

Perfective in Eastern Armenian¹

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Abstract. In this paper I investigate the *-c'* perfective in Armenian addressing two puzzles related to its semantics. First, it is possible to cancel the culmination inference of an accomplishment VP in *-c'* perfective only if the event started a short while ago, and second, likewise, some stative verbs in the *-c'* perfective allow cancellation of the culmination inference. I propose that *-c'* perfective is the realization of two operators; a *ER* operator that establishes a *process* or *transition* relation between eventualities and events, and a *Result* operator that introduces a relation between a state and the event that caused it. The major contribution of this paper is to advance our understanding of the cross-linguistic options for encoding completed events and to show how micro-variation between languages can be captured by breaking down perfective aspect into component parts.

Keywords: Perfective aspect, Armenian, completed event, cancellation of a culmination entailment.

1. Introduction

This paper investigates the semantic properties of Armenian post-verbal particle *-c'* (*-ac'*, *-ec'*), with a particular focus on its status as a marker of Perfective aspect (Dum-Tragut, 2009; Giorgi and Haroutyunian, 2014). Perfective aspect describes a completed event (Comrie, 1976; Rothstein, 2008; Singh, 1998; Altshuler, 2014). For example, in (1) the completion of the arrival entails being at the airport, and the completion of the painting event in (2) entails the result of having a painted door.

- (1) The airplane arrived at the airport.
- (2) Kaden painted the door.

Similarly, the post-verbal particle *-c'* in Armenian denotes an event that culminated. For example, (4) describes a completed event of painting the door and (3) describes a completed event of arriving. The example (4) entails that the door is painted completely and (3) entails that the airplane is in the airport.

- (3) inqnatir-ə jaman-ec' odanavakayan
airplane-NOM arrive-PRV airport
'The airplane arrived at the airport.'
- (4) Aram-ə dur-ə nerk-ec'
Aram-NOM door-ACC paint-PRV
'Aram painted the door.'

If we assume that *-c'* is an exponent of the perfective aspect in Armenian, then two behaviors of this *-c'* perfective present a challenge to our current understanding of perfectives. First, it

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is possible to cancel the culmination inference of accomplishment events, but only *if the event began a short while ago*. For example, the sentence in (5) is true in a scenario when 15% of the door is painted and false when 90% of the painting is done.

- (5) Aram-ə dur-ə nerk-ec' bayc minchev verg ch-nerk-e-c'
 Aram:NOM-DEF door:ACC-DEF paint-PRV but till end NOT-paint-PRV
 Lit: 'Aram painted the door but didn't paint it completely.'
 Means: 'Aram started to paint the door.'

Existing accounts of the perfective do not predict this, because instances of canceled culmination generally refer to a stage of the event that is close to the final stage of the event rather than the initial stage of the event (Altshuler, 2014; Singh, 1998; Filip, 2008; Martin and Gyarmathy, 2019). In Hindi, for example, it is possible to cancel the culmination inference of an accomplishment in Simple Perfective as shown in (6). But, unlike the Armenian example, (6) is true in a scenario when 90 % of the door is painted, and it is judged odd in a scenario when 15 % of the door is painted.²

- (6) miiraa ne darwaazaa rangaa par puuraa nahii rangaa
 Mira ERG door paint but completely NEG paint-PRV
 'Mira painted the door but did not paint it completely.' (Singh 1998:194)

The second issue is related to the stative predicates in a perfective aspect. It is known that cross-linguistically only certain statives can take a perfective aspect and the combination of a stative and the perfective leads to an inchoative interpretation. For example, the stative *to know* in Hindi with the perfective aspect is interpreted as *come to know*.

- (7) ye mE=ne us samay jaan-aa thaa
 this I=ERG that time know-PFV be.PST
 'This, I came to know (learned) at that time.' (Rajesh Bhatt, p.c.)

In Armenian the post verbal particle *-c'* productively can combine with all stative verbs. This combination for some statives has an inchoative interpretation, similar to the Hindi example in (7).

- (8) Aramə havata-c' Ani-in
 Aram-NOM believe-PRV Anbi-DAT
 'Aram came to believe Ani'

However, for certain stative verbs the combination with the *-c'* particle doesn't give the expected inchoative reading, but rather an 'inceptive' interpretation similar to the one found for the accomplishments in (5). These stative verbs (e.g., *love*, *live*) likewise allow the culmination of the eventuality to be canceled in the *-c'* perfective.

- (9) Aram-ə sire-c' Ani-in bayc ch-sire-c' minchev verj
 Aram-NOM love-AOR Ani-DAT but NEG-love-AOR till end
 Lit: 'Aram loved Ani but didn't love till the end'
 Means: 'Aram started to love Ani.'

²A similar pattern has been reported for other languages (e.g., Spanish) that allow cancellation of the culmination inference of accomplishments in the perfective aspect. For more discussion see Martin and Gyarmathy, 2019.

To address this gap between the data and the literature, I put forward an analysis of Armenian *-c'* that takes it to be a realization of two operators; a *ER* operator that establishes a *process* or *transition* relation between eventualities and events, and a *Result* operator that introduces a relation between a state and the event that caused it.

This paper is structured as follows: In the next section, I will provide an in-depth exploration of the behavior of the post-verbal particle *-c'* in Armenian. In the third section, I will turn to a comprehensive examination of different event types, encompassing achievements, accomplishments, and stative within the *-c'* particle. I will delve into the fundamental distinctions between achievements and accomplishments, along with an investigation into why stative in the *-c'* perfective exhibit behaviors similar to these event types. In the fourth section, I will present my analysis of the *-c'* verbal particle and explore its place in a cross-linguistics typology of perfect(ive) aspectual operators.

