Event Structure, Scale Structure and the Representation of Selected Accomplishment Verbs in Turkish and Korean*

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1. Introduction

This paper compares the two approaches of aspectual composition, namely the mereological approach of Krifka (1989) and the scalar semantic approach of Kennedy and Levin (2000). The so-called approaches are proposed to explain the aspectually variable behavior of a group of accomplishment verbs in English. We attempt to provide a cross-linguistic analysis from Turkish and Korean to reinforce the claims of scalar semantic approach on the representations of the aspectually variable accomplishment verbs. Thus, the aim of this paper is threefold: (1) To argue that scalar semantic approach provides a unified explanation to deal with the aspectual variability observed in a group of Turkish and Korean accomplishment verbs. (2) To illustrate that aspectually variable accomplishment verbs of Turkish and Korean share a common property in their basic verb meanings, namely a "degree meaning". Following Kennedy & Levin (2000), we claim that these verbs have a degree variable as part of their lexical argument structure. (3) To account for the effect of pragmatic explanations in interpreting the aspectual variability of the accomplishment verbs.

For this purpose, the study first reviews the lexical aspectual properties of accomplishment verbs, specifically verbs of creation/consumption, change of state verbs, and verbs of directed motion. Then it presents the problem observed in the above mentioned verbs, and discusses how mereological approach, and the scalar semantic

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approach explain the variable aspectual properties of the accomplishment verbs. The present study will also show that incremental theme or quantized objects by itself does not determine the telicity of these verbs, it is the degree of change, the scalar property of the verb meaning, that ascribes telic interpretations to such verbs. The paper will finally focus on explicit and implicit bounds which are required to achieve telic interpretation of the predicates, and it will emphasize the role of implicit or contextual bounds in determining the adverb duality observed in the above mentioned accomplishment verbs.

2. Aspectual Properties of Accomplishment Verbs

The verb meanings have aspectual and temporal structures. The inherent aspectual properties of the verb (Aktionsarten) is described and classified by Vendler (1967) who proposes a four-way typology of aspectual verb classes, and identifies four classes of verbs based on temporal properties such as temporal duration, temporal termination, and internal temporal structure (or the lack of it). According to this classifications, verbs, actually verb phrases denote states, activities, accomplishments or achievements. States have no internal structure or change during the span of time over which they are true, e.g. love somebody. An activity is an ongoing event with internal change and duration, but no necessary temporal end point, e.g. walk along the seaside. Accomplishments are events with duration and obligatory temporal endpoint e.g. built a house. Achievements have an instantaneous endpoint and are without duration, e.g. arrive in Antalya.

Since this study focuses on accomplishment verbs, particularly verbs of creation/consumption, change of state verbs and verbs of directed motion, we briefly go over their lexical aspectual properties. Accomplishment verbs, in general, head verb phrases that denote events of change which have natural endpoints. In other words, the nature of the event itself determines its endpoint. For example, If John built the house the event is over when John finishes building the house. Incrementality is the essential part of an accomplishment meaning. Events denoted by accomplishment verb progress gradually toward their completion. In terms of the predicate decomposition, accomplishment verbs are generally assigned a complex event structure. They are composed of two subevents: the causing event—typically an activity—and the change of state it brings about.

(1)\[ [x \text{ ACT}] \text{ CAUSE } [\text{BECOME } [y \text{ < STATE> }]]] \\
(E.g. Break, dry, melt, harden, open)
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bir sandöviç ye- sandwichul mekta ‘eat a sandwich’, bir bardak bira iç- mekcwu han chanul mashita ‘drink a glass of beer’, eski istasyonu yık- oredwen yegul heressta ‘demolish the old station’, bir ev inşaa et- chibul chista ‘build a house’ are the canonical examples of verbs of creation/consumption. Common view on their lexical aspectual properties is that they have affected incremental themes. The event described by these predicates is assumed to be temporally bounded. For example, when we say John built a house it entails that the house is completely built.

(2) John built a house. =>The house is completely built.
   John-Nom house-Acc build-past-dec house-Acc completely
   build-passive-past-dec

The temporal endpoint of these verbs is provided by the nature of the referent of the internal argument, that is, the object. In short, in verb of creation/consumption, theme is involved in determining the extent of the event.

