

Semantic Operators and the Modal Meanings of the Suffix –Ar Anlamsal İşleçler ve –Ar Biçimbiriminin Kiplik Alt-anlamları

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Özet: Bu çalışma Türkçe eylem çekim eklerinden –Ar biçimbirimi ile *anlamsal işleçler* (semantic operators) arasındaki ilişkiyi ortaya koymayı amaçlamaktadır. Çalışmanın başlıca varsayımı –Ar biçimbiriminin *evrensel niceleyici* (universal quantifier), *varoluşsal niceleyici* (existential quantifier) ve *genel anlam niceleyicisi* (generalized quantifier) ile –Ar biçimbiriminin kodlayabileceği olası kiplik alt-ulanları arasında bir ilişki olduğudur. Çalışmada sunulan incelemeler, –Ar ile işaretlenmiş bir yüklem eğer varoluşsal niceleyici ile işlenmiş ise *sayılı* (assumptive) ya da *istek kipliği* (volitive) kodladığını göstermektedir. Eğer diğer iki olasılık ise genel anlam niceleyicisi ya da evrensel niceleyicinin işleridir. Genel anlam niceleyicisi *alışkanlık kipliği* (habitual) anlamını belirginleştirirken, genel geçer doğruları veya kurallarla yapılan düzenlemeleri bildiren tümcelerdeki işlecin evrensel niceleyici olduğu ortaya konmaktadır. Bu vargı, adı geçen işleçleri belirginleştiren dilsel birimlerin –Ar ile işaretlenmiş kiplik anlamını da belirginleştirdiği sonucunu doğurmaktadır.

Anahtar Kelimeler: *kiplik, -Ar biçimbirimi, Genel Anamlılık, Alışkanlık, Sayılı, İstek, Gerçek Kipi, Geniş zaman*

Abstract: This study aims at defining the nature of the relation between the semantic operators and the modal meanings of the suffix –Ar. Our main hypothesis is that there is a relation between the universal quantifier, the existential quantifier and the generalized quantifier and the modal meanings expressed by the suffix. The analysis we present shows that if the sentence is operated by the existential quantifier the assumptive or volitive meaning is coded by –Ar. The generic quantifier triggers the habitual or lexical stative meaning. The regulations or scientific facts can be expressed if the sentence is operated by the universal quantifier. Accordingly, the linguistic items that specify one of the named operators also specify the related modal value.

Key words: *Modality, The Suffix –Ar, Genericity, Habituality, Assumptive, Volitive, Realis, Aorist*

1. Introduction

In both linguistics and logic studies many semantic operators functioning on the components of language have been defined. The basic two of these are the universal (\forall) and the existential (\exists) quantifiers. The universal quantifier refers to all of the elements of a set without any exceptions while existential refers to only some of the elements of the set and leaves the others out. These two quantifiers have been used in logic and in natural language studies. However, human language has some differences from the language of logic. One of these is that you can make generalizations on the objects and situations. That is, humans may refer to only the sum of prototypical objects or a total sum of actual (and/or factual) situations leaving the exceptions out. Thus, neither the universal nor the existential quantifier can be used to define such a function. In consequence, another operator, the generalized quantifier is defined to refer to this kind of functions in natural language (Krifka et. al. 1995).

As a semantic operator, generalized quantifier inevitably influences the semantic properties of the sentence in which it functions, more specifically on different components of the sentence, i.e. the NPs and the predicates. Within this in mind, among the many questions to appear in linguistics, the study mainly focuses on the answers to the following questions:

- i. What are the possible modal meanings that may be expressed by $-Ar$?
- ii. What is the role of the semantic quantifiers in determining the modal meanings coded with $-Ar$?

Being motivated by these questions, our study aims at defining the modal values specified by $-Ar$ and the role of semantic operators on these sentences. We basically claim that semantic operators are determinant on the modal values of the sentences marked with $-Ar$.

2. Generalized quantifier

The generalized quantifier is a semantic operator in the same way as the existential or universal quantifiers. However, different from these operators, the generalized quantifier is not one that functions in logic. It rather seems to be a product of the human language system, which can make statements about propositions that can be denied, falsified, or the truth will not be affected by the exceptional cases. In that sense, it is different from the universal quantifier in that it allows exceptions. And different from the existential in that it behaves like the universal by making reference to all of the situations, which have occurred and/or has some possibility to occur. Since the literature has its own discussion about generalized quantifier, it may be useful for us to define what we understand when we say the generalized quantifier. That is; we take

generalized quantifier as a dyadic operator which operates on NPs and/or situations (Krifka et. al. 1995).

