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Amanda Swenson

MALAYALAM VERBS

FUNCTIONAL STRUCTURE AND MORPHOSEMANTICS

STUDIES IN GENERATIVE GRAMMAR

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ഞങ്ങൾക്ക് ആവശ്യമുള്ള അപ്പം ഇന്നും ഞങ്ങൾക്കു തരണമെ

No flood lasts forever.
To many Onams better than 2018.

Preface

This book is a significantly revised and expanded version of my 2017 MIT Ph. D. thesis. In addition to an expanded introductory chapter, the chapter on the perfect has been significantly revised and expanded. Chapter 3 of the thesis has been split into three chapters in this book: one arguing for the existence of tense in 'finite' verbs (chapter 2), one arguing that Malayalam has a both a progressive viewpoint aspect morpheme and an iterative pluractional progressive viewpoint aspect morpheme (chapter 4) and one exploring the syntax and semantics of the copulas in Malayalam (chapter 6). The book, as a whole, spends more time thinking about the cross-linguistic picture and how Malayalam contributes to this picture than the thesis did.

This work is very much the result of time spent with my friends in Kerala. I am thankful for their patience with my questions, encouragement, support, laughter and so much more. I am also thankful for the opportunities I have had to discuss this work with a number of Malayali linguists who have given me valuable feedback on both the judgments and the analyses: P. Madhavan and Shijith S., K. A. Jayaseelan, Athulya Aravind, Aiswaria G. Shajan, Keerthana Gopinathan, Gouthaman K. J., Jasmine Maria G., Pooja Paul, Mahesh M., Minu Sara Paul, Mythili Menon, Yangchen Roy, and S. Revathi.

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Thanks also to the speakers of languages other than Malayalam who provided judgments for this book: Mar Bassa Vanrell (Spanish, Catalan), Isa Bayirili and Ömer Demirok (Turkish), Despina Ikonomou (Greek), Salome Shaverdashvilli (Georgian), Katyayani Chaubey (Hindi), Snejana Iovtcheva (Bulgarian), and Ishani Guha (Bangla).

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To all the friends who have supported and encouraged me through writing this, thanks is insufficient.

Contents

1 Introduction

1.1 The broad questions

This book poses two broad questions: What types of cross-linguistic variation occur and why do languages differ from one another in these particular ways? The first question is an empirical one. The importance of this question is fairly easy to see, since it is obvious to anyone who has ever heard or tried to learn a new language that languages are different, i. e. that cross-linguistic variation exists. The second question is a theoretical question. This question might be a trivial one if variation in human language is unconstrained.

However, much work by generative linguists on a diverse set of languages has shown that languages, even ones that seem very different at first, are really quite similar and differ only in principled ways. For example, consider the following scenario. If a child is born in China to Mandarin speaking parents, and then the family moves with their baby to Germany and this baby hears only German, this child will speak only German, despite the fact that (s)he is genetically Chinese. Conversely, if the reverse happens and a child is born to German parents who emigrate to China and the baby hears only Mandarin, this child will not speak German, only Mandarin. This case raises an interesting puzzle: how are young children able to learn any language that they hear?

Generative linguists answer this question by saying that all normally developing children, when they are born, possess a 'language toolbox' that is equipped with the basic knowledge of properties that all human languages share and the principled ways that human languages can differ from one another. This 'toolbox' is part of the genetic make up of humans and does not vary based on where a person is from. Just like all normally developing humans have a heart or stomach, no matter if they are Chinese, German, Indian or American, all normally developing humans have this 'language toolbox.' When a baby hears the language spoken around them, they use the contents of their 'toolbox' to help them quickly learn to speak the specific language being spoken in their environment. Generative linguists call this 'language toolbox' **Universal Grammar** and it is their answer to the question of why languages differ from one another in the particular ways that they do while still being very similar.