Change of state verbs, as the subclass of accomplishment verbs, constitute an aspectually non-uniform class. Some of its members like break, explode are denoting telic events and they are punctual, e.g. the bomb exploded at two o’clock / * for 2 hours. Others like freeze are also telic but durative, e.g. The ice cream froze in two hours / for two hours. On the other hand, another group of verbs derived from gradable adjectives called as ‘degree achievements’— a name given by Dowty (1979)— set apart from other change of state verbs. Simply because, they do not necessarily entail the attainment of an end state, although they entail a change in a certain direction. Consider the sentence the road widened, when a road widens, it becomes wider but it need not necessarily become wide. soğu- shigta ‘cool’ (intr.); soğut- shighita ‘cool’ (tr.); genişle- neolbta ‘widen’(intr.); genişlet- neolbhita ‘widen’(tr.); kuru- maluta ‘dry’ (intr.); kurut- mallita- (tr.) are some sample verbs classified as ‘degree achievements’. What is distinctive for this class of verb is that they occur in a causative alternation.

(3)  a. Çorba soğu-du.
   Swupu-ka shig-ess-ta.
   Soup-Nom cool-past-dec
   The soup cooled.
   b. Deniz çorbay-ı soğut-tu.
   Deniz-ka swupu-lul shig-hi-ess-ta.
Deniz-Nom soup.Acc cool-causative-past-dec
'Deniz cooled the soup.'

Note that change of state verbs involve, incremental theme predicates like evi boya-chibul peintu ch'ilhata 'paint the house', ayakkabi'yı cilala-shinbalul kwangneta 'polish a shoe', or buz kipünü erit-erum taongerilul negta 'melt an ice cube'. Shortly, in change of state verbs the extent of the event of change is determined by the degree of change in the gradable property whose nature is decided by the verb.

As our final class of verbs, yüksel- olagata 'ascend, rise', alçal- haghantata 'descend', düş-tterechita, nemechita 'fall' inherently indicate directed motions. These predicates can be considered as motional counterparts of degree achievements, as maintained by Levin & Rappaport Hovav (1995). The verbs in this class describe motion in a specified direction without necessarily entailing the attainment of a particular endpoint; thus these verbs are not necessarily telic. In verb of directed motion, movement along a path argument determines the extent of the event.

3. The Problem

(4) a. Deniz bir saat boyunca pilav ye-di. (Atelic)
Deniz-ka han shigan tongan pap meg-ess-ta.
Deniz-Nom one hour long rice eat-past-dec
'Deniz ate rice for an hour.'

b. Deniz bir tabak pilav-ı bir saat-te ye-di. (Telic)
Deniz-ka pap han kongi-lul han shigan-e meg-ess-ta.
Deniz-Nom rice one plate.Acc one hour-Loc eat-past-dec
'Deniz ate a plate of rice in an hour.'

(5) a. İşçi-ler yolu üç gün boyunca genişlet-ti. (Atelic)
İlggun-dul-i kil-ul sam il tongan nelb-hi-ess-ta.
Worker-pl-Nom road.Acc three day long wide-caus-past-dec
'The workers widened the road for three days.'

b. Operatör hasta-nın kalp damar-ını iki saat-te genişletti. (Telic)
Wegwanuisa-ga hwancha-ui shimchang hyengwan-ul 2 shigan-e
Surgeon-Nom patient-Gen heart artery-Acc two hour-Loc
nelb-hi-ess-ta.
wide-caus-past-dec
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'The surgeon widened the patient's heart artery in two hour.'

(6)  
   a.  *Su seviyesi*  bir saat boyunca yükseldi. (Atelic)
       Mwuli-i han shigan tongan ollaga-ess-ta.
       Water-Nom one hour long rise-past-dec
       'The water level rose for an hour.'
   b.  *Denizaltı*  bir saat-te yükseldi. (Telic)
       Chamswuham-i han shigan-e ollaga-ess-ta.
       Submarine-Nom one hour-Loc rise-past-dec
       'The submarine rose in an hour.'

In the sentences above, all the variables are kept the same except for the arguments of the accomplishment verbs. Then, we apply the standard test to identify the temporal boundedness of the predicate, that is to say, whether the predicate is telic or not. In this sense, temporal modification of the sentence via adverbials has been cross-linguistically applied aspectual test. As is known, the time span adverbial *in x-time* modifies telic verb phrases, the durative adverbial *for x-time* modifies atelic verb phrases.