The Modal Meanings of *-Ar*

-Ar is a suffix which has been labeled as one of the many tense-aspect-modal markers in Turkish linguistics (Aksu-Koç 1988; Erguvanlı 1996; Underhill 2000; Yavaş 1980, 1982, etc.). The traditional grammar studies and many linguistic studies define *-Ar* as the aorist (sentences (1)-(5)).

- (1) O zaman belki canlan-ır-Ø. (Gencan 2001: 312)
that time maybe come.alive-AOR- 3SNG
'Maybe, s/he comes alive then.'
- (2) Mehmet geç gel-ir-Ø. (Göksel and Kerslake 2005: 343)
Mehmet late come-AOR-3SNG
'Mehmet arrives/will arrive home late.'
- (3) Evet, sen-inle evlen-ir-im. (Göksel and Kerslake 2005: 363)
yes, you-with get married- AOR-1SNG
'Yes, I will marry you.'
- (4) Sabah-lar-ı sadece kahve iç-er-im. (Göksel and Kerslake 2005: 343)
morning-PL-ADV only coffee drink- AOR-1SNG
'I drink only coffee in the mornings.'
- (5) Yaz kış bura-da otur-ur-uz. (Gencan 2001: 312)
summer winter here-LOC sit-AOR-1PLR
'We live here summer or winter.'

Uzun (1998, 2004) claims that naming *-Ar* as the aorist or a TAM marker cannot explain some possible structures in the language. He supports one-morpheme/one-function approach which, as he claims, fits more with the nature of the language, when the behaviors of the other suffixes, such as the person markers, are considered. After Uzun (1998), Uzun and Erk-Emeksiz (2003) show why it is impossible for *-Ar* to be a tense or aspect marker and present reasons to mark it as a modal marker in detail. In specific, Uzun and Erk-Emeksiz (2003) put forward that *-Ar* is a modal suffix, in opposition to the general view saying that it is a TAM marker with different functions in different sentences. Furthermore, they show that the modal value of the sentence with *-Ar* is determined by generalized quantifier operating in the sentence. However, they do not go into further detail of what the scope of the generalized quantifier is in

sentences with different modal values. In this study we follow the approach by Uzun (1998) and take -Ar as a modal suffix.

In the following sections, we define modal meanings encoded by the suffix and analyze the roles of the semantic operators on the named modal meanings. We present the formal representations of the default sentences with defined modal meanings.

3.1. Assumptive uses of -Ar

The propositional modal meaning expressed by -Ar is the assumptive. Sentences (6)-(9) state assumptions about the subject of the sentences. In sentence (6), the speaker is stating his/her assumption that his mother is going to buy a lottery ticket. In sentence (7), the speaker is assuming that it is going to rain and in sentence (8), the speaker assumes the 3rd person subject is going to attend the party.

(6) Anne-m bu sene piyango bilet-i al-ir-Ø.
 mother-1SNG this year lottery ticket-3SNG buy-AOR- 3SNG
 ‘Mom will buy a lottery ticket this year.’

(7) Bu gece yađmur yađ-ar-Ø.
 this night rain rain-AOR- 3SNG
 ‘It’s going to rain tonight.’

(8) Parti-ye mutlaka gel-ir-Ø.
 party-DAT certainly come-AOR- 3SNG
 ‘S/he is certainly coming to the party.’

(9) O zaman belki canlan-ir-Ø. (Gencan 2001: 312)
 that time maybe liven-AOR- 3SNG
 ‘Maybe, s/he comes alive then.’

One common feature of these sentences is that each of them has future reference. *Bu sene*, *bu gece*, *partiye* and *o zaman* are time adverbials that highlight the future reference. Except for the time adverbial, the modal adverbs *belki* (maybe) and *mutlaka* (certainly) in (8) and (9) also trigger the assumptive reading.

(10) Mehmet ge gel-ir-Ø. (Göksel and Kerslake 2005) (Göksel and Kerslake 2005: 343)
 Mehmet late come-AOR-3SNG
 ‘Mehmet arrives/will arrive home late.’

Sentence (10) is unspecified in terms of the temporal reference. Since there are not any time adverbials to make future reference the only choice, it may be read with present time reference, as well as, with future reference. In such sentences, we need

to read the sentence with future reference to get the assumptive reading. With present reference, the sentence will have habitual meaning. In this sense, sentence (10) is ambiguous.

Likewise, sentences (6)-(9) all have the same ambiguity if we omit the time adverbials.

(11) Anne-m piyango bilet-i al-ir-Ø.
 mother-1SNG lottery ticket-3SNG buy-AOR - 3SNG
 ‘Mom will buy/buys a lottery ticket.’

(12) Yağmur yağ-ar-Ø.
 rain rain-AOR- 3SNG
 ‘It’s going to rain/rains.’

