THE SEMANTICS OF THE NOMINALIZER –(y)Iş: DIMENSIONS OF FACTIVITYAND MANNER

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ABSTRACT

THE SEMANTICS OF THE NOMINALIZER –*(y)Iş*: DIMENSIONS OF FACTIVITY AND MANNER

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In Turkish, a variety of bound morphemes including but not limited to *-mE, -DIK*, and *- (y)Iş* can be attached to verb stems to form nominals. These nominals can either be fully noun-like (i.e. perfect) or still have verb-like qualities (i.e. imperfect). While imperfect nominals formed with any of these morphemes may denote eventualities, *-(y)Iş* nominals can also denote manner. These denotations appear to be dependent on other components, that is, they are compositional. Whether a nominal denotes an eventuality that has necessarily taken place (i.e. factive) or not is also an active area of inquiry, *-(y)Iş* nominals being generally characterized as factive. This thesis aims to systematically distinguish imperfect *-(y)Iş* nominals from perfect *-(y)Iş* nominals, manner-denoting *-(y)Iş* nominals from eventuality-denoting ones, identify the types of eventuality denoted, and identify the factivity status of eventuality-denoting *-(y)Iş* nominals. We suggested sets of tests for each category, and we applied these tests to a sample set of data to demonstrate that they can be used to reliably and accurately make these distinctions. The annotated dataset will be available for computational and linguistic research on event semantics of nominals.

Keywords: nominalization, eventuality, factivity, manner

ÖZ

-(y)Iş ADLAŞTIRICISININ ANLAMBİLİMSEL YAPISI: OLGUSALLIK VE TARZBOYUTLARI

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Türkçede *-mE, -DIK, -(y)Iş* gibi çeşitli bağımlı biçimbirimler adcıl yapılar oluşturmak için eylem gövdesine eklenebilmektedir. Bu adcıl yapılar tamamen ad benzeri özellikler gösterebildikleri (perfect, 'tam-adlaşmış') gibi eylem benzeri özellikler göstermeye devam edebilirler (imperfect, 'tam-adlaşmamış'). Bu biçimbirimlerden herhangi biriyle oluşturulan tam-adlaşmamış adcıl yapılar olayları belirtebilir, ancak bu tür *-(y)Iş* yapıları hareket tarzını da belirtebilirler. Bu belirtmeler başka öğelere bağımlı görünmektedir, yanibileşimseldirler. Bir adcıl yapının mutlaka yaşanmış olan bir olayı belirtip belirtmediği (olgusallık) de güncel bir araştırma konusudur, bu bağlamda *-(y)Iş* yapıları genel olarak olgusal betimlenir. Bu tez, sistematik bir biçimde tam-adlaşmamış *-(y)Iş* yapılarını tam- adlaşmış olanlardan ve olay-belirten yapıları tarz-belirten yapılardan ayırt etmeyi, belirtilen olay türlerini tanımlamayı ve olay belirten *-(y)Iş* yapılarının olgusallık durumunu belirlemeyi amaçlamaktadır. Çalışmada, her bir kategori için test grupları önerilmiş ve bu testler örnek bir veri seti üzerinde uygulanarak testlerin bu ayrımları yapmak için güvenilir ve isabetli olduğu gösterilmiştir. İşaretlenmiş veri seti adcıl yapıların olay anlambilimine (event semantics) dair bilişimsel ve dilbilimsel araştırmalariçin erişilebilir olacaktır.

Anahtar Sözcükler: adlaştırma, olay, olgusallık, tarz

To all winged creatures

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CHAPTER 1

INTRODUCTION

A variety of bound morphemes that create nominalizations exist in Turkish, namely -*mE,-(y)Iş, -DIK,* among others. As these morphemes are polyfunctional (Erdal, 1998) the syntactic as well as semantic qualities of their nominalizations are rather difficult to fullydescribe. Consider the following sentences:

(1) a. Ayşe'nin arşeyi tuttuğu doğru değil.
Ayşe.GEN bow.ACC hold.NML.SI right not
'It is not true that Ayşe holds the bow.'
b. Ayşe'nin arşeyi tutması doğru değil.
Ayşe.GEN bow.ACC hold.NML.SI right not
'It is not right of Ayşe to hold the bow.'
c. Ayşe'nin arşeyi tutuşu doğru değil.
Ayşe.GEN bow.ACC hold.NML.SI right not
'The way Ayşe holds the bow is not right.'

These three sentences mean three very different things. (1a) means *it is not true that Ayşe held the bow*, indicating that it is claimed that Ayşe did hold the bow and that this claim is not true. (1b) means *it is not right (or perhaps appropriate) of Ayşe to hold the bow*, indicating that Ayşe does hold the bow and that this is not a right thing to do. That is, theact itself is considered to be wrong. (1c), on the other hand, means *the way Ayşe holds thebow is not right*, implying that Ayşe does hold the bow and indicating that she does this in a wrong way. It is not the event itself that is problematic, but the way/manner in whichit is carried out. We will focus on -*(y)Iş* for this thesis, usually comparing it with -mE. Example (1) is very clear in that (1b) refers directly to the event, whereas (1c) refers to the manner in which the event takes place; this distinction, however, is not always as clear due to the polyfunctionality of these morphemes. Out of these morphemes, this thesis focuses on -*(y)Iş*, often using -*mE* for comparison.

The first research question of the thesis concerns the syntactic aspects of -*(y)Iş*. The subcategorization frame of a -*(y)Iş* nominal differs based on whether it appears as a self- standing lexical item or as the still verb-like head of a complement clause. This distinctionmay also be investigated in terms of compositionality, as fully lexicalized instances of these nominalizations are naturally non-compositional. Vendler (1967:131) considers this distinction to be based on whether the nominalization process is completed or not and calls fully-lexicalized (hence noun-like and non-

compositional) forms "perfect nominals" and calls those that still have certain verb-like properties -like auxiliaries- "imperfect nominals". The two types of nominals have different forms in English, *his having died* and *his death* are often easily distinguishable, although exceptions exist. However, in Turkish, perfect and imperfect nominals can very often have the exact same form;

(2) a. Evden çıkışı çok telaşlıydı.
house.ABL leave.ACC very hurried.PAST
'The way (s)he left the house was very hurried.'
b. Evin çıkışı çok kalabalıktı.
house.GEN exit.ACC very crowded.PAST
'The exit of the house was very crowded.'

In both sentences, we see the form *çıkış*, but they are essentially very different. (2a) is derived from the full sentence *(O) evden çıktı* ('He exited the house'), *çık-* is the head of the complement clause and still carries verb-like properties, like subject-verb agreement. If, for instance, the implied subject were *I* instead of *(s)he*, it would have taken the form *Evden çıkışım*, with the first-person marker *-(I)m*. (2b), on the other hand, includes the word *çıkış* that was also derived from the verb *çık-,* but it behaves no differently from the word *kapı* ('door'). To be able to identify the types of *-(y)Iş* nominals, then, we need a tool. Therefore, one aim of this thesis is to come up with tests to distinguish between these two types.

Alongside this syntactic categorization of such structures, there is also considerable variety in their semantic implications. Regarding the semantics of *-(y)Iş*, the thesis investigates three issues:

1. What is the denotation of a *-(y)Iş* clause? Is it an eventuality? Or does it denote the manner of an eventuality?

2. When it denotes an eventuality, what type of eventuality is it?

3. In cases where an eventuality is denoted, does *-(y)Iş* have any contribution to the factivity status of the eventuality?

In categorizing the denotations of *-(y)Iş* clauses we use Bach's (1986) term "eventuality" to refer to events and states as a whole, and we employ Moens and Steedman's (1988:17) classification of event types, classifying clauses as denoting a culmination, process, culminated process, point or state. If a clause refers to an eventuality in this sense, it is considered to be denoting an eventuality. Consider the example below:

(3) a. Schumacher'in Alonso'yu geçmesi tehlikeliydi.
Schumacher.GEN Alonso.ACC pass.NML.POSS dangerous.PAST
'It was dangerous for Schumacher to pass Alonso.'
b. Schumacher'in Alonso'yu geçişi tehlikeliydi.
Schumacher.GEN Alonso.ACC pass.NML.POSS dangerous.PAST
'The way Schumacher passed Alonso was dangerous.'

(3a) indicates that the event, the act itself of Schumacher passing Alonso was dangerous. *-mE* clauses typically denote eventuality. *-(y)Iş* clauses are more blurry in this respect, as they may denote an eventuality or they may denote the manner of it. (3b) is an example of a *-(y)Iş* clause doing the latter. It indicates that the way in which Schumacher passed Alonso was dangerous, so the denotation is not to the act or the eventuality itself but to the manner. *-(y)Iş* clauses are known for this potential of denoting manner (Erdal, 1998, among others), but the exact circumstances under which a manner denotation appears are unclear. Therefore, providing a set of tests to identify denotations of *-(y)Iş* clauses is another purpose of this thesis.

Factivity (Kiparsky & Kiparsky, 1970) is a notion characterizing the presuppositional properties of embedded clauses in complement taking verbs like *believe*. For instance;

(4) a. Ege, Schumacher'in Alonso'yu geçtiğine inanıyor.
Ege Schumacher.GEN Alonso.ACC pass.NML.DAT believe.I.PROG.3sg
'Ege believes that Schumacher passed Alonso.'
b. Ege, Schumacher'in Alonso'yu geçtiğini biliyor.
EgeSchumacher.GENAlonso.ACC pass.PAST.NML.DAT know.I.PROG.3sg
'Ege knows that Schumacher passed Alonso.'

(4a) states Ege's belief, and as we have no reason to think that what he believes must be true, the truth of the complement clause is not presupposed. (4b), on the other hand, states that Ege knows something. For the speaker to say that someone knows something, the thing must -as far as they are aware of- be true. Then, when the verb *know* is used with a complement clause, the truth or factivity (being based on a true fact) of the clause is presupposed.

The term "factivity" could also be used in describing whether an eventuality has been actuated or realized, assuming that for any event that has been realized, there will be a fact stating that it has (Bennet, 1988). Some uses of *-(y)Iş* tend to create non-factive propositions, while others are strictly factive. Yet another purpose of the thesis is to check *-(y)Iş* clauses for their factivity status by applying a set of tests (Geurts, 1999) and analyze if *-(y)Iş* contributes to this interpretation.

For both the imperfect/perfect distinction and the semantic classifications, the thesis employs the following methodology. It first adapts and develops a number of linguistic tests for deciding on the perfect/imperfect status. Then, another set of tests to determine the denotation and factivity of imperfect *-(y)iş* nominals. Then these tests are applied to texts retrieved from a corpus by having two annotators annotate the texts with the aid of proposed tests. Then, the validity of tests are checked by looking at the agreement of the annotators.

The semantics of *–(y)Iş* nominalizations is closely related to temporal and aspectual semantics. Recently, Kober et al. (2019) observed that state-of-the-art natural language models employed in natural language processing and computational

linguistics are not capable of detecting aspectual and temporal entailments well enough. This points to the need for high quality annotations incorporating aspectual and temporal information to natural language data. One of the aims of this study is to contribute to this effort in the domain of *–(y)Iş* nominalizations in Turkish.

The outline of the thesis is as follows. In Section 2, the relevant concepts are explained and previous research on these issues are discussed. In this section, we look into *-(y)Iş* complements, perfect and imperfect nominals, types of eventualities, the concept of factivity and how it extends to events, and manner denotation. Section 3 details the tests we suggest in this study on three different aspects: perfect versus imperfect nominals, denotation and factivity. Section 4 provides information on the data we used and how thedata were annotated based on the tests explained in Section 3. The results of the analysis can be found in Section 5. In Section 6, we discuss those findings and suggest possible future directions.

CHAPTER 2

BACKGROUND

2.1. -(y)Iş Complements

Before discussing *-(y)Iş* clauses per se, a quick introduction to complementation is required. Karakoç and Herkenrath (2016) define complementation in a quite concise way, as follows (p. 619): "(...) the embedding of a clause -i.e. a functional and syntactic unit realizing a proposition or a predication and projecting an inner argument structure within itself - into the argument structure of a superordinate clause." For Turkish, these structures are typically non-finite and are marked by a range of bound morphemes (which Karakoç and Herkenrath call "complementation markers" or "complementizers"), including but notlimited to *-(y)Iş, -mE* and *-DIK*.

Karakoç and Herkenrath (2016:625-627) provide a comprehensive overview of the discussion over the concepts of complementation, nominalization and so-called complementizers, noting especially that the constructions in Turkish are characteristic in terms of the nominal suffixes the subordinated predicates often combine with (Kornfilt 1997, Kornfilt & Whitman 2012), despite their verbal disposition, unlike the clearly lexicalized forms found in languages like English (Johanson, 1975). Their definition of a complementizer follows Noonan (2007), and considers it to be a morphological unit that functions to mark a clause as a complement.

Karakoç and Herkenrath (2016) state that non-finite complement clauses are similar to finite matrix clauses in terms of their argument structure, but differ in terms of their subject marking, in that the subject of a complement clause typically takes genitive case marking,as illustrated below:

(5) a. Schumacher Alonso'yu geçti.
Schumacher Alonso.ACC pass.PAST.3SG
'Schumacher passed Alonso.'
b. Schumacher'in Alonso'yu geçişi
Schumacher.GEN Alonso.ACC pass.NML.POSS
'Schumacher's passing Alonso'

In lack of a verbal predicate in the complement clause, the Turkish copular *ol-* (noun + *ol-* or adjective + *ol-*) is used to construct the sentential structure. As for the superstructure, the possible syntactic roles of complement clauses in a sentence are listed as follows: "1)subjects (nominative), 2) direct objects (accusative), 3) indirect

objects (dative), 4)oblique objects (locative, ablative, instrumental), 5) postpositional objects, and 6) predicate nouns in copular clauses" (Karakoç and Herkenrath, 2016:631).

