluate the acceptability of the highlighted formations in each sentence by selecting one of the following four options: ‘good’, ‘(a little) weird’, ‘bad’, and ‘not sure’. See

Appendix A for the multiple-choice questions and the English version of the instructions. Results were calculated as percentages of total responses; significance of results was measured using Fisher's Exact test for a  $2 \times 2$  contingency table (spreadsheet downloaded from <http://udel.edu/~mcdonald/statfishers.html>). For the statistical analyses of the second and third research questions, the responses 'good' and '(a little) weird' were collapsed as acceptable in contrast to 'bad', which is 'unacceptable'. The 'not sure' responses were discarded (there were very few of these). No statistical analysis was done for the data regarding the first research question.

## 2.2 Results

### 2.2.1 First research question results

Research question 1: How does the compound marker interact with other derivational suffixes (those apart from *-II* (and *-sIz*)?)

Participants: 25

Number of experiment questions: 27

Number of the suffixes tested: 7

Table 1 shows the results of the interactions involving the suffixes *-CE* and *-(I)msI*, and the approximate percentages of the forms mentioned in Question 1. See also Table A1 in Appendix B for the rest of the results, i.e. those including the derivational suffixes *-sI*, *-hane*, *-gil*, *-zede*, and *-vari*.

The table shows the relationship between the compound marker *-(s)I* and a group of derivational suffixes. First, there are other derivational suffixes which may immediately follow N–N stems (similar to *-CI*, *-II*, and *-sIz* suffixations). According to the results shown in the table (and my native intuitions), the derivational attenuative *-(I)msI* and *-sI* suffixes, as in *mavi-msi* 'bluish (blue-ATN)' and *çocuk-su* 'childish (child-ATN)', and the *-CE* suffix which is used for deriving language names, e.g. *Türk-çe* 'Turkish (Turk-LNG)', are similar to *-II* in that they may directly follow an N–N compound stem, with the compound marker absent. Second, the derivational suffixes *-CE*, (again) used for deriving language names, and *-hane*, which is a borrowing from Farsi and used for denoting places for specific purposes, e.g. *hasta-hane* 'hospital (patient-*hane*)' are similar to *-IIK* and *-CIK* in that they appear to be able to precede the compound marker. Finally, the derivational suffix *-gil*, which is used for a family, proximity, or species membership, as in *Talay-gil* 'Talay and his family/friends (Talay-*gil*)'; (again) *-CE*, which is used for deriving language names (see above) and for a person's perspective as in *ben-ce* 'according to me (I-*CE*)'; *-zede*, which is a borrowing from Farsi and used for denoting victims of an event as in *kaza-zede* 'casualty (accident-*zede*)'; and *-vari*, which is a borrowing from Farsi and is used for comparison, e.g. *şarkı-vari* 'songlike (song-*vari*)', seem to be able to follow the compound marker; however, we do not frequently hear such forms in daily

Samples: Investigated item	Responses: Type and numbers			
	Good	(A little) weird	Bad	Not sure
DERIVATIONAL SUFFIX- <i>ce</i>				
<i>su peri-ce</i> (water fairy-LNG)	5	12	7	1
<i>su peri-ce-si</i> (water fairy-LNG-CM)	8	9	7	1
<i>su peri-si-ce</i> (water fairy-CM-LNG) for 'language of water-fairies'	9	9	7	—
<i>su peri-sin-ce</i> (water fairy-CM-PERSPECTIVE) for 'according to the water-fairy'	12	7	5	1
DERIVATIONAL SUFFIX-( <i>I</i> ) <i>msI</i>				
<i>buz mavi-msi</i> (ice blue-ATN)	20	4	—	1
<i>buz mavi-msi-si</i> (ice blue-ATN-CM)	3	4	18	—
<i>buz mavi-si-msi</i> (ice blue-CM-ATN) for 'like ice-blue'	10	4	11	—

RESEARCH QUESTION 1

Formation	Accepted as good	Accepted as (a little) weird	Not accepted
N-N- <i>CE</i>	12%	44%	44%
N-N- <i>CE-(s)I</i>	36%	32%	32%
N-N-( <i>s</i> ) <i>I-CE</i>	38%	32%	30%
N-N-( <i>I</i> ) <i>msI</i>	80%	20%	0%
N-N-( <i>I</i> ) <i>msI-(s)I</i>	12%	16%	72%
N-N-( <i>s</i> ) <i>I-(I)msI</i>	40%	16%	44%
N-N- <i>sI</i>	36%	24%	40%
N-N- <i>sI-(s)I</i>	4%	8%	88%
N-N-( <i>s</i> ) <i>I-sI</i>	0%	12%	88%
N-N- <i>hane</i>	12%	36%	52%
N-N- <i>hane-(s)I</i>	36%	40%	24%
N-N-( <i>s</i> ) <i>I-hane</i>	16%	32%	52%
N-N- <i>gil</i>	22%	24%	54%
N-N- <i>gil-(s)I</i>	8%	30%	62%
N-N-( <i>s</i> ) <i>I-gil</i>	48%	30%	22%
N-N- <i>zede</i>	40%	28%	32%
N-N- <i>zede-(s)I</i>	20%	32%	48%
N-N-( <i>s</i> ) <i>I-zede</i>	44%	24%	32%
N-N- <i>vari</i>	12%	4%	48%
N-N-( <i>s</i> ) <i>I-vari</i>	68%	28%	4%

Table 1

First research question results: Compound marker and derivational suffixes.

conversation (see Section 4 for further detail and Section 5 for the theoretical points).

2.2.2 *Second research question results*

Research question 2: Is *-CI* (the agentive suffix), like the suffixes *-II* and *-sIz*, acceptable following N–N compounds without *-(s)I*?

Hypothesis: Speakers will find both N–N-*CI* and N–N-*CI-(s)I* acceptable in novel items.

Participants: 25

Number of experiment questions: 15 (N–N-*CI*)

Number of control questions: 15 (N–N-*CI-(s)I*)

Table 2 shows the results of the interactions of compounds and the derivational suffix *-CI*, and summarizes the approximate percentages of the formations investigated within the research question 2 (see Table A2 in Appendix B for the rest of the results).

Samples: Investigated item	Responses: Type and numbers			
	Good	(A little) weird	Bad	Not sure
<i>kestane şeker-ci</i> (chestnut candy-AGT)	17	6	1	1
<i>kestane şeker-ci-si</i> (chestnut candy-AGT-CM) 'chestnut-candy expert/lover'	7	9	9	—
<i>buz paten-ci</i> (ice skate-AGT)	21	4	—	—
<i>buz paten-ci-si</i> (ice skate-AGT-CM) 'ice skater'	16	5	4	—
<i>su peri-ci</i> (water fairy-AGT)	13	7	5	—
<i>su peri-ci-si</i> (water fairy-AGT-CM) 'water-fairy expert/lover'	11	7	7	—

RESEARCH QUESTION 2			
Formation	Accepted as good	Accepted as (a little) weird	Not accepted
N–N- <i>CI</i>	50%	28%	22%
N–N- <i>CI-(s)I</i>	47%	23%	30%

Table 2  
Second research question results: Compound marker and agentive suffix.

This table shows that both formations are often acceptable for the speakers, as hypothesized. The null hypothesis is that there is no difference between the acceptability of N–N-*CI* and N–N-*CI-(s)I*. The proportion of acceptance of the form without the compound marker, i.e. N–N-*CI*, is significantly higher than of the form with the compound marker, i.e. N–N-*CI-(s)I* according to Fisher's Exact test:<sup>6</sup> the null hypothesis is rejected. The results thus confirm that both formations are acceptable, justifying the current hypothesis. Further to that, N–N-*CI* appears to be more acceptable than N–N-*CI-(s)I*.

[6]  $p < .001$ ,  $n = 375$  for N–N-*CI*,  $n = 371$  for N–N-*CI-(s)I*.



It is also interesting that whereas the N–N-*CI* formation was mostly preferred to the N–N-*CI-(s)I* formation in some cases, in others, N–N-*CI-(s)I* was preferred to N–N-*CI*. For instance, the expression *kestane şeker-ci* (chestnut candy-AGT) with the meaning ‘chestnut-candy lover’ was judged to be good by 68% of the speakers. With regard to the expression *kestane şeker-ci-si* ‘chestnut-candy lover (chestnut candy-AGT-CM)’, it was good for only 28%. Both formations were judged to be good by four speakers. Unlike this case, the formation *Orhun Türkçe-ci* ‘Orkhon-Turkish expert (Orkhon Turkish-AGT)’ was good for only 28% of the speakers, whereas *Orhun Türkçe-ci-si* ‘Orkhon-Turkish expert (Orkhon Turkish-AGT-CM)’ was good for 76%. Interestingly, in another case, *doğa bilim-ci* (nature science-AGT) and *doğa bilim-ci-si* (nature science-AGT-CM) ‘natural scientist’, 21 speakers (84%) accepted both N–N-*CI* and N–N-*CI-(s)I* formations as good. Therefore, this variation in the combination of -*CI* and -(*s*)*I* needs to be accounted for as does the constant nonappearance of -(*s*)*I* with the -*II* type suffixes investigated under research question 1 (see Section 4 for the analysis and Section 5 for the discussion).

### 2.2.3 Third research question results

Research question 3: Is -(*s*)*I* required in NNCs with the head noun *bilim* ‘science’ despite novel expressions which lack -(*s*)*I*?

Hypothesis: Speakers feel that -(*s*)*I* is necessary in NNCs with the head noun *bilim* ‘science’ despite some counterexamples in the standard language.

Participants: 25

Number of experiment questions: 6 (N-*bilim-(s)I*)

Number of control questions: 6 (N-*bilim*\_)

Table 3 includes some samples and summarizes the approximate percentages of the formations regarding research question 3.

Samples: Investigated item	Responses: Type and numbers			
	Good	(A little) weird	Bad	Not sure
<i>gül bilim-i</i> (rose science-CM)	21	3	—	1
<i>gül bilim</i> ‘rose science’	12	8	5	—
RESEARCH QUESTION 3				
Formation	Accepted as good	Accepted as (a little) weird	Not accepted	
N-N- <i>bilim-(s)I</i>	84%	12%	4%	
N-N- <i>bilim</i>	39%	30%	31%	

Table 3

Third research question results: Compounds with *bilim* ‘science’.

The table shows that the majority of the participants prefer N-*bilim-(s)I* to N-*bilim\_*, as hypothesized: N-*bilim\_* is not a native way of N-N compounding in Turkish. Only 39% of the participants accepted the N-*bilim\_* formation as good, whereas the formation with *-(s)I*, N-*bilim-(s)I*, was accepted as good by 84%, which is a huge proportion (see Table A3 in Appendix B for the rest of the results). The null hypothesis that there will be no difference between the results for N-*bilim-(s)I* and N-*bilim\_* is rejected as the acceptance rate for N-*bilim-(s)I* is significantly higher than that for N-*bilim\_* according to Fisher's Exact test.<sup>7</sup>

### 3. CURRENT ANALYSIS

This section provides an account for the permitted and unpermitted suffix combinations referred to in the previous sections: I first consider the nature of the meaning of NNCs (Section 3.1), which constitutes a step in the paradigm structure of word formation (Section 3.2).

#### 3.1 Meaning

One could consider that it is the *-(s)I* suffix which is responsible for the semantics in NNCs. However, this cannot be the case. The compounded nouns hold the same (associative) semantics also when they lack *-(s)I* and feed derivation, as in *su peri-li masal* 'a/the tale with a/the water-fairy (water fairy-ORN tale)'. Therefore, in this section, I focus on the nature of the relationship between the two nouns and argue that the fundamental semantic constituent in NNCs is a semantic function, which is superior to the role of pragmatics or lexical semantic classes, which must be of secondary importance, i.e. circumstantial.<sup>8</sup>

Let us consider the meaning of the NNC *gümüüş kutu-su* '(a/the) box for silver (items) (silver box-CM)' in contrast to the meaning of the NP *gümüüş kutu* 'a/the silver box (silver box)'. The semantic relation between the two nouns in the NNC *gümüüş kutu-su* '(a/the) box for silver (items)' is not the same as the relation between the constituents of the NP. Unlike NPs, in NNCs the meaning of the first linguistic element does not refer to a property of the second element. Rather, there is a semantic unit (association (ASN) function here) which is not overtly expressed in NNCs. The NNC *gümüüş kutu-su* '(a/the) box for silver (items)' means 'a type of box associated with, i.e. FOR, silver (items)', in which the

[7]  $p < .001$ ,  $n = 162$  for N-*bilim-(s)I*,  $n = 147$  for N-*bilim\_*.