2. Background on *-c'* perfective

The *-c'* perfective in Armenian productively can combine with all types of events, including achievements, accomplishments, and states. In the case of achievements, the attempt to cancel the culmination inference leads to a contradiction as shown in (10).

- (10) *Aram-ə haxt-ec' mrcuytə bayc ch-haxt-ec' ayn minchev verg
 Aram-NOM win-PRV competition:ACC but NEG-win-PRV that till end
 Intended: 'Aram won the competition but didn't win it completely.'

This pattern holds not only for Armenian *-c'* perfective but also for the perfective aspect in other languages as English and Hindi (e.g., (11), (12)).

- (11) *The airplane arrived at the airport but didn't get to the airport.
 (12) #pitaa-jii hamaare ghar aa-ye lekin hamaaraa ghar nahiiN DhuunD sake
 father our house come-PRV but our house not find could
 Intended: 'Father came to our house but was unable to find our house.' Hindi
 (Altshuler 2014:737)

For accomplishments, as shown in the Introduction, it is possible to cancel the culmination inference in Armenian. However, it is possible only if the event had begun a short while ago. For example, when painting a door, the expected result is a fully painted door, as indicated in (13a), which holds if the entire door is painted. In cases of cancellation, as seen in (13b), the sentence remains true only if Aram has just started the painting process.³

- (13) a. Aram-ə dur-ə nerk-ec'
 Aram-NOM door-ACC paint-PRV
 'Aram painted the door'

³In fact, speakers didn't accept the cancellation inference easily. They reported that it makes the utterer sound "cynical". It is noteworthy that speakers asserted that the sentence gains meaningful interpretation only in situations where the event has just commenced. Additionally, there were speakers, who judged example (13a) true in a scenario when 90% of the door was painted (without (13b)), stating that it depends on what we count as the door having been painted. This intuition aligns with what Martin and Gyarmathy (2019) called 'cancellable accomplishments'.

- b. bayc ch-nerk-ec' ayn michev verj
 but NEG-paint-PRV that till end
 ...but didn't paint it completely'
 Means: 'Aram started to paint the door'

For statives, the perfective in Armenian productively can combine with all statives. Concerning the culmination of statives in the perfective aspect is similar to what is found in (10) and (13). Some stative verbs (*to believe*, *to own*, *to know*) get inchoative interpretation in the *-c'* perfective and behave like achievements – the cancellation of the culmination leads to a contradiction. The other statives, such as *to live*, *to love*, *to hate*, behave like accomplishments, and the cancellation of the culmination results in the start of the state.

- (14) *Aram-ə havata-c' Ani-i asac-ner-in bayc minchev verj ch-havata-c'
 Aram-NOM believe-PRV Ani-GEN say-PL-DAT but till end NOT-believe-PRV
 Intended: 'Aram came to believe what Ani says but didn't believe completely.'
- (15) Aram-ə sire-c' Ani-in bayc ch-sire-c' minchev verj
 Aram-NOM love-PRV Ani-DAT but NEG-love-PRV till end
 Intended: 'Aram loved Ani but didn't love till the end.'
 Means: 'Aram started to love Ani.'

The literature highlights instances in certain languages, such as Hindi and Spanish, where certain statives can take the perfective aspect, resulting in an inchoative interpretation, as exemplified by the verb *to believe* in Armenian. A notable divergence between these languages and Armenian lies in the fact that in Armenian, all statives can assume the perfective aspect, but not all statives get the inchoative interpretation. In cases where an inchoative interpretation is not attained, these statives convey a sense of a completed state. This prompts an immediate and pertinent question: what constitutes the culmination or completeness of a state, as observed in verbs like *to live* or *to love*? The notion of the completeness of a state is very similar to the completeness of an accomplishment. The main characteristic is whether it results in a new state. For example, the utterance of (16) has a contextually salient result in mind such as getting married or loved till the end of life.

- (16) Aram-ə sire-c' Ani-in
 Aram-NOM love-PRV Ani-DAT
 'Aram loved Ani'

This becomes more visible in the case of *to live* (*aprel*), due to the culmination requirement of the perfective aspect that triggers cessation implicature. The example (17) denotes an event of living in Yerevan that has been completed. The natural way of thinking about this is that "living state", in other words, life culminates by death. The example (17) entails that David is dead, he does not live (in Yerevan) anymore.

- (17) David-ə Yerevan-um apre-c'
 David-NOM Yerevan-LOC live-PRV
 'David lived in Yerevan'
- a. *...ev michev hima ayntax e apr-um
 ...and till now there be:NON-PAST3SG live-IMPRF
 '...and still lives there'

Note that the culmination requirement of the *-c'* perfective is stronger than the normal cessation implicature in the past imperfective. The past imperfective counterpart of (17) allows cancellation of the cessation implicature in Armenian.

- (18) David-ə Yerevan-um er apr-um
 David-NOM Yerevan-LOC be:PAST:3SG live-IMPRF
 ‘David lived in Yerevan’
 a. ...ev michev hima ayntex e apr-um
 ...and till now there be:NON-PAST3SG live-IMPRF
 ‘...and still lives there’

In sum, *-c'* perfective denotes a culminated event in Armenian. With respect to the cancellation of the culmination, eventualities⁴ lay into two groups: 1. achievements and statives that behave like achievements, and 2. accomplishments and statives that behave like accomplishments. In the case of the first group, Armenian is not different from other languages, while in the case of the second group, it is different from the languages discussed in the literature and the question is why. In the next section, I will turn to a detailed discussion about the nature of accomplishment and achievement events and address the question of why specific statives behave like achievements and others like accomplishments.