Complement clauses in English have been analyzed in terms of tense by many, but the grammatical structure of these clauses in Turkish only allows the expression of aspect, so Karakoç and Herkenrath (2016) limit their grammatical analysis to this category. They follow Johanson (2000), who categorizes aspect in Turkish complement clauses as intraterminal (i.e. within the temporal borders of an action) and postterminal (i.e. past thetemporal border of an action). Karakoç and Herkenrath (2016:651) state that copulative complementation markers are employed to express intraterminality in Turkish, in forms such as *-(Ø)Iyor ol-ma-, -(Ø)Iyor ol-uş-, -(Ø)Iyor ol-duK-, -mEktE ol-ma-, -mEktE ol-uş, -mEktE ol-duK-*; whereas the forms used for postterminality *are -mIş ol-duK-* or *-mIş ol-ma-*. It is important to note that *-(y)Iş* is not used to express postterminality, which is in line with its characteristic reference to the process of an action, explained below.

As for *-(y)Iş*, it was noted by Erdal (1998) that a very significant feature of the morpheme -(y)Iş is that it tends to refer to the manner in which something is done. As such referencepresupposes that said event has happened (thus the manner in which it was carried out is referenced), Erdal (1998) reports that *-(y)Iş* complements are necessarily factive. Syntactically, *-(y)Iş* can be used in the same environments as similar morphemes like - *mE, –DIK* and *–(y)EcEK(I),* none of which have a clear, context-independent manner reference or entailment.

Another function of *-(y)Iş* is that it can be used to count the occurrences of an event and refer to an nth instance or to each possible instance (Erdal, 1998). The environments where this function is carried out appears to be more restrictive, contrary to the previously mentioned types of structures where both *-mE* and *-(y)Iş*, though with semantic differencesin terms of implications, can appear.

It was also observed by Erdal that the locative of *-(y)Iş* constructions can refer to an occurrence or instance of an event, like "(...) oraya her gidişimde (...)" (1998:58), and it lacks the above-mentioned manner entailment. It is only briefly mentioned in the paper, and seems to indicate that the locative form of this construction always works this way.

These functions appear distinct from each other and make it rather difficult to come up with a clear formal definition of the morpheme *-(y)Iş* (as is the case for many other morphemes of Turkish, which tend to be polyfunctional, as Erdal (1998) points out).

Erdal (1998) provides an overview of the morphemes *-mE/mEk, -(y)Iş, -(y)EcEK* and *- DIK*; noting that they all behave to a certain extent like verbs, but take possessive affixesand so are in direct relation to the agent or subject. However, it is clear that these morphemes differ from each other in terms of factivity, a category concerning whether or not an eventuality has taken place (see Section 2.4). Erdal

(1998) asserts, citing Lees (1965), that *-DIK* is factive, while *-mE* is non-factive. This does seem to be the case, but the explanation provided for -mE's non-factive tendency could be somewhat questionable. Erdal notes, *"-mE* nouns actually do not refer to events at all, but to mental projections" (1998:56), which is true for non-factive constructions of *-mE*, but there are many instances where -mE constructions are ambiguous in terms of factivity and, depending on the context, can clearly be factive. Further analyses by Erdal (1998) on issues concerning - *(y)Iş* constructions, including topicality, have no direct relation to the question dealt within this thesis, so they will not be discussed here.

The factive (see Section 2.4 below) nature of *-(y)Iş* defined by Erdal (1998) has been contradicted by Göksel and Kerslake (2005) on the grounds that what *-(y)Iş* seems to express is a certain quality, most likely manner, of an event rather than the mere fact of it happening. It, however, appears that although emphasis is not on the fact itself when *-(y)Iş* is used, reference to manner entails factivity of the event. Following (Erdal, 1998), Karakoç and Herkenrath (2016:642) state that *-(y)Iş* "seems to directly refer to the inherent process of an action", or that temporal reference is to a point when the event is ongoing. This is consistent with the previously identified functions of *-(y)Iş*, that is, either a manner-reading or a reference to an instance of an event. As a result of this, *-(y)Iş* complements can often be found along with verbs of perception such as *gör-* ('see'), *duy-* ('hear') as the matrix predicate (Erdal, 1998; Karakoç and Herkenrath, 2016:643-645), or, in copular structures, predicate adjectives that reflect propositional attitude (Karakoç and Herkenrath, 2016:643). The types of predicates that *-(y)Iş* does not appear with are listed as "volitional, achievement, phasal and objective modal predicates" (Karakoç and Herkenrath, 2016:645). It is also noted by Karakoç and Herkenrath (2016:646) that iterative time adverbs tend to be used with *-(y)Iş*, in line with its function of referring to instances of events. Finally, Karakoç and Herkenrath argue that *-(y)Iş* clauses tend not to be negated, which makes intuitive sense. We tend to describe how something is done, not how it is not done. Rentzsch (2020) also defined the two functions of *-(y)Iş* as manner denotation or reference to a single instance of an event, but noted that these two functions do not cover all occurrences of *-(y)Iş* and some of its behavior remains unexplained.

To clarify, the perfect nominals of *-(y)Iş,* that is, when it functions as a derivational affix and creates a lexical unit, are irrelevant to the main point discussed here. Therefore, any mention of manner-entailed *-(y)Iş* refers directly to the constructions where it functions syntactically, as a complementizer, and any restrictions or implications defined or claimed are not meant to apply to the derivations it could create.

2.2. Perfect versus Imperfect Nominals

For the structures described above, Vendler (1967) uses the terms perfect and imperfectnominals. Firstly, Vendler describes the process of nominalization as taking a sentence and turning it into a noun phrase. According to him, if the nominalization process is completed or perfected, the once-verbal item will no longer have any verb-

like characteristics, like compatibility with tense, auxiliaries or adverbs. It will become fully noun-like, as exemplified below:

(6) John's death surprised me.

The nominal in (6) refers to the event that could also be expressed as *John died*, but its form no longer resembles a verbal structure: it has become a noun. This type of nominalsare described by Vendler as perfect nominals.

The process is not always completed, though. In some nominals, the originally-verbal itemstill behaves in certain ways like a verb, which Vendler describes as "the verb is still aliveas a verb" (1967:131):

(7) John's having died surprised me.

The nominal in (7) also refers to a death, and it is derived from the sentence *John has died*.Although it is somewhat modified, it is still loyal to its verbal accessories, like the auxiliary. This type of nominals are called imperfect nominals by Vendler. The term he uses for the host that then embeds that nominal is "container", which is a term we will also adopt. He further categorizes containers as loose and tolerant based on what type of nominals they take, similarly to the classifications of the correspondence of predicates and complements described above. Following this terminology, we will categorize the two types of *-(y)Iş* nominals as perfect and imperfect. Bassac and Çiçek (2013) prefer the termssyntactically-derived and lexically derived for a similar distinction.

2.3. Types of Eventualities

As for what is denoted by nominals, we need to clarify what we mean by events. We willuse Bach's (1986) term "eventuality" as an umbrella term to refer to states and events as a whole. Originally, Bach categorizes eventualities as states and non-states, the former being further classified into dynamic and static states and the latter being divided into multiple sub-classes. According to Bach, non-states can either be processes or events, while events can either be protracted or momentaneous. Finally, momentaneous events are categorized into happenings and culminations. While a term covering both events andstates is useful for our purposes, for sub-categorization of eventualities, we will follow analternative.

Moens and Steedman's (1988:16-17) approach to this classification is based on Vendler's (1967) account of temporal and aspectual types. They further categorize events based ontwo criteria: having a consequence and being extended in time. If an event is not extended, i.e. atomic, and has no consequence (e.g. *hiccup*), it is considered to be a point. If an event is not extended but does have a consequence (e.g. *reach the top*), it is consideredto be a culmination. If an event is extended in time but lacks a consequence (e.g. *climb*), it is considered to be a process. If an event is both extended and has a consequence (e.g. *climb to the top*), then it is a culminated

process. The tests they suggest to classify theseeventualities are explained in Section 3.2.5, as we use them to classify eventuality- denoting *-(y)Iş* nominals.

2.4. Factivity

The concept of factivity is going to be essential in explaining our analysis of eventualities and facts, and how they are represented in *-(y)Iş* complements. However, to be able to discuss factivity, a simple definition of entailment and presupposition is a prerequisite. For any two statements A and B, if B is always true whenever A is true, the relation of these statements can be defined as one of entailment (Schwarz, 2014), that is, A entails B, or necessitates its truth. Some entailment relations are based on presuppositions, and the negation test can be used to distinguish such entailments (Schwarz, 2014). A presupposition, the concept going all the way back to Frege (1892) and Russell (1905), necessarily is a true statement; the sentence that nests a presupposition can be negated but this negation cannot require the presupposition to be a false statement, if it does, then thewhole sentence lacks a truth value. Based on this premise, when a statement that entails something is negated, the entailed statement will either keep being true, or become false. If it is still true, despite the negation, then it is considered to be a presupposition. In other words, if both A and not A entails B, then we say that A presupposes B. Besides negation,question formation, sentential modals and embedding in an antecedent of a conditional are other tests for presuppositions (Geurts, 1999).

As for the concept of factivity, for a complement clause to be considered factive, the speaker has to have presupposed the truth of the proposition denoted in the clause (Kiparsky and Kiparsky, 1970). In turn, if the truth of the proposition is not presupposed, the complement clause is considered non-factive, i.e. it is not necessarily something that has happened or is happening; the speaker may know and indicate or imply the propositionto be false, or may be unaware or unsure of its truth condition. If the falsity of the proposition is presupposed, the verb could be called a contra-factive (Holton, 2017), but this term is generally not preferred and there is dispute over whether there is such a thingas a contra-fact at all.

An illustration of the difference between factive and non-factive verbs could be as follows:

(8) a. Ahmet, Ayşe'nin ajan olduğunu biliyor.
Ahmet Ayşe.GEN spy be.PAST.NML.ACC know.X.PROG.3SG
'Ahmet knows that Ayşe is a spy.'
b. Ahmet, Ayşe'nin ajan olduğunu düşünüyor.
Ahmet Ayşe.GEN spy be.PAST.NML.ACC think.X.PROG.3SG
'Ahmet thinks that Ayşe is a spy.'

The fact that Ayşe is a spy is entailed in (8a), as Ahmet knows that she is; whereas in (8b),it is not clear whether she is or is not a spy, all we know is that Ahmet thinks that she is one. Negating these two statements also provides a good example on the nature of presuppositions:

(9) a. Ahmet, Ayşe'nin ajan olduğunu bilmiyor.
Ahmet Ayşe.GEN spy be.PAST.NML.ACC know.NEG.PROG.3SG
'Ahmet doesn't know that Ayşe is a spy.'
b. Ahmet, Ayşe'nin ajan olduğunu düşünmüyor.
Ahmet Ayşe.POSS spy be.PAST.NML.ACC think.NEG.PROG.3SG
'Ahmet doesn't think Ayşe is a spy.'

The fact that Ayşe is a spy still holds in (9a), only now Ahmet is in the dark about this fact. And we are still in the dark about Ayşe's identity in (9b), the difference is that Ahmetis now less suspicious of her.

The difference between assertion and presupposition should be stressed here (Kiparsky and Kiparsky, 1970), as the former is a clear indication of the truth condition of the proposition, whereas the latter arises when the predicate used does not directly express the truth status of the complement clause, but asserts something else which necessitates it to be true in order for the whole sentence to be felicitous. It should be noted, then, that when we talk about factivity, we are not concerned with assertions, but with (implications arising from) presuppositions.

Most work (Karttunen, 1973, 1976; Grimshaw, 1979; Noonan, 2007) on factivity in complement clauses refer back to Kiparsky and Kiparsky (1970), where they essentially aim to identify the factors determining the choice of complement type, which in turn is believed to determine the factivity status of the proposition denoted in the complement clause.

Kiparsky and Kiparsky (1970) begin with categorizing predicates as factive and non-factive, divided into two groups; one group taking complement clauses as their subjects, and the other, as their objects. Then, they list the syntactic restrictions that apply to each category, mainly concerning the gerundive or infinitival constructions allowed with eachtype of predicate, as well as issues like extraposition or accusative constructions. These syntactic criteria are not directly applicable to Turkish. The essence of this categorization and the restrictions identified is that, according to Kiparsky and Kiparsky (1970), certain predicates take complement clauses that are factive (due to the way they are syntactically constructed and their semantic value) and thus are considered "factive predicates", and vice versa (Özyıldız, 2017). The semantic aspect of their study, on the other hand, is centered around presuppositions. If a complement clause is non-factive, then there can beno underlying presupposition. Testing if there is a presupposition, then, is a way of checking if the complement clause is factive or not.

As for how presuppositions involved in factivity may be represented, Kiparsky and Kiparsky (1970), following the concepts and notation of TGG (Chomsky, 1965), argue that for factive complement clauses, "the fact that P" is subcategorized in the deep structure, whereas it is the simple complement P for non-factive ones; hence two sentences which seem to be syntactically identical on surface level are in fact radically different in terms of their subcategorizations, depending on the factivity status of their predicates.

It is also noted in Kiparsky and Kiparsky (1970) that predicates which can take both types of complements exist; these predicates do not seem to be limited by syntactic criteria that restrict either category, but the syntactic restrictions that apply to factive predicates also apply to these when the truth of the proposition is presupposed, i.e. when the clause is considered factive.

A different perspective on this issue which argues that the denotation of the verb, whether it denotes knowledge or belief, is what determines factivity, rather than the type of complement clause it takes is provided by Hintikka (1962), as mentioned in Lemmon (1965) and Özyıldız (2017). To clarify, Kiparsky and Kiparsky (1970) suggest that a verb selects a factive complement clause because of its factive nature, and the clause has a central role in the factive interpretation; whereas Hintikka's (1962) view is that the verb itself creates the factive interpretation.

