

# ON THE MEANING AND DISTRIBUTION OF THE ASPECTUAL FOCUS ADVERB ‘ACIK’ IN KOREAN\*

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## Abstract

This paper proposes that the aspectual adverb *acik* in Korean, often translated as *still* or *yet*, is a focus-sensitive particle that exploits alternatives on a temporal scale. *Acik* is a kind of exclusive particle that selects the lowest bound on a temporal scale and denies the upper values, thus yielding a negative entailment even in positive sentences. It is shown that the distributional constraints of *acik* follow from the proposed semantics and the properties of a temporal scale. *Acik* can occur only in contexts where some upper or later elements can be assumed. In addition to the well-known imperfective constructions due to progressives, resultatives, and negation and negative predicates, this paper newly identifies a set of constructions that allow *acik* such as degree adverb *tel* ‘less’ with accomplishment predicates, modal constructions of possibility and necessity, *before*-clauses, and imperatives and exhortatives with negative force. All these constructions make a temporal scale possible, and the adverb conveys a contrast between the current phase and the possible next phase that has not been realized yet.

## 1 Introduction

Korean *acik* is an interesting item. It has various uses, each of which corresponds to different lexical items in English, namely *yet*, *still*, and *only*. In some contexts, it behaves like a negative polarity item like English *yet*, and makes sentences grammatical only in the presence of certain expressions including negation. In others, it shows a freer distribution than a usual NPI and corresponds to English *still*. In yet another context, it expresses a scalar meaning like English *only*. The following examples illustrate the three uses.<sup>1</sup>

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\*This paper is dedicated to Irene Heim with respect and heartfelt thanks for her wisdom, teaching, and guidance. I was incredibly blessed to have had the privilege of learning under her. Participating in this project is an honor, but is also a deeply humbling experience in making a submission to honor someone for whom I have so much respect and admiration. I wish her continued health and happiness in the many years to come.

<sup>1</sup>Given that the meaning of *acik* varies with sentences, I will only provide the translation at a sentence level instead of glossing *acik* as one particular item.

- (1) Mina-ka acik an o-ass-ta.  
Mina-Nom Neg come-Past-Decl  
'Mina hasn't come yet.'
- (2) Mina-ka acik (an) ca-koiss-ta.  
Mina-Nom Neg sleep-Imperf-Decl  
'Mina is still (not) sleeping'
- (3) Mina-nun acik ney-sal-i-ta.  
Mina-Top four-year-be-Decl  
'Mina is only four years old.'

In (1), negative particle *an* is a necessary element without which the sentence becomes ungrammatical, whereas in (2) the presence of the imperfective marker *-koiss-* renders the negative particle optional. In (1) and (2), Mina is expected to have come or woken up/fallen asleep, and chances are she might come or wake up/fall asleep in the near future. While the uses of *acik* in (1-2) are temporal or aspectual, the use of *acik* in (3) seems scalar in that it denies other ages on the scale of age. Given the uses in (1-3), we are led to the question of whether we are dealing with a case of ambiguity or one *acik*, the basic meaning of which covers all its uses. Previous studies on *acik* focused on temporal *acik* and defined its meaning with focus on its presupposition about a prior state (Jun 1998, Lee 2008), implicature about a future change (Im and Lee 1999), or both (Lee 2011), and handled its uses in negative and positive sentences separately (Jun 1998, Im and Lee 1999) in line with the well-known square of the aspectual particles (Löbner 1989). The goal of this paper is to propose that *acik* in all its uses is a focus-sensitive particle that exploits alternatives on a temporal scale and to explain the distributional constraints imposed by *acik* based on the proposed semantics. *Acik* is a kind of exclusive particle that selects the lowest bound on a temporal scale and denies the upper values (cf. Krifka (2000) for *still*), thus yielding a negative entailment even in positive sentences. The distributional constraints of *acik* follow from the proposed semantics and the properties of a temporal scale: *acik* A is only possible when there is a phase B that can be denied, where B is an alternative that temporally follows A.

## 2 *Acik* as a Focus-Sensitive Particle

Discussions on *acik* have been centered on its function as an aspectual adverb along with discussions on adverbs like *imi* and *pelsse* both corresponding to English *already*. The adverb *acik* is known to convey that a certain state obtaining at reference time is expected to cease at some future time. Recently Lee (2011) proposed that there is a scalar *acik* distinct from the aspectual one, and argued that each *acik* corresponds to different focus particles. This paper proposes that both aspectual and scalar *acik* are a focus-sensitive adverb that expresses a contrast between the asserted state and an alternative state where the alternatives are aligned on a temporal scale.

Let us start with some examples illustrated as aspectual *acik* and scalar *acik* in Lee (2011).

- (4) a. Mina-ka acik ca-n-ta.  
Mina-Nom sleep-Pres-Decl  
'Mina is still sleeping/Mina has not woken up yet.'
- b. Mina-ka acik an ca-n-ta.  
Mina-Nom Neg sleep-Pres-Decl  
'Mina is still not sleeping/Mina has not fallen asleep yet.'