3. Durative vs inchoative readings

It is generally agreed that accomplishment events and achievement events are different with respect to their inner complexity: accomplishments denote an activity process within the event, and they are durative, while achievements don't have such complexity and are punctual. Consider an achievement *to arrive* and an accomplishment *to build*. Intuitively we understand that the arriving event on its own doesn't include a process, while building a house includes the whole process of building a house. This process includes all different types of activities (e.g., hammering the nails, making the door frame, etc.) that occur while building a house.

(19) The airplane arrived at the airport.

(20) John built a house.

The discussion about this difference between achievement and accomplishment events has been reflected in numerous authors' works including Verkyul (1989), Dowty (1977, 1979), Parson (1994), Rothstein (2008), Tenny (2000) and many others. Verkuyl (1989) has categorized achievements as a subtype of accomplishments based on the length of their associated process, where accomplishments involve a longer process while achievements entail a shorter one. This description of achievements has been utilized to explain their ability to occur in the progressive aspect.⁵ Rothstein (2008) has presented an alternative view, suggesting that the distinction between achievements and accomplishments is not a matter of degree but rather lexicalized, based on the presence or absence of a process associated with the event. According to her, an activity process constitutes a part of an accomplishment event, while achievements lack such a

⁴By eventuality I refer to both events and states.

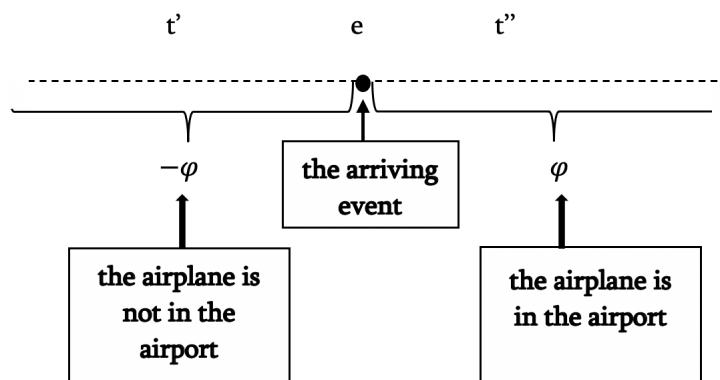
⁵Parsons (1994) and Dowty (1979) have proposed a similar, albeit less extreme, perspective. For them, the process of achievement represents a preparatory process that precedes the event rather than a constituent part of it.

process. Drawing on approaches advocated by Mittwoch (1991), Smith (1997), and Kamp and Reyle (1993), she contends that the progressive aspect can be applied to some achievements through coercion, where a process is coerced to accompany the event, rendering it similar to an accomplishment. In summary, accomplishments feature an activity process as a part of the event, whereas achievements lack such a process and merely indicate a change of state.

In Armenian, the difference between achievements and accomplishments in *-c* perfective fits Rothstein's theory. Achievements lack a process and their culmination results in a change of state. For example, (3) repeated in (21) describes an event of arriving that causes a change of state of being in the airport. The diagram in (22) is the visual representation of (21): there is a time interval t' where it is not true that the airplane is in the airport, the event of arriving follows t' and that event causes the change of state of being in the airport.

- (21) inqnatir-ə jaman-ec' odanavakayan
 airplane-NOM arrive-PRV airport
 'The airplane arrived at the airport.'

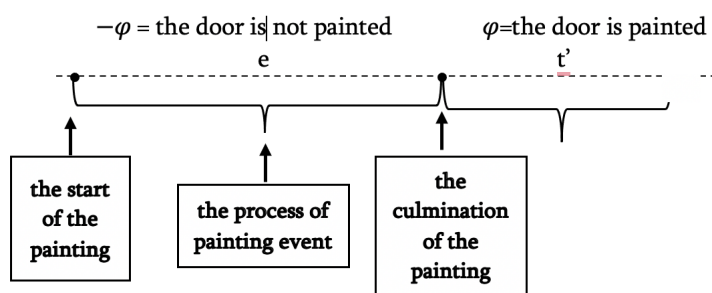
- (22) Arriving event



In contrast, accomplishments denote an event that has a start, a process, and a culmination. The process includes all activities that lead to the culmination. The culmination, similar to the achievements, results in a change of state. For example, the event of painting the door in (23) can be pictured in (24): there is a time point when the event starts, some interval when the event is in progress, and the culmination. In this case, the state that has been changed as a result of the culmination is having a door being painted. By culmination here I refer to the natural endpoint of the event.

- (23) Aram-ə dur-ə nerk-ec'
 Aram-NOM door-ACC paint-PRV
 'Aram painted the door.'

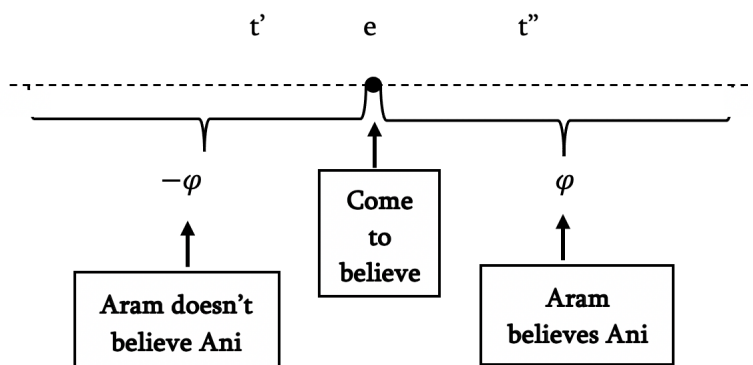
(24) Painting event



Based on the description of statives above, I argue that Armenian statives in the *-c'* perfective have the same pattern as achievements and accomplishments described in (22) and (24). The statives such as *havatal* (to believe), *unenal* (to own), *imanal* (to know), etc. with the *-c'* particle are achievement-like and denote an event that doesn't have a process as part of the event. For example, (25) means that there is a time interval *t'* preceding the event *e*, and in *t'* Aram didn't believe Ani. The state of not believing Ani is changed as soon as Aram comes to believe Ani.