The temporal adverbial expression *in* modifies sentences in (4b), (5b), and (6b) where the accomplishment predicates normally head telic verb phrases. On the other hand, (a) counterparts of the sentences in (4), (5) and (6) create the problem. It is observed that accomplishment predicates head atelic verb phrases thus behave as activity predicates since they are modified by temporal adverbial *for*. In short, the aspectual variability in terms of temporal boundedness is observed in Turkish and Korean verbs of creation/construction, change of state verbs—especially degree achievements—and directed motion verbs.

The interaction between the event structure and the argument structure is the source of this particular aspectual variability. The aspectual properties of the verb phrases in verbs of creation/consumption, change of state and directed motion verbs are determined by the semantic properties of the affected argument. Krifka explains this fact under a mereological view as “event-object homomorphism.”

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1 Verbs of creation/consumption and change of state verbs are named as “measure-out verbs” by Tenny (1994), and incremental theme predicates by Dowty (1991).

Krifka (1989, 1992) follows the representation of Lattice model structure to explain the variability detected in accomplishment verbs. He claims that the extent of an accomplishment event is determined by a mapping from the extent of the theme (i.e. the direct object) to the extent of the event. He assigns a part structure to the event and a part structure to the theme. Every part of the object consumed in the event corresponds to the part of the theme. (7) illustrates the formula developed by Krifka (1992) for ‘mapping to event’ relation.

(7) Mapping to events
\[ \forall R[ MAP-E (R) \leftrightarrow \forall e,x, x' [R (e,x) \land x' \leq x \rightarrow \exists e'[e' \leq e \land R (e', x')]]] \]
(where \(\leq\) represents two place relation part)

In prose, for an event \(e\) and object \(x\) of which the mapping-to-events relation holds, every part of the object consumed in the event corresponds to a part of the event (Krifka 1992: 39). For example, take the predicate eat a sandwich, the theme or object is a sandwich and the event is eating a sandwich. The extent of the event of eating a sandwich can be determined by looking at what happens to the sandwich. So the event of eating a sandwich can continue only there is some sandwich to be eaten. The endpoint for the event of eating a sandwich is determined when the relevant sandwich is fully eaten.

Under this approach, the parallels between the nominal and verbal domain have been established, and as a result a precise characterization of telicity is proposed. According to Krifka the telicity of accomplishment verbs depends on semantic properties of the direct object. If the predicate is quantized, such as ‘a plate of rice’ or ‘a sandwich’ it is telic. On the other hand, if the predicate is cumulative, that is, if mass or plural noun phrases occur as direct object then it is atelic, as is exemplified in (4).

Mapping from object to event include not only incremental theme verbs such as verbs of creation/consumption, but also verbs of change of state and the motion verbs, as indicated by Tenny (1994). Naturally, Krifka-style and the similar style of analyses of the accomplishment verbs by Dowty (1991) and Tenny (1994) identify three distinct types of mapping relations from the object to the event denoted by the three classes of accomplishment verbs. Thus, in verbs of creation/consumption, telicity is determined by a mapping from the structure of the incremental theme to the event, e.g. Mary ate the sandwich. In change of state verbs, telicity is determined by a mapping from a property of the incremental theme to the event, e.g. Mary polished up the table. In verbs of directed
motion, telicity is determined by a mapping from the location of the moving object on a path to the event, e.g. the plane ascended 5 feet.

At this point, the questions that are addressed in this paper are whether it is possible to explicate the aspectual behavior and the semantics of accomplishment verbs in a unified manner. If this is possible, how these verbs are represented in the lexicon. The answers for these questions are found in the scalar semantic approach developed by Hay, Kennedy and Levin (1999) and Kennedy and Levin (2000).

5. Scalar Semantic Representation of Accomplishment Verbs

Scalar semantics aims at developing a comprehensive analysis of the role of scalar representation within lexical categories. All lexical categories — nouns, verb, adjectives, adverbs, prepositions and determiners — have lexical items whose meaning form orderings on objects based on the amount or degree to which some gradable property holds. Among these lexical categories the adjective most clearly involves grading\(^2\), since objects exhibit different degrees they can be ordered accordingly. Similar accounts hold of the verb.

Under this approach, in verb of creation/consumption, change of state verbs and verb of directed motion an argument undergo a gradual change in the degree. As is seen in (8) 'pilav' the rice, in (9) ‘yol’ the road and in (10) uçak 'the plane' show such gradual change in degree.

(8) Deniz bir tabak pilav-ı ye-di.
    Deniz-ka pap han kongi-lul meg-ess-ta.
    Deniz-Nom rice one plate-Acc eat-past-dec
    'Deniz ate a plate of rice.'