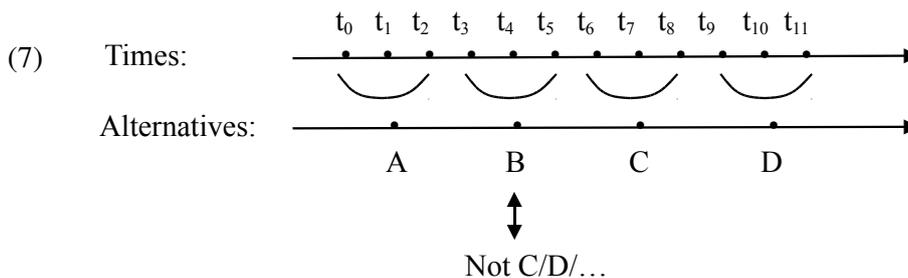
- (5) a. Mina-nun acik taset-sal-i-ta.  
 Mina-Top five-age-be-Decl  
 'Mina is still/yet only five years old.'
- b. Mina-nun acik cokyoswu-i-ta.  
 Mina-Top assistant.professor-be-Decl  
 'Mina is still/yet only an assistant professor.'

In (4a), *acik* conveys that the state of being asleep continues or that the event of waking up has not yet happened. In (4b), *acik* conveys that the state of being awake continues or that the event of falling asleep has not yet happened. Whether it is a positive or negative sentence, *acik* expresses that a certain state continues at reference time, and also that this state is expected to cease in the near future. Thus Lee (2011) defined aspectual *acik* as having three components, namely presupposition on the prior state, assertion on the current state, and a cessation implicature. Lee (2011) also argued that *acik* in (4) is distinct from *acik* in (5) in that the latter is scalar and denotes a lowest bound of a temporal scale. If *age five* or *assistant professor* in (5) is replaced by *age eighty* or *full professor*, the sentences become infelicitous, which shows *acik* denotes a lowest bound of a scale. Following Krifka's analysis on *still*, Lee (2011) argued that *acik* is a type of exclusive particle whose alternatives are restricted in a special way. The focused phrase whose focus *acik* associates with becomes the lowest bound of a temporal scale, and the alternatives higher than this lowest bound are all denied. In (5a), the alternatives to be denied are ages higher than 5, and ages younger than 5 are not included in the set of the alternatives. Similarly in (5b), only the ranks higher than assistant professor are considered as an alternative to be denied. So by uttering (5a-b), the speaker is conveying that Mina is not 6 or an associate professor (or higher age/rank) yet, and the interest of the speaker is only in the current state, not in the implied state of the future (e.g., what she will be in the future). Lee notes that the contrasts expressed in (4) and (5) are different kinds. The contrast in (4) is between the current p state and the not-p state expected in the future, whereas the contrast in (5) is between the states p and not-p at reference time. While in (4a) Mina is expected to wake up past the reference time, in (5a) there is no expectation about the future (e.g., *Mina will not be 5*). What matters in (5a) is that Mina is not 6 at the reference time. Furthermore, the not-p state in (4) is an implicature, whereas the not-p state in (5) is part of the assertion. This argument for the distinction between two *aciks*, however, is not so strong, given that the two different contrasts are not incompatible with each other (cf. the double alternative hypothesis of van der Auwera (1993)). Also, the scales used in the examples of the scalar *acik* are all temporal ones after all, which makes the distinction rather weak. This is different from English *still* which can take non-temporal scales as in marginality readings found in *El Paso is still in Texas* (Michaelis 1993, Ippolito 2007).

The position of this paper is that all instances of *acik* are focus-sensitive, and that it expresses a contrast between alternatives that are aligned on a temporal scale. This is an extension of Lee's (2011) analysis of the scalar *acik* to all instances of *acik*. The adverb *acik* associates with a focused phrase that is the lowest element of a temporal scale that is determined either lexically or pragmatically. By selecting the lowest value on a scale, *acik* also denies the upper values on the scale, thus yielding a negative entailment even in positive sentences. The lexical entry of *acik* will be as in (6).

- (6)  $[[acik]]^{c, g, w} = \lambda t_i. \lambda A_{\langle i, t \rangle}. A(t) = 1 \ \& \ [\forall B \in ALT(A) \ \& \ A < B: \neg B(t)]$

The focus on a stative/imperfective predicate *A* introduces the set of alternatives  $ALT(A)$ , and sentences containing *acik* assert that *A* holds at *t*, and all the other alternatives do not hold at *t*. It does not matter whether *B* will hold past the reference time *t*, which will only be an implicature. The alternatives are potential posterior states, but our concern is that they do not obtain at the reference time. The lexical entry of *acik* is similar to that of an exclusive particle, except the ordering constraint between the alternatives ( $A < B$ ), which gives a similarity with scalar *only*. The ordering constraint needs a few words. Following Löbner (1989) and Krifka (2000), I assume that there is a monotonic mapping between alternatives and times. Assuming that times and alternatives are aligned with respect to a function  $f: [T \rightarrow A]$ , an ordering between two alternatives ( $A < B$ ) means that all times *t* such that  $f(t) = A$  precede all times *t'* such that  $f(t') = B$ . The proposal is schematically represented in (7), where  $f(t_0) = f(t_1) = f(t_2) = A$  and similarly for other times and alternatives.