- (25) Aram-ə havata-*c'* Ani-i asac-ner-in
 Aram-NOM believe-PRV Ani-GEN say-PL-DAT
 'Aram came to believe what Ani says'

(26) *Believe-like* statives

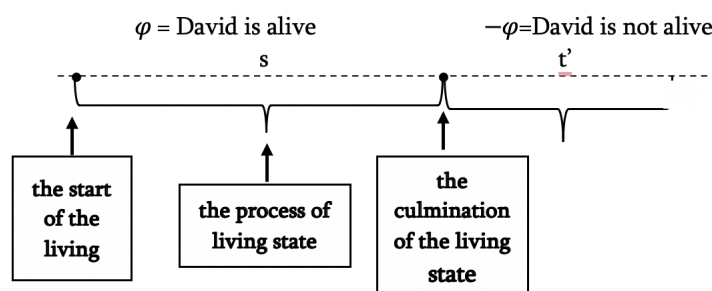


Statives such as *aprel* (to live), *sirel* (to love), *atel* (to hate) in *-c'* perfective have durative reading, and they are similar to accomplishments. For example, (27) means there was an interval where the event of David living in Yerevan is true, but the same doesn't hold for now. Furthermore, without any modification (27) triggers a cessation implicature. Such implicature is triggered by the natural endpoint (i.e., the culmination) of the state of living, which is death.

- (27) David-ə Yerevan-um apre-*c'*
 David-NOM Yerevan-LOC live-PRV
 'David lived in Yerevan'

It is worth mentioning, that the type of the cessation implicature in the case of *-c'* perfective is different from the cessation implicature or *Lifetime Effect* (see Enç (1987), Altshuler (2016)) observed in the case of past imperfective. As shown in (17) and (18) the cessation implicature is possible to cancel in the case of the past imperfective, but it is not cancellable in the case of the *-c'* perfective.

(28) *Live-like* statives



I propose that this cut between the *believe-like* statives and *live-like* statives arises because of their internal structure. *Believe-like* statives are homogeneous eventualities in the sense that they don't involve different sub-events or actions in them. *Live-like* statives have a more complex inner structure in the sense that they involve different types of activities in them. For example, *to live* includes different types of activities such as washing every morning, doing groceries, saying "hello" to neighbors, and so on. Contrary, *to believe* doesn't include different activities while the state of believing holds. Based on this difference between stative verbs, the homogeneous statives get the inchoative interpretation, which makes them achievement-like, while non-homogeneous statives, due to the inner complexity, get a durative interpretation and behave like accomplishments.

This phenomenon is lexicalized in Armenian and shows up in the verb-multiplication test. In Armenian verb multiplication is used to describe a situation, where there were attempts to accomplish something, but didn't succeed to do so. For example, a speaker of Armenian can utter the sentence in (29) describing a situation where Aram tried to paint the door but didn't paint it. The sentence in (29) is true if Aram did some door-painting-related activities, such as getting the brush and color and painting a relatively small part of the door, but didn't paint the door completely. In other words, the verb multiplication is used to refer to subactivities of the event. Importantly, the verb multiplication is not possible in the case of achievements as illustrated in (30). This difference between accomplishments and achievements is based on their inner complexity, i.e., whether it is possible to identify subactivities of the event or not. Since achievements don't have such subactivities then verb-multiplication is infelicities for achievements.

(29) Aram-ə dur-ə nerke-c' nerke-c' bayc minchev verg ch-nerke-c'
 Aram-NOM door-ACC paint-PRV paint-PRV but till end NOT-paint-PRV
 'Aram painted, painted the door, but didn't finish painting it'

(30) *Aram-ə jaman-ec' jaman-ec', bayc ch-jaman-ec'
 Aram-NOM arrive-PRV arrive-PRV, but NOT-arrive-PRV
 Intended: 'Aram arrived, arrived, but didn't arrive'

A similar pattern holds for homogeneous and non-homogeneous statives. In the case of non-homogeneous statives, it is possible to multiply the verb to describe a state that didn't reach its culmination or natural endpoint. For example, Aram's temporary residence in Yerevan can be elucidated through the use of the verb multiplication illustrated in (31). Contrarily, the same technique is not felicitous for homogeneous statives (cf (31)) and (32).⁶ In sum, the verb multi-

⁶Concerning momentarily and durative interpretations, some verbs get only momentarily reading within the per-

plication can be used only if the eventuality has identifiable subactivities, such as accomplishments and non-homogeneous statives, and it is infelicitous with achievements and homogeneous statives that lack subactivities.

- (31) Aram-ə apre-c' apre-c' Yerevan-um, bayc erku taruc gna-c Gyumri
 Aram-NOM live-PRV live-PRV Yerevan-LOC, but two year:ABL go-PRV
 'Aram lived, lived in Yerevan but moved to Gyumri after two years'
- (32) *Aram-ə havata-c' havata-c' Ani-in, bayc ch-havata-c'
 Aram-NOM believe-PRV believe-PRV Ani-DAT, but NEG-believe- PRV
 Intended: 'Aram believed, believed Ani, but didn't believe her.'