[8] However, Kay & Zimmer (1976), Downing (1977), Allen (1978), Dede (1978), and Spencer (2011) claim that the meaning in NNCs is determined by the pragmatic context and the lexical semantic classes of the constituents of NNCs.

semantic relation FOR, for example, is not overt. This fact is crucial because such a covert semantic relation makes NNCs distinct from NPs semantically.<sup>9,10</sup>

N+N combinations like *gümüş kutu* ‘a/the silver box’ or *çocuk şair* ‘a/the child poet’ are only superficially similar to the comparable compounds as these formations are separable (unlike NNCs), e.g. *gümüş bir kutu* ‘a silver box (silver a box)’ and *çocuk her şair* ‘every child poet (child every poet)’. Therefore, these are NPs according to this study.<sup>11</sup> While there is an associative type of modification in NNCs, there is no such semantics in NPs. Similarly, the meaning of the compound *su peri-si* ‘a/the water-fairy’, mentioned in Section 1, is distinguished from the comparable NPs *güçlü (bir) peri* ‘a/the strong fairy’ and *anne (her) peri* ‘a/the/every mother fairy’ by means of the association relation between the nouns in the compound, again. Turkish NNCs thus appear to involve association semantically; importantly, only this type of N–N compounding is productive in Turkish.<sup>12</sup>

The semantics of NNCs appears to be a counterexample to the Fregean Principle of semantic compositionality: they involve a covert relation. Partee (1995: 337) considers the semantics of NNCs a limitation to compositionality and questions what a semantic theory would say about compounds. She notes that *a toy store*, for example, is ‘a store that sells toys’, but *a toy box* means ‘a box that holds toys’ and implies that there is no general rule for predicting the meaning in compounds. Similarly, Di Sciullo (2009) and Jackendoff (2009) note that the meaning of NNCs is distinctive in terms of compositionality in comparison to syntactic units. I rely on a theory of semantics which allows us to describe meaning compositions by means of semantic analyses, such as type-driven semantics. In Heim & Kratzer (1998), the semantic rules Function Application (FA) and Predicate Modification (PM) are used for the modification involved in NPs. FA applies when combining different semantic types (e.g. an adjective  $\langle\langle e, t \rangle, \langle e, t \rangle\rangle$  and a noun  $\langle e, t \rangle$  as in *a small elephant*). For the

[9] As does this study, Giegerich (2009: 186–188) focuses on the semantics of NNCs as distinct from that of NPs, and proposes that NNCs involve associative attribution, whereas NPs involve ascriptive attribution. For him, ascription is characterized by the relationship ‘is’ between the head and its dependent. In this study, I use Giegerich’s terms association (for NNCs) vs. ascription (for NPs). However, according to Giegerich, unlike phrases, which invariably have default semantics (ascription), compounding allows both the default and various kinds of nondefault semantics. For him, NNCs may have ascription as well as association (in English) and ascription can also be associated with fore-stress, which is a marker of compound status in English. In this study, I argue that Turkish NNCs allow only association, but not ascription.

[10] The reader could also refer to Scalise & Bisetto (2009: 44), who stress that such covert semantics makes compounds special and that the relationship between the constituents of compounds is a criterion for determining the type of compounds.

[11] However, in Dede (1978), Yüксеker (1987, 1994, 1998), Göksel & Kerslake (2005), and Göksel (2009) such N–N structures without *-(s)I* are treated as compounds as well.

[12] There are also NNCs in which I assume that the meaning of the first noun functions as the theme argument, agent, or the experiencer of the meaning of the second (nominalized) noun in paraphrases. Such NNCs are deverbal, e.g. *güneş çarp-ma-sı* ‘sun-stroke (sun strike-NZ-CM)’ (here, the first constituent can be regarded as an agent argument). As a compound, however, this formation involves an ASN function between the two nouns, at the same time.

modification in NPs, PM is also proposed as an alternative to FA; PM, however, is a conjunctive composition and applies to identical semantic types, such as an adjective with the type  $\langle e, t \rangle$ , and a noun with the same type,  $\langle e, t \rangle$ , as in *a gray cat* (Heim & Kratzer 1998: 61–65).<sup>13</sup>

Neither FA nor PM (in their present condition) seems to apply in the semantic composition of NNCs because, unlike NPs, NNCs involve a semantic constituent which is not expressed overtly: the association (ASN) function in the current study. This function expresses a type of relatedness between separate lexical meanings.<sup>14</sup> The semantic relation corresponding to the syntactic outputs, i.e. NPs such as *parlak (bir) kutu* ‘a/the shiny box (shiny (a) box)’ and *gümüş bir kutu* ‘a/the silver box (silver (a) box)’, is not what we find in compounds such as *gümüş kutu-su* ‘a/the box for silver items (silver box-CM)’. Ascription (ascriptive modification) as in *gümüş/parlak (bir) kutu* ‘a/the silver/shiny box’ is possible with FA and PM, which apply in syntactic phrase-formation,<sup>15</sup> but not compound formation.<sup>16</sup>

With regard to pragmatics, it must play a role in cases where NNCs are semantically ambiguous, as more than one ASN function may be available due to lexical semantics. Note, however, that no matter how many different paraphrases an NNC can have,<sup>17</sup> its meaning can be expressed by at least one (ASN) function, i.e. the default function (‘relatedness’/ABOUT). The intended meaning can be obtained pragmatically in such cases. This does not require that it is the pragmatic context that creates the ASN function. The ASN function comes from the semantic component in the current analysis (see also Jackendoff 2009), which

[13] See the application of FA and PM in Heim & Kratzer (1998: 65–72).

[14] Kunduracı (2013) presents a set of ASN functions which are involved in the NNC formation in Turkish. In this system, ABOUT is the default/basic ASN function, which corresponds to ‘association’ or ‘related to’, and other functions constitute different (more specific) types of the basic function ABOUT. The relation FROM, corresponding to ‘source’, for example, constitutes a more specific type of ABOUT, i.e. the relation of ‘source’ is interpreted as a specific type of the relation of ‘association’. Similarly, OF, corresponding to ‘belonging to’, constitutes another specific type of ABOUT, or LABEL (‘identification’) as in *yasemin çiçeği-i* ‘jasmine (jasmine flower-CM)’, and so on. See also Dede (1978), Levi (1978), Beard (1995), Pounder (2000), and Di Sciullo (2009) for alternative sets of relations used in compounding.

[15] I assume that PM applies in *gümüş (bir) kutu* ‘a/the silver box’, for example.

[16] The fact that N–N constructions including the nationality terms may form either an NNC (with  $-(s)I$ ) or an NP (without  $-(s)I$ ) is also relevant. Consider the expressions *Fransız yazar-ı* ‘(an) author of/for the French community (French author-CM)’ vs. *Fransız yazar* ‘a/the French author (French author)’. I claim that only the former expression is an NNC, whereas the latter is an NP since the latter one is separable: *Fransız bir yazar* ‘a French author (French an author)’. Both formations are possible due to the dual status of nationality terms in Turkish: nationality terms have both a nominal and an adjectival interpretation. *Fransız* ‘French’ in the latter expression has an adjectival interpretation, whereas the former *Fransız* ‘French’ has a nominal interpretation, and therefore, only the former structure is an NNC and contains  $-(s)I$ . See also Braun & Haig (2000), Lewis (2000), Göksel (2009), Uygun (2009), Özge & Bozşahin (2010), Kunduracı (2013), and Erguvanlı Taylan (2015) for a discussion of the (dual) status of nominals in Turkish.

[17] The fact that NNCs may be paraphrased does not necessarily point to an underlying syntactic structure.

interacts with the morphological component, and when necessary, pragmatics is called for clarifying the meaning.<sup>18</sup>

### 3.2 Form

This section is dedicated to the formation of novel NNCs with the compound marker, such as the expression seen in (1a) above, *su peri-si* ‘water fairy (water fairy-CM)’, which is highly productive in Turkish. The formation of NNCs without the compound marker like *anne-anne* ‘maternal grandmother (mother mother)’ is unproductive and restricted to a limited number of lexicalized expressions; these might have lost *-(s)I* prior to lexicalization. I also do not investigate lexicalized NNCs with the compound marker so as to avoid problems which might result from the idiosyncratic properties of lexicalized forms. The NNC *kavun+iç+i* (melon+inside+CM), for example, means ‘orange (colour)’ with the lexicalized interpretation, but ‘inside part of a melon’ with the novel interpretation. I assume that lexicalized and novel NNCs are produced identically, i.e. they undergo the same morphological operation presented below. However, NNCs with a lexicalized meaning (such as *kavun+iç+i* ‘orange’), involve one more additional process, which is lexicalization. The distinction lies in whether or not a previously novel NNC has undergone a lexicalization process, which involves the attachment of a new meaning (at a distinct semantic level probably) based on a metaphor or idiomatization, for example.<sup>19</sup> Other nominal combinations which are not investigated here are co-ordinate N–N formations including an AND relation, such as *baba-kız* ‘father and daughter (father-girl)’, and appositive formations, such as *ressam-müzisyen* ‘painter-musician (painter-musician)’, which are beyond the scope of this study. It remains to be determined whether such formations, which do not involve the compound marker, are also compounds or another type of Noun–Noun concatenation.<sup>20</sup>

Since the main goal here is to explain the suffixation process of the compound marker and its absence in Turkish word formations, the specific compound type investigated is Noun–Noun compounds with the compound marker, which are endocentric and right-headed, as in the examples seen thus far. In this study these compounds are analysed within a processual morphological framework. Processual approaches to morphology regard morphological operations as a

[18] Kunduracı (2013) also lists which semantic relations are NOT allowed in Turkish NNCs, e.g. BE (‘ascription’) and LIKE (‘comparison’).

[19] There must be a dynamic level in lexicalized NNCs too. For example, native speakers can predict the semantic relation, which is OF in *kavun+iç+i*, even in lexicalized NNCs. Therefore, we can consider both novel and lexicalized NNCs (with *-(s)I*) endocentric in Turkish.

[20] Another set in which *-(s)I* is optional is pointed to by Lewis (2000: 45) and Göksel (2009: 216): place names with the word *sokak* ‘street’. For example, both *Sevgi Sokağ-ı* ‘Sevgi Street (love street-CM)’ and *Sevgi Sokak* ‘Sevgi Street (love street)’ are attested by native speakers. Lewis suggests that there is a European influence in *-(s)I* omission like this. For an anonymous reviewer, however, losing *-(s)I* makes a compound a proper name, namely, there is no foreign influence in these cases. I leave a complete account of these for future research.

system of rules which specify the relation between form and meaning. Rather than morphological items such as affixes, morphological rules and operations are significant. Affixation and nonconcatenative processes are treated similarly, i.e. they are considered relational, rather than being lexical form–meaning units. Therefore, in contrast to the morpheme-based approaches, affixes are rule-elements in process(ual) morphology (see Aronoff 1976, 1994; Zwicky 1986; Spencer 1991; Anderson 1992; Beard 1995; Pounder 2000; Stump 2001).

In line with the Process and Paradigm framework (Pounder 2000), I adopt a system which includes rules mapping onto each other as described in Jackendoff (1975), Aronoff (1976), and Pounder (2000).<sup>21</sup> In the present mechanism, a morphological operation consists of mapping of form rules (FRs), semantic rules (SRs), and categorial rules (CRs).<sup>22</sup> Besides this mapping, a morphological operation also includes stem/base<sup>23</sup> conditions (Scs) and rule conditions (Rcs), which express what type of units, i.e. BASES, it can apply to. Finally, there are operation conditions (OPcs), which specify any further operations which must necessarily follow a given operation (see Pounder 2000: 65–67, 71). The current analysis of the formation of Turkish NNCs is based on this conception, represented in Figure 1.