(13) Mutlaka gel-ir-Ø.
 certainly come-AOR- 3SNG
 ‘S/he is/ certainly coming/will certainly come.’

Sentence (13) seems to have the assumptive reading as prior to the habitual meaning. However, it is still possible to read the sentence as “*He usually attends outdoor parties.*” We are well aware that without a particular type of adverbial, the sentences above are not natural. In the natural language use a native Turkish speaker would feel the necessity to specify the adverbial either to specify the assumptive or habitual meaning.

Since there is not any crucial difference between the grammatical structures of these sentences (all being simple sentences with/without adverbial complement), there should be a semantic factor that triggers each of these readings.

Subject NP *annem* in (6) and (11), third person subjects in (8) and (13), *Mehmet* in (10) are all specific unique entities. *Yağmur* in (7) is a categorical noun phrase. That is, all of the NPs used in (6)-(13) share the property of being non-generic. Then, it cannot be the semantic property of the NPs in these sentences which leads to a particular meaning. That is, some semantic fact about the VP should be the triggering factor. We have stated the assumptive meaning becomes blurred when we omit the time adverbials used in sentences (6)-(8). The verbs in sentences (6)-(9), namely *al-* (to buy), *gel-* (to come), *yağ-* (to rain), and *canlan-* (to come alive) are action verbs. There is not a significant difference between the semantic properties of these verbs. These facts lead us to the conclusion that it is the semantic feature of the predicate that makes the difference.

When we say that sentences (6)-(9) have future reference we mean to say that the events expressed in these sentences are single events to occur at a particular temporal

interval after the utterance time. It is also the case with the future readings of the sentences (10)-(13). In sentences (10)-(13), on the other hand, the predicate do not necessarily refer to a single event. If read with present reference, the predicates refer to a collection of actions that are presented as characteristic behaviors of the subjects.

There are two possible quantifiers that may create the latter meaning: the universal quantifier and the generalized quantifier. The existence of the universal quantifier excludes the possibility that there has been an incident where the subject did not perform the named act. Universal quantifier may operate only if the subject has behaved in the same way under the same conditions, still behaves as such and will certainly go on doing so.

$$(14) \frac{\exists xy(Ox \wedge y; x \rightarrow Pxy)}{\forall xy(Ox \wedge y; x \rightarrow Pxy)}$$

and some y

There is some x such that x is a person and for all y, if there is x, then x perform y

However, this cannot be true for the sentences (10)-(13). These sentences will all be true even if there are a number of incidents where the subject did not/does not behave in this particular way. Take sentence (11), for instance. Even if the subject does not buy a lottery ticket for once or twice, the sentence will still be true. Because if we analyze the majority of the cases and make a conclusion about the way she behaves we say that it is true that she has the habit to buy a lottery ticket. In this case, the generalized quantifier is the only possible operator on the predicate, since it does not exclude the possibility that the subject has not accomplished the action for a couple of incidents. The generalized quantifier suggests that the expressed event is not a single one but a collection of the same event which has happened at certain temporal intervals and likely to happen in the future, if the conditions are met. In short, we can conclude that it is the generalized quantifier that gives the habitual reading to the sentences (10)-(13).

$$(15) \frac{\exists xy(x: \alpha, \text{GEN} \rightarrow \text{GEN} y (Pxy \text{ in } s))}{\forall xy(x: \alpha, \text{GEN} \rightarrow \text{GEN} y (Pxy \text{ in } s))}$$

and some y

There is some x such that x is an individual and for most of the situations and most of y, x performs the act on y in s.

The analysis above shows that predicates marked by -Ar are assumptive on the condition that both the subject NP and the predicate are operated by the existential quantifier.¹ The formal representation of the default assumptive sentence, then, should be as in the following:

$$(16) \exists l'x (\text{afternow } (l') \wedge x: \alpha; \diamond P(x) \text{ at } l')$$

There is some l' and some x such that l' is some time after now and x is an individual, and it is possible that x performs the act at l'.

In section 4, we present a detailed discussion on the ambiguous occurrences of the suffix -Ar.

3.2. Volitive uses of –Ar

Sentences (17)-(19) are sample sentences used by Göksel and Kerslake (2005) to illustrate how –Ar is used to express commitments. Göksel and Kerslake (2005: ~~page~~ **363**) ~~number~~ claim that sentences (17)-(19) “... *express commitment or promise entered into at the moment of the utterance*”. They state that this use of –Ar is possible when the aorist is used with the 1st person subject. They suggest that such uses are possibly ambiguous since they could be interpreted as assumptives if the subject is not the 1st person. They suggest that the only reason why these sentences are read as volitives, but not as assumptives is the 1st person subject.