In the next subsection, I will present evidence that the *-c'* particle in Armenian also encodes a change-of-state meaning.

3.1. Transition to a new state

As it has been proposed by Tenny (2000), an adverbial such as *in an hour*, is a completive adverb and can be used for completed events. It measures the length of the interval that ends with the completion of the event. An adverbial *for an hour* is durative and it interacts with the event structure. Based on this generalization *in an hour/ for an hour* modification test is one of the common tests for telicity. In many languages *for an hour* (or the equivalent of it) is only felicitous with durative VPs in the perfective aspect and not with the punctual (telic) VPs. For example in English *for an hour* can modify a durative VP as *to dance*, but it is odd with a punctual VP as *to arrive* (cf (33) and (34)).

- (33) Dave danced for an hour.
- (34) *Dave arrived for an hour.

In general, telic accomplishment VPs are not felicitous with the *for an hour* modification in the perfective aspect. The *for an hour* modification becomes possible for telic accomplishment VPs in the perfective only if they are coerced into an atelic reading. For example, (35) is interpreted as 'Dave did some house-building activities for an hour'.

- (35) ?Dave built a house for an hour.

In contrast, in Armenian, the *for an hour* modification is felicitous with both achievement and accomplishment VPs in the *-c'* perfective.⁷ However, *for an hour* doesn't measure the duration of the event, but the length of the resulting state that has been caused by the event. For example, (36) can be understood as follows: after arriving at the airport the airplane enters the state of being in the airport and that state holds an hour, after an hour the airplane leaves. Similarly, in (37) the house that Aram built lasted an hour and after an hour it was destroyed.

- (36) Inqnatirə mi jam-ov jaman-ec' odanavakayan
 Airplane a hour-INS arrive-PRV airport
 Means: 'The airplane arrived and after an hour it left.'

fective aspect, such as *to believe*, *to know*, *to think*, *to own* etc., and verbs that get only the durative interpretation, such as *to live*. Verbs like *to love*, *to hate* can get both interpretations.

⁷Because of the page limit, I will not discuss the *in an hour* modification here.

- (37) Ara-n mi jam-ov tun/tun-ə karuc'-ec'
 Ara-NOM a hour-INS house/house-DEF build-PRV
 Means: 'Aram built a house that lasted an hour.'

The same intuition holds for statives in the *-c'* perfective. In (38) the state of believing Ani lasted an hour, and after an hour Aram stopped believing her. In (39) Aram's residence in Yerevan lasted only an hour, after an hour he moved out of the city.

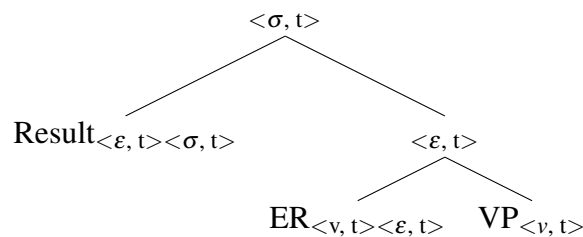
- (38) Aram-ə mi jam-ov havat-ac' Ani-i asac-ner-in
 Aram-NOM a hour-INS believe-PRV Ani-GEN say-PL-DAT
 'Aram believed what Ani says for an hour (and after an hour he no longer believes her)'
- (39) Aram-ə mi jam-ov apre-c' Yerevan-um
 Aram-NOM a hour-INS live-PRV Yerevan-LOC
 Means: 'Aram came to Yerevan, lived there an hour, and left after an hour'

In sum, the *-c'* perfective in Armenian allows *for an hour* modification, where it measures the length of the result state of the event. This leads us to claim that the transition to a new state or a resulting state is something that is part of the meaning of the *-c'* perfective in Armenian.

4. Proposal

Summing up the pattern observed in the Armenian *-c'* perfective there are two things to highlight. First, the *-c'* perfective in Armenian reflects on the inner structure of the eventuality. If the event or state is homogeneous then they get momentarily or inchoative reading, and if they are non-homogeneous then they get durative interpretation. The cancellation of the culmination isn't possible for the first group of eventualities, but it is possible for the second group of eventualities. Second, the *-c'* perfective in Armenian has a result state requirement that is part of its meaning. A successful theory for the *-c'* perfective in Armenian needs to reflect on these two important generalizations. I propose that perfective in Armenian is the realization of two operators called *ER* (Event Relation) and *Result*. With the *ER* operator I aim to capture the differences between the events that have process as part of them and events that don't have process. The *Result* operator is for satisfying the result state requirement of the *-c'* perfective.

- (40) Structural representation of perfective with two structural heads



ER is a relation between eventualities and events. It takes arguments of both state type (σ) and event type (ε) and maps both to a predicate of events ($\langle \varepsilon, t \rangle$).⁸ *ER* holds between an

⁸This also presupposes that for statives there is an additional "eventivization" in the *-c'* perfective and for the page limit I will not discuss it here. But as a short note, stative in the *-c'* perfective behave like events in Armenian and

eventuality (event or state)⁹ e' and an event e iff either 1. e is the process of e' OR 2. e is transition into e' .