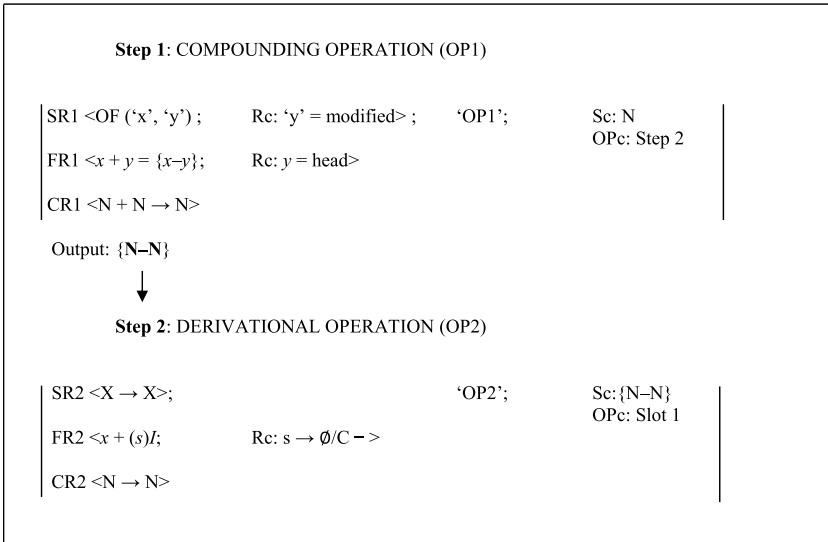
[21] The systems proposed in Jackendoff (1975), Aronoff (1976), and Pounder (2000) are not identical. However, as in the current study, form is separate from meaning in all of these. I follow Pounder in that her system includes DYNAMIC rules, rule items (affixes), and operations based on mapping rules, which are organized paradigmatically. However, as Pounder presents a detailed analysis of word formation in general but not a specific analysis of compounding, the current system proposed for Turkish involves certain modifications. Also, the semantic rule(s), including the application of the ASN function, belongs to the semantic component, which interacts with morphology during operations in the currently proposed system. In Pounder's system, there is a set of meanings and semantic rules belonging to the morphological component. Another difference lies in the nature of the semantic rule applying for compounds: Pounder's rule is an  $f(x)$  relation, which applies to the first noun; so she uses the same (semantic) functions in derivation and compounding, e.g. the same function applies to 'wood' in *wood spoon* and to 'wooden' in *wooden spoon* (2000: 108–122). In the current system, however, the semantic rule  $f(x, y)$ , i.e. SR1, applies to the meanings of both nouns in the compound.

The current study is similar to Aronoff (1976) in terms of separationism, i.e. mapping of form onto meaning. However, the current system is not word-based but rule and lexeme-based (thus, much like Beard 1995 and Pounder 2000); also whereas word-formation rules operate in the lexicon in Aronoff (1976), in the current system, they are manipulated by the autonomous morphology.

Like Jackendoff (1975), the current study presents word-formation operations which involve semantic rules in addition to morphological rules, i.e. separationism. Unlike Jackendoff 1975, however, word-formation operations are not limited to the lexicon, but are established by the autonomous morphology here. Moreover, in contrast to the current system, in Jackendoff's system, each actual compound has a lexical location (as well as morphological and semantic rules) and there are many semantic rules involved in the formation of distinct compounds.

[22] In Pounder's (2000) system, FRs express a change to the form of a stem, SRs express a change to the meaning of a lexeme by means of a function ( $f('X')$ ), and syntactic rules express a change to the lexical and/or syntactic properties of a lexeme. In this study, I use Categorial Rules (CR) instead of Pounder's Syntactic Rules without changing their function, i.e. categorial information.

[23] Note that I use the term STEM with the following meaning: 'the sound form of a lexeme', following Aronoff (1994). Thus, STEM CONDITIONS = BASE CONDITIONS in this study.



*Figure 1*  
Noun–Noun compound formation.

The first step in [Figure 1](#) involves a semantic rule, SR1:

SR1 <OF('x', 'y'); Rc: 'y' = modified element>

The semantic rule SR1 is responsible for the combination of the meanings of the two nouns with an association function, OF here, which is not expressed overtly (as discussed in [Section 3.1](#) above). This means that to form the compound *su peri-si* (water fairy-CM) ‘water fairy’, for instance, we take the meaning of *su* ‘water’ and combine it with the meaning of *peri* ‘fairy’ via  $f(x, y)$ , the combinatory semantic rule proposed for NNCs in the present model:  $f$  in this rule represents an association function. In this relation, which I call Function Insertion (FI), the first element is determined as the modifier and the second, the modified. Thus, the meanings of both constituents of NNCs serve as the arguments of  $f$ , the modifier being the first argument.<sup>24</sup>

The SR1 involved in the formation of the NNC *su peri-si* ‘water fairy’ includes an OF relation as the association function,<sup>25</sup> as shown in (4), and more explicitly, in (5):

[24] This point is similar to Bozşahin’s (2002: 34) proposal in which both nouns are the arguments of the COMP function in a compound.

[25] The ASN function in this expression could also be IN-ON-AT for ‘fairies living around water’ or FOR for ‘fairies performing tasks relevant to water’, for example, which would not change the analysis. Here, I will simply assume that it is OF for ‘fairies belonging to water’.

- (4) OF('su', 'peri') → (Function Insertion: OF is selected and inserted)
- (5) 'peri' OF 'su' → (meaning combination via the function OF)  
 fairy f water  
 Arg2 Function Arg1

In *su peri-si*, SR1 is OF(x, y), with a rule condition, Rc, which determines 'y' as the modified element and 'x' as the modifier. This rule enables us to establish an association relation with an ASN function in an NNC, the OF function here. This rule does not allow an ascription relation between 'x' and 'y' (which would be obtained either by FA or PM as discussed in Section 3.1). SR1 maps onto FR1, the first form rule, which combines the two nouns *x* and *y*:<sup>26</sup>

$$\text{FR1 } \langle x + y = \{x-y\}; \text{Rc: } y = (\text{formal}) \text{ head} \rangle$$

Note that FR1 involves only compounding the two noun stems, *x + y*, but not the suffixation of *-(s)I*. Rc, the rule condition on FR1, shows that *-y* is the formal head. With regard to the final rule involved in the mapping, the categorial rule CR1, it states that both the two inputs and the output of this rule are of noun category, which means that this operation needs categorial information: CR1  $\langle N + N \rightarrow N \rangle$ .

SR1, FR1, and CR1 map onto each other, and constitute the first step in Figure 1, Step 1, which is Operation 1 (OP1). There is a stem condition on this operation: OP1 applies to elements of the noun category. There is also an operation condition: OP1 must be necessarily followed by the second step, OP2. Namely, the outputs of OP1 are not complete and legitimate forms since OP1 is not a terminal operation. Therefore, the second step, Operation 2 (OP2), must be taken. In the second step, again, there are three rules mapping onto each other. However, two of these are identity rules: SR2 and CR2 do not change the meaning or the category of the input:

$$\text{SR2 } \langle X \rightarrow X \rangle$$

$$\text{CR2 } \langle N \rightarrow N \rangle$$

However, FR2 is not an identity rule. This rule suffixes *-(s)I* to the compounded base {N-N} (created in the first step):

$$\text{FR2 } \langle x + (s)I; \text{Rc: } s \rightarrow \emptyset / C \rightarrow \rangle.$$

Note that by separating the suffixation of *-(s)I* (FR2) from combining the two nouns (FR1), and assigning the *-(s)I* suffixation to Step 2, the *-(s)I* suffixation is also separated from the meaning. In other words, the NNC formation in Figure 1 does not allow the *-(s)I* suffixation to map onto the semantic rule, OF(x, y), which belongs to the previous step. Rather, *-(s)I* suffixation maps onto the identity SR2. Thus, the compound marker does not add any meaning to the structure; the

[26] I use curly brackets for morphological operations, elements.



meaning of the compound is attained in Step 1, before  $-(s)I$  is added (in Step 2). With regard to the rule condition on FR2, Rc, it states that the consonant of the  $-(s)I$  suffix is not added when the stem ends in a consonant.<sup>27</sup>

SR2, FR2, and CR2 map onto each other, and constitute the second step in the formation of NNCs, which is OP2. The conditions on OP2 are as follows: Sc requires that OP2 applies to Noun–Noun compounds; Oc requires that the  $-(s)I$  suffix occupies Slot 1, which is an instruction for the affix to be placed immediately after the N–N base. Briefly, OP1 and OP2 together constitute the NNC formation in Turkish, where Step 2 is required by Step 1. In this system, the  $-(s)I$  suffix itself does not contain or add any meaning to the formation; the compound marker belongs to OP2 only, and signals that a word-formation process has taken place, i.e. a lexeme form has been created.

In this analysis, the formal status of  $-(s)I$ , which is morphological, is significant: as  $-(s)I$  is added following the compounding operation (OP1), it is responsible for lexeme creation, i.e. creating candidates for the lexicon from N–N bases. Bare N–N bases (compounds) are not correct word formations in Turkish, e.g. \**su peri* (water fairy) for ‘water fairy’; they cannot serve as lexeme forms.  $-(s)I$  is thus a lexeme-creator according to the current study (see Kunduracı 2017). Thus, it has a formal (morphological) function and it is derivational (when following compounds). However, this does not mean that we cannot call  $-(s)I$  a compound marker as it appears following (N–N) compounds and derives lexeme forms based on N–N compounds without changing the meaning of these compounds. The current formal derivational function of  $-(s)I$  also shows that derivational tasks (or types) may also involve formatting items, as above, in addition to featural, functional, categorial and expressive changes, which are classified by Beard (1998: 57–60).<sup>28</sup>

Recall the case with the NNCs headed by the noun *bilim* ‘science’, which may be followed by the compound marker optionally, e.g. *gül bilim(-i)* ‘rose science (rose science(-CM))’. When they include  $-(s)I$ , they are created by the steps represented in Figure 1; the system outputs NNCs with *bilim* followed by  $-(s)I$ .

[27] According to the proposed analysis, phonology fulfils what is necessary at the end of a morphological operation; thus, the phonological component is responsible for the surface shape of  $-(s)I$ . However, there are also purely phonological conditions of the stem that  $-(s)I$  is suffixed to: the high vowel in the suffix agrees with the frontness-backness and the roundness dimension of the stem.

[28] Thanks to an anonymous reviewer for pointing to  $-(s)I$  in forms such as *bura-sı* ‘here (here- $(s)I$ )’ and *nere-si* ‘where (where- $(s)I$ )’. The bases *bura-* and *nere-* seem to be bound in Modern Spoken Turkish, they appear with  $-(s)I$  in the nominative form, for which there is no overt marking normally, or they take case suffixes without  $-(s)I$ , e.g. *bura-dan* ‘from here (here-ABL)’. As we know that  $-(s)I$  is not a case suffix in Turkish, I hypothesize that  $-(s)I$  in the *nere-si* type forms may be required for morphological reasons only, similar to the case with compounding above, i.e. for deriving legitimate word formations. If this is true, then it would be better to treat  $-(s)I$  a type of STEM FORMATIVE (see Kunduracı 2017) rather than COMPOUND MARKER. This would refer to both word formation involving N–N compounds and word formation involving the *nere-si* type forms. However, further detailed research is necessary for the occurrence of  $(s)I$  in the *nere-si* type forms and its function in such forms.

As for the outputs which do not include  $-(s)I$  after *bilim*, they must undergo only the first step in Figure 1, and then leave the system without the compound marker. While such forms without  $-(s)I$  may appear in formal contexts, e.g. *gösterge + bilim* ‘semiotics (sign-science)’, in casual speech the forms with  $-(s)I$ , e.g. *müzik bilim-i* ‘musical science (music science-CM)’, appear more often (with the same meaning). I thus assume that the absence of the compound marker in such NNCs follows from a non-native type of neologism, which lacks  $-(s)I$ . Recall also the survey on these NNCs (Section 2.2.3 above), which shows that the NNC form without  $-(s)I$  is not as natural as the one with  $-(s)I$  for native speakers.

There is an interesting formal point regarding the plural NNCs. In plural NNCs, the sequence of the plural suffix  $-IAr$  and  $-(s)I$  is  $N-N-IAr-(s)I$ , as illustrated in (6a), rather than  $N-N-(s)I-IAr$ , as in (6b). If  $-(s)I$  is word-formational, as argued here, it would be expected to precede the plural suffix, unlike the actual case in (6):

- |         |   |     |  |
|---------|---|-----|--|
| (6) (a) | peri masal- <b>lar-ı</b><br>fairy tale-PL-CM<br>‘fairy tales’ | (b) | *peri masal- <b>ı-lar</b><br>fairy tale-CM-PL<br>for ‘fairy tales’ |
|---------|---|-----|--|

However, the acceptable sequence in (6) must not immediately lead us to regard  $-(s)I$  as inflectional rather than derivational. Recall that  $-(s)I$  does not occur in combination with some derivational suffixes; this is not a common behavior of inflection. Rather, in line with Hoeksema (1985: 48–49), I propose that number inflection in Turkish NNCs involves a head operation, which applies only to the head of the compound. The head in (6) is *masal* ‘tale’, to which the plural suffix  $-IAr$  is added. That is, inside the  $N-N$  stem, there is a slot following the head, *masal* above, which is reserved for Number inflection in NNCs:  $\{N-N\_ \}-(s)I$ . When a plural NNC is formed, this reserved slot is filled with  $-IAr$ ; otherwise it remains empty. This analysis also parallels Stump’s (1991: 693) Head-application Property regarding the realizations of inflections.<sup>29</sup> Importantly, Beard also states that it is not rare for inflection to appear inside derivation crosslinguistically (1995, 1998: 45–46) and he shows how head operations (the one proposed in the current study, for example) can lead to such inflections (1998: 52–53). Moreover, Booij (1994, 1996) proposes that number in nouns is inherent inflection that is not required by the syntactic context, and it can thus feed word formation.<sup>30</sup>

[29] Stump (1991: 686) points out a universal tendency: ‘Inflections may be morphologically realized inside of an outermost layer of category-preserving derivation/compounding but are logically outside of this layer’. Similarly, for Göksel (1988: 293), semantic representations belong to a distinct system of logical representations, involving semantic compositionality, and it is not required that a natural language string fulfil semantic compositionality.