If  $t_4$  is the reference time, only the alternatives that can follow B, that is, the posterior ones like C or D are appropriate alternatives to be denied. The anterior state A (or all states preceding B) is not included in the set of alternatives, although it can be easily guessed that A held before the reference time (e.g., a five-year-old used to be a four-year-old). *Acik B* uttered at  $t_4$  expresses a contrast between B holding at  $t_4$  and C and other posterior alternatives not holding at  $t_4$ . So sentences containing *acik* are potentially negative in that they are denying the upper values. Note also that once it is clear that C does not hold, there is no need to consider D or other posterior alternatives. In this regard, the meaning *acik* conveys is somewhat similar to a scalar implicature in that utterance of an informationally weak term leads to implied denial of stronger terms. But *acik* conveys a stronger meaning since the denial is not an implicature but an assertion.

When we say that *acik* associates with a focus on the lowest value on a temporal scale, ‘the lowest’ is not the lowest in an absolute sense, but is determined relatively based on the context. If the focused phrase is scalar by itself (age, rank, etc.), the phases that are expected to temporally follow the focused phrase will be upper values, and the focused phrase becomes the lowest value compared to these upper values. Examples include <age 5, age 6>, <assistant professor, associate professor>, <amateur, professional>, <before (sunrise), after (sunrise)>.<sup>2</sup> Of course time passing does not automatically equal an amateur becoming a pro, unlike a five-year-old becoming a six-year-old. So it is assumed that circumstantial conditions are satisfied to make

<sup>2</sup>A temporal scale often has more than two members as in <... , age 5, age 6, age 7, ...> or <assistant professor, associate professor, full professor>. Also, the lowest or highest member of the scale often varies with a context as in the case of the age scale, where ‘...’ means there is a phase preceding the first element or following the last element. Assuming a scale of form <A, B, C, ...>, *acik A* means denial of B, which leads to denial of values following B (C and the later ones), so we only have to care about A and B. For this reason the following discussion will only provide a temporal scale with two elements.

such a change possible. Note also that the elements of the scales are expressions of type <i, t>. They are informally represented as predicates, but these predicates are assumed to be saturated with proper arguments. A negative prefix or adverb can also play a role in forming a temporal scale. Examples are such as <unripe, less ripe, fully ripe>, <not know, know>, <unconfirmed, confirmed>, <inexperienced, experienced>, where the state denoted by the foremost element can change over time into the state denoted by the last element, but not the other way around.

Now we go back to the examples in (4) and (5), where all the sentences are given two translations using *still* or *yet*. Although the difference is subtle, our discussion leads us to conclude that *acik* is closer to *yet* but only with a freer distribution. Sentences containing *acik* are all negative in that the current state is contrasted with the next states that are not realized yet. So (4a) is interpreted as Mina is asleep and not awake yet, where {asleep, awake} is a set of alternatives based on a temporal scale <asleep, awake>. This is an appropriate scale, given that the state of being asleep is followed by the state of being awake. In some other context <awake, asleep> would also be a possible temporal scale and provide a set of alternatives. In (4b), the state of being not asleep will be followed by the state of being asleep, which gives us a scale of <not asleep, asleep> and also a set of alternatives {not asleep, asleep}. So (4b) will be a case of polarity focus, where the state of Mina not being asleep contrasts with the state of Mina being asleep. Similarly in (5a), the set of alternatives will be {age 5, age 6, ...} based on a scale <age 5, age 6, ...>. The meaning of the sentence is that Mina is 5 and not 6 years old yet.

The proposal made here diverges from the position of previous studies in that presupposition on the prior state is not assumed. The following examples show that the presupposition on the prior state is not so strong as is often assumed, and actually is not a necessary component in the lexical entry of *acik*.

- (8) a. #Peter's eyes were still brown when he was born.  
 b. #Peter's eyes were still not brown when he was born.  
 c. Peter's eyes were not yet brown when he was born.
- (9) a. Tayena-ss-ultay-nun acik elkwu-ey cem-i iss-ess-eyo.  
 be.born-Past-when-Top face-at mole-Nom be-Past-Decl  
 '(Lit.) There was a mole on the face yet when (s)he was born.'
- b. Tayena-ss-ultay-nun acik elkwu-ey cem-i ep-ess-eyo.  
 be.born-Past-when-Top face-at mole-Nom not.be-Past-Decl  
 '(Lit.) There wasn't a mole on the face yet when (s)he was born.'