- (41) $[[ER]] = \lambda P_{\langle v, t \rangle}. \lambda e_{\varepsilon}. \exists e'[P(e')] = 1 \ \& \ ER(e', e)$
 a. $ER(e', e)$ if either
 (i) e is the process for e'
 (ii) e is transition into e'

Achievements, as previously noted, denote a transition into a state. Similar to Rothstein, I assume that achievements don't have a process component, and the preparatory process isn't part of the event per se. Consequently, if e' is an achievement event, then ER will only ever relate e' to a transition event e into e' (41a-ii). Homogeneous statives, such as *to believe* and *to know*, within the *-c'* perfective also lack the process as a constituent of the event. Since these states do not have an identifiable process component, the only events that ER relates them to are transitions into those states. Contrarily, accomplishments and non-homogeneous states have the process as part of the eventuality itself. The ER operator can relate these kinds of eventualities to either their process components, (41a-i), or their transitions, (41a-ii). If e is a process component, then the resulting reading is a durative reading, but if e is a transition component, then it obtains a pure inchoative reading. The existence of the latter reading will be discussed below, as this is the claimed source for the culmination cancellation phenomenon. It is worth mentioning that the ER operator takes both event type and state type arguments and always outputs an event. This is why statives can be combined with the ER operator, resulting in an expression that always denotes an event.

Result is a relation between events and the result states, where the event causes the state s . In this paper, I adopt the concept of result states as proposed by Kamp and Reyle (1993), Parsons (1994), Tenny (2000), Rothstein (2008).

- (42) $[[Result]] = \lambda P_{\langle \varepsilon, t \rangle}. \lambda s_{\sigma}. \exists e.[P(e)] = 1 \ \& \ Result(e, s)$

A result state is defined as a relationship between events and their resulting states, where the event is the cause of the state. This connection between the event and the state is characterized as an inner or modal connection. For instance, consider the event of painting a door in the sentence "Aram painted a door." While the event may result in a state of fatigue for Aram, the actual result state of the event is the door being painted.

4.1. Deriving the pattern

Within this theory of perfective, the predicted denotation for an achievement event such as *to arrive* would be as presented in (43).¹⁰ Applying the formal definition of two operators – ER and $Result$, – we get denotation for an event *to arrive* shown in (43a). Since achievements and homogeneous states don't have the process as part of the event itself then $ER(e, e')$ is equivalent

they can be modified by manner adverbials or get an anaphoric reference by "it happened when..." (Maienborn (2005)), which are typically used to modify events, rather than states. This eventivization is not coercion, since it doesn't occur in other aspects and is typical only for the *-c'* perfective in Armenian.

⁹Here in addition to event type ε and state type σ , I use v as eventuality type.

¹⁰For simplification purposes I put aside tense and other parameters from the denotation.

to (41a-ii) where the event e is transitioned into e' , illustrated in (43b).

- (43) Aram- \emptyset jamane- c' odanavakayan
 Aram-NOM arrive-PRV airport
 'Aram arrived at the airport'
- $[[43]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Goal}(e') = \text{airport} \ \& \ \text{Arrive}(e') \ \& \ \text{ER}(e', e) \ \& \ \text{Result}(e, s)$
 - $[[43]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Goal}(e') = \text{airport} \ \& \ \text{Arrive}(e') \ \& \ e \text{ is the transition into } e' \ \& \ \text{Result}(e, s)$
 - for a state s , there is an event e that is a transition into an event of arriving e' , Aram is the agent of the arriving event and the airport is the goal of that event, and the event e causes the result state s . This result state - the result of the transition into the event - is the state of having arrived.

In the case of the homogeneous states as *to believe*, similar to the achievements, the *ER* establishes the transition relation between the state of believing and e' . This is illustrated in (44b).

- (44) Aram- \emptyset havata- c' Ani-in
 Aram-NOM believe-PRV Ani-DAT
 'Aram come to believe Ani'
- $[[44]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Experiencer}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{Ani} \ \& \ \text{Believe}(e') \ \& \ \text{ER}(e', e) \ \& \ \text{Result}(e, s)$
 - $[[44]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Experiencer}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{Ani} \ \& \ \text{Believe}(e') \ \& \ e \text{ is the transition into } e' \ \& \ \text{Result}(e, s)$
 - for a state s , there is an event e that is a transition into a state of believing e' Aram is the experiencer of the believing state and Ani is the theme of that state, and the event e causes the result state s . This result state - the result of the transition into the state - is the state itself.

The predicted denotation for an accomplishment *to paint* in $-c'$ perfective is demonstrated in (45). The truth condition of (45) within the semantics of $-c'$ perfective developed above will be as in (45a). In this case $ER(e, e')$ holds if either e is a transition into e' or e is the process of e' . I assume that in cases where e could either be a transition or a process, there is a preference for e to be construed as a process. This is reflected in the relative orderings of the disjuncts in (41a-i) and (41a-ii). So the relation between the event e and the eventuality e' in this case will be (41a-i), where e is the process of e' .

- (45) Aram- \emptyset dur- \emptyset nerke- c'
 Aram-NOM door-ACC paint-PRV
 'Aram painted the door'
- $[[45]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{door} \ \& \ \text{Paint}(e') \ \& \ \text{ER}(e', e) \ \& \ \text{Result}(e, s)$
 - $[[45]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{door} \ \& \ \text{Paint}(e') \ \& \ e \text{ is the process of } e' \ \& \ \text{Result}(e, s)$
 - for a state s , there is an event e that is the process of an event of painting e' , Aram is the agent of the painting event and the door is the theme of that event, and the event e causes the result state s . This result state - the result of the process - is the state of having the door painted.

Similarly, in the case of the non-homogeneous states as *to love* there is a preference for the state of loving to be a process of e' . The denotation of a state *to love* in the *-c'* perfective is given in (46).