(17) Evet, sen-inle evlen-ir-im. (Göksel and Kerslake 2005: 363)

yes you-with marry-AOR-1SNG

‘Yes, I will marry you.’

(18) Akşama kadar dön-er-im.

evening-DAT till return-AOR-1SNG

‘I will be back by evening.’

(19) Hiç kimse-ye söyle-me-Ø-m.

none body-DAT tell-NEG-AOR-1SNG

‘I won’t tell it to anyone.’

(20)-(22) are further examples of the –Ar with the first person subject. The speakers of these sentences (17)-(22) are stating that they are willing/agreeing to perform a particular action or fulfill a particular situation. That is why we prefer to use the term ‘volitive’ to categorize the uses of –Ar with the first person subject.

(20) (Madem öyle) bir bilet al-ir-im.

(since so) a ticket buy-AOR-1SNG

‘(If so) I will buy a lottery ticket.’

(21) Akşam-ki parti-ye gel-ir-im.

evening-REL.CL party-DAT come-AOR-1SNG

‘I will attend the party tonight.’

(22) Fasulye-den bir tabak daha ye-r-im.

bean-ABL a plate more eat-AOR-1SNG

‘I am going to/want to eat one more plateful of beans.’

Our analysis supports Göksel and Kerslake's (2005) suggestion that there is little difference between the semantic features of the assumptive and volitive sentences. Similar to the assumptive sentences, namely (6)-(8), the volitive sentences have unique, specific subject NPs, i.e. the speaker. Furthermore, the events expressed in volitive sentences refer to a single event that is thought to take place after the utterance time, i.e. in the future, just like the events expressed in assumptive sentences. The only difference between the volitives and the assumptive uses of the suffix –Ar appears to be the subject person of the sentences. The third and second person subjects make the sentences assumptive, whereas the first person subject makes a volitive sentence.² However, we suggest that it is not the first person subject that specifies the volitive meaning.

The event expressed in (17) refers to a single future event, and this is the only reading with this sentence. Since the verb 'to get married' (*evlenmek*) is usually not a repeating act. If modified with different time adverbials or plural object NPs the events in (18)-(22) may as well refer to present events.

It is clearly possible for the events in these examples not to refer to a single future event. For instance, the same events in sentences (17)-(22) are specified by generic adverbials in sentences (23)-(28). With the generic reference, the predicates in these sentences gain reference to repeating events with the habitual meaning.

- (23) Gönül Yazar: Ben her bahar evlen-ir-im.
 Gönül Yazar: I every spring get married-AOR-1SNG
 'G.Y.: I get married (to a new guy) every spring.'
- (24) Akşam-lar-ı erken dön-er-im.
 evening-PLR-ADV early return- AOR-1SNG
 'I get home early in the evenings.'
- (25) Arkadaş-larım-ın sırr-lar-ını hiç kimse-ye söyle-me-Ø-m.
 friend-1SNG-GEN secret-3PLR-ACC none body-DAT tell-NEG-AOR-1SNG
 'I do not tell the secrets of my friends to anyone.'
- (26) Her sene bir bilet al-ır-ım.
 every year a ticket buy-AOR-1SNG
 'I buy a lottery ticket every year.'
- (27) Parti-ler-e katıl-ır-ım.
 party-PLR-DAT attend-AOR-1SNG
 'I attend to parties.'

- (28) Fasülye piş-tiği-nde en az iki tabak ye-r-im.
 bean cook-NOM-loc most less two plate eat-AOR-1SNG
 'I eat more than one plateful of beans whenever mom cooks it.'

Sentences (23)-(28) express characteristic behavior of the subject.

Similar to (6)-(9), sentences (17)-(22) are operated with the existential quantifier.

- (29) $\exists x$ (x: speaker; Willing to xP)

There is some x such that x is the speaker and x is willing to perform the act.

What makes (23)-(28) different from sentences (17)-(22) is again the generalized quantifier operating on the situations.

- (30) $\exists xy$ (x: speaker \wedge GENsGENy (Pxy in s))

There is some x ^{and some y} such that x is the speaker and for most of the situations and most of y, x performs the act on y in s.

Therefore, it is the existential quantifier that makes the sentences marked with –Ar assumptive or volitive. The only difference between the assumptives and volitives, on the other hand, seems to be the first person subject.

3.3. Habitual

Habituality is one of the most commonly defined meanings of sentences marked with –Ar. Our analysis in §3.1 and §3.2 show that habitual meaning is directly related to the generalized quantifier. We have already put forward that if the generalized quantifier operates on the situation then the sentence is habitual. Sentences (10)-(13) and (23)-(28) are habitual sentences where a characteristic behavior of an individual is expressed. Further examples are below:

- (31) Her akşam iç-er-Ø, kumar da oyna-r-Ø. (Gencan ³¹¹2001: ~~page number~~)
 every evening drink-AOR-3SNG gamble DA play-AOR-3SNG
 'S/he drinks every night and gambles.'