(9) İşçiler yol-u 4 metre genişlet-ti.
    Ilggwundul-i toro-lul 4 mite nelb-hi-ess-ta.
    Worker-pl-Nom road-Acc four meters wide-caus-past-dec
    'The workers widened the road 4 meters.'

(10) Uçak 5 feet yüksel-di.

\(^2\) Grading refers to abstract representation of scales, which are metrical and contain a zero point. Set of points in the scale is ordered along some property, such as length, volume, duration, and degrees are formalized as positive or negative intervals on a scale.
Pihenggi-ka 5 pit ollaga-ess-ta.
Plane-Nom five feet ascend-past-dec
'The plane ascended 5 feet.'

The gradual change in the degree is related to the gradable property of the argument which is assumed to move on a scale. It is the volume of rice in (8), the extent of the road in (9), the distance covered by the plane in (10). Briefly, gradable property of an argument is associated with the relevant ‘property scale’ as in (11).

(11) Property scale
   a. Volume of X consumed
   b. Extent of X
   c. Distance gone up by X

Property scale measures the change in the degree to which the property of affected argument of the event undergoes. The property scale in (8) measures how many plates of rice Deniz ate, in (9) how many meters the workers widened the road, and in (10) how many feet the plane ascended. The measure of change is (differential) degree argument — degree of change as named by Hay, Kennedy and Levin (1999). Specifically, if the degree of change (or difference variable) has a maximal value on the associated scale the corresponding event has an endpoint, so the predicate is telic. Contrariwise, if the degree of change has no natural maximum, then the corresponding event does not have an endpoint, and the predicate is atelic. In short, for the so-called accomplishment verbs, the measure lies in the size of the change: it is the difference between the “beginning-state” and the “end-state”. For the sentences between (8) and (10), the size of change is identified as such:

(12)a. Deniz ate rice and lessened its quantity by a plate.
b. The workers widen the road by 4 meters.
c. The plane ascended and the difference between where it began and where it finishes was the distance, which was between zero feet and five feet.

The gradual change of state displayed by the verbs of creation/consumption, change of state verbs and verbs of directed motion is formalized as in (13). Kennedy & Levin (2000) propose the formula in (13) to represent the underlying semantic structure of the so-called verbs.
(13) Gradual change
   a. \( V_D = \lambda x \lambda d \lambda t \lambda e. \) CHANGE \( (P_v (x)) (t)) (d) (e) \)
   b. \([\text{CHANGE} (P (x)) (t)) (d) (e)] = 1 \text{ iff } P (x) (\text{BEG}(e)) + d = P (x) (\text{END}(e)) \)

\( V_D \) illustrates the verbs of gradual change, where \( P_v \) is gradable property associated with the verb. \( x \): object, \( d \): degree, \( P \): property, \( t \): temporal variable.

In prose, \( \text{CHANGE} \) a gradable property \( P \) of an object \( x \) to degree \( d \) is true of an event \( e \) just in the case to which the degree to which \( x \) possesses property \( P \) at the beginning of an event plus \( d \) equals the degree to which \( x \) possesses property \( P \) at the end of an event.

By applying this formula to our accomplishment predicates, one can represent the lexical semantics of verbs of gradual change as such. (Note that these representations ignore the external arguments).

(14) \([\text{eat} (d\text{-much of}) x]= \lambda e. \) \( \text{CHANGE} \) \( (\text{EATEN} (x)) (t)) (d) (e) \)

Deniz \( \text{bir tabak pilav-ı} \) ye-di.
Deniz-ka \( \text{pap han kongi-lul} \) meg-ess-ta.
Deniz-Nom rice one plate-Acc eat-past-dec
'Deniz ate a plate of rice.'
\( \lambda e. \) \( \text{CHANGE} \) \( (\text{EATEN} (\text{rice})) (t)) (\text{a plate}) (e) \)

(15) \([\text{widen} (d\text{-much of}) x]= \lambda e. \) \( \text{CHANGE} \) \( (\text{WIDE} (x)) (t)) (d) (e) \)

İşçiler \( \text{yol-u} \) 4 metre genişle-t-ti.
İlggwundul-i \( \text{toro-lul} \) 4 mite nelb-hi-ess-ta.
Worker-pl-Nom road-Acc four meters wide-caus-past-dec
'The workers widened the road 4 meters.'
\( \lambda e. \) \( \text{CHANGE} \) \( (\text{WIDE} (\text{road})) (t)) (\text{4 meters}) (e) \)