- (46) Aram- \emptyset sire- c' Ani-in
 Aram-NOM love-PRV Ani-DAT
 'Aram loved Ani.'
- a. $[[(46)]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Experiencer}(e') = \text{Aram} \ \& \ \text{Patient}(e') = \text{Ani} \ \& \ \text{Love}(e') \ \& \ \text{ER}(e', e) \ \& \ \text{Result}(e, s)$
- b. $[[(46)]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Experiencer}(e') = \text{Aram} \ \& \ \text{Patient}(e') = \text{Ani} \ \& \ \text{Love}(e') \ \& \ e \text{ is the process of } e' \ \& \ \text{Result}(e, s)$
- c. for a state s , there is an event e that is the process of a state of love e' , Aram is the experiencer of the love state and Ani is the patient of that state, and the event e causes the result state s . This result state- the result of the process - is the state of not loving.

Given this semantics, when the culmination of an event is 'canceled' in Armenian, what is denied is the result state of the process. For example, to say "Aram painted the door but didn't paint it completely" with the *-c'* perfective means that there isn't a state of the door being painted as a result of Aram's painting.

- (47) Aram- \emptyset dur- \emptyset nerke- c' bayc minchev verg ch-nerke- c'
 Aram-NOM door-ACC paint-PRV but till end NOT-paint-PRV
 'Aram painted the door but didn't paint it completely'

The statement "he didn't paint it completely" effectively adds to the asserted content the information that there is no result-state of the "process" component of e' . So adding this statement to the denotation of 'Aram painted the door' we get a contradiction as shown in (48a).

- (48) $[[(47)]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{door} \ \& \ \text{Paint}(e') \ \& \ \text{ER}(e', e) \ \& \ \text{Result}(e, s)$
- a. $[[(47)]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{door} \ \& \ \text{Paint}(e') \ \& \ e \text{ is the process of } e' \ \& \ \text{Result}(e, s) \ \& \ \neg \exists s: e \text{ is the process of } e' \ \& \ \text{Result}(e, s)$

To consistently conjoin this with the general truth-conditions of (47), it must be that the event e that ER relates to e' is NOT the process component of e' , but instead the *TRANSITION* into e' . Given that, the truth condition of the sentence in (47) will be (49a) and the result state asserted into the meaning of the sentence is the result of having transitioned into the event of painting the door.

- (49) The revised semantics for (47)
- a. $[[(47)]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{door} \ \& \ \text{Paint}(e') \ \& \ e \text{ is transition into } e' \ \& \ \text{Result}(e, s)$
- b. for a state s , there is an event e that is transition into an event of painting e' , Aram is the agent of the painting event and the door is the theme of that event, and the event e causes the result state s . This result state - the result of the transition into the event - the result of having transitioned into the event of painting the door.

The issue at hand is the question as to why, in instances of event cancellations, refers to the initial stage of the event, and not any other stage of the event. This phenomenon can be attributed

to its pragmatic implausibility. Due to the cancellation, there is a new result state and the event is the transition into that state. For example, in (49a) that is entering the process of painting the door. The most natural way of interpreting “entering the process/state of X” is to understand that the process/state has begun. So “entering the process of painting” in the example (47) means “the painting begun”. Nonetheless, the “begun state” is considered to have ended once a substantial portion, such as 90%, of the door has been painted. If we assert that the “begun state” still exists, it implies that a significant portion of the painting has not yet occurred.

The underlying idea of pragmatic implausibility in (47) aligns with Gracian’s theory of conversational implicature advocating against providing not enough information. Uttering the sentence in (47) in a case when the 80% or 90% of the door is painted can be seen as a violation of the Maxim of Quantity. To illustrate this, suppose Aram is building a house and he has to paint 5 doors for this house. Now consider a conversation between two person (52), that are discussing Aram’s work. In a scenario when Aram painted one door the response from Person B is reasonable. However, in a scenario where Aram already painted four doors out of five saying that Aram started to paint the doors is odd.

(50) Scenario 1: Aram painted one door out of five.

(51) Scenario 2: Aram painted four doors out of five.

(52) Person A: what does Aram do these days?

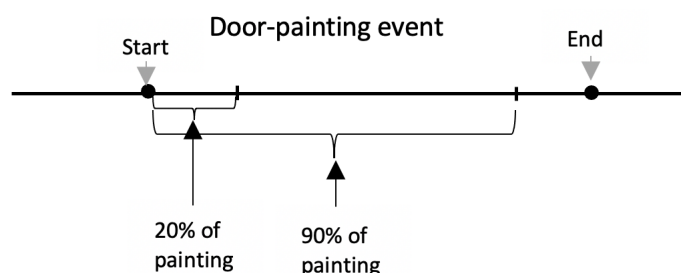
Person B: He started painting the doors

✓ Scenario1, #Scenario2

The inadequacy of Person B’s response in Scenario 2 stems from the fact that when we use the term “started” (or “begun”) we intend to refer to a stage of the event that is proximate to its initial point and not to its final point. Suppose that Aram paints 5 doors in five days- one door each day. If we think about the initial point of this 5-door painting event as 0, then painting one door is closer to that initial point than having already 4 doors painted, i.e., $1 \approx 0$, but $4 \not\approx 0$. In the fourth day when he paints the fourth door he is closer to the final point of the event than the initial point, i.e., $4 \approx 5$.

Similarly, in the case of (47), if the 90% of the door is painted, then it is too far from the initial point of the event. When only 20% percent of the door is painted, then it is closer to the starting point of the event and far from the final point of the event.

(53) Schematic illustration of the pragmatics for (47)



Non-homogeneous staves follow the same pattern as accomplishment events in the case of the cancellation of the culmination inference. The statement “but didn’t love her till the end in (54) asserts that there is no result-state of the “process” component of e’.