Before looking at the case of *acik* in (9), let us start with (8), where the presence or absence of the presupposition on the prior state leads to the contrast between (8a-b) and (8c) (Mittwoch 1993). Both *still* and *still not* are presuppositional, which leads to the oddness of (8a-b) because the sentences suggest that Peter had (or did not have) brown eyes before his birth. Of course Peter must (or not) have had brown eyes before he was born, but the prenatal stage does not seem to qualify as a prior stage in the presupposition of *still*. In contrast to this, (8c) is not odd because *not yet* does not carry a presupposition like *still* or *still not*. Here we don't have to speculate about the prenatal color of Peter's eyes. Rather it suggests that Peter now has brown eyes. With this in mind, we look at (9a) and (9b), where we do not find any semantic deviance as found in (8a) and (8b). The speaker is conveying a contrast between the reference time and the speech time, instead of a continuation from a prenatal stage to the reference time. It is suggested in (9a) that a mole on the

face has disappeared now, and in (9b) that a mole has appeared on the face. If *acik* is replaced by a presuppositional adverb *yeceni* ‘as before,’ the sentences become odd just like (8a-b), which is due to the lack of a prior stage for a baby just born.

So the above discussion justifies not positing the presupposition part in the lexical entry of *acik*. Then how do we explain the presupposition effect which has been attributed to *acik*? I believe that this is due to an intrinsic property of statives, namely that they do not involve change in time. Accordingly, if a state holds at an instant, the instant must be preceded and followed by other instants where the state holds as well (Altshuler and Schwarzschild 2012). The initial and terminal end points of a state are not part of the state, given that they involve changes of state (Smith 1997). Sentences containing *acik* are statives/imperfectives, and if a state denoted by an *acik*-sentence holds at reference time, there must be a moment prior to the reference time at which the relevant state holds, which makes *acik* seem presuppositional.

To summarize, this section proposed that the aspectual adverb *acik* is a focus-sensitive adverb which expresses exclusive meaning among alternatives on a temporal scale. The focus which *acik* associates with is on the lowest or foremost bound of a temporal scale, and the alternatives are restricted only to the upper or later elements of the temporal scale (Krifka 2000). Given its meaning as an exclusive particle, sentences containing *acik* are potentially negative even without overt negation. It also showed that *acik* is not presuppositional, and claimed that the presuppositional effect is due to the properties of stative predicates.

### 3 Explaining the Distribution of *Acik*

The meaning of *acik* defined in section 2 provides an account for the distributional constraints of *acik*. Given that *acik* associates with a lower element of a temporal scale, it follows that *acik* can occur only in contexts where some upper or later elements can be assumed. In other words, *acik* A is only possible when A is a terminable state and there is a state B that has not been reached, given a temporal scale  $\langle A, B \rangle$ . In addition to the well-known imperfective constructions due to progressives, resultatives, and negation and negative predicates, this section newly identifies a set of constructions that allow *acik* such as degree adverb *tel* ‘less’ with accomplishment predicates, modal constructions of possibility and necessity, *before*-clauses, and imperatives and exhortatives with negative force. All these constructions make a temporal scale possible, and *acik* in these constructions conveys a contrast between the current phase and the possible next phase that has not been realized yet.

One condition under which a temporal scale cannot be formed is a case of timeless statements (Löbner 1989). When a state holds permanently, there is no next phase that can be assumed. This means that a temporal scale cannot be formed, which in turn means there will be no contrast to be conveyed by *acik* either. For this reason, *acik* is not good in sentences like (10a-b).

- (10) a. #I tehaki i-nun acik sa-i-ta.  
 two plus two-Top four-be-Decl  
 ‘#Two plus two still equals four.’
- b. #Cikwu-nun acik tayyangkye-ey sokha-n-ta.  
 earth-Top solar.system-at belong-Pres-Decl  
 ‘#The earth still belongs to the solar system.’

Note that (10b), unlike (10a), might improve in a context where the earth's membership in the solar system becomes a contingent matter due to some big change in space.

The same reasoning accounts for the fact that *acik* is not possible in perfective tense of eventive predicates.

- (11) a. \*Mina-ka acik kel-ess-ta.  
 Mina-Nom walk-Past-Decl  
 '\*Mina still has walked/Mina has walked yet.'
- b. \*Mina-ka acik cha-ey tha-ss-ta.  
 Mina-Nom car-at get.on-Past-Decl  
 '\*Mina still has gotten in the car/Mina has gotten in the car yet.'

The past tense in (11) indicates an occurrence of an event and hence transition into the interminable state in which the event has happened. When an event happens, there is a state corresponding to an event's having happened, and this state holds forever after. Parsons (1990) calls this a resultant state and distinguishes it from a target state, which is a result state of an event denoted by the predicate. If Mina gets in the car, for example, the resultant state of this event is the state of Mina's having gotten in the car, which cannot cease holding at some later time. Once Mina got in the car, one cannot cancel the fact that she has gotten in the car. In contrast, the target state of this event is the state of Mina's being in the car, which may or may not last for a long time. Given this distinction between the two states, the incompatibility of *acik* with perfective sentences naturally follows. As in the case of a timeless truth, the resultant state due to the past tense is an eternal state the next phase of which does not exist.