Since Universal Grammar is part of the genetic makeup of humans, the universal principles of human language it contains are things humans know without being taught. In this way, Universal Grammar also helps explain why speakers of a given language know things that no one has ever taught them about their language and agree with each other about whether a given sentence is a good sentence of

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their language or not. For example, all speakers of American English know that (1-a) is not a grammatical sentence of this language, while (1-b) is, without having ever been taught this explicitly.

(1) a. *Mary is writing this paper for one week.
b. Mary has been writing this paper for one week.

For further evidence in favor of Universal Grammar and additional general discussion about it, see Baker (2008a), Pinker (1994), and Moro (2016), among others.

Assuming Universal Grammar, languages are expected to differ in principled ways for principled reasons. While much work has made progress towards determining what type of information is contained within Universal Grammar, there is still much to learn, especially as investigation of the empirical question [What types of cross-linguistic variation occur?] continues. In light of the generative answer to the theoretical question [Why do languages differ from one another in these particular ways?], the empirical question takes on a new life. A theory like Universal Grammar makes predictions about what cross-linguistic variation should look like. Exploration of variation then leaves the domain of mere documentation and enters the realm of science, where hypotheses are tested, revised and retested. This process invites new questions, prompts new empirical discoveries and moves the field towards a more truly *universal* understanding of the contents of Universal Grammar. This book will contribute to the investigation of both the empirical and theoretical questions by focusing on cross-linguistic variation in the verbal domain and by bringing to the discussion a large body of new data from Malayalam, a Dravidian language that is the official language of the Southern Indian state of Kerala.

1.2 Background on the verbal domain

This section provides some background on the assumptions this book makes about the type of options Universal Grammar provides for the **syntax** (structure), **semantics** (meaning), and **morphology** (form) of the verbal domain. One of the first observations one can make is that language is organized hierarchically. Two arguments in favor of this include the observation that something other than linear order governs which verb moves to the front of the sentence in yes/no question formation, (2), and that some sentences can have two meanings, (3-a).

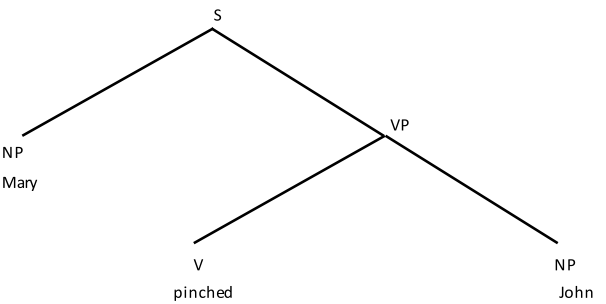
(2) a. The man who is tall is happy.
b. *Is the man [who _ tall] is happy?
c. Is the man [who is tall] _ happy? (Chomsky 1957)

(3) a. I once shot an elephant in my pajamas.
b. How he got into my pajamas I'll never know. (Groucho Marx in *Animal Crackers* via Pinker 1994 p102)

The most usual meaning of (3-a) is that the speaker was dressed in his pajamas when he shot the elephant. However, another meaning is possible, namely that it is the elephant who was wearing the speaker's pajamas, and so, the speaker shot the elephant in order to reclaim his pajamas. This reading becomes particularly clear if (3-a) is followed by a sentence such as (3-b). Linguists use trees to provide a visual representation of hierarchy.

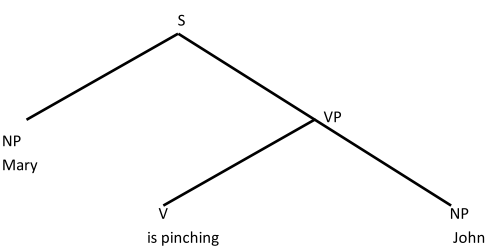
Focusing specifically on the verbal domain, a reasonable first tree one might draw for a simple sentence like (4-a) is (4-b).