- (54) Aram- \emptyset sire-c' Ani-in bayc ch-sire-c' minchev verj
 Aram-NOM love-PRV Ani-DAT but NEG-love-PRV till end
 'Aram loved Ani but didn't love till the end'
 a. $[[54]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Experiencer}(e') = \text{Aram} \ \& \ \text{Patient}(e') = \text{Ani} \ \& \ \text{Love}(e') \ \& \ e \text{ is the process of } e' \ \& \ \text{Result}(e, s) \ \& \ \neg \exists s: e \text{ is the process of } e' \ \& \ \text{Result}(e, s)$

To puzzle out the contradiction illustrated in (54a), the event e that ER relates to e' is the transition into e' and not the process. So, the revised truth-condition for the sentence (54) will be (55).

- (55) $[[54]] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Experiencer}(e') = \text{Aram} \ \& \ \text{Patient}(e') = \text{Ani} \ \& \ \text{Love}(e') \ \& \ e \text{ is transition into } e' \ \& \ \text{Result}(e, s)$
 a. for a state s , there is an event e that is transition into a state of loving e' , Aram is the experiencer of the love and Ani is the patient of that state, and the event e causes the result state s . This result state - the result of the transition into the state - is the state itself.

For achievements and homogeneous stative, when we cancel the culmination, we essentially negate the existence of the resulting state that these events transition into. For example, cancellation of an arriving event in (43) is the negation of the existence of the state of having arrived. The event of arriving at the airport causes the state of being in the airport. If the state of being in the airport is canceled then the transition from not being in the airport to being in the airport is also canceled. This falsifies the transition relation, which raises contradiction. The same holds for the homogeneous states such as *to believe* illustrated in (57).

- (56) *Aram- \emptyset jamane-c' odanavakayan bayc odanavakayan ch-hasav
 Aram-NOM arrive-PRV airport but airport NOT-get:PRV
 Intended: 'Aram arrived at the airport but didn't get there'
 $[(56)] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Agent}(e') = \text{Aram} \ \& \ \text{Goal}(e') = \text{Airport} \ \& \ \text{Arrive}(e') \ \& \ e \text{ is transition into } e' \ \& \ \text{Result}(e, s) \ \& \ \neg \exists s: e \text{ is transition into } e' \ \& \ \text{Result}(e, s)$
- (57) *Aram- \emptyset havata-c' Ani-i asac-ner-in bayc minchev verg ch-havata-c'
 *Aram-NOM believe-PRV Ani-GEN say-PL-DAT but till end NOT-believe-PRV
 Intended: 'Aram came to believe Ani, but didn't believe her completely'
 $[(57)] = \lambda s_{\sigma}. \exists e. \exists e'. \text{Experiencer}(e') = \text{Aram} \ \& \ \text{Theme}(e') = \text{Ani} \ \& \ \text{Believe}(e') \ \& \ e \text{ is transition into } e' \ \& \ \text{Result}(e, s) \ \& \ \neg \exists s: e \text{ is transition into } e' \ \& \ \text{Result}(e, s)$

5. Conclusion

In this paper, I examined two phenomena connected to the perfective aspect in Armenian. The first phenomenon concerns its capacity to transform various types of verbs into achievement-like or accomplishment-like expressions based on their inner complexity. The second phenomenon pertains to the unique possibility of canceling the culmination inference for accomplishments and accomplishment-like states, which distinguishes Armenian from other languages that permit such cancellation. I presented an analytical framework that addresses how the Armenian perfective aspect distinguishes between eventualities based on their internal structure and elucidates the concept of canceling the culmination in the perfective.

This analysis also explains the difference between Armenian and languages like Hindi. First, it explains why the attempt to cancel the culmination inference of an accomplished VP gets different interpretations in Hindi and Armenian. Specifically, it addresses the question of why in Armenian the cancellation of the culmination leads to interpreting an event as it just started, while in Hindi the event is interpreted as almost finished. I propose that the source of this difference is whether the perfective requires the transition to a new state or not. In Armenian, it has such a requirement, and that requirement is encoded in the meaning of the *-c'* perfective. In Armenian the requirement of a result state comes from the semantics of *-c'* perfective, where that requirement assures the culmination of “some part” of the event - either the process, which yields a culmination entailment, or the transition, which yields that the event has only just begun. But in Hindi, the perfective doesn't have such a requirement. In Hindi and similar languages, the culmination of an event denoted by perfective is the natural endpoint of the event and not the result of the requirement of the new state. As proposed by Altshuler (2016) the cancellation of the culmination in Hindi, cancels the natural endpoint of the event and refers to a stage of the event that is close to that end. In Armenian, however, the cancellation of the culmination is a cancellation of the resulting state that is caused by the process of the event. After the cancellation of the result of the process, a new result state would be the result of the transition into that event, which pragmatically can refer only to the initial stages of the event.

Proposing that the *-c'* perfective has the result state as part of its meaning raises the question of whether it is truly the perfective aspect in EA and why it is not a kind of perfect. I leave this question open here and address it to my future works. Meanwhile as a short note, there are couple of differences between the *-c'* perfective and the perfect *-el* in Armenian. The difference between them related to their compatibility with the present tense and evidentiality. Unlike the *-el* perfect, the *-c'* perfective is not compatible with the present tense in Armenian, but it is compatible with the direct evidence.

Additionally, this paper explains why in Armenian perfective can take both eventive and stative VP arguments, while in Hindi perfective can't take statives productively. The Armenian *-c'* perfective is “blind” with respect to the semantic type of the VP that it is combined with. What is relevant for the *-c'* perfective is the inner structure of the eventuality denoted by the VP. Contrarily, in Hindi perfective is restricted by the semantic type of the VP – it can combine with events. The combination with statives in Hindi is possible only if the state gets inchoative interpretation.

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