[30] Note that the head-operation proposed above is not based on the consideration that Number inflection is inherent. The idea that Number inflection may also be inherent means that Number inflection does not need a syntactic context to take place; however, certain syntactic items/operations may further require Number inflection as in the case of agreement, for example.

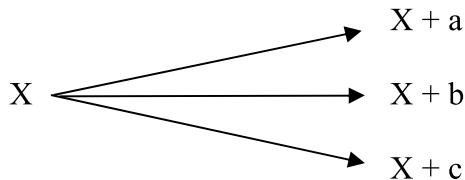
Given these points, the fact that the plural suffix precedes the compound marker in Turkish does not pose a problem for the current word-formational/derivational account of the compound marker at all. Rather, this case tells us more about autonomous morphology: derivations may follow inflections too (see [Section 5](#) below).

To summarize, the outputs of the present system are word formations.<sup>31</sup> Importantly, in this system, the meaning of the compound is created before the compound marker is added. In [Section 4](#), I proceed to the paradigmatic aspect of the analysis, i.e. the relation between the compound marker and derivational suffixes, and why such relation is significant.

#### 4. COMPOUNDING AND DERIVATION: A CLOSE RELATION

##### 4.1 *Derivational paradigms*

As noted in [Section 1](#), one aim of this study is to bring into focus that paradigms are essential for derivational morphology too; the current section describes the nature of a derivational paradigm. [Figure 2](#) illustrates a derivational paradigm from Guilbert (1975). In this figure, the possible formations/outputs of a stem/base X are indicated with an arrow. For more complex stems, cumulative series are used, such as  $X \rightarrow X + a \rightarrow (X + a) + b$ , where X is a stem, and a, b, c are affixes (Guilbert 1975: 180–185).



*Figure 2*  
Guilbertian derivational paradigm (Guilbert 1975).

Listing the possible contrastive formations, which are paths, [Figure 2](#) represents the dynamics and relations in a morphological paradigm structure. In parallel with Guilbert, a derivational paradigm has a form-based structure with a stem and

[31] This system might also produce appositive and coordinate N–N formations, which do not contain *-(s)I*, ([Section 3.1](#)) if these are word formations as well. Since these are beyond the scope of this study, I leave their detailed analysis for future research. The current system also does not exclude coordinated compounds such as *{çocuk [çanta ve pabuç]}-lar*-ı ‘child(ren) bags and (child(ren)) shoes (child bag and shoe-PL-CM)’, where both the *-lar* and the *-(s)I* suffixations target the head of the compound: *[çanta ve pabuç]*. In the current system, autonomous morphological OPs may apply to syntactic bases, i.e. the head of the above compound, as well as simple bases, i.e. the modifier item *çocuk* ‘child’ in this compound. On such suffixations involving coordinated expressions, referred to in the literature as suspended affixation, see Kabak (2007), and on phrasal compounds in Turkish, see Göksel (2015).

the individual formations departing from the stem in Pounder (2000); however, Pounder (2000: 91–95) argues that a complete paradigm model should also involve prefixation and compounding. Pounder's paradigm structure contains paths from a base to potential operations assigned to slots, and stem operations applying to the base; an output of the paradigm may enter the systematic derivational paradigm of its new category if there is one, or the same derivational paradigm recursively, and also the inflectional paradigms.

Blevins (2001: 211–217) views derivational paradigms in the following way: all inflection can be regarded as paradigmatic, but it is not necessary that all paradigmatic processes are inflectional, namely, derivational stems are also forms of a basic lexeme, which may feed derivational processes such as lexeme formation or compounding. Thus, outputs of a paradigm share certain properties as emphasized in Carstairs-McCarthy (1998) and Booij (2007). Suffixes which belong to different paths in a paradigm mutually exclude each other as they occupy the same slot (see Anderson 1982, 1992). In addition to these formal properties, Stump (1991) emphasizes the semantic characteristic that is shared by the outputs of a paradigm: all the products maintain the meaning of the base. Given these points, a derivational paradigm can be described as follows:

#### *Derivational paradigm*

A derivational paradigm is a dynamic, organized morphological structure involving morphological operations, which produce a set of possible derivations derived from the same stem. The outputs share formal properties and maintain the meaning of the shared stem. However, they involve mutually exclusive forms since each operation constitutes a distinct alternative, which is a path in the paradigm. (Kunduracı 2013: 131)

The Turkish data investigated in this study lends itself to a paradigmatic mechanism as described above: the data involve SEMANTICALLY and FORMALLY related items that are MUTUALLY EXCLUSIVE, as discussed in the next subsection.

#### 4.2 *The current paradigmatic structure*

This section resolves the formal issue regarding NNCs with *-(s)I*, introduced in Section 1 and investigated in the survey (Section 2): the formations which, contrary to expectations, lack *-(s)I*. The absence of *-(s)I* in combination with *-II* (ORN) and *-sIz* (PRIV), which normally attach to N bases and derive adjectives from nouns, e.g. *şeker-li* 'sugary (candy/sugar-ORN)' and *şeker-siz* 'sugar-free (candy/sugar-PRIV)', has been investigated previously (e.g. Hayasi 1996, van Schaaik 1996). According to van Schaaik (1996: 166), the compound marker

is not added when there is adjectival derivation with *-II* and *-sIz*.<sup>32</sup> The present study, however, shows that this cannot be about category and that this case, i.e. the absence of the compound marker with *-II* and *-sIz*, is not limited only to adjectival derivation, i.e. *-II* and *-sIz* suffixations (see Sections 1 and 2 above): there are at least four other suffixes with which *-(s)I* may not co-occur: *-CI* (AGT), *-CE* (LNG) (neither of which necessarily derives adjectives), *-(I)msI* (ATN), and *-sI* (ATN).

First, let us recall the problematic formal issue introduced in Section 1: *-(s)I* in the NNC *su peri-si* ‘water fairy’ cannot come either before, as seen in (7c, d), or after the derivational suffixes, as seen in (7e, f).

- |  |   |
|--|---|
| (7) (a) su peri-li masal<br>water fairy-ORN tale<br>‘a/the tale with a water-fairy’                      | (b) su peri-siz masal<br>water fairy-PRIV tale<br>‘a/the tale without a water-fairy’            |
| (c) *su peri-si-li masal <sup>33</sup><br>water fairy-CM-ORN tale<br>for ‘a/the tale with a water-fairy’ | (d) *su peri-si-siz masal<br>water fairy-CM-PRIV tale<br>for ‘a/the tale without a water-fairy’ |
| (e) *su peri-li-si masal<br>water fairy-ORN-CM tale<br>for ‘a/the tale with a water-fairy’               | (f) *su peri-siz-i masal<br>water fairy-PRIV-CM tale<br>for ‘a/the tale without a water-fairy’  |

The reason for expecting the compound marker in the above formations would be semantics: (7a, b) involve the same semantic relation (ASN function) between the two nouns, as in the compound with *-(s)I*, *su peri-si* ‘water-fairy: (a/the) fairy OF (or FOR) water’, but there is no *-(s)I* in (7a, b). Therefore, the absence of *-(s)I* is crucial: there appears a mismatch between form and meaning. Recall also (from Section 1, example (3)) that the *-(s)I* in NNCs contrasts with the *-(s)I* in possessive constructions (PCs). The POSS *-(s)I* can follow these derivational suffixes, as illustrated in (8). As just seen in (7) above, however, *-(s)I* cannot co-occur with these derivational suffixes in NNCs, where it is a compound marker.

[32] The same, categorial point is also raised in Öztürk & Erguvanlı Taylan (2016), with the claim that compounds with *-CI* which is not followed by *-(s)I* involve attribution/adjectival interpretation whereas those with *-CI+(s)I* involve nominal interpretation. I, however, show that such categorial limitation on the addition of *-(s)I* or *-CI* fails to explain counterexpressions: bare compounds with *-CI* but without *-(s)I* may also have attributive/adjectival interpretation as well as nominal/nouny interpretation. For instance, the derivative *buz paten-ci* ‘ice-skater (ice skate-AGT)’ will have a nouny interpretation in *buz paten-ci-ler burada* ‘the ice-skaters are here’, but an adjectival one in *buz paten-ci çocuk* ‘the child, who is an ice-skater’. Namely, whether *-(s)I* will be added cannot be ascribed to the category of the output. The *-CI* suffixation in Turkish may apply to simple Ns as well (see the Sc in Figure 3), and derives nouns, such as *felsefe-ci* ‘philosopher (philosophy-AGT)’, which may involve not only nouny but also attributive interpretation: *felsefe-ci iyi* ‘the philosopher is good (philosophy-AGT good)’ vs. [*felsefe-ci çocuk*] *iyi* ‘the child who is a/the philosopher is good (philosophy-AGT child good)’. Recall also from footnote 16 that there is indeed no clear cut but a continuum between As and Ns in Turkish. Thus, the postulation of a categorial determination on the *-CI-((s)I)* issue is not a desirable one.

[33] Note that whereas derivational suffixes such as *-II* and *-sIz* cannot follow *-(s)I* in novel NNCs, as shown in (8), some lexicalized NNCs, which are beyond the scope of this paper, may allow these combinations, e.g. *kavun-iç-i-li çocuk* ‘the child with/in orange (colour) (melon-inside-CM-ORN child)’.

- (8) (a) *suy-un peri-li-si*  
 water-GEN fairy-ORN-POSS  
 ‘of (the) water types, the one with fairies’  
 ‘of the things belonging to the water, the one with a fairy’
- (b) *suy-un peri-siz-i*  
 water-GEN fairy-PRIV-POSS  
 ‘of (the) water types, the one without fairies’  
 ‘of the things belonging to the water, the one without a fairy’

It is thus necessary to show what precludes the combination of *-(s)I* and derivational suffixes, i.e. the *-II* type suffixes. As discussed above (Sections 1 and 2), *-(s)I* does not appear before the derivational suffix *-CI* (AGT) either, as shown in (9b, c, d), nor after *-CI* for some speakers (9c). This fact, i.e. the optionality in the case of *-CI*, makes it necessary to account for the relation of *-(s)I* and the *-CI* type suffixes, which includes *-CE* (LNG) as in (9e, f):

- |  |  |
|--|--|
| (9) (a) <i>su peri-si</i><br>water fairy-CM<br>‘water fairy’                 | (b) * <i>su peri-si-ci</i><br>water fairy-CM-AGT<br>‘water-fairy fan/author/creator’ |
| (c) <i>su peri-ci</i><br>water fairy-AGT<br>‘water-fairy fan/author/creator’ | (d) <i>su peri-ci-si</i><br>water fairy-AGT-CM<br>‘water-fairy fan/author/creator’   |
| (e) <i>su peri-ce</i><br>water fairy-LNG<br>‘water-fairy language’           | (f) <i>su peri-ce-si</i><br>water fairy-LNG-CM<br>‘water-fairy language’             |

Note that N–N-*CI/CE* forms, such as the ones in (9c, e), do not involve shortening of N–N-*CI/CE*-*(s)I*. The N–N-*CI/CE* form without *-(s)I* is also attested by native speakers (including myself) and is grammatical; the casual speech includes both of these formations (see also the survey results in Section 2, Table A2).