- (32) Ali sigara iç-me-z-Ø. (Gencan ^(Göksel and Kenstake 2005: 343)2001: ~~page number~~)
 Ali cigarette smoke-NEG-3SNG
 'Ali does not smoke.'

- (33) Ali sigara iç-er-Ø.
 Ali cigarette smoke-AOR-3SNG
 'Ali smokes.'

- (34) Sabah-lar-ı sadece kahve iç-er-im.
 Morning-PLR-ADV only coffee drink-AOR-1SNG
 'I drink only coffee in the mornings.'

- (35) Yaz kış bura-da otur-ur-uz. ^(Banguoğlu 1959:462) ~~(Gencay 2001: page number)~~
 summer winter here-LOC sit-AOR-1PLR
 'We live here summer or winter.'

In sentences (31)-(35) the predicates describe repeating actions or continuous situations where individuals are involved. Drinking, gambling, spending summers at a particular place, smoking are all repeating actions, and liking chips is a continuous situation. Sentences (31)-(35) describe a repeating characteristic behavior of the subject of the sentence. For this reason, we define the uses of –Ar in (31)-(35) as habitual.

Habituality is concerned with the repeating actions which are characteristic behaviors of the subjects. That is, they need action verbs as predicates. However, this is not the only possibility. Stative verbs may as well be used as predicates of sentences and be marked with –Ar. If the predicate is not an action verb but a stative verb, then the sentence marked with –Ar defines the characteristic feature of the individual. In this case, the predicate expresses an ongoing situation, not a repeating action or a group of repeating actions.

- (36) Sinem fasulye-yi çok sev-er-Ø.
 Sinem bean-ACC very like-AOR-3SNG
 Sinem likes beans a lot.
- (37) Patates kızartma-sı-nı çok sev-er-im.
 potato fry-PLR-ACC very like-AOR-1SNG
 I like chips a lot.

Sentence (36) describes a continuing situation of the subject. It defines a characteristic feature of the individual rather than a repeating event. Sentence (36) is, thus, not a habitual sentence. Sentences of this kind define the unchanging/stable situation of the subject. Sentences which use stative verbs as their predicates cannot be named as habitual, but are labeled as lexical statives (generalization over situations).

In short, we can say that if the predicate is operated by the generalized quantifier and the verb in the predicate is an action verb, then the sentence is habitual. The formal representation of the defined habitual sentences can be shown as follows.

- (38) $\exists x \forall y (x: a \wedge \text{GENsGENy} (Pxy \text{ in } s))$

There is some ^{and some y} x such that x is an individual and for most of the situations and most of the 'y's, x performs the act on y in s.

The subject NPs of the previously analyzed habitual sentences, namely (31)-(35), are specific. In fact, the subject NPs of the habitual sentences need not be specific. Generic NPs may as well be used as subjects of generic sentences. It is possible to talk about the characteristic behavior or habits of a class or a whole kind. For instance, in sentences (39)-(42), the subject NPs are not specific but denote a class of individuals.

- (39) Amerikalılar çok süt iç-er-Ø. (Göksel and Versteke 2005:340)
 American-PLR very milk drink-AOR-3SNG
 ‘Americans drink lots of milk.’
- (40) Kadın-lar çok konuş-ur-Ø.
 woman-PL very talk-AOR-3SNG
 ‘Women talk too much.’
- (41) Anne-ler çocuk-lar-ı-nı sev-er-Ø.
 mother-PL child-PL-GEN-ACC love-AOR-3SNG
 ‘Mothers love their children.’
- (42) Erkek çocuk-lar-ı yaramaz ol-ur-Ø.
 male child-PL-GEN naughty be-AOR-3SNG
 ‘Boys are naughty.’
- (43) Kedi-ler süt iç-e-r.
 cat-PL milk drink-AOR-3SNG
 ‘Cats drink milk.’
- (44) Tilki tavuk ye-r-Ø.
 fox chicken eat-AOR-3SNG
 ‘Fox eats chicken.’
- (45) Aslanlar yemek koku-su al-ınca kükre-r-Ø.
 lion-PL food smell-GEN take-TADV roar-AOR-3SNG
 ‘Lion roars when it smells food.’

Sentences (39)-(42) express the habits/features of a whole class. In this sense, they are habitual/lexical statives in just the same way as sentences with individual NPs, namely (31)-(36), are. It is possible to formulate these sentences as in (46):

For most of x and most of y , if x defines a kind/class then x performs act on y .