The distinction between the two states further accounts for the fact that target states of telic predicates are compatible with *acik* (cf. Kratzer 2000 for *immer noch*). In Korean, a target state is often expressed by imperfective markers *-eiss-* or *-koiss-*, both of which can save otherwise ungrammatical *acik*-sentences.

- (12) a. Mina-ka acik cha-ey tha-koiss-ess-ta.  
 Mina-Nom car-at get.on-Imperf-Past-Decl  
 'Mina was still in the car/hadn't gotten out of the car yet.'
- b. Mwun-i acik yel-li-eiss-ess-ta.  
 door-Nom open-Pass-Imperf-Past-Decl  
 'The door was still open/was not closed yet.'

The fact that the target state is reversible and transitory means that the target state and its next phase can form a temporal scale. The state of Mina's being in the car ends when she gets out of the car, which makes <be in the car, be out of the car> a possible scale. Being in the car is the lower member of this scale, which allows the occurrence of *acik* in (12a). The adverb contrasts the state of being in the car with the later state of being out of the car, which leads to its reading "Mina was in the car and not out of the car yet." The same reasoning applies to (12b), where the event of someone opening the door leads to a target state of the door being open, which in turn leads to a scale of <open<sub>ADJ</sub>, closed>. Being open is the lowest element of this temporal scale, and thus compatible with *acik*.

The imperfective marker *-koiss-* can also carry a progressive reading when it occurs with durative events. The marker can change perfective events into imperfective states and allow *acik* to occur in sentences like (13), which would be ungrammatical without the progressive marker.<sup>3</sup>

- (13) a. Mina-nun acik ket-**koiss**-ess-ta.  
 Mina-Nom walk-Imperf-Past-Decl  
 ‘Mina was still walking/hadn’t stopped walking yet.’  
 b. Mina-ka acik cip-ul cis-**koiss**-ess-ta.  
 Mina-Nom house-Acc build-Imperf-Past-Decl  
 ‘Mina was still building a house/hadn’t built a house yet.’

It is well known since Vlach (1981) that the progressive marker turns predicates of events into predicates of time. For any given event, there is a state that continues as long as the event is in progress, which Parsons (1990) calls the ‘in-progress’ state. One salient property of this in-progress state is its temporariness, as can be checked in the contrast between *My watch is working perfectly* and *My watch works perfectly* (Leech 2004).<sup>4</sup> When a certain state is temporary, we can think of the next phase where the state ceases to hold. Thus the temporary nature of the in-progress state gives rise to the temporal scale of <was walking, stopped walking/was not walking> for (13a), and this explains why *acik* is compatible with a predicate combined with a progressive *-koiss-*.

While the states due to the imperfective markers are terminable and thus appropriate as the lowest element of a temporal scale that *acik* associates with, a state whose next phase cannot be assumed becomes the highest element of the temporal scale and thus is not appropriate for *acik* to occur with. This explains quite a lot of distributional constraints of *acik*.

- (14) a. Mina-ka acik sal-aiss-ta.  
 Mina-Nom live-Imperf-Decl  
 ‘Mina is still alive/hasn’t died yet.’  
 b. #Mina-ka acik cwuk-eiss-ta.  
 Mina-Nom die-Imperf-Decl  
 ‘#Mina is still dead/hasn’t revived yet.’  
 c. Kyengcey-ka acik cwuk-eiss-ta.  
 economy-Nom die-Imperf-Decl  
 ‘The economy is still dead/hasn’t revived yet.’

The state of being alive changes to the state of being dead through the event of dying. This leads to the temporal scale of <alive, dead> where *alive* is the lowest element and *dead* is the highest element, which accounts for the contrast between (14a) and (14b). Given that there is no reviving, *dead* is the highest element in an absolute sense and cannot occur with *acik*. Note that all the sentences in (14) have the target state marker *-eiss-*, and that the transitory nature of the target state is overridden by the lexical meaning of predicate *cwuk-* ‘die’ in (14b). But when

<sup>3</sup>The ambiguity of the marker *-koiss-* has been much discussed in the literature, and the exact nature of this ambiguity is still an ongoing issue. This issue, however, does not affect the current discussion, and what matters for us is that the marker gives rise to a stative predicate in its both readings. See Kim (2011) for a recent discussion.

<sup>4</sup>The temporariness of the progressive aspect is true of Korean as well, but it should be mentioned that it is a combination of tense and the topic or nominative marker that gives rise to the permanent or temporary state reading in Korean.

*dead* is metaphorically used with a proper argument as in (14c), it can become a lower element in comparison to the state of the economy being revived and allow *acik* to occur with it.

Contrasting compatibility between negative and positive predicates is also accounted for by the same reasoning. In (15), lexically negative predicates denote states that are terminable and thus can become the lowest element of a temporal scale, whereas positive predicates denote states that are not terminable and become the highest element of a temporal scale.