(16) \([\text{x ascend} (d\text{-much of})]= \lambda e. \) \( \text{CHANGE} \) \( (\text{UP} (x)) (t)) (d) (e) \)

Uçak \( \text{5 feet yüksel-di.} \)
Pihenggi-ka \( \text{5 pit ollaga-ess-ta.} \)
Plane-Nom five feet ascend-past-dec
'The plane ascended 5 feet.'
\( \lambda e. \) \( \text{CHANGE} \) \( (\text{UP} (\text{plane})) (t)) (\text{5 feet}) (e) \)
To summarize according to Kennedy & Levin (2000) accomplishment verbs involve a difference variable as part of their lexical argument structure, and that the extent of an accomplishment event is measured by the extent of the difference variable. With this outlook, a scalar analysis of aspectually variable accomplishment verbs supports a unified analysis. Contrary to three distinct mapping relations identified for accomplishment verbs by Krifka-style analysis, there is a single mapping relation in scalar approach. In other words, there is an homomorphism between the structure of degree of change and the progress of the event in accomplishment verbs.

In the rest of this paper, we discuss how the single mapping relation determines the telicity feature of aspectually variable accomplishment verbs in Turkish and Korean.

### 6. Bounds on the Scale and the Telic Interpretation

Degree of change argument is bounded either explicitly (i.e. bounds are set by linguistic materials) or implicitly (i.e. context support the inference of boundedness on the scale). Nature of the bound is determined by the nature of the scale derived from the predicate meaning. Followings are the more likely bounds which are employed to determine the telicity of the predicates.

*Measure phrases*, such as ‘a plate’, ‘4 meters’ explicitly specify the difference value on the scale.

(17) Deniz *bir tabak pilav-ı* bir saat-te / ?? bir saat boyunca ye-di.
    Deniz-ka *pap han kongi-* lul han shigan-e /?? han shigan tongan meg-ess-ta.
    Deniz-Nom rice one plate-Acc one hour-Loc / one hour long eat-past-dec
    'Deniz ate a plate of rice in an hour / ?? for an hour.'

Serial verbs are the linguistic measures for the identification of the difference value in Turkish and Korean.

(18) Deniz dondurmay-ı 5 dakika-da /* 5 dakika boyunca sil-di süpür-dü.
    Deniz-ka aisukulim-ul 5 bun-e / * 5 bun tongan mek-e chiwu-ess-ta.
    Deniz-Nom ice cream-Acc five minute-Loc / 5 minute long eat-affix sweep-past-dec
    'Deniz ate up the ice cream in five minutes / *for five minutes.'

*Goal phrases*, which accompany the verbs, specify the maximal point to be attained on the property scale.
Maximizing adverbs as ‘completely’ specify an endpoint on the property scale which has been reached.

(20) Deniz sandöviçi bir saat-te / * bir saat boyunca tamamen ye-di.
Deniz-ka senduwhich’i-lul han shigan-e /* han shigan tongan ta meg-ess-ta.
Deniz-Nom sandwich-Acc one hour-Loc / one hour long completely eat-past-dec
'Deniz ate the sandwich completely in an hour /* for an hour.'

The scalar properties of base adjective provide implicit information for the bounds on the scale (cf. Hay 1998, Hay, Kennedy & Levin 1999, Wechsler 2002). There are two types of adjectives: closed-scale adjectives and open scale adjectives. Closed-scale adjectives are the ones that map their arguments on the scale with a maximal value (where maximality is relative to adjective's polarity) so the degree achievements derived from these adjectives are telic as is seen in (21).

Closed-scale adjectives: kuru, marunta ‘dry’; boş, pitan ‘empty’

(21) Pantalon-um yarım saat-te /?? yarım saat boyunca kuru-du.
Bachi-ka ban shigan-e / ?? ban shigan tongan malgechi-ess-ta.
Pants-Nom half hour-Loc / half hour long dry-past-dec
'My pants dried in half an hour / ?? for half an hour.'

The second type of adjectives are called as open-scale adjectives which map their arguments on the scale with no maximal value. As is expected the verbs derived from such adjectives are atelic.