(46) $\text{GEN}_x \text{GEN}_y (x: \text{kind/class} \rightarrow (\text{Pxy}))$

~~There is some x such that x is a kind or a class and for most of the situations and most of y , most of x perform the act on y .~~

In short, we define two semantic structures for habitual sentences. The first type has a specific NP as the subject which is followed by a generic predicate. The subject NP of the second kind is also generic (referring to a whole class of individuals or a kind). If the predicate of the second type of sentences expresses a repeating or characteristic action of the subject NP, then the sentence is habitual. The predicates with stative verbs, though, are labeled as lexical statives, not as habituals.

3.4. Realis

Sentences with kind referring NPs and habitual predicates are usually analyzed as generic sentences in the literature. Alternatively, Dahl (1975), Heim (1982), and Hatav (1997) accept the view that such sentences are operated by the universal quantifier rather than the generic. In our view, sentences (39)-(45) are operated by the generalized quantifier. This is because eating chicken is not a distinctive feature of the animal species fox or drinking milk is not a part of the definition of cats. That is why these actions can be seen as repeating characteristic behaviors of the whole kind. Nonetheless, it is also possible for the predicate to express a distinguishing behavior of the species. To us, sentences (47)-(49) are examples where the predicate expresses the distinctive features of the species or expresses a part of the definition of the kind referring NP.

(47) *Kaplumbağa yavaş yürü-r-Ø.* (Göksel and Kerlake 2005: 340)
 Turtle slow walk-AOR-3SNG
 'The turtle walks slowly.'

(48) *Kedi miyavla-r-Ø.*
 cat meow AOR-3SNG
 'The cat meows.'

(49) *Kasap et sat-ar-Ø.*
 butcher meat sell-AOR-3SNG
 'The butcher sells meat.'

In sentence (47), for example, walking slowly is a distinctive feature of the turtle species. Meowing is a part of the definition of a prototypical cat. One can define a cat as "an animal that meows". Selling meat, in sentence (49), is again part of the definition of the word *kasap* 'butcher'. The dictionary definition of the butcher is "a person whose job is cutting up and selling meat in a shop". Since the predicates in (47)-(49) express

a part of the definition of the subject NPs, we claim that they are universally true as a result of their propositional content, similar to the analytical sentences. Therefore, we formulate sentences like (47)-(49) using the universal quantifier, not the generic.

$$(50) \quad \cancel{\exists x(Kx \rightarrow P x)} \quad \forall x (Kx \rightarrow P x)$$

For all x, if x is a kind, then S/he(it) performs P)

Sentences (47)-(49) are not the only possible examples of universally true sentences marked with -Ar. Except from the sentences with kind referring NPs, sentences which express scientific facts or regulations by rules are also operated with the universal quantifier. The universal truth of the sentences has more to do with the propositional content of the sentences rather than the functioning operators. Further examples of this kind are (51)-(54).

$$(51) \quad \text{Güneş} \quad \text{doğu-dan} \quad \text{doğ-ar-}\emptyset.$$

sun east-ABL rise-AOR-3SNG

'The Sun rises in the east.'

$$(52) \quad \forall x(R(x) \rightarrow (Sx))$$

For every x, x is the unique individual that is sun and x rises.

$$(53) \quad \text{iki} \quad \text{kere} \quad \text{iki} \quad \text{dört} \quad \text{ed-er-}\emptyset.$$

two times two four make-AOR-3SNG

'Two times two makes four.'

$$(54) \quad \forall xy(Exy)$$

For every x and for every y, x is equal to y.

$$(55) \quad \text{Rektör-ü} \quad \text{Cumhurbaşkanı} \quad \text{ata-r-}\emptyset.$$

rector-ACC president nominate-AOR-3SNG

'The President nominates the rector.'

$$(56) \quad \forall xy(x \text{ president} \wedge y \text{ rector} \rightarrow Nxy)$$

For every x and for every y, if x is the president and y is the rector, x nominates y.

Sentence (51) is a universally true sentence due to the propositional content. Real world facts make the proposition that the Sun rises in the east true in every situation. Sentence (53) is also true by its nature, i.e. it expresses a scientific fact which is analytically true. Sentence (55), on the other hand, is more like sentences (48) and (49) in view of the fact that it has a definitive value. No context is necessary for sentence (55) to have a truth value. That is why it is universally true.

Thus, it seems possible to conclude that if a sentence is universally true due to its propositional content then it marks realis mood.

4. Generalized Quantifier and Ambiguous Readings of -Ar

Ambiguous readings of the modalized utterances make one of the main problems in semantic studies. The problem of ambiguity applies to the utterances modalized by -Ar as well. Sentence (57) is a typical example of ambiguous expressions with -Ar. The subject NP of the sentences is specific and unique. Thus, for the predicate, there are two possible modal values for the sentence: assumptive and habitual, (57)a and (57)b respectively.