- (15) a. Mina-nun acik kyunghem-i **ep**-ta/\*iss-ta.  
 Mina-Top experience-Nom not.be-Decl/be-Decl  
 'Mina has no experience yet/\*Mina has experience yet.'
- b. Mina-nun acik ton-i **ep**-ta/iss-ta.  
 Mina-Top money-Nom not.be-Decl/be-Decl  
 'Mina has no money yet/Mina still has money.'
- c. Mina-nun acik sosik-ul **molu**-n-ta/\*a-n-ta.  
 Mina-Top news-Acc not.know-Pres-Decl/know-Pres-Decl  
 'Mina doesn't know the news yet/\*Mina knows the news yet.'
- d. Kyulkwa-ka acik **mi**-hwakceng-i-ta/\*hwakceng-i-ta.  
 result-Nom un-confirmed-be-Decl/\*confirmed-be-Decl  
 'The result is not confirmed yet/\*The result is confirmed yet.'

If you have no experience, you can get some experience and transition to the state of having experience. Once you have experience, however, you cannot get rid of your experience and change to a state of having no experience. This means that only the scale of the form <have no experience, have experience> is a proper temporal scale where *have experience* becomes the highest element of the scale and as such is not compatible with *acik*. Notice that the contrast between negative and positive predicates has disappeared in (15b), which is due to a different theme argument. Having money is different from having experience in that the state of having money can change to the state of having no money or vice versa. So both *have money* and *have no money* can be the lowest element of a temporal scale and compatible with *acik*. The contrast in (15c) follows from the same reasoning. When you do not know something, you can get to know it. But once you know something, you cannot go back to an ignorant state. You might forget, but it is not canceling the fact that you knew before. So the relevant scale is <not know, know>, where only the lowest element is eligible to be modified by *acik*, and the highest element is not. Similarly in (15d), what is not confirmed can be confirmed later, but what has been confirmed cannot go back to the state of being unconfirmed. Here the negative prefix *mi*- 'un' contributes to the formation of the temporal scale of <unconfirmed, confirmed> and *acik* is compatible only with the lowest element of this scale.

Given the sentences containing negative predicates and prefixes, it naturally follows that negation is another expression that makes the occurrence of *acik* possible in otherwise impossible sentences.

- (16) a. Mina-ka acik **an** kel-ess-ta.  
 Mina-Nom Neg walk-Past-Decl  
 'Mina hasn't walked yet.'
- b. Mina-ka acik cha-ey **an** tha-ss-ta.  
 Mina-Nom car-at Neg get.on-Past-Decl  
 'Mina hasn't gotten in the car yet.'

In (16), *acik* has become fine with eventive predicates in perfective aspect thanks to the negative adverb *an*, without which the sentences are ungrammatical, as shown in (11). One way to deal with the sentences in (16) is to take negation as a stativizer and negated perfects as continuative (Verkuyl 1993, de Swart 1996, among others). For example, ‘Mina hasn’t walked’ means that for all times within some present-inclusive time span, there is no event of Mina’s walking. In other words, the state of Mina’s not walking continues. This negative state will end when the relevant event takes place, for example, when Mina starts walking, and from that point its resultant state (the state of the event having happened, specifically the state of Mina’s having walked) starts to hold. Given this understanding, a scale of the form <haven’t walked, have walked> or generally <haven’t pp, have pp> follows, where only the lowest element is compatible with *acik*. The perfective aspect provides a maximal element of the scale in that the resultant state is not terminable and thus there is no future state to be denied by *acik*.

Degree adverb *tel* ‘less’ also functions like a negative element when occurring with an accomplishment predicate. The following sentences are ungrammatical without *tel* ‘less,’ and the adverb can be replaced by the negative adverb *an* with no change in grammaticality.

- (17) a. Kam-i                    acik **tel** ik-ess-ta.  
           persimmon-Nom        less ripen-Past-Decl  
           ‘The persimmons haven’t fully ripened yet.’  
       b. Ppallay-ka        acik **tel** malu-ess-ta.  
           laundry-Nom        less dry-Past-Decl  
           ‘The laundry hasn’t completely dried yet.’

As the translation shows, the adverb *tel* is a marker for partial negation and expresses that the event denoted by the predicate is not fully completed. In (17a), for example, the persimmons are still ripening and have not reached the culmination point yet. In this sense, *tel* is doing the same job as the progressive in that it removes the completion part from an accomplishment event and turns an event into a state (Vlach 1981). The degree adverb participates in the formation of a scale as an in-between element. Take persimmons ripening for example. The relevant temporal scale is <haven’t ripened, haven’t fully ripened/are ripening, have ripened>, and only the first two elements are compatible with *acik* thanks to the presence of the next phase that can be denied. The highest element is a maximal state that has no following state to be denied by *acik* and thus not compatible with *acik*.

Another context where we can find *acik* is an NP or a temporal clause headed by *-cen* ‘before.’

- (18) a. Acik chwulkun-**cen**/\***hwu**-i-ta.  
           going.to.work-before/after-be-Decl.  
           ‘(Lit.) I am before/after going to work.’  
       b. Acik hay-ka        ttuki-**cen**-ey cengsang-ey olu-ess-ta.  
           sun-Nom rise-before-at top-at        climb-Past-Decl  
           ‘We climbed to the mountain top before the sun rose.’  
       c. \*Acik hay-ka        ttun-**hwu**-ey cengsang-ey olu-ess-ta.  
           sun-Nom rise-after-at top-at        climb-Past-Decl  
           ‘We climbed to the mountain top after the sun rose.’