Open-scale adjectives: uzun, kilta ‘long’; geniş ,nelbta ‘wide’

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3 Diagnostic, which is used to distinguish these adjective types, is the compatibility with the proportional modifiers, such as completely, half, partially. Closed-scale adjectives can co-occur with proportional modifiers: completely / half / partially empty, dry, open. However the same modifiers do not seem to go well with the closed-scale adjectives: ?? completely / half / partially wide, long, short.
(22) Yol yarım saat boyunca /* yarım saatte genişledi.
Kil-i ban shigan tongan /* ban shigan-e nelbchi-ess-ta.
Road-Nom half hour-Loc /* half hour long wide-past-dec
'The road widened for half an hour / * in half an hour.'

When the context (real-world knowledge) supports the inference of a bounded degree of change, telic interpretation arises. This is imposed by our real-world knowledge of the specific process (e.g., the process of widening in 23) and the semantic characteristics of the object involved (e.g. the size of the road or the patient’s heart artery in 23). Real world knowledge tells us that there is a conventional degree beyond which (maximal width) an human being’s heart artery can not be widened. This knowledge provides an implicit mean for the degree argument (difference variable) to be assigned a bound, and (23 a) yields to a telic reading. Although there is a conventional maximal width for a heart artery, there is no such bounded width for a road. Thus sentence (23b) is interpreted as atelic.

(23) a. İşçi-ler yol-u üç gün boyunca genişlet-ti.
Ilggwundul-i kil-ul sam il tongan nelbhi-ess-ta.
Worker-pl-Nom road-Acc three day long wide-caus-past-dec
'The workers widened the road for three days.'

b. Operatör hastanın kalp damarını iki saat-te genişlet-ti.
Wegwan uisa-ga hwanchau hai shimchang hyeongwan-ul 2 shigan-e nelb-hi-ess-ta.
Surgeon-Nom patient-Gen heart artery-Acc two hour-Loc neolb hi-eoss-ta wide-caus-past-dec
'The surgeon widened the patient's heart artery in two hour.'

As is noted by Hay, Kennedy and Levin (1999) the identification of difference value by means of contextual clues actually arises through a process of conversational implicature, and this explains the adverb duality observed in accomplishment verbs.

7. Adverb duality in Accomplishment Verbs

Unless the maximal value of degree of change is explicitly specified on the scale, it is possible to observe adverb duality. Thus, adverb duality should arise only when the difference value or the degree of change must be inferred. Then the principles of conversational implicature come into play.
(24) Çorba 30 dakika-da / 30 dakika boyunca soğu-du.
Swuup-ka 30pun-e / 30 pun tongan shig-ess-ta.
Soup-Nom thirty minute-Loc / thirty minute long cool-past-dec
'The soup cooled in 30 minutes / for 30 minutes.'

(25) Deniz tost-u bir saat-te / bir saat boyunca yedi.
Deniz-ka tosulu-lul han shigan-e/ han shigan tongan meg-ess-ta.
Deniz-Nom toast-Acc one hour-Loc / one hour long eat-past-dec
'Deniz ate the toast in an hour / for an hour.'

Chamswuham-i 10 pun-e / 10 pun tongan ollaga-ess-ta.
Submarine-Nom ten minute-Loc / ten minute long rise-past-dec
'The submarine ascended in an hour.'

For example, in (24), the soup cooled is the most informative on a telic interpretation: the soup cooled on a bounded degree. There is salient degree for the soup; it is the room temperature. Thus a time span adverbial perfectly matches with this sentence: the soup cooled in thirty minutes. On the other hand, the durative adverbial modifies the same predicate, in doing so it cancels the telicity implicature. This time the sentence interpreted as such 'the soup cooled to an unspecified degree'. We observe adverb duality in verbs of creation/consumption and directed motion verbs. Conversational implicatures which are appropriate to the event described by the above mentioned predicates are at work when the speaker infers the telic reading. Again atelic interpretation of (25) and (26) are the cancellation of the telicity via durative adverbials. In short, Hay, Kennedy & Levin (1999) summarized this fact as such “inherent scalar structure on telicity of the accomplishment predicates has pragmatic implication so cancelable”.

8. Degree of Change Instead of Incremental Theme

When we compare Krifka-style analysis to scalar semantic approach we see that the notion “degree of change” proposed by scalar semantic approach reanalyzes and reinterprets the traditional notion incremental theme. As discussed by Hay, Kennedy & Levin (1999) and Kennedy & Levin (2000) it is not the incremental theme itself but the degree of change (a scalar property of verb meaning) determines the telicity in aspectually variable verbs. More specifically, quantized expression as direct object, i.e.
incremental theme, of an accomplishment verb establishes a scale but this quantized direct object, contrary to Dowty’s (1991), and Tenny’s (1994) views, does not enforce the existence of an endpoint of the event. In short, quantized direct object does not provide a true bound for the event (cf. Smollett 2001). Where a telic reading is favored, it is imposed by our world knowledge of the specific event and object involved, as well as by the linguistic measures. Now, we will bring evidence from Turkish and Korean to display the claims proposed by scalar semantic approach on the nature of quantized direct object functioning as an incremental theme argument.