As mentioned above, the absence of *-(s)I* with *-II* and *-sIz* is regarded in previous studies as a categorial restriction (van Schaaik 1996) or a deletion of *-(s)I* (e.g. Hayasi 1996, Aslan & Altan 2006), and there is no account (apart from Kunduraci 2013) of the optionality of *-(s)I* in co-occurrence with *-CI*, highlighted in (9). Above, I have already shown that the absence of *-(s)I* with the *-II* type suffixes cannot follow from categorial selection (see Tables A1, A2, and footnote 32). As for deletion, it does not account for the permitted sequences of a derivational suffix and *-(s)I*. Namely, it is not the case that *-(s)I* disappears in the presence of all derivational suffixes. Indeed, as noted in Section 1, it must occur following some derivational suffixes unlike the *-II* type:

- |   |   |
|---|---|
| (10) (a) <i>su peri-ciğ*(-i)</i><br>water fairy-DIM-CM<br>‘little/lovely water-fairy’ | (b) * <i>su peri-si-cik</i><br>water fairy-CM-DIM<br>for little/lovely water-fairy’ |
|---|---|

The expression in (10a) is interesting firstly because, unlike in (7) above,  $-(s)I$  is obligatory, and secondly,  $-(s)I$  follows the derivational suffix  $-CIK$  in (10). I propose that such restrictions on the compound marker points to a formal relationship between the compound marker and certain derivational suffixes, i.e., the  $-II$  type (but not the  $-CIK$  type), for which I provide a paradigmatic system represented by Figure 3. Figure 3, an extended model of that in Figure 1 above, provides a system creating NNCs and derivations based on these NNCs.

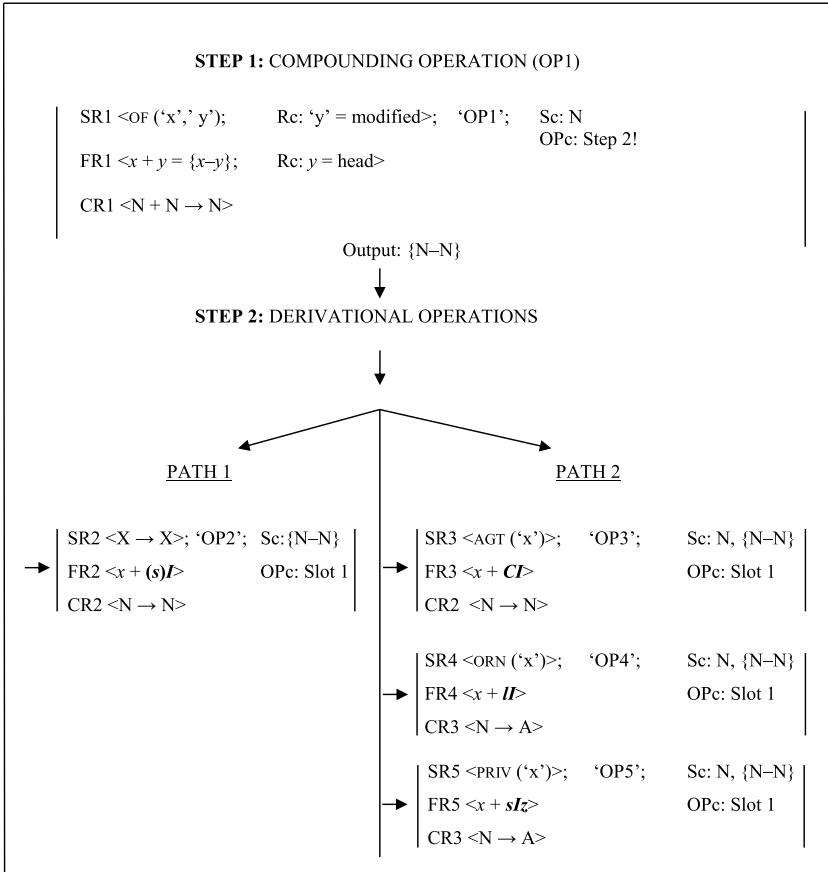


Figure 3  
Word-formation paradigm.

Recall that in Figure 1, it is proposed that  $-(s)I$  is added to the compound base {N-N} after OP1, which involves SR1. The fact the semantics of the compound {N-N} is also maintained in N-N-CI, N-N-II, and N-N-sIz (and N-N + another -II type suffix), which do not contain  $-(s)I$ , supports the current analysis.

Namely, all of these derivational suffixes, i.e. the *-II* type suffixes represented with *-II*, *-sIz* and *-CI* in Figure 3, must be added to the bare compound {N–N} once we have established the semantic relation between the two nouns and they have been compounded. The operations involving the *-(s)I*, *-CI*, *-II*, and *-sIz* suffixations (and other *-II* type suffixations) must apply only after the OP1, so that we can keep the same semantics in all formations regardless of *-(s)I* suffixation, and guarantee not to suffix *-(s)I* before the *-II* type suffixes.

In other words, I argue that the suffixation of *-(s)I* and the *-II* type derivational suffixes points to a formal paradigmatic relationship between these suffixations: these occupy alternative end-nodes in a word-formation (derivational) paradigm. Each suffix can be attached to an N–N base, but only one is chosen: {{N–N}+ one suffix}.

The machinery in Figure 3 starts with SR1, which applies the ASN function to the meanings of the constituents and maps onto FR1, as explained in connection with Figure 1, in Section 3 above. SR1 maps onto FR1,  $x + y = \{x-y\}$ , and the CR1,  $N + N \rightarrow N$ . The output of OP1 is thus an N–N stem with associative semantics.

In the second step, however, there are two paths, which makes Figure 3 different from Figure 1. If there is no need for a semantic modification, i.e. a further (full) SR, we directly take Path 1 for *-(s)I* suffixation (FR2) which maps onto the identity semantic rule, SR2, ( $X \rightarrow X$ ), and the identity categorial rule CR2 ( $N \rightarrow N$ ), and derives lexemes from N–N compounds. Namely, Step 2 in Figure 1 constitutes a path in Figure 3. SR2, FR2, and CR2 together constitute OP2 as already explained in connection with Figure 1. Recall that in OP2, *-(s)I* suffixation (FR2) is separated from Step 1 rules (SR1 and FR1). This separation is crucial: it accounts for why it is possible to maintain the semantics of N–N-*-(s)I* but not the compound marker in the *-II* type suffixations (N–N-*CI*, N–N-*II* and N–N-*sIz* above). That is, all the formations of the paradigm include Step 1, which involves OP1 and SR1 (where an ASN function is inserted and the meaning is obtained via the function).

If a semantic modification is desired, Path 2 is taken instead of Path 1, and one of the derivational operations is chosen (OP3, OP4, OP5). The first alternative in this path is OP3, which comprises the rules SR3, FR3, and CR2. SR3 creates an ‘agent/actor’ on the basis of the meaning of the compound. This rule maps onto FR3, which suffixes *-CI* to the compound, i.e. the N–N base. The final rule in OP3 is CR2, which derives an N from an N input. There is a base condition on the operation: Sc requires that OP3 may apply to Ns, as in *şeker-ci* ‘candy seller/maker/lover (candy/sugar-AGT)’ or *peri-ci* ‘fairy expert (fairy-AGT)’, and N–N bases as in *{su-peri}-ci* ‘water-fairy expert (water fairy-AGT)’. There is also an operation condition, OPC, which reserves the first slot following an N–N base for *-CI*.

The second alternative in Path 2 is OP4, with the rules SR4, FR4, and CR3. SR4 is responsible for the meaning ‘with x’, where ‘x’ is the meaning of the compound. This rule maps onto FR4, which suffixes *-II* to the N–N base.



The final rule of the OP4 is CR3, which derives adjectives from nouns:  $N \rightarrow A$ . There is a stem condition, Sc, requiring that this operation may apply to Ns, as in *peri-li* ‘with (a) fairy (fairy-ORN)’, and N–N bases, as in  $\{su\text{-}peri\}\text{-}li$  ‘with (a) water-fairy (water fairy-ORN)’. Finally, the operation condition, OPc, reserves the first slot following an N–N base for the *-li* suffix.

The third alternative in Path 2 is OP5, with the rules SR5, FR5, and CR3. SR5 is responsible for the meaning ‘without x’ where ‘x’ is the meaning of the compound. SR5 maps onto FR5, which suffixes *-sIz* to the N–N base. The final rule of OP5 is CR3, which has been already defined above:  $N \rightarrow A$ . The stem condition on OP5 requires that OP5 may apply to Ns as in *peri-siz* ‘without (a) fairy (fairy-PRIV)’, and N–N bases as in  $\{su\text{-}peri\}\text{-}siz$  ‘without (a) water-fairy (water fairy-PRIV)’. With regard to the operation condition, it reserves the first slot following an N–N base for the *-sIz* suffix.

Note that all the paths in Step 2 have the same stem condition, Sc, which means that these operations apply to simplex {N} and complex {N–N} bases; they also have the same operation condition, OPc, which requires that all the suffixes are positioned in Slot 1, which is the slot immediately following the N–N base. These conditions result in a competition between the suffix of Path 1 (*-(s)I*) and the suffixes of Path 2 (the *-li* type derivational suffixes), which accounts for why only one of these suffixes can occur following a bare N–N compound: these suffixes are PARADIGMATIC, i.e. they are SLOT COMPETITORS. The derivatives with these suffixes have certain points in common: they all involve OP1, thus they share the same base, N–N, and the semantics mapping onto this base,  $f(x, y)$ . Therefore, N–N-*CI*, N–N-*li*, and N–N-*sIz* maintain the semantic relation between ‘x’ and ‘y’, in addition to the additional meanings AGENTIVE, ORNATIVE, and PRIVATIVE.

Having accounted for the impossible co-occurrence of *-(s)I* with the *-li* type suffixes, I now turn to the required co-occurrence of *-(s)I* with another type of derivational suffixes. Recall from Section 1 and example (10) above that the compound marker must follow some derivational suffixes, such as *-CIK*:

- (11) *su peri-ciġ-i*  
 water fairy-DIM-CM  
 ‘(the) little/lovely water-fairy’

The expression in (11) supports the claim that *-(s)I* must be in a formal paradigmatic relationship with only certain derivational suffixes, e.g. *-CI* (for some speakers), *-li* (for all speakers), and *-sIz* (for all speakers), unlike suffixes such as *-CIK* in (11). The former type of suffixes (the *-li* type) are slot competitors with *-(s)I* within the paradigm represented in Figure 3. The *-liK/-CIK* type suffixations, however, cannot be end-nodes in this paradigm. Thus, I propose that the structure of expressions, such as (11) cannot be  $\{\{N-N\} + \text{suffix}\}$  (as in Figure 3), but must be  $\{\{N + \{N + \text{suffix}\}\} + \text{-(s)I}\}$ , where *-CIK* attaches to an N,

but not to an N–N base. The fact that such suffixes cannot attach to N–N bases precludes them from occupying end-nodes in the paradigm.<sup>34</sup>

Now recall the optionality in expressions like *su peri-ci(-si)* ‘water-fairy expert (water fairy-AGT-CM)’ and *su peri-ce(-si)* ‘water-fairy language (water fairy-LNG-CM)’ illustrated in (9b–e) above. I attribute this case to the structure: if a speaker attaches *-CI* (or *-CE*) to an N–N base, as in the case of *-II* type suffixes, no *-(s)I* appears. This makes *-CI* (and *-CE*) a paradigmatic suffix with the compound marker in the word-formation paradigm for such speakers:  $\{\{N+N\}+CI\}$ . This means that OP3 (in Figure 3) may apply not only to N bases but also to N–N bases in such speakers’ systems. If however, a *-CI* type suffix is first added to an N as a derivation, and then this derivation with *-CI* becomes an input to OP1 (compounding), it results in the suffixation of  $\{-(s)I\}$ :  $\{\{N+\{N+CI\}\}+(s)I\}$ . In this case, with the compound marker present, *-CI* is not regarded as a paradigmatic suffix: OP3 does not apply to an N–N base.

There is a point to be made about the dynamism of paradigms here. The agentive suffix *-CI* (and similar suffixes, like *-CE*) must have entered the derivational paradigm including compounding for some speakers and not other speakers. Apparently, the stem conditions on the OP3 (which involves *-CI* suffixation) is different for the latter group of speakers: OP3 applies only to N stems, but not to N–N stems. I also propose that for another group of speakers, for whom both formations (with and without *-(s)I*) are acceptable, *-CI* suffixation serves as an end-node in the paradigm for some derivations unlike other derivations. Such speakers use either structure for a formation. This is why both the N–N-*CI* and N–N-*CI-(s)I* formations are acceptable for these speakers. However, at some point in future, this last group of speakers might prefer N–N-*CI* to N–N-*CI-(s)I* for all formations if *-CI* (and other similar suffixes, e.g. *-CE*) becomes a totally paradigmatic suffix for them, for example.

The optionality, then, arises due to the fact that suffixes like *-CI* may either attach to an  $\{N-N\}$  stem or to an  $\{N\}$  stem for a speaker in a given case. Such optionality in speakers’ mind is a proof for the DYNAMIC nature of derivational paradigms, which are, apparently, full of alternative, active options (paths), and may change in the course of time.