Schulz (2003), on the other hand, has more of a compositional approach to the issue of factivity. According to Schulz, the predicate itself is not enough for a factive interpretation of the complement clause. Depending on the type of complement clause, despite the predicate belonging to the "factive" class, a sentence may still have a non-factive interpretation. Schulz's solution for this is to change the category from "factive" to "potentially factive" (or p-factive). Following this classification, a p-factive predicate triggers presupposition and leads to a factive interpretation if accompanied by a specific type of complement clause. If the type of complement clause that follows is one that does not satisfy the conditions for factivity, the interpretation of the sentence is non-factive. Schulz argues that predicates which are inherently non-factive, however, cannot induce a presupposition, regardless of complement type. Schulz states that types of complements that let the factive interpretation arise are syntactically restricted and are not based on context conditions. In English, as explained by Schulz, the complement clauses that allow such presupposition are usually tense/aspect marked complements, tensed wh-complements or perfective gerundials, which, for the most part, correspond to the restrictions defined by Kiparsky and Kiparsky (1970). Schulz accounts for this distinction between types and interpretations of complement clauses on the grounds of event structure and binding. To test the factive interpretation, i.e. to test if a presupposition is induced, Schulz uses the same two standard tests applied by Kiparsky and Kiparsky: negation and yes/no questions.

Özyıldız (2017) studied attitude reports in Turkish in terms of factivity, and agrees with Schulz's (2003) compositional view that the factive interpretation arises from a combination of elements, rather than being a feature of the predicate or the embedded clause. Özyıldız states that *bil-* ('know'), a p-factive predicate (following Schulz 2003), can have a factive interpretation if it embeds a nominalization, for instance, *Tunç, Hillary'nin kazandığını biliyor*.('Tunç knows that Hillary won'), whereas it can receive a non-factive interpretation if the clause is tensed, like *Tunç, Hillary kazandı diye biliyor*. ('Tunç is mistaken that Hillary won') (Özyıldız, 2017:3). At first sight, it seems like nominalized clauses lead to factive interpretations, but when the predicate is replaced with düşün- (think), it leads to both examples, *Tunç, Hillary'nin kazandığını düşünüyor*. ('Tunç thinks that Hillary won')

and *Tunç, Hillary kazandı diye düşünüyor*. ('Tunç thinks that Hillary won'), becoming non-factive (Özyıldız, 2017:3), supporting the view that no single element is responsible for a factive interpretation but it is the result of a potentially factive predicate combined with an embedded clause that is prone to being factive.

The terminological distinction here between facts and events requires clarification. Factivity is essentially a concept that applies to propositions, statements that may or may not be true or factual. What we check for their "having happenedness", on the other hand,are not facts, but events.

(10) Schumacher Alonso'yu geçti.
Schumacher Alonso.ACC pass.PAST.3SG
'Schumacher passed Alonso.'

In (10), the event of Schumacher's passing Alonso and the fact that Schumacher passed Alonso belong to two different categories. There is, however, a direct link between these two categories. If an event has happened, we have to be able to talk about the fact that it has happened (Ramsey, 1927; Bennett, 1988). In other words, for any event that has taken place, there necessarily is a fact that accompanies it. When we analyze the constructions of -*(y)*Iş or other complementizers, and study them in terms of factivity, it is not the event that we consider to be factive; it is the fact that the event has taken place. This terminological distinction is also up for debate, for differing views, see (Wilson 1974; Tegtmeier 2000; Chisholm 1970, 1971; Davidson 1967, 1969; Anscombe 1979).

An alternative to the terms factive and non-factive could have been the terms realis and irrealis (Elliott, 2000). As these terms refer to the event expressed by a verb being real or unreal, they could help us skip the discussion over how events relate to facts and truth values. However -perhaps because assuming that for every event that did happen, there is a corresponding fact, and addressing those facts and presuppositions they bring along simplify matters for a linguistic analysis-, the term factivity was preferred in most of the previous studies of complement clauses and their having-happenedness, so we follow that terminology.

The two sets of examples below serve to illustrate the contribution of the morphemes - *(y)Iş* and -*mE* to the factivity status of a clause:

(11) a. Schumacher'in Alonso'yu geçmesi tehlikeliydi.
Schumacher.GEN Alonso.ACC pass.NML.POSS dangerous.PAST
'It was dangerous for Schumacher to pass Alonso.'
b. Schumacher'in Alonso'yu geçmesi tehlikeliydi, yine de geçti.
'It was dangerous for Schumacher to pass Alonso, but he still did.'
c. Schumacher'in Alonso'yu geçmesi tehlikeliydi, o yüzden geçmedi.
'It was dangerous for Schumacher to pass Alonso, so he didn't.'

(11a) indicates that it was dangerous for Schumacher to pass Alonso. Perhaps the track was not wide enough for him to safely pass Alonso, so passing him would by

any means be dangerous. Whether Schumacher passed Alonso or not is not clear in (11a). The follow-up sentences in (11b) and (11c) provide context. (11b) states that it was dangerous for Schumacher to pass Alonso, but he still did. This scenario requires that he had indeed passed Alonso, and the clause is factive. (11c), on the other hand, states that it was (in this case, better translated as *would have been*) dangerous for Schumacher to pass Alonso, so he didn't; which means he did not pass him, and the clause is non-factive. We could say, then, that the morpheme *-mE* is ambiguous in terms of factivity, and can be interpreted as factive or non-factive based on the context.

(12) a. Schumacher'in Alonso'yu geçişi tehlikeliydi.
Schumacher.GEN Alonso.ACC pass.NML.POSS dangerous.PAST
'The way Schumacher passed Alonso was dangerous.'
b. Schumacher'in Alonso'yu geçişi tehlikeliydi, o yüzden çok tepki gördü.
'The way Schumacher passed Alonso was dangerous, so he faced backlash.'
c. *Schumacher'in Alonso'yu geçişi tehlikeliydi, o yüzden geçmedi.
'The way Schumacher passed Alonso was dangerous, so he didn't.'

When we replace *-mE* with *-(y)Iş*, something changes. First of all, it implies that the way that Schumacher passed Alonso was dangerous. He might have driven too fast, or too close to Alonso. If something is considered to be "done in a dangerous way", it has to have happened. Therefore, (12a) is undoubtedly factive, contextual information is irrelevant, we know for sure just by reading this sentence that Schumacher had indeed passed Alonso. The examples in (12b) and (12c) serve to verify this claim. (12b), states that the way Schumacher passed Alonso was dangerous, so he faced backlash. It does not state but logically require that the event happened, and the backlash is the aftermath of it, so the clause is necessarily factive. (12c), however, presents an anomaly: this sentence makes no sense to a Turkish speaker, as the first bit certainly states that the passing of Alonso by Schumacher is a fact, and then the second bit states that it did not happen. The follow-up sentence implies non-factivity of the *-(y)Iş* clause, which does not hold. In this particular example, the factivity implication appears to be a presupposition, and this can also be verified by a linguistic test (Geurts, 1999), as the negation of the example also implies factivity of the clause:

(13) Schumacher'in Alonso'yu geçişi tehlikeli değildi.
Schumacher.GEN Alonso.ACC pass.NML.POSS dangerous not.PAST
'The way Schumacher passed Alonso was not dangerous.'

The negation in (13) is regarding the riskiness of the action, that is, what's denoted by the container. It does not affect the presupposition regarding the clause. Based on this behavior of *-(y)Iş*, it is generally considered to be a factive complementizer (Erdal, 1998), although there are different views on the matter (Göksel & Kerslake, 2005). However, the choice of complementizer can't be solely responsible for the clause's factivity status, as the container it is embedded in also affects the factive interpretation:

(14) Ahmet'in askerden gelişi herkesi sevindirecek.[1]
Ahmet.GEN military duty.ABL come.NML.ACC everyone.ACC delight.FUT
'Ahmet's return from military duty will delight everyone.'

In (14), the future indicative in the container necessitates that the event denoted in the complement clause has not yet happened, so, despite the tendency of *-(y)Iş* clauses to be factive, it has a non-factive interpretation. Apparently, there are other factors that are involved in the factivity status of a clause, as Schulz's (2003) compositional view also suggests. We consider this issue in Section 3.3.1.

2.5. Manner Denotation

The concept of factivity is quite clearly defined. Manner denotation, on the other hand, is less straightforward. There is dispute over what manner is as a semantic category (or whether it is a semantic category) (Reichenbach, 1947; Davidson, 1967). Although manner modification (Alexeyenko, 2015) has been studied, the conceptual limits as well as linguistic expressions of it are still to be discovered. For instance, manner adverbials can attach to certain verbs in Japanese, creating a deverbal structure denoting manner (Sugioka, 2001). But that is not the case for most languages. In Turkish, for instance, the manner denotation is not explicit but can be entailed in complement clauses. What we mean by manner denotation is as follows:

(15) a. Schumacher'in Alonso'yu geçmesi tehlikeliydi.
Schumacher.GEN Alonso.ACC pass.NML.POSS dangerous.PAST
'It was dangerous for Schumacher to pass Alonso.'
b. Schumacher'in Alonso'yu geçişi tehlikeliydi.
Schumacher.GEN Alonso.ACC pass.NML.POSS dangerous.PAST
'The way Schumacher passed Alonso was dangerous.'

These two sentences appear almost identical, the only difference being the use of complementizer. (15a) is generally interpreted by Turkish speakers to mean "It was dangerous for Schumacher to pass Alonso.", meaning that the fact that he passed him, the action itself was dangerous. (15b), on the other hand, evokes something more along the lines of "The way/manner Schumacher passed Alonso was dangerous.", apparentlymeaning that it was not the act of passing itself that was dangerous, but the way it was carried out was what caused the risk. This reference to the manner in which the action wascarried out is not explicit, which is why it is considered to be an entailment relation (Schwarz, 2014), and this entailment is likely what makes *-(y)Iş* constructions mostly factive, as reference to the manner in which something that has not happened was done would be quite confusing.
It so happens that other languages also have manner-entailed structures. Umbach, Hinterwimmer and Gust (2022) analyze the use of the same word (*wie-* for German) for reference to either the manner of an event or the event token itself and note that many languages have a similar word functioning in these two seemingly distinct ways. Turkish, due to its agglutinative structure, comes with a twist: these two

[1] Gülsün Leyla Uzun (p.c.)

functions are served not by a word but by a bound morpheme. Umbach et al. (2022) argue that, given that it is unlikely for such homonymy to be accidental in a variety of languages, there might be an underlying similarity of these two functions. Throughout the study, they consider three types of *wie*-complements: two being free relative clauses with either a manner or an eventive reading, and the third being the actual interrogative form of *wie*. We will ignorethis third form here, as it corresponds to an entirely different construction in Turkish andis irrelevant to our questions.

According to Umbach et al. (2022), one reading of *wie*-complements is a manner reading,like the one that arises in Turkish -*(y)Iş* clauses. Their definition of manner is a rather broad one, though; pure manner, instrument and method (either as an individual event or one that comprises of a series of events) are all covered by the umbrella term "manner". The other possible reading of a *wie*-complement is what they call "eventive". Although there are distinct syntactic constructions that allow or disallow either reading, they can also appear in identical constructions, in which case the only way to identify the intended reading is through clarification questions. Umbach et al.'s (2022) analysis suggests that amanner reading arises when an event type (and a quality of it) is denoted, whereas an eventive reading arises when what is denoted is an event token. This distinction appears to be in line with the case in Turkish.

Umbach et al. (2022) attempt to unify at some level the two distinct functions of *wie*- by referring to the semantics of *wie*: it essentially denotes a similarity relation. When it is notproducing complex and potentially ambiguous clauses, it can simply express the similarity of two entities, like *Anna ist so groß wie Berta* (‘Anna is as tall as Berta’) (p. 325). That is to say, the way it functions with complement clauses is related to this semantic load. Briefly, when expressing manner, wie- refers to an event type that shares a similarity withthe one in question in terms of an attribute and in this respect creates the manner reading. On the other hand, when it refers to an event token, its reference is to a stage of a series of events, i.e. for it to denote a token, a point in time when that event was taking place, ithas to be progressive/imperfective, and it follows from this that the event is bound to havestages that occur afterwards. The entire course of events surrounding the token, then, compose a similarity class, in their view, and *wie*-, denoting the similarity relation that itdoes, is in reference to the natural set of continuations.

While this explanation, supported by the in-depth analyses provided, appears to hold for German, it does not help in identifying an underlying uniform interpretation for constructions that allow both manner- and eventive readings depending on other syntactic or contextual components in Turkish or the range of other languages that Umbach et al. (2022) mention.

One test that Umbach et al. (2022) used to identify a manner reading in *wie*-clauses is byadding in a gradable adverb. They mark eventive interpretations with an E trace and manner interpretations with an M trace. The example they provide is as follows (p. 312):

(16) Anna sah, wie**E** Berta schnell ihre Tasche packte.
Anna saw how Berta quick her bag packed
'Anna saw Berta quickly packing her bag.'

It is explained that the gradable adverb only allows the eventive reading, and cannot be followed by a "*nämlich* (‘namely’) continuation", which, according to Umbach et al. is a characteristic specification for manner readings. This, however, does not help to identify whether the clause before the insertion of the gradable adverb denoted manner or the event token, it serves either to categorize *wie*-clauses that have a gradable adverb as having the manner reading, or to be able to insert a gradable adverb to ensure that the reading will be eventive. Hence, for our purposes here, this test is not applicable.

Yet another test that they provide is adapted from Zimmermann (1991) and aims to distinguish the two readings of the clauses based on the clauses they can be coordinated with. According to Umbach et al. (2022), a *wie*-complement can be conjoined with a variety of *wh*-clauses, exemplified as follows (p. 313):

(17) (...) ‘Hans reported how (carefully) he prepared for the exam, who helped him, wherethe exam took place and how he got there.’

An eventive reading of a clause on the other hand only allows other eventive clauses in conjunction and appears incoherent if conjoined by other types of clauses (p. 313):

(18) a. (...) 'Hans reported how he prepared poorly for the exams and stuttered withexcitement and (how he) finally (narrowly) passed.’
b. (...) ‘Hans reported how he prepared poorly for the exam, (how he) he stuttered with excitement, who tested him and how (narrowly) he finally passed.'

Formally, Umbach et al. show the near-identical forms of *wie*-complements with manner and eventive readings as follows, with a trace of manner embedded into the complement (p. 325)

(19) manner free relative
a. (Anna sah) wieM Berta die Tasche packte.
Anna saw how Berta the bag packed
'(Anna saw) how Berta packed her bag.'
b. [DP Ø [CP wieM_i [C’ Ø [VP Berta the bag t_i packed]]]]

(20) eventive free relative
c. (Anna sah) wieE Berta die Tasche packte.
Anna saw how Berta the bag packed
‘(Anna saw) Berta packing her bag.’
d. [DP Ø [CP wieE [C’ Ø [VP Berta the bag packed]]]]

This formalization could be considered in line with Kiparsky and Kiparsky's (1970) approach of suggesting a formal explanation to how the structures that appear to be syntactically equivalent differ semantically.