Firstly, with verbs of creation/consumption, it is claimed that direct object itself measures out the event, and provide a bound for it. In Turkish accusative case marks definiteness and specificity of the direct objects. This quantization of the direct object by accusative case is claimed to give rise to a telic interpretation of the verb phrase. In Turkish with verbs of motion requiring a special path, the accusative marked path under concern denotes that the path is measured out from the beginning to the end, as in (1b).

(1) a. Tuna dağ-a tırman-dı.
   Tuna-Nom mountain-Dat climb-past-3sg
   'Tuna climbed the mountain.'

b. Tuna dağ-ı tırman-dı.
   Tuna-Nom mountain-Acc climb-past-3sg
   'Tuna climbed up the mountain.'

With the incremental theme verbs, direct object bearing an accusative case assigns a holistic interpretation to the sentence, as in (2b). In other words, the event described by the predicate affects the entire object, and so accusative case functions as the delimiting marker.

(2) a. Deniz kitap-0 oku-du.
   Deniz-Nom book read-past-3sg
   'Deniz read the book.'

b. Deniz kitab-ı oku-du.
   Deniz-Nom book-Acc read-past-3sg
   'Deniz read the entire book.'
Deniz-Nom toast-Acc five minute-Loc / five minute long eat-past-dec
'Deniz ate the toast in five minutes / for five minutes.'

b. Deniz masay-ı 5 dakika-da / 5 dakika boyunca cilaladı.
Deniz-ka t'agcha-lul 5 bun-e / 5 bun tongan kwangne-ess-ta.
Deniz-Nom table-Acc five minute-Loc / five minute long polish-past-dec
'Deniz polished the table in five minutes / for five minutes.'

Secondly, Smollett (2001), whose views on aspectual composition are parallel to scalar semantic approach, argues that quantized direct object of aspectually variable accomplishment verbs do not behave like a ‘true delimiter’ in English. She identifies the essential characteristics of true delimiters, and then she analyzes the behavior of quantized direct object according to these characteristics of true delimiters. We, now, attempt to verify Smollett’s observation on Turkish and Korean data.

The first characteristics of true delimiters like verb particles (e.g. eat up), goal phrases (e.g. walk to the seaside), resultative constructions (e.g. wipe the table clean) is that they delimit the event obligatorily. In other words, they definitely identify a bound on the property scale of degree argument. In the expression “eat the apple to the core” the goal phrase “to the core” identifies the end point of the event explicitly so it can not be modified by a durative adverbial, as in (28).

(28) * Ayşe TV izlerken beş dakika boyunca elmay-ı çöpüne kadar ye-di.
*Ayşe-ka TV-lul pomyonso sakwa-lul ssi-kkaci opun tongan meg-ess-ta.
Ayşe-Nom TV-Acc watch apple-Acc core-even five minute long eat-past-dec
‘* Ayşe ate an apple to the core for five minutes while watching TV.’

The second characteristics of true delimiters is that they can not be doubled. According to Tenny’s *The Single Delimiting Constraint*, “the event described by a verb may only have one measuring-out and be delimited only once. (1994:79)”. This constraint allows a verb only one goal or endstate or measuring argument or measuring scale, in the event that it describes. Under this constraint, the following expressions are ungrammatical in English *walk to the store to school, *polish up the table smooth, *slice a roast thin to the bone. Similarly, in English it is not possible to say *Ayşe ate up an apple to the core. Contrariwise, Turkish and Korean counterparts of the same sentence are completely grammatical as illustrated in (29) below. This seems to violate the Single Delimiting Constraint proposed for English data. Such an observation signals the fact that the
distribution and correlation of true delimiters in Turkish and Korean require a detailed further research.

(29) Deniz bir elmayı çöpüne kadar sildi süpürdü.
Deniz-ka sakwa-lul ssi-kkachi mek-e chiwu-ess-ta.
Deniz-Nom apple-Acc core-eat- affix sweep past-dec.
'* Deniz ate up an apple to the core.'