(57) Nevin süt iç-er-Ø.
Nevin milk drink-AOR-3SNG
'Nevin drinks milk.'

- a. Before going to bed tonight, I think that Nevin is going to drink milk.
- b. It is a habit of Nevin to drink milk every night.

We have defined in §3.1 and §3.3 that the generalized quantifier is the main difference between the two sentences. If we read the sentences as in (57), then the formal representation of the sentence will be as shown in (58). The assumptive reading, namely (57), is operated by the existential quantifier. However, if we read the sentence with the generalized quantifier as in (57), then we should use (58) to represent the semantic structure of the sentence. Evidently, the only difference between the two semantic structures, thus the two different readings of the same sentence, is the type of the quantifier operating on the predicate.

(58) $\exists x \exists y (I: \text{afternoon} \wedge x: \text{Nevin} \wedge y: \text{milk} \rightarrow \diamond \text{Drink } xy \text{ at } I')$

There is some x and some y such that if x is Nevin and y is milk, it is possible that x drinks y at I'

(58) $\exists x \exists y (x: \text{Nevin} \wedge y: \text{milk}; \text{GENsGENy} (\text{Drink } x \text{ y in } s))$

There is some x and some y such that x is Nevin and y is milk, and for most of the situations and most of y x drinks y in s.

Göksel and Kerlake (2005) claim that such ambiguity does not hold for sentences with first person subject. However sentence (59) displays the same ambiguous pattern with sentence (57). It is not clear in sentence (59) whether drinking coffee is a volition or habit of the speaker.

- ⁶⁰~~(59)~~ Kahve iç-er-im.
Coffee drink-AOR-1SNG
'I drink coffee.'

Ambiguity of ⁶⁰~~(59)~~ also can be solved by under-specifying the operating quantifier. The formal representation in ⁶¹~~(60)~~ shows the volitive reading where the speaker is willing/agreeing to drink coffee. The representation in ⁶²~~(61)~~, on the other hand, shows the semantic structure of the habitual reading where the speaker is stating that drinking coffee is a habit for her/him.

- ⁶¹~~(60)~~ $\exists xy (x:\text{Speaker} \wedge y:\text{coffee}; (\text{Willing } x (\text{drink } y)))$

There is some x and some y such that x is the speaker, y is coffee and x is willing to drink y.

- ⁶²~~(61)~~ $\exists xy (x:\text{Speaker} \wedge y:\text{coffee}; \text{GENsGENy} (\text{Drink } xy \text{ in } s))$

There is some x and some y such that x is the speaker and y is the coffee and for most of the situations and most of y x drinks y in s.

Sentences with stative verbs as their predicates also are ambiguous. They may have either the generalized or the existential quantifier. If the predicate is generic, then the sentence is lexical stative. If not, the sentence is episodic, i.e. not expressing a state but an action of starting to be in a certain state. It is the existential quantifier which operates on the predicate of ⁶³~~(62)~~ where the episodic reading of ⁶⁴~~(63)~~ is shown. On the other hand, ⁶⁵~~(64)~~ paraphrases the lexical stative reading of ⁶⁶~~(65)~~, with the generalized quantifier. The formal representation of ⁶⁷~~(66)~~ is given in ⁶⁸~~(67)~~.

- ⁶³~~(62)~~ Elif suñie sev-er-Ø.
Elif soufflé like-AOR-3SNG
'Elif likes soufflé.'

- ⁶⁴~~(63)~~ When she eats it for the first time, I'm sure Elif is going to like soufflé.

- ⁶⁵~~(64)~~ $\exists l'xy (\text{afternow } (l') \wedge x:\text{Elif} \wedge y:\text{soufflé}; \diamond \text{Like } xy \text{ at } l')$

There is some l', some x and some y such that if l' is sometime after now, x is Elif and y is soufflé, it is possible that x likes y at l'.

- ⁶⁶~~(65)~~ It is a property of Elif that she likes soufflé.

- ⁶⁷~~(66)~~ $\exists xy (x:\text{Elif} \wedge y:\text{soufflé} \wedge \text{GENsGENy} (\text{Like } xy))$

There is some x and some y such that if x is Elif and y is soufflé, for most of the situations x and most of y, x likes y.

Note, however, that the named ambiguity does not hold for generic subject NPs, since it is not possible to make specific statements for the whole species. If we try to build a sentence of this kind, i.e. a kind referring NP with a non-generic predicate, the generic reading of the NP is lost. This is the exact reason why NPs in sentences (67)-(69) are group denoting non-specific, and non-generic.