The sentences in (18) show a contrast between *-cen* 'before' and *-hwu* 'after,' and only the former is compatible with *acik*. This contrast results from the (in)terminability of the states due to the temporal connectives. The before-state of an event (the state before an event takes place) ends when the event takes place, and the after-state of the event (the state after an event takes place) follows. In contrast, the after-state of an event never ends, as in the resultant state of perfect, and there is no going back to the before-state of the event. From this follows a scale of the form <before (sunrise), after (sunrise)>, where the terminable before-state becomes the lowest element and the interminable after-state becomes the highest/last element. This contrast between *before* and *after* explains the (in)compatibility of *acik* with *-cen* 'before' and *-hwu* 'after.' The fact that *acik* is allowed in *before*-clauses is actually similar to the cases of negation and negative predicates allowing *acik* in (15-17) in that *before* has the force of negation. The state before sunrise is the same as the state in which the sun hasn't risen.

*Acik* can also occur in imperatives or cohortives with negative force. The cases in hand do not contain overt negation but their meaning amounts to negative imperatives or cohortives. The examples below are imperatives, but the same is true of cohortives as well.

- (19) a. \**Acik ha/ca/ikhi-ela.*  
do/sleep/boil-Imperative  
“\*Do/sleep/boil yet.”
- b. *Acik te ha/ca/ikhi-ela.*  
more do/sleep/boil-Imperative  
“Keep on doing/sleeping/boiling.” or “Don't stop doing/sleeping/boiling yet.”
- c. *Acik (te) kitali/pethi-ela*  
more wait/hold.on-Imperative  
“Keep on waiting/holding on.” or “Don't take action/give up yet”

The sentences in (19a) need overt negation to become good. As already shown in (15-16), negative predicates become a lower element of a temporal scale and thus allow the occurrence of *acik*. What is noticeable in (19b) is that the imperatives have become good without negation thanks to a degree adverb *te* 'more.' In contrast, imperatives in (19c) allow *acik* whether the adverb *te* is present or not, and the adverb does not make any significant difference in meaning.

How do we account for the contrast between (19b) and (19c)? The answer lies in the lexical meaning of the predicates and how they interact with the meaning of *acik*. Imperatives represent some actions that the addressee should take in the (near) future. Thus at the utterance time, the actions have not been taken yet. When the adverb *te* 'more' is added, however, the meaning of continuity is added, and the imperatives represent a request to continue the actions that is already going on. Let us think this in view of time passing and the temporal scale. When some action is going on, one can continue or stop the action. Even if one chooses to continue, there will be a stopping point at some future time, assuming there is no permanent action in an ordinary sense. This leads to the temporal scale of the form <continue V-ing, stop V-ing>, and given this scale, a request to “*acik* continue something” equals a request not to stop it yet. The role of the adverb *te* 'more' is to bring in a temporal scale whose maximal element is to be denied by *acik*, and the imperative comes to have negative force. Then, why is it that the imperatives in (19c) are good without *te*? It is because the inherent meaning of these predicates makes it possible to form a temporal scale without the aid of the adverb *te* 'more.' The predicates in (19c) can be defined

negatively by what they are not. *Kitali*- ‘to wait’ is not to do something until a certain point, and *peti*- ‘to hold on in a difficult situation’ is not to give up. Thinking this in terms of a temporal scale, the state of waiting continues until (or ends when) one takes action, which leads to the scale of <wait, take action>. Holding on ends when one gives up, which results in the scale of <hold on, give up>. The presence of the next phase in their lexical meaning allows *acik* to occur with these predicates in imperatives. Given these scales, a request to “*acik* wait” amounts to a request not to take action yet, and a request to “*acik* hold on” equals to a request not to give up yet. When *te* ‘more’ occurs with these predicates, the temporal scale would be formed as in (19b), for example <continue waiting, stop waiting> for the predicate *kitali*- ‘wait.’ The key element in the occurrence of *acik* in imperatives is the presence of a temporal scale where the imperative predicate is a lower or non-maximal element.

Finally, modal expressions also make the embedded punctual predicates durative so that *acik* can combine with them. In (20a), *acik* is not good with an achievement predicate *kkunh*- ‘quit’ in the present tense which gives a habitual reading, whereas the sentences in (20b-c) are good thanks to a modal expression.<sup>5</sup>

- (20) a. \*Mina-nun *acik* tampay-lul *kkunh*-nun-ta.  
 Mina-Top cigarette-Acc quit-Pres-Decl  
 ‘Mina still quits smoking.’
- b. Mina-nun *acik* tampay-lul *kkunh-ulswuiss*-ta.  
 Mina-Top cigarette-Acc quit-can-Decl  
 ‘Mina can still quit smoking.’<sup>6</sup>
- c. Mina-nun *acik* tampay-lul *kkunh-eyhaha*-n-ta.  
 Mina-Top cigarette-Acc quit-must-Pres-Decl  
 ‘Mina has yet to quit smoking.’