At first sight, considering manner entailment as the primary function of -*(y)Iş* appears verysatisfactory for the description of this morpheme, and past research (Erdal 1998; Göksel and Kerslake 2005; Rentzsch 2020) agrees that -*(y)Iş* clauses do very often entail manner,but there are also many instances of them not doing that. Luckily, there is another identifiable function of -*(y)Iş:* reference to a specific instance of an event (Erdal, 1998), and these constructions do not entail manner. So, the function of -*(y)Iş* could be describedas either referring to the manner in which something was done, or to the nth time it was done, the two categories being mutually exclusive. However, previous research seems to show that there are many instances of -*(y)Iş* doing neither, and it is a challenge to identifya pattern for that.

CHAPTER 3

ANALYSIS

This study gathered and developed a number of criteria to distinguish types of *-(y)Iş* nominals and their denotations, and analyzed a sample set of data from METU Turkish Corpus (Say, Zeyrek, Oflazer & Özge, 2002) to check the accuracy and efficiency of these criteria. The first step was to apply a set of tests to determine their status as perfect or imperfect nominals. Following that, imperfect nominals were checked with another set of tests to identify their denotations (manner or eventuality). Finally, the tokens that denote a type of eventuality were subjected to a final set of tests to determine their factivity status. Each test, along with the reasons for applying that test and its implications, will be explained throughout this section. The details of the annotation process will be given in Section 4.2.

3.1. Perfect versus Imperfect

The initial set of tests aim to determine whether a *-(y)Iş* nominal is perfect or imperfect, following Vendler (1967). As explained above in Section 2.2., nominalizations are considered to be complete (hence, perfect) when they are fully noun-like, have no more verb-like characteristics like taking adverbs or tense/aspect marking and are no longer ina compositional relationship with the other constituents in the clause. Those, we are not particularly interested in. The alternative, nominals whose process of nominalization is not yet fully complete (hence, imperfect), which still have partly verb-like qualities and are in a compositional relationship with other components, are the ones we aim to identify. The next step for them will be an attempt to determine whether they denote an eventuality or manner.

While Vendler's definition of these two types of nominals is quite straightforward, the structure of Turkish complicates the matter for us. Here's why (Vendler, 1967:126):

(21) a. John's death surprised me.
b. His having died surprised me.

These forms, the former being a perfect nominal and the latter being an imperfect nominal, are easily identifiable. This might at first seem applicable to Turkish;

(22) a. John'un ölümü beni şaşırttı.
John.GEN death.POSS me.ACC surprise.PASS
'John's death surprised me.'
b. John'un ölüşü beni şaşırttı.
John.GEN die.NML.POSS me.ACC surprise.PASS

'John's dying surprised me.'*ölüm* is an established lexical item, while *ölüş* is not quite there. However, *-(y)Iş* is commonly used both to form complement clauses and to derive lexical items in Turkish:

(23) a. Binanın çıkışı çok kalabalıktı.
building.GEN exit.ACC very crowded.PAST
'The exit of the building was very crowded.'
b. Ali'nin binadan çıkışı kameralara takıldı.
Ali.GEN building.ABL exit.NML.POSS cameras.DAT catch.PASS
'Ali's exiting the building was caught on camera.'

(23a) includes a perfect *-(y)Iş* nominal, as *the exit of the building* is a very noun-like structure, it could simply be replaced by *the house* or *the mall*; its semantics are quite clearly set and its interpretation is not dependent on the other components in the sentence. (23b), on the other hand, includes a complement clause. For such structures, where a bound morpheme is the head of a complement clause, the choice of the morpheme as well as other components like the container directly affect the interpretation of the complement clause. This is why we call this an imperfect nominal.

Although we have two clearly different types of nominals here, they are headed by the same form, *çıkış*, which is why we need a way to tell them apart. To make this distinction, we used five formal tests, explained and exemplified below. Although these formal tests proved mostly consistent, allowing a significant level of agreement between two different annotators, there are also pragmatic components that make it difficult to distinguish these two types without referring to context. Those will not be dealt with in this study, for practical reasons.

The tests we suggest for this distinction are lexicalized sense, compounding, negation,adverbial modification and *-mE* replacement, detailed below.

3.1.1. Lexicalized Sense

The first test is quite straightforward: if the *-(y)Iş* nominal has entered the lexicon and is used in the sentence in the lexicalized sense, then it is safe to say that it is a perfect nominal.

(24) a. Ahmet'in gülüşü çok güzel.
Ahmet.GEN laugh.NML.POSS very beautiful.3SG
'Ahmet's smile is very beautiful.'

b. Ahmet'in halime gülüşü iticiydi.
Ahmet.GEN state.1SG.POSS.DAT laugh.NML.POSS repelling.y.PAST
'Ahmet's laughing at me was repelling.'

gülüş ('smile') in (24a) is a lexical unit, it is very noun-like in that it refers to something that is in essence no different from Ahmet's hair. Its reference is not to an event (or a factdenoting an event) but to a feature. (24b), on the other hand, is a very different structure.*the way Ahmet laughed* refers to (the manner in which) the event of Ahmet's laughing (occurred), and so it is not an instance of the lexical unit *gülüş.*

3.1.2. Compounding

The second test, like the first, tests whether a *-(y)Iş* nominal manifests noun-like properties. If a nominal appears in a compound structure, then it is behaving in a very noun-like way, which indicates that it is a perfect nominal.

(25) a. Program akışı size sunuldu.
program flow.NML.POSS 2PL.DAT present.PASS.PAST
'The program's flow was presented to you.'
b.Suyun akışı başımıza iş açtı.
water.GENflow.NML.POSS head.POSS.3SG.DAT trouble open.PAST
'The water's flowing caused us trouble.'

In (25a), the program flow is something we (or you) were provided with, it may as well be a potato. In (25b), on the other hand, *suyun akışı* is derived from the full sentence *Su aktı*., its subject has genitive marking in order to fit into the argument structure of a complement clause. That is to say, it refers to the event of water flowing, and is an imperfect nominal.

A seemingly different structure requires special attention here:

(26) Ancak tüm gözetim faaliyetlerinin gözetim amacıyla bilinçli olarak ortayaçıktığı **görüşü** pek de sağlıklı bir görüş değildir .
'However, the view that all surveillance activities occur consciously for surveillance purposes is not a healthy view.'

görüşü here is not immediately preceded by a single item that takes genitive marking, like *öğrenci görüşü*, so at first sight it does not appear to be an example of compounding. However, the *-DIK* clause before it and the possessive marker on *görüş*validate it as a compound.

3.1.3. Negation

The third test we applied is the negation test. As a test to distinguish perfect and imperfectnominals, it simply checks to see if a nominal is directly negatable.

(27) a. Ahmet'in evden çıkışı beni kızdırdı.
Ahmet.GEN house.ABL leave.NML.POSS 1SG.ACC anger.PAST.3SG
'Ahmet's leaving the house angered me.'
b.Ahmet'in evden çıkmayışı beni kızdırdı.
Ahmet.GENhouse.ABLleave.NEG.NML.POSS1SG.ACCanger.PAST.3SG
'Ahmet's not leaving the house angered me.'
c. Ahmet'in öfkeli çıkışı bizi şaşırttı.
Ahmet.GEN angry outburst.NML.POSS 1PL.ACC surprise.PAST.3SG
'Ahmet's angry outburst surprised us.'
d. *Ahmet'in öfkeli çıkmayışı bizi şaşırttı.
Ahmet.GEN angry non-outburst.NML.POSS 1PL.ACC surprise.PAST.3SG
'*Ahmet's angry ?non-outburst surprised us.'

The nominal in (27a) can be negated into the perfectly acceptable nominal in (27b), whereas (27c) is solid and cannot be altered into the form in (27d), demonstrating the verb-like quality of the imperfect nominal in (27a) and the noun-like quality of the perfect nominal in (27c).

3.1.4. Adverbial Modification

Typically, verbs are modified by adverbs, whereas nouns are modified by adjectives. Hence, if a verb-based nominal is behaving like a verb, it should take an adverb for modification, but if it has become fully noun-like, it should take an adjective.

(28) a. Schumacher'in geçişi bizi korkuttu.
Schumacher.GEN pass.NML.POSS 1PL.ACC scare.PAST.3SG
'Schumacher's passing scared us.'
b. Schumacher'in uçarcasına geçişi bizi korkuttu.
Schumacher.GEN overfast pass.NML.POSS1PL.ACC scared.3SG
'Schumacher's overfast passing scared us.'
c. Schumacher uçarcasına geçti.
Schumacher.NOM overfast pass.PAST.3SG
'Schumacher passed very quickly.'
d. Soldaki çıkış çok kalabalık.
on-theleft exit.NML.POSS very crowded.3SG
'The exit on the left is very crowded.'
e. *Soldaki aceleyle çıkış çok kalabalık.
on-the left hurriedly exit.NML.POSS very crowded.3SG
'*The hurriedly exit on the left is very crowded.'

(28b) demonstrates the imperfect nominal *Schumacher'in geçişi* being modified by an adverb, in fully verb-like fashion, as it is a clause derived from (28c). (28e), on the otherhand, is problematic in that the adverb does not agree with the lexicalized, perfect nominal *çıkış*.

3.1.5. –mE Replacement

As explained in Section 2.1., -*(y)Iş* and -*mE* can be used in identical grammatical constructions to form complement clauses, yet they have different denotations. This implies that in many cases, as long as the container or the context does not reject -*mE*, we could replace -*(y)Iş* in a complement clause with -*mE* and get a grammatical sentence. A perfect nominal is never as flexible, though; so we cannot replace the suffix -*(y)Iş* in a perfect nominal with -*mE* and get an acceptable sentence. Thus, replaceabilitywith -*mE* indicates that the nominal is imperfect, but non-replaceability does not necessarily mean that it is a perfect nominal: it could be due to the container being non- compatible with -*mE*.

(29) a. Ahmet'in evden çıkışı beni kızdırdı.
Ahmet.GEN house.ABL leave.NML.POSS 1SG.ACC anger.PAST.3SG
'Ahmet's leaving the house angered me.'

b. Ahmet'in evden çıkması beni kızdırdı.
Ahmet.GEN house.ABL leave.NML.POSS 1SG.ACC anger.PAST.3SG
'Ahmet's leaving the house angered me.'

c. Evin çıkışı kalabalıktı.
House.GEN exit.NML.POSS crowded.PAST
'The exit of the house was crowded.'

d. *Evin çıkması kalabalıktı.
house.GEN exit.NML.POSS crowded.PAST
'The ?exiting of the house was crowded.'

It should be noted that while (29a) and (29b) are both grammatically correct -that is, - *(y)Iş* is replaceable with -*mE* here-, their denotations are different. (29a) denotes manner,implying that it was the way Ahmet left the house that angered the speaker, while (29b) denotes the event itself.

3.2. Denotation Tests

The discussion around -*(y)Iş* and manner entailment requires us to attempt to distinguishthe instances of -*(y)Iş* denoting manner from instances of it denoting an eventuality.

Bach's (1986) term "eventuality" is preferred here to refer to events and states as a whole. These eventualities are further divided into five categories, following Moens and Steedman (1988): state, point, process, culmination and culminated process. Denoting aneventuality means that the clause is about an eventuality itself. Denoting manner, on the other hand, means that the clause does not point to the eventuality but to the manner in which it was done. Here's how:

(30) a. Schumacher'in Alonso'yu geçmesi tehlikeliydi.
Schumacher. GEN Alonso.ACC pass.NML.POSS dangerous.PAST
'It was dangerous for Schumacher to pass Alonso.'

b.Schumacher'in Alonso'yu geçişi tehlikeliydi.
Schumacher. GEN Alonso.ACC pass.NML.POSS dangerous..PAST
'The way Schumacher passed Alonso was dangerous.'

(30a) denotes an eventuality, it refers to the culminated process of Schumacher catching up to and passing Alonso. This act itself is deemed dangerous. (30b), on the other hand, denotes manner. It indicates that Schumacher's way of passing Alonso was dangerous; what's allegedly dangerous is not the act itself, but the manner in which it was done. Therefore, the denotation of the clause is not the eventuality but a characteristic of the eventuality.

Once the imperfect *-(y)Iş* nominals were identified using the first set of tests described above, they were then tested for their denotations using the following set of tests: type of container, *şekli/biçimi/tarzı* replacement, *-mE* replacement and explicit manner. Once the eventuality-denoting *-(y)Iş* tokens were identified, they were tested according to Moens and Steedman's (1988) framework.

3.2.1. Type of Container

The denotation of an imperfect nominal, as a constituent in a sentence, is compositional. That is to say, the full meaning it carries is directly affected by the other items in the sentence. One easily identifiable and quite significant item there is the structure that embeds the clause or, in Vendler's (1967) terminology, the container. Most containers only allow certain types of clauses, and some containers, even if they are less selective as to the type of clause they will take, only allow a certain interpretation of a clause. This selectiveness can be exemplified as follows:

(31) a. Merve'nin konuşmasını böldüm.
Merve.GEN speak.NML.POSS interrupt.PAST.3SG
'I interrupted Merve's speaking.'
b. *Merve'nin konuşuşunu böldüm.
Merve.GEN speak.NML.POSS interrupt.PAST.3SG
'I interrupted Merve's way of speaking.'

böl- ('interrupt') can in no way, shape or form refer to the manner in which something is done, you can only interrupt an event itself. Nevertheless, it is not compatible with a *-(y)Iş*clause in the first place, and *-mE* clauses don't denote manner, so we do not have to checkthe type of denotation with a container like *böl-*.

(32) Gidişi çok ani oldu.
leave. NML.ACC very sudden be.PAST
'Her leaving was very sudden.'