In sum, the superficial mismatch problem of form and meaning (introduced in Section 1) has been resolved in this section. The current paradigm structure accounts for why  $\{N-N\}$ -*(s)I*,  $\{N-N\}$ -*CI*,  $\{N-N\}$ -*II*, and  $\{N-N\}$ -*sIz* formations are morphologically, semantically, and structurally related to each other: they are all word formations produced within the same paradigmatic system.

[34] The fact that *-(s)I* follows these derivational suffixes leads Hayasi (1996: 125) to the conclusion that *-(s)I* is added after the N–N derivation as proposed here and in van Schaaik (1996). For Hayasi (1996: 125), *-(s)I* is added in probably syntax, however. In the current paper, regarding *-(s)I* as syntactic and/or inflectional does not account for why *-(s)I* cannot follow the *-II* type suffixes, and why it follows *-CI/CE* for some speakers unlike other speakers who do not add *-(s)I* after *-CI/CE*

This, however, does not mean that *-CI*, *-II*, and *-sIz* are compound markers like *-(s)I*. Rather, this means that a word formation is derived from an N–N base at the end of all of these derivational operations, i.e. OP2, OP3, OP4, OP5 (and other *-II* type derivations like *-(I)msI* and *-sI*). That is, NNCs with *-(s)I* are also word formations.

Note that if the suffixation of *-(s)I* were not separated from the Step 1 rules, the system would produce ungrammatical forms such as *\*N–N-(s)I-CI*, *\*N–N-(s)I-II*, and *\*N–N-(s)I-sIz*, as *-(s)I* suffixation would map onto SR1, then the *-II* type suffixes<sup>35</sup> would attach immediately following *-(s)I* (in order to maintain the associated meaning within the bare compound). With regard to other derivational suffixes which *-(s)I* follows, as in (11) above, their suffixations do not constitute a paradigmatic contrast with *-(s)I* suffixation since their stem conditions do not permit such suffixes to attach to N–N bases, i.e. they have distinct base conditions/restrictions.

#### 4.3 Why {N–N-derivational suffix} overrides {N-derivational suffix}

One can consider how the native speakers know which possible form to take when multiple options are available, namely, how the *-II* type suffixations obtain the correct base types in distinct instances: {N–N}-*II* vs. {N}-*II*.

When a formation like *{su peri}lī masal* ‘a/the tale with a/the water-fairy (water fairy-ORN tale)’ is built, what precludes a speaker from taking the other base option for *-II*, as in *{peri}lī masal* ‘a/the tale with a/the fairy (fairy-ORN tale)’, must be speaker’s anticipation based on the autonomy and the nature of morphological operations, rather than a cyclic or a layered morphology,<sup>36</sup> for example. Recall that morphological operations, as described here, involve form and meaning rules separately, so even though the form rule (FR) is identical in

[35] Interestingly, the possessive suffixes, which are inflectional, are also not added in combination with the compound marker: *su peri(\*-si)-n* ‘your water-fairy (water fairy-CM-2.POSS)’. This case does not pose a problem, but provides another support for the importance of BASE TYPES and BASE CONDITIONS of morphological operations. Namely, just like above, the reason for the 1st/2nd person possessive suffixes to not appear with the compound marker is because these affixes may also attach to bare N–N compounds as does the *-II* type suffixes. Zwicky (1995: 528) also makes the point that mutual exclusion can be beyond semantics and expressing identical features.

As for the possessive *-(s)I*, it may not be suffixed following the compound marker as in *masal-m su peri-si(\*-si)* for ‘the water-fairy of the tale (tale-GEN water fairy-CM-POSS)’. This case follows from a morphological formal ban (which precludes the reapplication of the same FORM RULE on a base and which is not relevant to function/meaning) proposed by Kunduracı (2013: 180–182). As the scope of this study is the relation of the compound marker and derivational suffixes, possessives are not discussed here in detail. The reader who is interested in the relation of *-(s)I* and possessive suffixes is referred to Kornfilt (1986), van Schaaijk (1996), Haig (2004), and Kunduracı (2013, 2017), among others, for distinct approaches.

[36] The reader is referred to Giegerich (2009) for a layered type of morphology.

the *-II* suffixations in the above expressions including *peri* ‘fairy’, the operations which the formal *-II* suffixation belongs to are distinct: one involves compounding and the other does not, which makes a big difference at the beginning. That is, when a speaker (with the derivational paradigm structure) intends to express a semantic category such as ‘x: x involves a fairy that is related to water in a way’, this speaker makes a choice among the OPs that the autonomous morphology provides her/him with. The OP that (s)he chooses already contains the information about the base type (stem condition) {N–N}, which precludes her/him from being confused or adding *-II* to the single N {*peri*} in contrast to the complex N–N: {*su peri*} above. If, however, the speaker needs to express a less complex meaning such as ‘x: x with a fairy’, then the OP (s)he chooses will be a distinct one even though this OP will involve the same FR, i.e. the formal *-II* suffixation. The current study thus shows the role of speaker’s anticipation in establishing complex formations such as those described above: apparently, speaker’s anticipation enables to make the correct choices among others.<sup>37</sup>

## 5. DISCUSSION AND CONCLUSIONS

Turkish Noun–Noun compounding and subsequent derivation shed light on important interactions between compounding and derivation as well as the nature of the morphological component. By analyzing these interactions, I have aimed to show that the way one approaches morphology either increases or decreases the number of problems. A processual, paradigmatic approach which recognizes certain relations between affixations and which separates form from meaning, is able to account for the semantic, formal, and syntactic properties of the structures discussed here. In the analysis argued for here, I separate the meaning of NNCs – handled by semantic rules – from the compounding rule – form, handled by form rules – and also separate *-(s)I* suffixation from both of these rules, which makes *-(s)I* an identity suffix in terms of semantics and an active suffix in terms of form: *-(s)I* suffixation has a function, i.e. lexeme derivation (as a stem formative in Kunduracı 2017), but no meaning.<sup>38</sup>

The formation and localization of compounding has been controversial between the lexicalist and syntactic approaches. In the lexicalist view, compounds are

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[37] Swarup & Gasser (2007) discuss the role of anticipation in the cognitive demands for language. Whereas their points do not directly concern grammar structures, they highlight the correlation between the anticipatory behavior, planning and the complexity of a communication system. The relation of anticipation and grammar structure appears to be a less-studied area of research, and it remains to be investigated in depth.

[38] As a counterargument, see Yüксеker (1994), who proposes that *-(s)I* creates an argument position and thus it is involved in semantics, and Öztürk & Erguvanlı Taylan 2016, for another argumental-semantic discussion for the *-(s)I*, which is claimed to appear with a certain group of semantic relations. As mentioned above, however, the studies which assign a semantic task to *-(s)I* cannot explain the semantics of derivations based on bare N–N compounds, which, importantly, have the same semantics but not *-(s)I*.

formed in the lexicon, which makes compounds lexical units (e.g. Jackendoff 1975; Giegerich 1999, 2009; Lieber 2004). Given the Lexical Integrity Principle/Hypothesis (LIP), it is guaranteed that syntax cannot manipulate morphological structure (Postal 1969, Lapointe 1980). This approach, thus, can easily account for the systematic semantic, syntactic, and prosodic distinctions between compounds and phrasal units crosslinguistically. There is, however, no way to account for phrasal compounds (compounds with embedded phrasal units) in lexicalism in general, as the No Phrase Constraint (NPC) does not allow syntactic items to enter/exist in internal word structure (Botha 1984). A complex compound formation like {[*yeşil elma*]<sub>NP</sub> *ağac-ı*}<sub>NNC</sub> ‘a/the green apple tree: tree OF green apples (green apple tree-CM)’, which contains a clearly syntactic unit embedded in the compound, cannot be built or explained lexically and thus poses an important problem for the lexicalist analyses of compounding: phrasal compounds like this, and coordinate compounds as exemplified in footnote 31, are also productive. In the syntactic view, on the other hand, compounds are formed in the syntax, which makes compounds units formed by syntactic rules (e.g. Lees 1966, Levi 1978, Baker 1998, Borer 2009, Harley 2009). This approach thus accounts for phrasal compounds; however, it cannot account for the systematic characteristics of compounds distinct from those of phrasal units (inseparability of the constituents, for example). Therefore, what is an advantage for the lexicalist view constitutes a disadvantage for the syntactic view, and vice versa: the two views create different flaws. The alternative, third view argues for a specific component of word formation for compounding (e.g. Allen 1978, Sadock 1998, Pounder 2000, Di Sciullo 2009). The data examined in the present study show that this specific location constitutes a dynamic subsystem of the autonomous morphological component: word formation.

The current system of autonomous morphology can produce compounds without restricting this productive process to lexicon, and at the same time, does not overlook the syntactic, semantic, and formal properties of NNCs as different from those of phrasal units. As outputs of a word-formation process, NNCs are syntactic atoms, i.e. inseparable word formations, in contrast to NPs (including PCs). Note also that with an autonomous morphology with operations that are not strictly ordered relative to syntactic operations (see Kunduracı 2013), as argued for here, phrasal compounds will not be a huge problem to explain.<sup>39</sup> A noun phrase, for example, can occupy the modifier position of a compound. Importantly, such cases do not necessarily show that compound formation is syntactic. Rather, we see that even syntactic structures are reduced to serve as a constituent in a word formation (NNCs here). Therefore, it is theoretically important to regard the distinction between an OPERATION and an INPUT of an

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[39] Also see Lieber & Scalise (2006) for a similar discussion with evidence from a variety of languages.

operation: we cannot warrant that an operation is syntactic simply because its input is syntactic.

In this conception, derivation and inflection are both handled with the autonomous morphology of the multimodular grammar. Both the derivational and the inflectional subsystems can use identical formal/shaping processes such as suffixation, can create complex words and provide productivity (under conditions). The two subsystems are also similar in terms of feeding, namely, neither derivational nor inflectional operations are limited to presyntactic or postsyntactic steps: both will apply when the grammar requires them. However, their tasks are distinct: (morphological) derivation creates new potential lexemes (no matter how complex these are, e.g. derivations based on compounds, [Section 4.2](#)) so as to express new semantic notions. Inflection, however, operates because a grammar requires it for marking a set of abstract categories (e.g. predicate, subject, object) and relations between these (e.g. agreement and case).<sup>40</sup> What makes the two morphological subsystems distinct is thus not necessarily their timing, i.e. operating before/after syntax or each other, or the complexity of their inputs/outputs, but the need and condition for their operating (recall that an inflectional (plural) suffix may occur before a derivational compound marker, [Section 3.2](#)).

With an autonomous morphology which is not restricted to the lexicon, we do not have to identify the semantic relation expressed by the compound as the meaning of *-(s)I* or recognize a series of homophonous *-(s)I* suffixes all with distinct meanings. More importantly, we are able to account for how we preserve the compound meaning when the compound marker is absent in the case of subsequent derivation following compounding in Turkish. With an autonomous morphology which is also not restricted to the syntax, we can account for why in Turkish we have both NNCs and PCs ([Section 1](#)) which contain the same suffix form whereas they are syntactically, morphologically and referentially distinct.

Concerning the importance of such data for paradigms, we have seen that paradigms are not restricted to inflectional morphology; derivational paradigms also involve mutually exclusive affixations. Paradigms are not restricted to the lexicon either: the word-formation paradigm proposed here is not a static one, it produces possible outputs, presents alternatives, and may accept new operations – it is a dynamic structure of morphology. The current, dynamic derivational system accounts for the possible and impossible suffix combinations via a RULE-BASED PARADIGM STRUCTURE, which reveals the relation between derivation and compounding. The paradigm proposed in [Figure 3](#) can be extended further, more derivational suffixes can be on the way to enter this paradigm. Note that there is NO DELETION of *-(s)I* in any of these cases since these are paradigmatic

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[40] The reader could see Bresnan et al. (2016) for abstract categories referred to above, and Zwicky (1995), Beard (1998), and Pounder (2000), among others, for detailed discussions regarding derivation and inflection.

formations. Rather, what we have is the unsuffixation of *-(s)I* due to SPEAKER'S ANTICIPATION based on PARADIGMATIC SELECTION, i.e. SLOT COMPETITION.

The permitted and unpermitted suffix combinations involving the compound marker reveal that it is not only the compound marker which can be suffixed to N–N stems in Turkish. Rather, there is a set of derivational suffixes which can attach to bare N–N compounds as well as simple noun stems.<sup>41,42,43</sup> Further, I have identified two more sets of derivational suffixes: those which precede *-(s)I* since they are part of derivation feeding compounding, and those which seem to follow *-(s)I* under certain circumstances. This variety in terms of the BASE TYPES that an autonomous morphological operation may apply to shows the necessity of BASE/STEM CONDITIONS in operations: each morphological operation has at least one specific base type.