(67) Kedi bu kap-ta-ki süt-ü iç-er-Ø.
 cat this bowl-LOC-REL.CL milk-ACC drink-AOR-3SNG
 'The cat is probably going to drink the milk in this bowl.'

(68) Aslan bu yemeğ-in koku-su-nu al-ınca kükre-r-Ø.
 lion-PLR this food-GEN smell-GEN-ACC take-TADV roar-AOR-3SNG
 'The lion will probably roar when he smells this food.'

(69) Amerikalı-lar bu sabah kahvaltı-da süt iç-er-Ø.
 American-PL this morning breakfast-LOC milk drink-AOR-3SNG
 'Most probably, Americans are going to drink milk for breakfast today.'

In sum, we suggest that the ambiguity of a sentence marked with –Ar may be solved by specifying the generalized or existential quantifier on the predicate. The linguistic items to specify existential quantifier may be deontic items such as *bugün* 'today', *yarın* 'tomorrow', *burada* 'here', *şurada* 'there', *bizim evde* 'at our place', *Kasım* 'in November', *şu kaptaki* 'in this bowl', *tabağım* 'in my plate' etc. The generalized quantifier may be specified with the adverbs with generic meaning,³ such as *her sabah* 'every', *genellikle* 'usually', *sabahları* 'in the mornings', *yazları* 'summertime', *asırlardır* 'for centuries', etc.

5. Conclusion

We have tried throughout the study to show the relation between the nature and scope of the semantic operators and the modal value of the sentences marked with –Ar. The examples seem to have proven that the existence of existential operator, generalized quantifier or universal operator is determinant on the modal value to be coded by –Ar.

In the study we present three main claims about the modal value of –Ar. If the subject NP and the predicate are both operated by the existential quantifier, then the predicate refers to a single future event/state and –Ar indicates assumptive (or volitive with the first person subject). If the predicate is operated by the generalized quantifier, then –Ar codes habitual (or lexical stative if the predicate is stative). The universal quantifier, on the other hand, makes the sentence realis. It is possible to summarize our claims in the table below.

	Existential Quantifier	Generalized Quantifier	Universal Quantifier
Subject NP	+	+ /-	+
Predicate	+	+	+
Future reference	+	-	-
Modal Value	Assumptive/Volitive	Habitual/Lexical Stative	Realis

TABLE: The scope of the quantifiers and the triggered modal meanings of -Ar.

It is a fact that -Ar is not the only suffix to be specified by the three semantic operators. The study here supports the idea that analysis of other modal suffixes in relation to semantic operators may lead to further insights to the system of modality. Furthermore, this study may also illuminate how semantic operators influence the modal values of sentences.

Notes

¹ We should note that some of the NPs used in sentences above are compatible with the generalized quantifier. For example, *bir piyango bileti* (a lottery ticket) may have the generic reading (taxonomic reading) in a different sentence.

(i) Bir piyango bilet-i-nde 7 hane-li bir şans numara-sı bulun-ur-Ø.
a lottery ticket-POSS3SNG-LOC 7 digit-with a luck number-POSS3SNG exist-AOR-3SNG
'There is a seven digit luck number on a lottery ticket.'

However, it is not possible for it to have generic reading in sentence (6) in text. The non-generic subject NP and the non-generic predicate, which refers to a single event, hinder this possibility.

Mainly, it is the situation that determines the NP to be specified by GEN. If the situation is non-generic, it seems that it is not possible for the NP to be generic.

² The uses of -Ar as in the following sentences with 2nd and 3rd person subjects are to be explained by pragmatic factors such as the authority of the speaker on the hearer. Sometimes the speaker states an offer by using -Ar. In these cases -Ar is chosen if the speaker wants to strengthen the offer, and depending on the pragmatic factors such utterances may function as orders.

(i) Aaa. Gel-ir-Ø gel-ir-Ø, parti-ye Ayşe de gel-ir-Ø.
Aaa. Come-AOR-3SNG come-AOR-3SNG party-DAT Ayşe DE come-AOR-3SNG
'Oh! I'm sure Ayşe will be at the party.'

(ii) Ben-i kır-ma-zsin, herhalde. Parti-ye gel-ir-sin.
I-ACC break-NEG -AOR2SNG I guess party-DAT come-AOR-2SNG
'I guess you won't break my heart. You will be at the party.'

These uses should be analyzed in pragmatic terms. That is why we do not discuss such uses in this study.

- ³ We should note, however, that these two kinds of linguistic items may occur in the same sentence. If so, the temporal adverbials will have higher scope, thus determine the type of the sentence. If the temporal adverb has future reference then assumptive mood (volitive with 1st person subjects) will be the only possible modal value. If the temporal adverb is a generic one, the sentence will be habitual (or lexical stative with stative verbs).

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