(32) here also necessarily refers to the eventuality, *the way someone left* cannot be sudden. One might argue that something being sudden could also be categorized as an act being performed in a specific manner, but that is what the container denotes. The *-(y)Iş* clause is limited to *gidişi*, and the container states that it was sudden. Not a characteristic of the act of leaving but the action itself is what was sudden. The following example serves to illustrate the difference:

(33) a. Yeşim'in bu sorunu çözmesini beğendim.
Yeşim.GEN DEM.NOM problem.ACC solve.NML.SI.POSS like.PAST.1SG
'I liked that Yeşim solved this problem.'

b. Yeşim'in bu sorunu çözüşünü beğendim.
Yeşim.GEN DEM.NOM problem.ACC solve.NML.I.POSS like.PAST.1SG
'I liked the way Yeşim solved this problem.'

(33b) very clearly denotes something different from (33a). (33a), typically for a *-mE* clause, denotes an eventuality. What the speaker liked or approved of was the event of Yeşim's solving the problem. (33b) denotes that the way Yeşim solved the problem is what's appreciated by the speaker. The container *beğen-*, when paired with a *-(y)Iş* clause,selects the manner denotation and not the eventuality denotation.

Therefore, our first test for denotations is to check the type of container in the sentence and see whether it is a manner-selecting container or an eventuality-selecting container. As there exists a great number of containers, creating an exhaustive list of each type of container is not possible, but a preliminary set was used as a reference point. We expect that this list will be expanded in future studies on this annotation effort.

Table 1. Preliminary Classification of Containers

Containers that tend to select a manner denotation in *-(y)Iş*	**Containers that tend to select an eventualitydenotation in *-(y)Iş***
beğen- ('like'), sarsak ol- ('be clumsy'),doğru ol- ('be correct'), zarif ol- ('be elegant'), değerlendir- ('evaluate')	ani ol- ('be sudden'), (x saat) sür- ('take (x hours)'), geciktir- ('delay'), engel- ('block'),yarım bırak-/kal- ('interrupt/be interrupted')

3.2.2. -şekli/biçimi/tarzı Replacement

This test involves the manipulation of the *-(y)Iş* complement by concatenating *(...) şekli/biçimi/tarzı* to the complement and checking whether the resulting expression is close to the original in meaning. Here is an example:

(34) a. **Öksürüşü** bile bir başkaydı sanki.
'Even the way (s)he coughed seemed different.'
b. **Öksürüş** şekli/biçimi/tarzı bile bir başkaydı sanki.
'Even the way (s)he coughed seemed different.'

When *-(y)IşI* in (34a) is replaced by *-(y)Iş şekli*, we get the expression in (34b), which is perfectly acceptable and almost identical in meaning. (34b) explicitly states manner, so if (34a) and (34b) are so close in meaning, (34a) necessarily denotes manner.

3.2.3. -mE Replacement

We used *-mE* replacement as a test to see whether a *-(y)Iş* nominal is perfect or imperfect; the possibility of the replacement indicating that it is the latter. As a semantic test, it hasa different function. If we replace *-(y)Iş* with *-mE* in an imperfect nominal and the semantic interpretation of the sentence is not altered, then the *-(y)Iş* clause is eventive. Ifthe sentence is grammatical but there's a difference in meaning, it most likely denotes manner.

(35) a. Yerküresinin çatladığı yerlerde enerjinin açığa **çıkışı** sırasında önünde engelyoksa sadece yeri yarar.
'Where the earth cracks, if there is no obstacle during the release of energy, onlyit will only crack the earth.'
b. Yerküresinin çatladığı yerlerde enerjinin açığa **çıkması** sırasında önünde engelyoksa sadece yeri yarar.
'Where the earth cracks, if there is no obstacle during the release of energy, onlyit will only crack the earth.'

The two sentences are semantically identical, which indicates that the *-(y)Iş* clause in (35a)denotes an eventuality, as the *-mE* clause in (35b) surely denotes an eventuality.

(36) a. Bana **bakışı** pek hayra alamet değildi.
'The way (s)he looked at me was not good news.'
b. Bana **bakması** pek hayra alamet değildi.
'That (s)he looked at me was not good news.'

The two sentences in (36) express clearly different things. While (36a) implies that the way they looked at the speaker was unlikely to be good news, (36b) denotes the whole event and states that the eventuality itself is unlikely to be good news.

3.2.4. Explicit Manner

Finally, if the manner is explicitly specified in the *-(y)Iş* complement, then it is less likelythat the complement itself denotes the manner of the eventuality.

(37) a. Ahmet'in parçayı **çalışı** kulakları tırmaladı.
'Ahmet's playing the song grated on people's ears.'
b. Ahmet'in parçayı yumuşakça **çalışı** kulakları tırmaladı.
'Ahmet's playing the song softly grated on people's ears.'

The *-(y)Iş* nominal in (37a) clearly denotes the manner of the instrument-playing incident. The way it was done was not appreciated. In (37b), however, the nominal

itself does not denote manner. Although the reference is still to the way Ahmet played the instrument, this denotation is not caused by the nominal; it is explicitly stated by the use of the adverb*yumuşakça* (‘softly’). If the manner is explicitly stated through another item in the sentence, we can say that the nominal itself does not denote manner, it denotes eventuality.

3.2.5. Type of Eventuality

Once a clause is identified to be denoting an eventuality, we use the tests detailed by Moens and Steedman (1988) to determine what type of eventuality it is. Because this classification of events and states (to which we will refer collectively as eventualities) is essentially conceptual, the tests suggested for English can be used to consider examples in Turkish, although there is no direct correspondence.

For this classification, time expressions as well as aspectual categories they can combine with are good indicators. Consider the point event *hiccup*, for instance (1988:16):

(38) a. John hiccupped.
b. *Harry has hiccupped.

A point event is characterized as one that is not extended in time (though not necessarily instantaneous) and does not have a direct consequence, that is, the state of the world before the event happens is not changed by the event. Hence, as they are unlikely to be accomplishments or symbols of some sort of completion, point events typically don’t combine with perfective aspect.

A culmination, on the other hand, pairs quite well with the perfect:

(39) Harry has reached the top.

As the Turkish verb system does not have a distinctive marking for perfective aspect, this test can be applied with a construction like *-mış bulunmakta*, indicating completion of something, usually an achievement.

(40) a.#Harry hıçkırmış bulunmakta.
‘Harry has hiccupped.’
b. Harry tepeye ulaşmış bulunmakta.
‘Harry has reached the top.’

(40a) sounds odd, just as the English equivalent does. (40b), on the other hand, is perfectlyreasonable.

However, when combined with the progressive aspect, culminations don’t imply or presuppose that the action was completed, or actually reached the culmination:

(41) John was winning. -> ?John won the race.

A third type of eventuality, namely a process, does imply that the event took place when used with the progressive aspect:

(42) John was walking. -> John (has) walked.

This is because a process is not characterized by its consequence, so whether it reached apre-defined point of completion or not is irrelevant; the event having taken place for an amount of time is enough. This test can be directly applied to Turkish:

(43) a. John yarışı kazanıyordu. -> ?John yarışı kazandı.
'John was winning. -> ?John won the race.'
b. John yürüyordu. -> John yürüdü.
'John was walking. -> John (has) walked.'

When used with the progressive aspect, the culmination *kazan-* ('win') does not imply that it was actually accomplished, while the process *yürü-* ('walk') in the same construction implies that the event having taken place for a while, the only thing expectedof a process-type event, is accomplished.

The last type of event described by Moens and Steedman (1988) is a culminated process,which combines the characteristics of a culmination and a process: it has to be extended in time and also has to cause a consequence, a relevant change to the state of the world.

(44) Harry climbed to the top.

When tested with progressive aspect, however, it behaves more like a culmination than aprocess:

(45) Harry was climbing to the top. -> ?He climbed all the way up to the top/reachedthe top.

Another test to distinguish event types is to see which time adverbials they combine with.Processes, for instance, pair with *for*-adverbials. As they lack a distinct point of completion, they do not combine with *in*-adverbials:

(46) a. Harry climbed for seven hours.
b. #Harry climbed in seven hours.

Similarly to how culminated processes differ from processes in terms of how they combine with different aspects, they combine with *in*-adverbials and not *for*-adverbials:

(47) a. Harry climbed all the way to the top in seven hours.
b. #Harry climbed all the way to the top for seven hours.

This test is also somewhat transferrable to Turkish with *(...) boyunca* ('for …') and *(...)-te* ('in …'):

(48) a. Harry 7 saat boyunca tırmandı.
'Harry climbed for seven hours.'
b.?Harry 7 saatte tırmandı.
'Harry climbed in seven hours.'

(48b) is not wrong, but it is lacking. To sound normal, it either needs to be changed into *tepeye tırmandı* ('climbed to the top'), making it a culminated process, or it requires extra-sentential, contextual information.

And finally, they reckon another type of eventuality that differs from events in that it hasno defined beginning or ending. Moens and Steedman (1988:17) describe states as "a class of indefinitely extending state of affairs". States are easily distinguishable from events inthis sense:

(49) Harry is at the top.

In Turkish, we can use zero copula or *ol-* for states, so these are easily identifiable. Nevertheless, when different verbs are used to describe states, considering their temporalqualities, as explained above, serves as a distinction.

A comprehensive adaptation of these tests to Turkish, applying them directly where the constructions correspond and formulating similarly-functioning alternatives when they don't would allow a more thorough classification, but as this issue is not central to this thesis, a rough adaptation and intuitive evaluation where the correspondence is weaker was sufficient for our purposes.

3.3. Factivity Tests

Geurts (1999) checks for presuppositions (which is what we have to check for factivity) using these four tests: negation, question, modal, antecedent of a conditional. If a clause is factive, we expect that the presupposition that the eventuality denoted (or whose manner is denoted) in the complement clause has happened will not be affected when the containeris changed into these forms. Here are applications of them, respectively, with *-(y)Iş*:

(50) a. Schumacher'in Alonso'yu geçişi tehlikeliydi.
'Schumacher's passing Alonso was dangerous.'
b. Schumacher'in Alonso'yu geçişi tehlikeli değildi.
'Schumacher's passing Alonso was not dangerous.'
c. Schumacher'in Alonso'yu geçişi tehlikeli miydi?
'Was Schumacher's passing Alonso dangerous?'
d. Schumacher'in Alonso'yu geçişi tehlikeli olabilirdi.
'Schumacher's passing Alonso could have been dangerous.'

e. Schumacher'in Alonso'yu geçişi tehlikeli olsaydı, ona kızardık.
'If Schumacher's passing Alonso were dangerous, we would have been mad at him.'

The complement clause in (50a) denotes the manner in which Schumacher passed Alonso and this denotation requires that the event whose manner is denoted has happened, so the presupposition is that *Schumacher passed Alonso*. (50b), for entails that Schumacher did in fact pass Alonso; only it was not dangerous. (50c) questions the riskiness of the act, but whether it was dangerous or not, the event has to have happened for this question to be asked. (50d) indicates that it could have been dangerous, but it is implied that it probably wasn't; still, the passing has necessarily happened for this statement. And finally, the conditional expresses that if the act were carried out in a dangerous way, they would have reacted to Schumacher; hence it was not carried out in a dangerous way (and they did not react), but it was indeed carried out, similarly to (50b).

3.3.1. Limitations

The choice of complementizer has a significant contribution to the factivity status of a complement clause, as we have mentioned before. In many cases, selecting *-(y)Iş* instead of *-mE* can ensure the hearer that the event denoted in the clause has indeed happened. It is, however, also dependent on other components, and some components can eliminate the possibility of a factive reading. The container indicating that the event has not yet happened is one such component. Here's how:

(51) İrem'in dönüşü muhteşem olacak.
İrem.GEN return.POSS amazing be.FUT
'İrem's return will be amazing.'

The use of the future indicative here requires that the event has a potential to happen but has not yet happened, so a presupposition that it has happened cannot exist. Also, the sentence being in irrealis mood (Elliot, 2000) -for instance, stating a wish- may block a factive interpretation and the complement clause will be interpreted as non-factive. Although these interpretations are not due to the semantics of the *-(y)Iş* clause, such tokens are automatically considered non-factive. Our expectation is that *-(y)Iş* clauses tend to be factive, but this expectation necessarily only applies to complements embedded by containers in the past or present indicative. A comprehensive analysis of what type of containers, as well as their mood and aspect characteristics, allow the factive interpretation of *-(y)Iş* is required for a more accurate prediction.

CHAPTER 4

METHOD

4.1. Data

We retrieved sentences containing words ending with *-(y)Iş* from METU Turkish Corpusby using regular expression search with the command line program grep.[2] We filtered outexamples with words that are not *-(y)Iş* forms although they end with the same sound, like *kartuşu* ('cartridge.POSS'), *müfettişi* ('inspector.POSS), *siparişi* ('order.POSS'). The analyses detailed in Section 3 were then applied to these sentences. After the first set of tests were applied and perfect nominals were identified, forms that were repeated numerous times (like *kar yağışı* ('snowfall') or *dünya görüşü* ('worldview') were also reduced to one token each.

The dataset of 339 sentences including *-(y)Iş* nominals were annotated in three steps by twoannotators. Annotator I is the first author of this thesis and Annotator II is an expert in semantics. Both annotators annotated each category independently and the agreement of their annotations were tested for reliability (see Section 4.3). The –(y)Iş nominals in the dataset were first categorized as either perfect or imperfect, using the tests detailed in Section 3. Then, a total of 86 sentences which included imperfect *-(y)Iş* nominals were similarly categorized as either manner-denoting or eventuality-denoting. Eventuality denotations were sub-categorized into eventuality types (Moens and Steedman, 1988), namely as state, point, process, culmination or culminated process. Finally, a total of 73 sentences that denote eventuality were categorized as factive or non-factive by both annotators. Although the annotators discussed the tokens they disagreed upon in terms of their criteria and decided which category that item actually belongs to, they were not marked as belonging to a category for the next set of tests. For instance, a token that one annotator marked as imperfect and the other as perfect was later decided to be an imperfect nominal. Only imperfect nominals were to be considered for the next set of tests (i.e. denotation tests), and the token that was later-agreed-upon was not included in the dataset for these tests. That is because the main goal of this study is to suggest a solid method to identify certain features in a nominal step by step, and if the tests failed to categorized a nominal at one step, we did not move that nominal onto the next step.