In brief, the Turkish data examined here show that (i) derivations with compounds are PARADIGMATIC, i.e. they have certain restrictions on affix combinations; (ii) derivations with compounds are DYNAMIC processes, i.e. one speaker may have alternative suffix combinations or different speakers may have different combinations (e.g. with *-CE*, *-CI*); and (iii) derivations with compounds are PRODUCTIVE. We have also seen that a processual view of morphology is also elucidatory in agglutinative languages, such as Turkish, which is often considered to display canonical mappings between meaning and form.<sup>44</sup> Neither lexical meanings nor syntactic positions assigned to affixes, but AFFIXATIONS, i.e. MORPHOLOGICAL PROCESSES, have resolved the intriguing puzzle between form and meaning in the examined data.

Given these considerations and the theoretical issues above, I do not ascribe the compounding operation either to the lexicon or to the syntax (or a syntactic model of morphology, such as Distributed Morphology, where the notion of paradigm

[41] Note that *-I* and *-sIz* have not been tested in the survey as their distribution with the compound marker has been discussed previously (see Sections 1 and 3.2).

[42] There might be more derivational suffixations which have not been investigated currently and previously but which may also constitute end-nodes in the proposed paradigm. The *-IE* suffix, for example, derives verbs from noun stems and appears to attach to N–N stems too, as in *kurabiye-ler-i pudra şeker(\*-i)-le -di-m* 'I have put some icing sugar onto the cookies (cookie-PL-ACC powder sugar(\*-CM)-IE-PST-1.SG)'. Thanks to an anonymous reviewer for pointing to this suffix. Another paradigmatic suffix appears to be *-ki*, which is pointed by Göksel & Kerslake (2005: 68), e.g. *Cuma gün(\*-ü)-kü toplantı* 'the meeting on Friday (Friday day(\*-CM)-ki meeting)'.  
 [43] This last set of derivational affixes provides a counterexample to Göksel & Haznedar (2007: 18), who define *-(s)I* as a closing suffix, which results in the *-IAr-(s)I* string in plural NNCs (discussed here in Section 3.2). If *-(s)I* is a closing suffix then the cases where some suffixes may follow *-(s)I* can be ascribed to (i) the original/historic properties of derivational affixes in the case with *-CE* and *-gil* (which might have been inflectional previously), and (ii) flexibility in affixation due to the non-native status of the forms in the case with *-hane* and *-vari*.

[44] Turkish also shows a good many morphological patterns which are not canonical (see Erdem 2018).



and morphological autonomy are not either accepted or explained).<sup>45,46</sup> Zwicky (1986), Di Sciullo & Williams (1987), Aronoff (1994), Beard (1995), Pounder (2000), Di Sciullo (2009), Sadock (2012), Kunduracı (2013), and Kunduracı & Göksel (2016) have already argued that morphology is a separate autonomous component, and Anderson (1982, 1992, 2004), Bresnan & Mchombo (1995), and Bisetto & Scalise (1999) (among others) highlight that morphological principles are distinct from syntactic principles.<sup>47</sup> The findings and remarks in the present study demonstrate this autonomy. Perhaps, another distinct formalism which also follows separationism and explains mutually exclusive forms could reach parallel results; however, without a morphologically autonomous paradigm structure, it might not provide the organization and dynamism required by a multimodular grammar. Thus, the choice of the model of grammatical architecture is not a trivial one.

## APPENDIX A

### Survey instructions (in English translation)

You are expected to make judgements regarding the highlighted words/structures in the following sentences. If the highlighted structure sounds good/natural for you, and if you think it is very likely to appear in everyday speech, you should choose 'good'. If it sounds (a little) weird, you should choose '(a little) weird'. If it sounds horrible, and if you think it is very unlikely to appear in everyday speech, you should choose 'bad'.

A form is 'good' if you could use it under appropriate circumstances and if it sounds good to you when somebody else uses it. A form is 'bad' if you would never use it and if it bothers you very much when you hear it. A form is '(a little) weird' if you can interpret it when you hear it but at the same time if it is not totally good for you and you would use another form instead. If you cannot decide, then you should choose 'not sure'.

Please remember that in this survey, I am interested in WHAT YOU THINK. Therefore do not restrict yourself by considering that there should be standard answers on the basis of what you have learnt from dictionaries and grammar books. This survey investigates your intuitions and your natural knowledge of your native language, Turkish. In addition, please do not spend much time on the questions; this survey seeks your first responses/reactions.

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[45] See Bobaljik 2002, for example.

[46] The current system is a multimodular grammar model with an autonomous morphology, which interacts with all other components (i.e. lexicon, semantics, syntax, phonology); the reader could see the details about the functioning of this model in Kunduracı (2013: 101–108).

[47] These studies highlight and account for a set of distinctions between morphology and syntax, and their outputs.



The results of this study will be used in academic publications. You will not be asked for your identity, which will be anonymous. However, at the end of the test, there will be three questions about your age, sex, and educational level.

### Survey questions

The list of the total 120 multiple-choice questions used in the survey can be seen below; ten of them have been translated into English for the benefit of those readers who are not familiar with Turkish. Highlighting marks the words the participants were to make judgements on; their counterparts in the English translations are underlined and annotated (AGT: agent(ive)/actor, ATN: attenuative, CM: compound marker, PL: plural).

1. Yeni bir sokağa “güneş” adını vermek istesek, bu sokak **Güneş Sokağı** olurdu.

a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum

(If we would like to give the name “güneş” to a new street, this street would be Güneş Street-CM)

a. good                      b. (a little) weird                      c. bad                      d. not sure

2. Bence bunda **damla sakızı** bir tat var, ama tam çıkaramadım.

a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum

(I think it tastes like mastic gum-ATN-CM, but I am not sure)

a. good                      b. (a little) weird                      c. bad                      d. not sure

3. **Aslan** bir Türk askeri içeri girdi.

a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum

(A lion-like Turkish soldier-CM has walked in)

a. good                      b. (a little) weird                      c. bad                      d. not sure

4. Çiçekler içinde sadece güllerle uğraşan bir bilim dalı olsa, **gül bilimi** diye adlandırırız.

a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum

(Imagine that there is a study of only roses among flowers; we would call it rose science-CM)

a. good                      b. (a little) weird                      c. bad                      d. not sure

5. Simitçilerle sürekli sorun yaşayan **simitçi** sensin!

a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum

(You are the bagel-AGT having problems with bagel sellers)

a. good                      b. (a little) weird                      c. bad                      d. not sure

6. **Aşk bilimciler** aşkı çözmeye çalışacaklar.

a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum

(Love science-AGT-PL are going to try to figure out what love is)

a. good                      b. (a little) weird                      c. bad                      d. not sure

7. **Astroloji**, insan davranışı ve yıldızlar arasındaki ilişkiyle ilgilenen bir alandır.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum  
(Astrology is a subject which concerns the relationship between human behavior and stars.)  
a. good b. (a little) weird c. bad d. not sure

8. Sokak kedilerinin kendi aralarında konuştuğu bir dil olsa, bu dilin adı **sokak kedice** olurdu.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum  
(If there were a language of street cats, we would call it street cat-LNG)  
a. good b. (a little) weird c. bad d. not sure

9. **Güneş perisi** güneşe benzeyen periymiş.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum  
(The sun fairy-CM is said to be the fairy which looks like the sun)  
a. good b. (a little) weird c. bad d. not sure

10. Su perisi türüne biyolojik bir isim vermek istesek bu isim **su perigilleri** olurdu.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum  
(The biological name of the water-fairy species would be water-fairy-gil-PL-CM)  
a. good b. (a little) weird c. bad d. not sure

11. Herkese yine hanımelî almış bizim **hanımelcisi**!

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

12. **Ay kızın** yüzü ay gibi parlar durmuş.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

13. Bir su perisinden canı çok yanmış kişidir **su perisizede**.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

14. Telefonunu yine kaybetmiş bizim **cep telefoncusu**!

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

15. Uçaktan **Marmara Denizi'ne** bakardım.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

16. Kuşların kanatlarıyla uğraşan bir bilim dalı olsa, **kanat bilimi** derdik.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

17. Her tatlıda damla sakızı olsun isteyen kişiye **damla sakızıcı** derim ben.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

18. Doğaya aşık kişi kesinlikle **doğaperesttir**.

a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

19. Bu amca **mercimek çorbacısı**, dükkanında sadece mercimek çorbası var.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
20. Doğayla uğraşan bir bilimci **doğa bilimcidir**.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
21. Yeni bir sokağa “güneş” adını vermek istesek, bu sokak **Güneş Sokak** olurdu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
22. Telefonunu yine kaybetmiş bizim **cep telefoncu!**  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
23. **Su perisce**, su perilerinin kendi aralarında konuştuıkları dilmiş.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
24. Her tatlıda damla sakızı olsun isteyen kişiye **damla sakızcısı** derim ben.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
25. **Psikolog**, bireylerin hem davranış biçimleri hem de düşünce sistemleriyle ilgilenen kişidir.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
26. Tamir için geçen seneki **buzdolapçılar** gelecek.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
27. Leoparların konuştuğu dil **leoparca** olsa gerek.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
28. Böyle **buz mavimsi** bir elbiseydi.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
29. Çilekle dolu sepete **çilekli sepet** diyebiliriz.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
30. Yasemin kokusunu çok sevdiğim için hocam bana **yasemin kokucu** diyor.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
31. **Buz pateni** buzda yapılan paten türüdür.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
32. **İstanbul caddesi** şehrin en güzel yeri tümcesindeki şehir İstanbul’dur.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
33. Yeni keşfedilen ırmak **Masal Irmak’mış**.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

34. Bu amca **mercimek çorbacı**, dükkanında sadece mercimek çorbası var.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
35. **Aşk bilimi**, olsa olsa aşkı çözüme çalışan bilimdir.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
36. Elma şekerini seven öbürü, bu **kestane şekerlisi**.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
37. **Kar Kraliçesi** hem güzel hem de üzücü bir masal.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
38. **Su perice**, su perilerinin kendi aralarında konuştukları dilmiş.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
39. Kuşların kanatlarıyla uğraşan bir bilim dalı olsa, **kanat bilim** derdik.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
40. Masal perisi ve ailesi gelmiş ama **su perigil** daha gelmemiş.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
41. **Deniz yolculuğu** denize ait yolculuktur.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
42. **Çilek sepeti**, çilek için kullanılan sepettir.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
43. Yaz kış sürekli güneş kremi kullanan bir arkadaşımıza **güneş kremcisi** diyebiliriz.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
44. Dünkü konuşma **felsefe bilimle** ilgiliydi.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
45. Bir su perisinden canı çok yanmış kişidir **su perizedesi**.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
46. Duş perdeleriyle sürekli sorun yaşadığına göre, asıl **duş perdecisi** sensin!  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
47. **Aşk bilim**, olsa olsa aşkı çözüme çalışan bilimdir.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
48. Yeni bir otele “kiraz” adını vermek istesek, bu otele **Kiraz Oteli** derdik.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

49. **Damla sakızı**, damla sakızı satan kişidir.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
50. Bir su perisinden canı çok yanmış kişidir **su perizede**.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
51. Plushenko gibi bir **buz patenci** ne geldi ne gelecek!  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
52. **Dil bilim**, zihinsel dilbilgisi ve zihnimizdeki dil sistemiyle ilgilenen bilim dalıdır.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
53. Tamir için geçen seneki **buzdolapçaları** gelecek.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
54. Doğayla uğraşan bilim dalıdır **doğa bilimi**.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
55. Masal perisi ve ailesi gelmiş ama **su perisigil** daha gelmemiş.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
56. **Deniz kıyısı** denize ait kıyıdır.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
57. Elma şekerini seven öbürü, bu **kestane şekerci**.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
58. **Su sesi** suda olan, oluşan sestir.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
59. **Aşk bilimcileri** aşkı çözmeğe çalışacaklar.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
60. Sokak kedilerinin kendi aralarında konuştuğu bir dil olsa, bu dilin adı **sokak kedisice** olurdu.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
61. Ben kesinlikle misafir terliği giymem; senin gibi **misafir terlikçisi** değilim!  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
62. Su perisi türüne biyolojik bir isim vermek istesek bu isim **su perisigiller** olurdu.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
63. **Kitap köşesi** kitapların olduğu köşedir.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum

64. En çok aşk merdiveni çiçeğini seven kıza **aşk merdivenci** diyebilir miyiz?  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
65. Bence bunda **damla sakızısı** bir tat var, ama tam çıkaramadım.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
66. **Su perisince** bu basit bir oyundu, masal perisine göre ise zordu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
67. Duş perdeleriyle sürekli sorun yaşadığına göre, asıl **duş perdecisi** sensin!  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
68. Çiçekler içinde sadece güllerle uğraşan bir bilim dalı olsa, **gül bilim** diye adlandırırız.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
69. Bu yazar **su pericisi**; her masasında su perileri var...  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
70. Yeni bir caddeye “yıldız” adını vermek istesek, bu caddenin adı **Yıldız Cadde** olurdu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
71. **Orhun Türkçeci**, Orhun Türkçesinde, yani Göktürkçede, uzman olan kişidir.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
72. Güller gibi güzel kokar **bu gül kız**.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
73. Herkese yine hanımeli almış bizim **hanımelci**!  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
74. Böyle **buz mavimsisi** bir elbiseydi.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
75. Sürekli mercimek çorbası içersen sana **mercimek çorbacısı** demeleri normal.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
76. **Su perisi** suya ait peri türüdür.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
77. **Damla sakızcısı**, damla sakızı satan kişidir.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
78. Sokak kedilerinin kendi aralarında konuştuğu bir dil olsa, bu dilin adı **sokak kedicesi** olurdu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

79. Bence bunda **damla sakızısı** bir tat var, ama tam çıkaramadım.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
80. **Su balesi** suya ait bale türüdür.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
81. **Oyuncak kamyonu** oyuncaklar için ayrılmış bir kamyonur.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
82. Evet o adam **aşk romancıydı**.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
83. Dünkü konuşma **felsefe bilimiyle** ilgiliydi.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
84. Annemin üstüne **bitki çaycı** tanımam ben!  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
85. **Peri masalıvari** bir hikayeydi dinlediğim.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
86. Böyle **pembemsi** bir elbiseydi...  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
87. Bizim **orman adam** her gün ormanda yürüyüşe gidiyor.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
88. Masaldaki su perilerinin hepsi **su perihanesinde** takılıyordu.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
89. Yasemin kokusunu çok sevdiğim için hocam bana **yasemin kokucusu** diyor.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
90. Evreni ve içindekileri inceleyen bilim dalıdır **astronomi**.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
91. Herkese yine hanımeli almış bizim **hanımelici!**  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
92. Masaldaki su perilerinin hepsi **su perihanede** takılıyordu.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
93. **Güneş adam** her gün güneş gibi doğarmış.  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum
94. En çok aşk merdiveni çiçeğini seven kıza **aşk merdivenici** diyebilir miyiz?  
a. iyi            b. (biraz) tuhaf            c. kötü            d. bilmiyorum

95. **Aslan Türk askerler** fethetti bu güzeller güzeli şehri!  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
96. **Dil bilimi**, zihinsel dilbilgisi ve zihnimizdeki dil sistemiyle ilgilenen bilim dalıdır.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
97. **Fizikçiler** fizikle uğraşan bilim insanlarıdır.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
98. Sürekli mercimek çorbası içersen sana **mercimek çorbacı** demeleri normal.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
99. **Peri masalvari** bir hikayeydi dinlediğim.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
100. Bir bebeğe “yağmur” adını versek, bu bebek **Yağmur Bebek** olurdu.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
101. Doğayla uğraşan bir bilimci **doğa bilimcisidir**.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
102. Masal perisi ve ailesi gelmiş ama **su perigili** daha gelmemiş.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
103. Yeni keşfedilmiş ırmak **Masal Irmağı’yı**miş.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
104. Annemin üstüne **bitki çaycısı** tanımam ben!  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
105. Benim **aslan, akıllı oğlum** hepsini halleder şimdi.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
106. **Su pericesi**, su perilerinin kendi aralarında konuştukları dilmiş.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
107. Yaz kış sürekli güneş kremi kullanan bir arkadaşımıza **güneş kremci** diyebiliriz.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
108. Yeni bir otele “kiraz” adını vermek istesek, bu otele **Kiraz Otel** derdik.  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum
109. Plushenko gibi bir **buz patencisi** ne geldi ne gelecek!  
a. iyi                      b. (biraz) tuhaf                      c. kötü                      d. bilmiyorum



110. Su perince bu basit bir oyundu, masal perisine göre ise zordu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
111. Doğayla uğraşan bilim dalıdır doğa bilim.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
112. Bu yazar su perici; her masalında su perileri var. . .  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
113. Ben kesinlikle misafır terliđi giymem; senin gibi misafır terlikçi deđilim!  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
114. Su perisi türüne biyolojik bir isim vermek istesek bu isim su perigiller olurdu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
115. En çok aşk merdiveni çiçeđini seven kıza aşk merdivencisi diyebilir miyiz?  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
116. Böyle buz mavimsi bir elbiseydi.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
117. Evet o adam aşk romancısıydı.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
118. Masaldaki su perilerinin hepsi su perisihanede takılıyordu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
119. Orhun Türkçecisi, Orhun Türkçesinde, yani Göktürkçede, uzman olan kişidir.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum
120. Yeni bir caddeye “yıldız” adını vermek istesek, bu caddenin adı Yıldız Caddesi olurdu.  
a. iyi b. (biraz) tuhaf c. kötü d. bilmiyorum

## APPENDIX B

**Interactions between the compound marker and derivational suffixes**

Investigated item	Responses: Type and numbers			
	Good	(A little weird)	Bad	Not sure
RESEARCH QUESTION 1: OTHER RESULTS				
Derivational suffix <i>-sI</i>				
<i>damla sakız-sı</i> (drop gum-ATN)	9	6	10	—
<i>damla sakız-sı-sı</i> (drop gum-ATN-CM)	1	1	22	1
<i>damla sakız-t-sı</i> (drop gum-CM-ATN) for 'like mastic-gum'	—	3	22	—
Derivational suffix <i>-hane</i>				
<i>su peri-hane</i> (water fairy- <i>hane</i> )	3	9	13	—
<i>su peri-hane-sı</i> (water fairy- <i>hane</i> -CM)	9	9	6	1
<i>su peri-sı-hane</i> (water fairy-CM- <i>hane</i> ) for 'a place for water-fairies'	4	7	13	1
Derivational suffix <i>-gil</i>				
<i>su peri-gil</i> (water fairy- <i>gil</i> )	3	6	16	—
<i>su peri-gil-i</i> (water fairy- <i>gil</i> -CM)	2	2	20	1
<i>su peri-sı-gil</i> (water fairy-CM- <i>gil</i> ) for 'the water-fairy and her family/group'	10	6	9	—
<i>su peri-gil-ler</i> (water fairy- <i>gil</i> -PL)	8	5	11	1
<i>su peri-gil-ler-i</i> (water fairy- <i>gil</i> -PL-CM)	2	11	11	1
<i>su peri-sı-gil-ler</i> (water fairy-CM- <i>gil</i> -PL) for 'species of water-fairies'	14	7	2	2
Derivational suffix <i>-zede</i>				
<i>su peri-zede</i> (water fairy- <i>zede</i> )	10	7	8	—
<i>su peri-zede-sı</i> (water fairy- <i>zede</i> -CM)	5	8	12	—
<i>su peri-sı-zede</i> (water fairy-CM- <i>zede</i> ) for 'someone suffering from a water-fairy'	11	6	8	—
Derivational suffix <i>-vari</i>				
<i>peri masal-vari</i> (fairy tale- <i>vari</i> )	3	10	12	—
<i>peri masal-t-vari</i> (fairy tale-CM- <i>vari</i> ) for 'like a fairy-tale'	17	7	1	—

*Table A1*

First research question, other results.

## The compound marker and the agentive suffix

Investigated item	Responses: Type and numbers			
	Good	(A little) weird	Bad	Not sure
RESEARCH QUESTION 2: OTHER RESULTS				
<i>cep telefon-cu</i> (pocket phone-AGT)	11	8	6	—
<i>cep telefon-cu-su</i> (pocket phone-AGT-CM) 'mobile-phone lover'	1	6	18	—
<i>doğa bilim-ci</i> (nature science-AGT)	24	1	—	—
<i>doğa bilim-ci-si</i> (nature science-AGT-CM) 'natural scientist'	21	3	1	—
<i>damla sakız-cı</i> (drop gum-AGT)	19	3	3	—
<i>damla sakız-cı-sı</i> (drop gum-AGT-CM) 'mastic-gum seller'	19	2	4	—
<i>damla sakız-cı</i> (drop gum-AGT)	13	7	5	—
<i>damla sakız-cı-sı</i> (drop gum-AGT-CM) 'mastic-gum lover'	7	6	12	—
<i>mercimek çorba-cı</i> (lentil soup-AGT)	8	5	12	—
<i>mercimek çorba-cı-sı</i> (lentil soup-AGT-CM) 'lentil-soup seller'	12	9	4	—
<i>mercimek çorba-cı</i> (lentil soup-AGT)	14	5	6	—
<i>mercimek çorba-cı-sı</i> (lentil soup-AGT-CM) 'lentil-soup lover'	9	5	11	—
<i>Orhun Türkçe-ci</i> (Orkhon Turkish-AGT)	7	9	9	—
<i>Orhun Türkçe-ci-si</i> (Orkhon Turkish-AGT-CM) 'Orkhon Turkish expert'	19	1	5	—
<i>bitki çay-cı</i> (herb tea-AGT)	6	13	5	1
<i>bitki çay-cı-sı</i> (herb tea-AGT-CM) 'herbal-tea lover'	9	5	11	—
<i>güneş krem-ci</i> (sun cream-AGT)	11	8	6	—
<i>güneş krem-ci-si</i> (sun cream-AGT-CM) 'sun-screen lover'	3	10	12	—
<i>duş perde-ci</i> (shower curtain-AGT) <sup>a</sup>	2	7	16	—
<i>duş perde-ci-si</i> (shower curtain-AGT-CM) 'someone having problems with shower curtains'	5	8	12	—
<i>aşk roman-cı</i> (love novel-AGT)	5	11	9	—
<i>aşk roman-cı-sı</i> (love novel-AGT-CM) 'love-novel author'	19	3	2	1
<i>aşk bilim-ci-ler</i> (love science-AGT-PL)	18	6	1	—
<i>aşk bilim-ci-ler-i</i> (love science-AGT-PL-CM) 'love scientists'	18	5	2	—

<sup>a</sup>The expression *duş perde-ci* (shower curtain-AGT) was taken from a movie in which it is sarcastically used for the meaning 'someone who is often having trouble with shower curtains'. However, it was not accepted as good by most participants in this survey although it is an attested example. As a native speaker of Turkish, I would judge this expression to be 'good' whether it is sarcastic or not.

Table A2  
Second research question, other results.

Compounds with *bilim* ‘science’

Investigated item	Responses: Type and numbers			
	Good	(A little) weird	Bad	Not sure
RESEARCH QUESTION 3: OTHER RESULTS				
<i>aşk bilim-i</i> (love science-CM)	20	5	—	—
<i>aşk bilim</i> ‘love science’	8	10	7	—
<i>felsefe bilim-i</i> (philosophy science-CM)	23	2	—	—
<i>felsefe bilim</i> ‘philosophical science’	4	7	14	—
<i>dil bilim-i</i> (language science-CM) <sup>a</sup>	22	2	3	—
<i>dil bilim</i> ‘linguistics’	14	8	3	—
<i>doğa bilim-i</i> (nature science-CM)	22	3	—	—
<i>doğa bilim</i> ‘natural science’	12	6	7	—
<i>kanat bilim-i</i> (wing science-CM) <sup>b</sup>	18	3	3	1
<i>kanat bilim</i> ‘wingology’	8	6	11	—

<sup>a</sup>Note that the Turkish dictionaries of the Turkish Language Society (Türk Dil Kurumu, TDK; <http://www.tdk.gov.tr/>) provide two entries for ‘linguistics’: *dil bilim-i* in *Güncel Türkçe Sözlük* [Everyday Turkish dictionary] ([http://www.tdk.gov.tr/index.php?option=com\\_gts&view=gts](http://www.tdk.gov.tr/index.php?option=com_gts&view=gts)), and *dil-bilim* in *Bilim ve Sanat Terimleri Sözlüğü* [Dictionary of science and arts terms] ([http://www.tdk.gov.tr/index.php?option=com\\_bilimsanat&view=bilimsanat](http://www.tdk.gov.tr/index.php?option=com_bilimsanat&view=bilimsanat)).

<sup>b</sup>This example was taken from the movie *Tinker Bell Gizemli Kanatlar* [Tinker Bell Secret of the Wings].

Table A3

Third research question, other results.

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*Author's address:* Department of English Language Teaching, Yeditepe University,  
Faculty of Education, İnönü Mh., Kayışdağı Cd.,  
34755 Ataşehir, Istanbul, Turkey  
[kunduraca@gmail.com](mailto:kunduraca@gmail.com)