Note that (20b) can be uttered when there is a certain time past which Mina cannot quit smoking. Past that time, it will not be possible to quit smoking. For (20c) suppose that one thing on Mina’s to-do list is to quit smoking. At utterance time, Mina has not yet quit smoking so she is in the state of having to quit smoking. This state will continue until Mina quits smoking, and once she quits, the obligation is gone and she will be in the state of “not having to quit smoking” because it is done already. Given how a situation changes over time, modal expressions give rise to temporal scales of the form <possible, not possible > or <necessary, not necessary>. The development of situation can be the other direction as well. When a baby starts walking, for example, the transition is from the state of not being able to walk to the state of being able to walk. In such a case, the temporal scale would be <not possible, possible>. In any case, it is the presence of the next phase in the temporal scale that makes the occurrence of *acik* possible in otherwise impossible sentences. Note that the temporal scale is formed based on how things change over time, and thus distinct from a scale based on the informativity of expressions. A common scale for modal expressions is

<sup>5</sup>Why (20a) is not good is another question to think about. If *acik* is replaced by adverbs meaning “every six weeks” or “at this time every year,” the habitual reading becomes possible in (20a) as well, and one can wonder why *John still smokes* and *#John still quits smoking* are different. The reason seems pragmatic. It is easy to come up with the next phase of having the habit of smoking: it will be the state of having quit smoking. In contrast, the next phase of having the habit of quitting smoking is somewhat far-fetched: the state of having quit the habit of quitting smoking.

<sup>6</sup>Note that *acik* has no concessive reading like *still*, so the prominent reading of the translation is not the intended reading of (20b).

a scale of the form <may, must> or <possible, necessary> where the former element is assumed to be informationally weaker than the latter element and the use of the weaker term leads to an implicature that the stronger one does not hold. A scale based on passage of time is more inclusive in that it allows any change of situation that can be realized over time.

To sum up, this section has shown that the occurrence of *acik* relies on the presence of an upper value on a temporal scale. Expressions that introduce a temporal scale include *before*-clauses, degree adverb *tel* 'less' with accomplishment predicates, imperatives and exhortatives with negative force, and modal expressions of possibility and necessity as well as progressives, resultatives, and negation and negative predicates. The distributional constraints discussed in this section further support the proposed semantics of *acik*. The element *acik* associates with is a lower element of a temporal scale, and sentences containing the adverb express a contrast between the current state and the future state that has not been realized yet.

## 4 Conclusion

This paper has proposed that an aspectual adverb *acik* in Korean denotes a lower element of a temporal scale, and that it occurs in contexts where a negative entailment is possible. *Acik* associates with a focus, and introduces alternatives on a temporal scale. Occurring with a stative predicate A, a scale of the form <A, B> is formed, where state B temporally follows state A. Sentences containing *acik* assert that the state denoted by the predicate A holds, and the alternative state B does not hold at reference time. Given that *acik* A entails *not B*, it also has been shown that *acik* can occur in environments where a negative entailment arises. Examples of such environments include sentences containing overt negation and lexically negative predicates, imperfective markers indicating progressive and resultative, modals of possibility and necessity, temporal connective *-cen* 'before,' and degree adverbs *tel* 'less' and *te* 'more' in certain contexts.

If sentences containing *acik* are all potentially negative as proposed in this paper, one can wonder whether *acik* is not just a focus adverb but also a type of NPI like *yet*. The environments listed above include those often mentioned in discussion of NPI licensing. The fact that unacceptable *acik* in perfective past tense can be saved by negation resembles the behavior of typical NPIs including *amwuto* 'any' in Korean. Given the position that NPIs often denote a scalar endpoint or some lower/weaker element of a scale (Krifka 1995, Lahiri 1998, Lee et al. 2000, among others), the negative polarity of *acik* seems quite plausible. But a closer look tells us that an NPI approach to *acik* is not tenable. While *acik* is unacceptable in perfective past tense, it is acceptable with progressives, which is another well-known context that does not license NPIs (Giannakidou 2011). Both positive and negative sentences in progressive aspect allow *acik*, which weakens the NPI status of *acik*. Furthermore, NPI licensing by negative entailment or implicature as proposed in Baker (1970) or Linegarer (1987) runs into the problem of over-licensing, as pointed out in Kadmon and Landman (1993) and Krifka (1995). One thing to note, however, is the fact that the distributional constraints of *acik* began to appear only in the 18th century, and before that, *acik* occurred freely in contexts which do not allow it in contemporary Korean (Lee 2010). If such a change is in progress even now, the distribution of *acik* might be more restricted in the future and it might obtain the status of an NPI eventually. In order to check this speculation, it might be worthwhile to examine a corpus and check the ratio of NPI-like *acik* to tell whether its NPI tendency is strengthening over time. This is left for future research.

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