[2] https://linux.die.net/man/1/grep

4.2. Annotation Process

4.2.1. Perfect versus Imperfect

Our first set of tests aimed to classify *-(y)Iş* nominals as perfect and imperfect. Of the 339 tokens, 247 tokens were annotated as perfect and 86 were annotated as imperfect by both annotators. There was disagreement for 6 tokens, and while the annotators later agreed that 5 of these were imperfect nominals, those items were left unmarked as they could not be marked by following the regular annotation process we suggested.

Table 2. Annotation Results for Perfect versus Imperfect Distinction Created by Annotator I and II

ANNOTATORS / CATEGORIES	ANN I	ANN II
PERFECT	252	248
IMPERFECT	87	91

Here's an example of how we analyzed each *–(y)Iş* token:

(52) Yürüyüşü geldi gözümün önüne.
walk.POSS come.PAST eye.POSS front
'I pictured his way of walking.'

The tests to determine the type of nominal are lexicalised sense, compounding, negation, adverbial modification and *-mE* replacement, the first two indicating that the nominal is perfect and the others indicating that the nominal is imperfect, as explained in Section 3.1.The process was carried out as follows:

Table 3. Testing the Nominals

TEST	CRITERION	PASS?
Lexicalised Sense	Is it in the lexicon? If so, is it used in this sentence in the lexicalized sense?	*yürüyüş* is in the lexicon, but it means "a walk one takes" and not the act or event of walkingitself, so it is not used in the sentence in that sense. Hence it does not pass the test.
Compounding	Is it in a compound structure?	No, so it does not pass the test.
Negation	Can it be negated, resulting in a grammatical sentence (although different in meaning)?	*Yürümeyişi geldi gözümün önüne*. ('I pictured his way of not walking.') is, although unlikely, a grammatical sentence, possibly implying that someone either resisted to walking or was too desperate to walk. Contextual information would be required to make sense of it, but the sentence is grammatical, and it does pass the test.
Adverbial Modification	Can it be modified by an adverb?	*Hızlıca yürüyüşü geldi gözümün önüne.* ('I pictured his way of walking fast.') is perfectly grammatical, so it does pass the test.
-mE Replacement	Can *-(y)Iş* be replaced with *-mE*, resulting in a grammatical sentence (possibly with a different denotation)?	***Yürümesi*** *geldi gözümün önüne*. is grammatical, although it denotes an eventuality, while the original sentence denotes manner, but that is to be discussed inthe next section. It does pass this test.

In short, (52) is "-lex -comp +neg +adv +me". Considering that (52) failed the first two tests which would indicate that it is a perfect nominal, and passed all three tests whichindicate that it is an imperfect nominal, the *-(y)Iş* nominal in (52) was categorized as an imperfect nominal.

Unfortunately but quite expectedly, not all examples are as clear-cut as this one. Here's amore tricky one:

> (53) İnsanlık, Roma İmparatorluğu döneminin öncesinde bu birleşime çok yaklaşmış, fakat çağdaş bilimin **doğuşu** için Bilimsel Devrimi beklemek zorunda kalmıştır.
>
> 'Humanity came very close to this unification before the time of the Roman Empire, but had to wait for the Scientific Revolution for the **being born** of modern science.'

Table 4. A Problematic Example

TEST	CRITERION	PASS?
Lexicalised Sense	Is it in the lexicon? If so, is itused in this sentence in the lexicalized sense?	*doğuş* is listed in the lexicon as "the act of being born". It apparently passes thetest.
Compounding	Is it in a compound structure?	No, so it does not pass the test.
Negation	Can it be negated, resulting in a grammatical sentence (although different in meaning)?	*çağdaş bilimin doğmayışı* ('the non- being born of modern science') does not create an acceptable version of this sentence. It does not pass the test.
Adverbial Modification	Can it be modified by anadverb?	*çağdaş bilimin yavaşça doğuşu* ('the slowly being born of modern science'), for instance, is grammatical. Adverbial modification is possible, so it does passthe test.
-mE Replacement	Can *-(y)Iş* be replaced with *-mE*, resulting in a grammatical sentence (possibly with a different denotation)?	*(...) çağdaş bilimin* ***doğmasını*** *(...)* is grammatical, although a bit odd. It doespass this test.

The *–(y)Iş* token is then listed as "+lex -comp -neg +adv +me". Two tests suggest that it might be a perfectnominal, while three tests suggest that it might be an imperfect nominal. It then requires closer inspection on the two tests that contradict with the majority.

If it is an imperfect nominal, we would expect it not to be used in its lexicalized sense. Nevertheless, its lexicalized sense is not much diverted from the original meaning of the verbal root; therefore, the nominal having a lexicalized form that corresponds in meaning to how it was used in the sentence may not automatically mean that it is a perfect nominal. Fortunately, for this example, the lexicalized form has a synonym, *doğum* ('birth'). The words are defined identically in dictionaries, and *doğum*, which is undoubtedly a perfect nominal in any case, is more frequently used than *doğuş.* When we try to replace *doğuş* with *doğum* in our example, it fails:

> (54) *İnsanlık, Roma İmparatorluğu döneminin öncesinde bu birleşime çok yaklaşmış, fakat çağdaş bilimin **doğumu** için Bilimsel Devrimi beklemek zorunda kalmıştır.
> 'Humanity came very close to this unification before the time of the Roman Empire, but had to wait for the Scientific Revolution for the **birth** of modern science.'

The use of the possibly-imperfect form instead of the perfect nominal might indicate that what we have here is actually derived from the clause *Çağdaş bilim doğdu.* ('Modern science was born'), but to draw a solid conclusion, detailed analyses of similar forms would be necessary.

The second problematic test is negation. However, similar structures are perfectly acceptable with different verbs, so the problem here might be purely semantic.

> (55) *İnsanlık, Roma İmparatorluğu döneminin öncesinde bu birleşime çok yaklaşmış, fakat çağdaş bilimin doğmayışı için Bilimsel Devrimi beklemek zorunda kalmıştır.
>
> 'Humanity came very close to this unification before the time of the Roman Empire, but had to wait for the Scientific Revolution for the **not being born** of modern science.'

This sentence essentially says that humanity had to wait for something that did not happen for an achievement (that we know was achieved). The absence of that event causes the sentence to collapse in on itself, which is why we find (55) to be an unacceptable sentence. A very similar structure without this semantic mayhem would be perfectly fine:

> (56) Ece, Kerem'in susmayışı konusunda şikayetçi oldu.
> Ece.NOM Kerem.GEN be quiet.NEG.NML.ACC aboutcomplain.PAST
> 'Ece complained about Kerem's not being quiet.'

-(y)Iş nominals are more frequently used in their positive forms (Karakoç and Herkenrath, 2016). This makes intuitive sense for manner-denoting ones, as we tend not to describe how something was not done, examples like (56) being rare. While there is no clear reason not to use negative forms of *-(y)Iş* when it comes to denoting events, it appears that whileboth *-(y)Iş* and *-mE* can denote the occurrence of an event, *-mE* is more preferable for lackthereof.

Therefore, for the two tests that indicate the *-(y)Iş* nominal in (53) is perfect, there appear to be semantic or pragmatic explanations. These criteria then appear to provide a reliabletoolkit in distinguishing imperfect nominals from perfect nominals.

4.2.2. Denotation

Our second set of tests aimed to first classify imperfect *-(y)Iş* nominals as denoting either manner or an eventuality, and then, if a nominal denotes an eventuality, determine what type of eventuality it denotes. Of the 86 tokens that were marked as imperfect in the previous step, 73 tokens were annotated as eventuality-denoting and 13 were annotated as manner-denoting by both annotators. There was no disagreement in this step.

Table 5. Annotation Results for Denotation Tests Created by Annotator I and II

ANNOTATORS / CATEGORIES	ANN I	ANN II
EVENTUALITY	73	73
MANNER	13	13

Eventuality-denoting tokens were then categorized into five types of eventualities. Of the 73 tokens, 26 were marked as states, 21 were marked as culminations, 8 were marked as processes, 9 were marked as culminated processes and 1 was marked as a point by both annotators. There was disagreement for 8 tokens, 7 of which were tokens marked as a culmination by one annotator and a culminated process by the other.

Table 6. Annotation Results for Types of Eventualities Created by Annotator I and II

ANNOTATORS / CATEGORIES	ANN I	ANN II
STATE	26	26
CULMINATION	21	28
PROCESS	9	8
CULMINATED PROCESS	16	9
POINT	1	2

Here's an example of how we analyzed each token:

(57) Öksürüşü bile bir başkaydı sanki.
'Even her way of coughing seemed different.'

The tests to determine the type of denotation are type of container, *şekli/biçimi/tarzı* replacement, *-mE* replacement and explicit manner. This semantic criteria, naturally, requires more of a qualitative analysis and usually not all tests are applicable to each example. For instance, explicit manner test only checks if manner is explicitly stated.

If it is, then it is considered to be a good indicator that the nominal itself denotes an eventualityand not manner. However, lack of explicit manner indicates nothing, so it is not an efficient test for most examples. Therefore, for each token, the most applicable tests werechosen. The process was carried out as follows:

Table 7. Testing the Denotations

TEST	CRITERION	DENOTATION
Type of container	Is the container one that is likely to be manner-selecting?	*bir başka olmak* ('be different') implies reference to a characteristic of something, making it likely to be manner-selecting.
***-şekli/biçimi/tarzı* replacement**	Does the meaning change when *-(y)IşI* is replaced with "*-(y)Iş* şekli?	*Öksürüş biçimi bile bir başkaydı sanki.* ('Even her style of coughing seemed different') is almost identical in meaning to the original sentence, which indicates that the complement denotes manner.
Explicit manner	Is manner explicitly specified in the *-(y)Iş* complement?	No, which indicates that the complementdenotes manner.

All three tests point to a manner denotation, which is also in accordance with the intuitions of the annotators, so (57) could be categorized as manner-denoting.

(58) Yani soylular meclisinde son sözün kralda **oluşu** gibi…
'Just like the king has the last say in a nobles' council…'

Table 8. Testing Other Denotations

TEST	CRITERION	DENOTATION
***-şekli/biçimi/tarzı* replacement**	Does the meaning change when *-(y)IşI* is replaced with *-(y)Iş şekli*?	... *oluş biçimi* results is a sentence that is semantically quite odd; the complement likely denotes an eventuality.
***-mE* replacement**	When *-(y)Iş* is replaced with *-mE*, is the meaning of the sentence altered?	... *olması gibi*... is identical in meaningto the original sentence, which indicates that the complement denotes an eventuality.

Based on these tests, (58) can be categorized as denoting an eventuality. Its type can easily be identified as a state, because of the copula *ol-*.

Some tokens seem to be ambiguous in terms of their denotations at first sight:

(59) Fethi'nin orda öyle **oturuşu**, annenin yaşlı ve durgun gövdesine bile, bir zamanlarkadın olduğunu anımsatabilecek elektrik yüklüyordu.
'Fethi **sitting** there like that charged even the old and stagnant body of the mother withelectricity that could remind her that she was once a woman.'

Table 9. Testing Trickier Denotations

TEST	CRITERION	DENOTATION
Type of container	Is the container one that is likely to be manner-selecting?	As either reading appears possible - both aneventuality and the manner of something can be responsible for this feeling-, the container does not appear to be selective.
-*şekli/biçimi/tarzı* replacement	Does the meaning change when *-(y)IşI* is replaced with *-(y)Iş şekli*?	*Fethi'nin orda öyle oturuş şekli…* ('The way Fethi sits there like that') validates themanner denotation, but it does not confirm that this was what was meant in the original sentence.
Explicit manner	Is manner explicitly specified in the *-(y)Iş* complement?	The exact manner in which he sat there isnot specified (as in *calmly* or *threateningly*), which would indicate that the *-(y)Iş* nominal itself might be manner-denoting.
-mE replacement	When *-(y)Iş* is replaced with *-mE*, is the meaning of the sentence altered?	*… oturması…* validates the eventuality denotation, but it does not confirm that thiswas what was meant in the original sentence.

The key to identifying the denotation in (59) is the word *öyle* ('in that way, in that manner'). Although we do not know in which manner exactly, the word *öyle* is actuallyan explicit reference to manner. If it were replaced by, for instance, *calmly*, we would categorize the *-(y)Iş* nominal as denoting an eventuality because the entailed manner is due to another constituent and not the *-(y)Iş* form itself. Therefore, reference to unspecified manner is also explicit reference to manner. This distinction classifies (59) as denoting an eventuality. As for its type:

(60) a. Orada öyle oturuyordu.
'He was sitting there like that.'
b. Orada öyle 3 saat boyunca oturdu.
'He sat there like that for 3 hours.'

Both the progressive test in (60a) and the *… boyunca* test in (60b) suggest that this eventis a process.

When each example is inspected carefully for each (applicable) criterion, and the contributions of other constituents to the denotation is considered, these criteria appearto provide a reliable toolkit in distinguishing manner-denoting -*(y)Iş* nominals from eventuality-denoting -*(y)Iş* nominals.

4.2.3. Factivity

Our last set of tests aimed to classify eventuality-denoting -*(y)Iş* nominals as factive or non-factive. Of the 73 tokens, 53 tokens were annotated as factive, 8 were annotated as contrafactive and 8 were annotated as non-factive by both annotators. There was disagreement for 4 tokens, where Annotator I annotated the token as factive and Annotator II annotated it as non-factive.

Table 10. Annotation Results for Factivity Tests Created by Annotator I and II

ANNOTATORS / CATEGORIES	ANN I	ANN II
FACTIVE	56	54
CONTRAFACTIVE	8	8
NON-FACTIVE	9	11

Here's an example of how we analyzed each sentence:

(61) Vaktin akışı yavaşlamıştı sanki.
'The flowing of time seemed to have slowed down.'