Now it is the time to question the behavior of quantized direct objects in verbs of creation/consumption. If the individuated direct object determines the endpoint of the event in the same way as verb particles, goal phrases, or resultative expressions, then the sentence (30) will be uninterpretable, due to the Single Delimiting Constraint. However it is completely natural in English as well as in Turkish and Korean.

(30) Deniz bir elmayı çöpüne kadar yedi.
Deniz-ka sakwa-lul ssi-kkachi meg-ess-ta.
Deniz-Nom apple-Acc core-eat-past-dec
'Deniz ate an apple to the core.'

On the other hand, we should note that quantized direct objects as incremental theme contributes indirectly to the telicity of the predicate. True delimiting expressions such as particles and goal phrases can not be added to an expression with a non-quantized direct object as seen in English sentences (31) and (32). Smollett (2001) explained this requirement observed in true delimiters in the following way. Quantized noun -i.e.count noun- establishes a unidirectional scale that measures out the progress of the event as it goes on a single direction. Delimiters are the markers of the endpoint on this scale. As maintained before delimitation without the establishment of the scale is impossible. Thus as is predicted, true delimiting expressions such as particles and goal phrases can not be added to an expression with a non-quantized DO, as shown in (31) and (32). In short, quantized direct object as incremental theme makes the delimitation possible. In other words, as Kennedy & Levin 2000 write "incremental theme determines telicity to the extent that its structure affects possible values of the degree of change."

(31) *Kathleen ate up ice cream.
(32) * Kathleen ate ice cream to the last spoonful. (Smollett 2001, examples 16, 17)
Same as in (31), serial verbs such as *sildi süpürdü 'mek-e chiwuessta*', which behave as true delimiters in Turkish and Korean, require the quantized direct object that simply bears an accusative case to produce grammatical sentences, and achieve telic interpretation of the predicates. While sentences in (33) are ungrammatical the ones in (34) are both grammatical, and serial verbs in these sentences enforce the telic interpretation because of the accusative marked quantized direct objects.

(33) * Deniz dondurma-Ø sil-di süpür-dü.
  * Deniz-ka aisukulim-Ø mek-e chiwu-ess-ta.
    Deniz-Nom ice cream-Ø eat-affix sweep-past-dec
  '* Deniz ate up ice cream.'

(34) Deniz dondurmay-ı sil-di süpür-dü.
  Deniz-ka aisukulim-ul mek-e chiwu-ess-ta.
  Deniz-Nom ice cream-Acc eat-affix sweep-past-dec
  'Deniz ate up the ice cream.'

However, the delimiting expressions which signal the goal of the event like ‘to the last spoonful’ does not induce a restriction on the use of quantized direct object in Turkish and Korean contrary to English. Both quantized and non-quantized direct objects are equally yield to telic interpretations as demonstrated in (35). Yet, the native speakers judgments' are on behalf of the quantized direct object use. As observed cross-linguistically (Heinämäki, 1983 Finnish; Tenny, 1994 English) the goal phrase ‘to the last spoonful’ is not independent bound added on top of the accusative object, but rather specify the endpoint of the event whose existence is implied by the accusative object in Turkish and Korean.

(35) Deniz son kaşığına kadar 5 dakikada / ?? 5 dakika boyunca dondurma / dondurma-yı ye-di.
  Deniz-ka aisukulim / aisukulim-ul 5 bun-e / 5 bun tongan machimak han.
  Deniz-Nom ice cream-Ø / ice cream-Acc 5 min-Loc / 5 min. long last one
  suphwun-kkachi meg-ess-ta
  spoon-even eat-past-dec
  'Deniz ate ice cream / the ice cream to the last spoon in 5 minutes / for 5 minutes.'
9. Conclusion

We have represented aspectually variable accomplishment verbs of Turkish and Korean under the scalar semantic approach. By regarding the whole discussion it can be said that accomplishment verbs are potentially telic. It has been noted that the semantics of these verbs can be elucidated in terms of the mapping the extent of the change of state affecting x onto a degree on a scale, and introducing that degree as an argument of the verb. Such an analysis provides a unified account for the aspectually variable accomplishment verbs cross-linguistically. We have argued that degree as an argument avoids the misleading generalizations about the effect of incremental theme argument on the related verb's telicity. Finally, we have emphasized the role of pragmatic explanation in dealing with aspectual variability. We have illustrated that conversational implicatures and contextual cues supply specific difference variable for the telic interpretations of the predicates.

REFERENCES