The tests to determine the factivity status of the complement are negation, question, modal and antecedent of a conditional. For each test, the criterion is simple: The

presupposition that the event denoted in the complement has to stand in the modified version of the container. The process was carried out as follows:

Table 11. Testing Factivity

TEST	MODIFIED VERSION	FACTIVITYSTATUS
Negation	Vaktin akışı yavaşlamamıştı sanki. 'The flowing of time seemed to have sloweddown.'	Factive
Question	Vaktin akışı yavaşlamış mıydı? 'Had the flowing of time slowed down.'	Factive
Modal	Vaktin akışı yavaşlayabilirdi. 'The flowing of time could have have slowed down.'	Factive
Antecedent of aconditional	Vaktin akışı yavaşlamış olsaydı, bunu hissederdik. 'If the flowing of time had slowed down, we would have sensed it.'	Factive

All of these modifications serve to negate or question the certainty of the slowing downof time. However, the complement's status is not affected; it is derived from *Vakit akar/aktı.* ('Time flies/flew.') and the fact that it does or did remains true, so we can conclude that the *-(y)Iş* complement is factive.

Although the initial aim was to categorize complements as factive and non-factive, the analysis showed that contra-factive (Holton, 2017) complements should also be noted. That is, the presupposition that the event absolutely did not happen does stand when the tests are applied to the original sentence. These examples are also classified to be factivein this study (in that a preposition stands the factivity tests), but pointed out as contra- factives as a side note.

Here's an example:

(62) (...) toplantıya Manuel'in **katılmayışı** tuhaftı.
'(…) Manuel's not attending the meeting was odd.'

Table 12. Testing Contra-factivity

TEST	MODIFIED VERSION	FACTIVITY STATUS
Negation	(...) toplantıya Manuel'in katılmayışı tuhafdeğildi. '(…) Manuel's not attending the meeting wasnot odd.'	Contra-factive
Question	(...) toplantıya Manuel'in katılmayışı tuhaf değilmiydi? '(…) was Manuel's not attending the meetingodd?'	Contra-factive
Modal	(...) toplantıya Manuel'in katılmayışı tuhafolabilirdi. '(…) Manuel's not attending the meeting couldhave been odd.'	Contra-factive
Antecedent of aconditional	(...) toplantıya Manuel'in katılmayışı tuhafolsaydı, bunun hakkında konuşurduk. '(…) if Manuel's not attending the meetingwere odd, we would have talked about it.'	Contra-factive

Once again, none of the modifications alter the truth condition of the fact that Manuel did not attend the meeting, they negate or question the bizarreness of the eventuality, sothe presupposition stands.

4.3. Reliability

The tests and criteria for annotation were agreed upon by the two annotators beforehand. Then, the annotations were carried out independently. The annotations were checked for inter-annotator agreement (Artstein, 2017) after the independent annotations. The kappa values were calculated using The Online Kappa Calculator (Randolph, 2008). For this calculation, the number of cases, the number of possible categories and the number of raters are set; then, for each case, the number of annotations for each category are listed. For instance, for the denotation tests we had 86 cases, two categories (manner-denoting and eventuality-denoting) and two raters. Given that Category 1 is "manner-denoting" and Category 2 is "eventuality-denoting, if both annotators annotate a case to be manner-denoting, Category 1 is scored as 2 and Category 2 is scored as 0, or vice versa. If one annotator annotates a case as manner-denoting and the other annotator annotates is as eventuality-denoting, each category gets a score of 1. If an annotation process is reliable, that is, the criteria are clear and annotations made by different people mostly correspond, the kappa value (Randolph, 2005) is expected to be higher than 0.80.

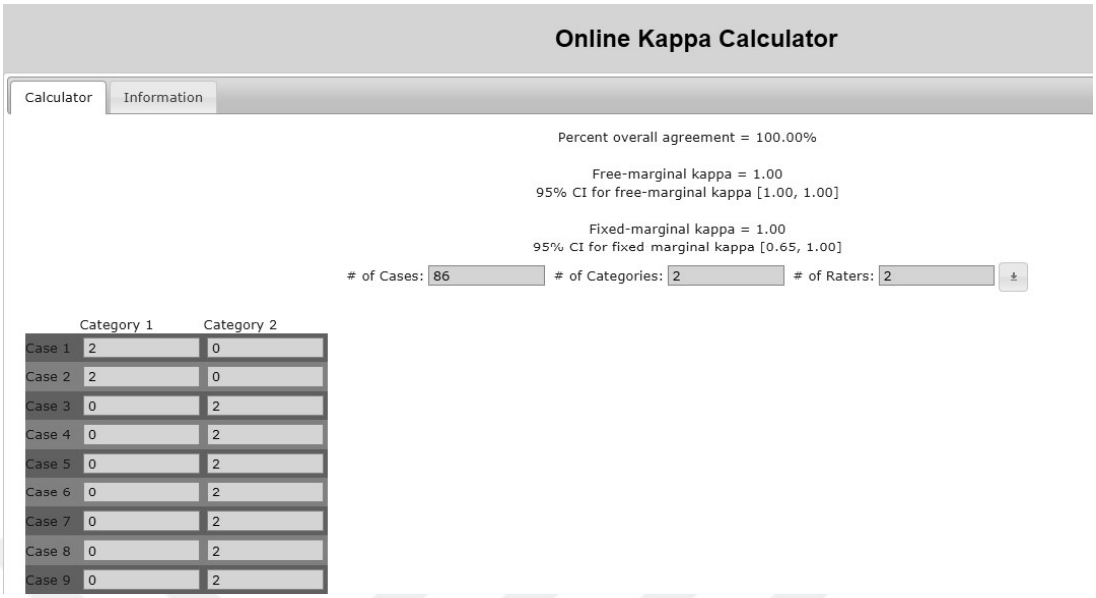

Figure 1. Online Kappa Calculator

For the perfect versus imperfect distinction, with 339 tokens to be marked and two possible categories, there were 6 disagreements. The free-marginal kappa value is 0.96, 95% CI [0.94, 0.99]. For the denotation tests, with 86 tokens to be marked and two possible categories, there were 0 disagreements. The free-marginal kappa value is 1.00, 95% CI [1.00, 1.00]. For the classification of types of eventualities, with 73 tokens to be marked and five possible categories, there were 8 disagreements. 7 of these disagreements are between the categories of culmination and culminated process, which differ from one another based on extended time only. The free-marginal kappa value is 0.86, 95% CI [0.77, 0.95]. For the factivity tests, with 73 tokens to be marked and three possible categories, there were 4 disagreements. The free-marginal kappa value is 0.92, 95% CI [0.84, 1.00].

These scores indicate that the annotation criteria were clearly defined and different annotators mark the data similarly following the pre-defined process, that is, the annotation process was reliable.

CHAPTER 5

RESULTS

In this section, we provide details on the quantifiable results of our analyses. For each set of tests, we state how many tokens were classified into each category by both annotators. The number of tokens that were annotated differently and the inter-annotator agreement that was measured for each set of annotations are provided in the previous section. The implications of these results are interpreted and detailed in Section 6.

5.1. Perfect versus Imperfect

The whole dataset was subjected to this set of tests to identify imperfect nominal. For the first set of tests, we had 339 tokens to be categorized as either perfect or imperfect. 247 tokens were categorized as perfect and 86 tokens were categorized as imperfect by both annotators. Out of the 6 tokens that were labeled differently by two annotators, 5 were were later agreed upon to be imperfect nominal and one as a perfect nominal, but they were subsequently removed from the dataset and not considered for the next set of annotations because their marking was not accomplished by following the annotation process. The distribution of the remaining 333 tokens in this category is listed below:

Table 13. Distribution of perfect and imperfect nominals

Category	**Tokens**	**Percentage**
Perfect -*(y)Iş* nominal	247	74 %
Imperfect -*(y)Iş* nominal	86	26 %

5.2. Denotation

After the initial categorization, 86 sentences that were agreed upon to be including an imperfect -*(y)Iş* nominal were subjected to the second set of tests and annotated as either denoting manner or eventuality. For the second set, 73 tokens were marked as eventuality-denoting and 13 were marked as manner-denoting by both annotators. There was no disagreement. The distribution of the 86 tokens in this category is listed below:

Table 14. Distribution of Manner and Eventuality Denotations

Category	Tokens	Percentage
Denoting manner	13	15%
Denoting eventuality	73	85%

73 sentences in which the *-(y)Iş* nominal denoted an eventuality were then sub-categorized into 5 types of eventualities. Unlike the other tests that included only two categories, this test included five categories, and there was more disagreement between the annotators, but it is still in the range to be considered mostly reliable. The major disagreement is identified to be concerning the categories culmination and culminated process, which are distinguished by the fact that the latter is extended over time. The 8 items that caused disagreement were left unmarked because they were not reliably marked by following the annotation process. The distribution of the types of eventualities in the remaining 65 tokens is as follows:

Table 15. Distribution of Types of Eventualities

Category	Tokens	Percentage
State	26	40%
Point	1	2%
Process	8	12%
Culmination	21	32%
Culminated Process	9	14%

5.3. Factivity

Finally, 73 tokens that were agreed upon to be denoting an eventuality were subjected to the last set of tests. This test was limited to eventuality-denoting complements because complements that denote manner are assumed to be factive (Karakoç and Herkenrath, 2016) in that they either denote the manner of a single, specific eventuality or a general characteristic of something that has been demonstrated at least once, unless the factive interpretation is blocked by the mood of the container. For this set of tests, 53 tokens were marked as factive, 8 as contra-factive and 8 as non-factive. The 4 items that caused disagreement were left unmarked because they were not reliably marked by following the annotation process. The distribution for the remaining 69 tokens in this category islisted below:

Table 16. Distribution of Factivity

Category	Tokens	Percentage
Factive	53	77%
Contra-factive	8	11.5%
Non-factive	8	11.5%

CHAPTER 6

DISCUSSION & CONCLUSION

6.1. Perfect versus Imperfect

In an effort to analyze the semantics of imperfect *-(y)Iş* nominals (Vendler, 1967), the first aim of this thesis was to be able to suggest a method to distinguish them from perfect *-(y)Iş* nominals. We devised or adapted a set of five separate tests for this purpose, whichare lexicalised sense, compounding, negation, adverbial modification and *-mE* replacement; the first two indicating that the nominal is perfect and the others indicating that the nominal is imperfect. Two annotators applied these five tests to each example in the dataset and annotated each token according to the results of these tests. The agreement of these two independent annotators was significantly high, which indicates that the application of this set of tests is a consistent method of making this classification.

As example (53) in Section 4.2.1 illustrates, none of the tests suggested are individually fail-safe. While three tests indicate that a particular nominal is imperfect, the other two may be indicating that it is a perfect nominal. Due to the complex and compositional nature of language, for a single criterion to be definitive, a plethora of possible combinations of nominals and containers would have to be tried and tested; and even then,although the exceptions might be detected, they may not be fully explained, for pragmaticpossibilities are infinite. However, the use of these tests as a set, and inspecting the odd- ones-out for individual examples when they come up appears to be a practical and mostlyreliable tool to distinguish perfect and imperfect *-(y)Iş* nominals.

Out of 339 examples, 86 of them were imperfect nominals. This finding suggests that *- (y)Iş* is used relatively less frequently in imperfect nominals, and most occurrences of *- (y)Iş* are lexicalized items where it functions as a derivational morpheme. This may be due to the characteristics of *-(y)Iş.* It has a tendency to be used in factive complements. Although rarely, it can be preferred in non-factive complements, but these instances oftenhave a potential to be factive which is blocked by the container (Section 3.3.1). This possibly limits the frequency of its use in comparison to the similar morpheme *-mE*, whichcan be used in constructions of either factivity status. Further analysis of the morphemes *-(y)Iş* and *-mE* regarding the frequency of their occurrences in factive constructions couldprovide more insight on this issue.

The semantic tests also work as a way to crosscheck the decisions in the perfect versus imperfect distinction. The denotation distinction is not applicable to perfect nominals, soif a perfect nominal is mistakenly annotated as imperfect, the denotation tests will fail in classifying it as denoting manner or an eventuality. We have not encountered this as a problem, which verifies that the first set of tests are reliable in identifying imperfect nominals.

6.2. Denotation

The second step was the denotation tests. The morpheme *-(y)Iş* has mostly been studied in reference to its potential to denote manner (Erdal, 1998). A thorough, formal descriptionof when it denotes manner is what we would have wanted to achieve, but a more realistic approach requires that, initially, we have to be able to systematically identify what a *-(y)Iş* nominal denotes. Therefore, the second aim of the thesis is twofold, we intend to suggest a method to identify whether an imperfect *-(y)Iş* nominal denotes an eventuality or manner, and, if it denotes an eventuality, a method to identify what type of eventuality it denotes.

For these purposes, we first applied four tests to determine the type of denotation: type of container, *şekli/biçimi/tarzı* replacement, *-mE* replacement and explicit manner. Two annotators considered the previously-identified imperfect nominals with regard to these tests and annotated them accordingly. Once again, the inter-annotator agreement was high, which suggests that this set of tests is a consistent method for identifying the denotation of a *-(y)Iş* clause.

We further annotated eventuality-denoting instances of *-(y)Iş* into sub-categories of eventuality types: state, point, process, culmination or culminated process. This classification was based on criteria not devised by us but adapted to Turkish from Moens and Steedman (1988), based on criteria like how the verbal roots of *-(y)Iş* nominals agree with different aspects and what implications they have, and which time adverbials they can be used with. Although not as high as those in previous tests, the agreement betweenthe annotators for this classification also indicates that the annotation process was reliable.

Our results suggest that manner-denoting *-(y)Iş* nominals are in fact more rare than eventuality denoting ones. It is worth noting that, as the morpheme *-(y)Iş* generally attracts researchers' interest (Erdal 1998, Göksel and Kerslake 2005) due to its potential to entailmanner, denoting manner is apparently not the main function of the morpheme *-(y)Iş*. The manner-entailing nature of *-(y)Iş* is still more remarkable because it is the only morphemethat can denote manner in a nominal in Turkish and how or when it denotes manner are still questions worth investigating.

As we have mentioned before in Section 4.2.1., Karakoç and Herkenrath (2016) state that-*(y)Iş* forms tend not to be negated, as the manner in which something was not done is unlikely to be described. In total, only 11 of the examples in our dataset of 339 tokens were in the negative form *-mEyIş*. Perfect nominals are never in this form. As for imperfect nominals (86 in total), most examples in our dataset denoted eventualities and only 11 of them were in the form *-mEyIş*. We only found 13 examples denoting manner, but none ofthe items that denote manner were negatives, supporting Karakoç and Herkenrath's view.Our analysis suggests that *-(y)Iş* nominals are only used negatively if they denote an eventuality, and this use is also relatively rare.

It should be noted here that this tendency of Turkish to not use *-(y)Iş* nominals negativelycauses a difficulty for the negation test we suggest to identify imperfect *-(y)Iş* nominals (Section 3.1.3). While it is grammatically and semantically possible to use the negative form *-mEyIş* in an imperfect nominal, the resulting expression may sound unnatural because it is a less preferred form. If the imperfect nominal denotes manner, it is also semantically odd. However, the test is still valid because when we attempt to transform a perfect *-(y)Iş* nominal into its negative form, the result is unquestionably unacceptable. If the result is peculiar in meaning but somewhat acceptable, it indicates that we are dealingwith an imperfect nominal.

As for eventuality types, almost two thirds of eventuality-denoting *-(y)Iş* nominals in ourdataset denote either a state or a culmination, while the remainder denote either a point, process or culminated process. Although the limited data that we have is insufficient to elaborately comment on the distribution of these five categories, it is somewhat safe to say that *-(y)Iş* nominals tend to be preferred for two types of eventualities: states or culminations. Further analysis considering a variety of eventualities of these kinds and thefrequency of their combinations with morphemes like *-(y)Iş, -DIK* or *-mE* could provide more insight on this issue.

That being said, an important point to note is that the prevalence of state-denoting *–(y)Iş* nominals may be due to the tendency of *–(y)Iş* to take eventualities as states. It reflects an eventuality from the speaker's perspective and rather than denoting the eventuality as an action, it freezes it into a state or a scene. Perfect nominals formed with *–(y)Iş* like *geçiş* ('passage') or *çıkış* ('exit') could also be considered in a similar fashion. This, however, is a premature observation at this point and further research on *–(y)Iş* nominals is necessary to clarify this assumed function.

6.3. Factivity

Finally, we analyzed eventuality-denoting *-(y)Iş* nominals in terms of their factivity status, assuming manner-denoting ones to be factive, unless this interpretation is blocked by thecontainer. We used the set of tests suggested by Geurts (1999), so the method was pre- established. Two annotators applied these to the examples and annotated them accordingly. The agreement of these two independent annotators was again quite high, which confirms reliability of the process.

Expectedly, most sentences included factive *-(y)Iş* complements; around 80% of the examples in our dataset are factive. Also as expected, negative uses of *-(y)Iş*, or contra- factives, are relatively rare, with only 11.5% of eventuality denoting nominals beingof this kind.

After the initial annotation, the non-factive examples were examined to detect what contributed to their non-factive status when *-(y)Iş* clauses have a tendency to be factive.

One of them was an instance of a specific structure in Turkish that uses both the positiveand the negative form of the verb, indicating uncertainty:

(63) Bu bütünün önemli unsurlarından birisi yapıların, ki büyük çoğunluğu binalardır, belli bir kalite garantisi, belli bir kalite düzeyi tutturarak yapılıyor olma terbiyesinin olup**olmayışı** (...)
'One of the important elements of this whole is whether there is a principle of constructing the buildings, the majority of them are buildings, with a certain quality guarantee, a certainquality level.'

This clause does not derive from a self-standing statement in the first place, and no presupposition as to its truth value can arise. It corresponds to *whether or not* in English. Naturally, if there is no presupposition, it cannot be factive. The non-factive interpretation is not due to *-(y)Iş.* It is, however, interesting that despite its factive tendency, *-(y)Iş* is stillused in this definitively non-factive structure.

Two examples were in future indicative containers, which, as explained in Section 3.3.1.,necessarily blocks a factive interpretation because the event only has a potential to happenat the time of speaking.

And finally, the rest of the non-factive examples (seven, in total) we examined were general descriptions or definitions, essentially not denoting a specific occurrence of an eventuality but denoting that sort of eventuality, exemplified below:

(64) Batı gibi modernizmin relativist ayağının hakim olduğu toplumsal yapılarda, aykırı taleplerin kamu sahasına **çıkışı** belirli supaplar vasıtasıyla mümkün kılınabiliyor.
'In social structures such like the West where the relativist leg of modernism is dominant, contrarian demands **becoming** public is made possible through certain valves.'

The *-(y)Iş* complement here is very clearly not a perfect nominal. It is a clause derived from the sentence below:

(65) Aykırı talepler kamu sahasına çıkar. 'Contrarian demands become public.'

It also clearly does not denote the manner of the eventuality; its denotation is directly to the event itself. Evidently, and actually quite reasonably, if the container expresses a general condition and not a specific event, the factive interpretation is blocked. That is not to say that (65) never happened; in fact, we can infer from (64) that (65) has happened atleast once in history, but it does not presuppose the fact that it did happen in the way that we expect factivity to work. When tested for negation, for instance, we lose the assurancethat (65) has indeed happened:

(66) Batı gibi modernizmin relativist ayağının hakim olduğu toplumsal yapılarda, aykırı taleplerin kamu sahasına **çıkışı** belirli supaplar vasıtasıyla mümkün kılınamıyor.

‘In social structures such like the West where the relativist leg of modernism is dominant, contrarian demands **becoming** public is not made possible through certain valves.’

This examination of non-factive examples demonstrates that just like future indicatives block the factive interpretation because they refer to a potential eventuality, present indicatives can block the factive interpretation when they do not refer to a single instanceor multiple instances of a specific eventuality but are in the form of a description or definition. We have not encountered any examples of non-factive past indicatives, which confirms the assumption that unless blocked by the container, a -*(y)Iş* clause is factive.

It should also be noted that although future containers block the factive interpretation of a -*(y)Iş* clause, its interpretation is still different from a -*mE* clause. This could perhaps be explained in reference to Reichenbach’s (1947) concept of speech time, event time, and reference time.

(67) a. Ahmet’in askerden **gelişi** herkesi sevindirecek.
‘Ahmet’s **return** from military duty will delight everyone.’
b. Bu kararname çıktığında Ahmet’in askerden **gelmesi** mümkün olacak.
‘When this decree is passed, it will be possible for Ahmet to **return** from militaryduty.’

In (67a), the event is expected to happen in the future, so it cannot be factive in speech time. However, when the time comes for the event to happen (i.e. event time), the eventuality denoted in the clause will have to have happened. It will be factive once we reach the relevant point in time. The -*mE* nominal in (67b) cannot be interpreted this way. When the time comes, it will only be possible for Ahmet to come and whether he will come or not is irrelevant. In fact, as event time in this case is the point where the decree is passed, at that specific point in time, Ahmet will not have come yet, so it is also non- factive for event time. This distinction could allow a more comprehensive description of the factivity of -*(y)Iş* clauses regardless of the tense of the container.

6.4. Conclusion & Future Directions

In this study, we suggested a multi-step analysis to first distinguish perfect and imperfect -*(y)Iş* nominals, then identify the denotations of imperfect nominals as manner or eventuality and classify the types of eventualities in eventuality-denoting nominals, and finally, check the factivity status of eventuality-denoting imperfect -*(y)Iş* nominals. To verify if the method we suggest is reliable and accurate for these purposes, we annotated a sample set of data based on the criteria we suggested.

The contributions of the thesis are as follows:

1. We proposed and applied tests for (i) the distinction of perfect and imperfect -*(y)Iş* nominals, (ii) the distinction of eventuality-denoting and manner-denoting -*(y)Iş* nominals, (iii) the distinction of the types of eventualities -*(y)Iş* nominals denote, and (iv) the identification of the factivity status of a -*(y)Iş* nominal.

2. We tested the validity of the criteria suggested by applying them to a sample dataset.

3. We showed the tendency of -*(y)Iş* nominals to denote an eventuality rather than manner

4. We showed that -*(y)Iş* nominals predominantly denote states and culminations over other types of eventualities.

5. We showed that Moens and Steedman's (1988) classification of eventualities is consistently applicable to Turkish data to categorize -*(y)Iş* nominals' denotations

6. We constructed a dataset that can be beneficial for researchers working on the semanticsof nominalization and event semantics.

The findings of our own application of the tests allow further understanding of the semantics of imperfect -*(y)Iş* nominals. We identified that, while manner denotation in - *(y)Iş* nominals attracts more attention because this structure is unique in Turkish in terms of this denotation, the tendency of -*(y)Iş* nominals is actually to denote an eventuality. Wealso identified that the eventuality denoted in a -*(y)Iş* nominal is most likely a state or a culmination, as this classification had not been applied to these structures before.

Furthermore, the dataset we annotated in this study may also be beneficial for computational research. For instance, Kober, de Vroe and Steedman (2019) shows that state-of-the-art NLP models have difficulty in detecting aspectual information. This study provides a useful dataset for computational studies on aspect and event detection.

There remain, however, limitations of the study. Most of them are due to the limited dataset that we used. This is only a preliminary study to demonstrate that the tests we suggest could be used reliably for the intended purposes; analyses on a much larger dataset is essential for any conclusive remarks on the issues we are concerned with. While the denotation tests contribute as a method to identify the -*(y)Iş* nominals that denote manner, the distribution of the denotations of -*(y)Iş* clauses is still not strictly defined, Further studies on manner- denoting -*(y)Iş* nominals in comparison to eventuality-denoting ones could lead to a more comprehensive description of this denotation, and hopefully also allow a deeper understanding of the concept of manner

entailment. Likewise, our findings on the factivity of -*(y)Iş* clauses support previous research on the issue, but we do not offer an extensive description of containers that allow the factive interpretation of a -*(y)Iş* nominal. However, we suggest an approach in relation to event time that might make this distinction more clear for future research.

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APPENDIX A

ANNOTATION GUIDELINE: PERFECT VS IMPERFECT

1-Read the text.
2-Identify the –(y)Iş nominal in the text.
3-Consider the nominal according to the criteria in steps 4-8. A + label indicates an imperfect nominal, whereas a – label indicates a perfect nominal.
4-Consider if the nominal is semantically specialized (i.e. rather than being the direct nominalized form of the verb it is derived from, it has acquired a distinct meaning and can be found in the lexicon)
    -if yes, label it -lex; if no, label it +lex
5-Consider if the nominal is part of a compound noun.
    -if yes, label it -comp; if no, label it +comp
6-Check if the nominal can be negated.
    -if yes, label it +neg; if no, label it –neg
7-Check if the nominal can be modified by an adverb.
    -if yes, label it +adv; if no, label it –adv
8-Check if –(y)Iş can be replaced with –me.
    -if yes, label it +me; if no, label it –me
9- If at least 4 out of 5 labels are +, mark the nominal as imperfect.
10-If at least 4 out of 5 labels are -, mark the nominal as perfect.
11-If a nominal gets 3 + and 2 – labels or vice versa, reconsider the labels. Analyze why it is labeled differently by different criteria (see the example on page 43).
12-If you identify a semantic or pragmatic reason in step 11, mark the item accordingly. If not, leave it unmarked/undecided.

APPENDIX B

ANNOTATION GUIDELINE: DENOTATION

1-Read the text.
2-Identify the –(y)Iş nominal in the text.
3-Consider the nominal according to the criteria in steps 4-7. A + label indicates an eventuality-denoting nominal, whereas a – label indicates a manner-denoting nominal.
(If a test is not applicable to the nominal in question for a semantic or pragmatic reason, skip that step, add no labels and apply the next test.)
4-Check if the container of the nominal is an eventuality-selecting one.
    -if yes, label it +cont; if no, label it –cont
5-Replace –(y)IşI with –(y)Iş şekli and check if the sentence is semantically acceptable.
    -if yes, label it -şekli; if no, label it +şekli
6-Replace –(y)Iş with –mE and check if the denotation of the nominal changes.
    -if yes, label it –me; if no, label it +me
7-Check if manner is explicitly stated.
    -if yes, label it +exp; if no, label it –exp
8-If all the labels are +, mark it as eventuality-denoting.
9- If all the labels are -, mark it as manner-denoting.
10- If different criteria are labeled differently, reconsider the labels.
11-If you identify a semantic or pragmatic reason in step 10, mark the item accordingly. If not, leave it unmarked/undecided.

APPENDIX C

ANNOTATION GUIDELINE: TYPE OF EVENTUALITY

1-Read the text.
2-Identify the –(y)Iş nominal in the text.
3-Consider the nominal according to the criteria in steps 4-6.
4-Check if the eventuality denoted is a state. If yes, mark it as a state and skip steps 5-10.
5-Check if the eventuality denoted is extended in time.
    -if yes, label it +ext; if no, label it –ext
6-Check if the eventuality denoted has a significant consequence.
    -if yes, label it +conseq; if no, label it –conseq
7-If a token is labeled –ext and –conseq, mark it as a point.
8-If a token is labeled –ext and +conseq, mark it as a culmination.
9-If a token is labeled +ext and –conseq, mark it as a process.
10-If a token is labeled + ext and +conseq, mark is as a culminated process.

APPENDIX D

ANNOTATION GUIDELINE: FACTIVITY

1-Read the text.
2-Identify the –(y)Iş nominal in the text.
3-Consider the nominal according to the criteria in steps 4-7. A + label indicates factivity, whereas a – label indicates non-factivity. For a + label, a fact that is presupposed in the clause must still be presupposed in the modified version of the sentence (i.e. the modification should only affect the container)
4-Negate the container and check if the presupposition stands.
    -if yes, label it +fact; if no, label it –fact
5-Change the container into a yes/no question and check if the presupposition stands.
    -if yes, label it +fact; if no, label it –fact
6-Add a modal auxiliary to the container and check if the presupposition stands.
    -if yes, label it +fact; if no, label it –fact
7-Modify the container into the antecedent of a conditional and check if the presupposition stands.
    -if yes, label it +fact; if no, label it –fact
8-If all the labels are +, mark it as factive.
9- If all the labels are -, mark it as non-factive.
10- If different criteria are labeled differently (highly unlikely), reconsider the labels.
11-If you identify a semantic or pragmatic reason in step 10, mark the item accordingly. If not, leave it unmarked/undecided.