(4) a. Mary pinched John.
b. Basic tree

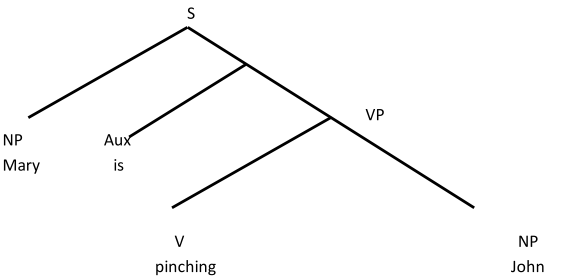


In this tree there is one word per node (point in the tree with a category label), which is desirable since the meaning of a phrase or sentence can be derived from the meaning of each of its parts and how they are put together (**The Principle of Compositionality)**. However, if the verb in (4-a) was changed to a form which requires a helping/auxiliary verb, either both the auxiliary verb and the main verb must go in the same node under the verb head, (5-a), or a new, separate node for the auxiliary verb must be assumed, (5-b).

(5) a. Basic tree with auxiliary + verb under V



b. Basic tree plus Auxiliary node



Work beginning with Chomsky (1957), along with Chomsky (1986), argues that the second option is in fact the correct one. It provides evidence that inflectional marking on verbs originates independently from the verb and, along with auxiliaries, forms the head of the sentence. The data in (6)–(7) help illustrate this point. For example, in English if one wants to emphasize that a particular action, in fact, occurred, one stresses the auxiliary, (6-a). If no auxiliary is present, as in (4-a), the appropriate tense form of *do* is inserted in front of the main verb, (6-b). It is reasonable to assume that this tense inflected *do* appears in the same position that the tense inflected auxiliary form does.

(6) a. Mary IS pinching John.
b. Mary DID pinch John.

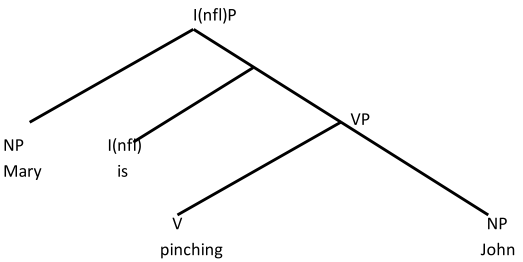
Similarly, the question form of the English sentence in (7-a) is formed by moving the auxiliary verb to a position above the subject, (7-b). If there is no auxiliary, then a tense inflected *do* is inserted above the subject and the main verb no longer is inflected for tense, (7-d). This provides further evidence in favor of the idea that verbal inflection originates in a head separate from the verb. Returning to simple sentences like (4-a), the tense marking here seems to be the glue that binds the nouns and the verb together to create an English sentence, in the broad sense that it links the event introduced by the verb to the utterance context.

(7) a. Mary is pinching John.
b. Who is Mary pinching?
c. Mary pinched John.
d. Who did Mary pinch?

Combining these observations leads to the proposal of the tree in (8), where all inflection, whether present on the verb itself or present in the form of an auxiliary or as 'do' support, originates in an Inflectional (Infl/I) head. This head functions

as the main glue of the sentence, and thus is considered the main head of the sentence, which is called an Inflectional Phrase (or I(nfl)P).

(8) Inflectional Phrase tree

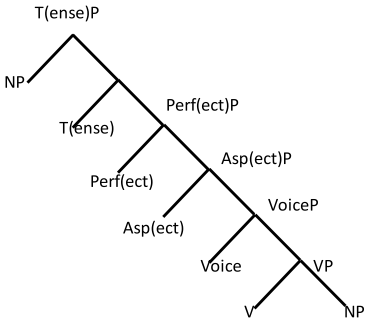


However, work beginning with Pollock (1989) questioned whether the structure in (8) was enough or if additional syntactic projections were necessary to account for the full range of inflection present in human language. While the tree in (8) has the advantage over the tree in (5-a) in having only one morpheme per node, it again runs into trouble when there are multiple auxiliaries present, as in (9-a).

(9) a. Mary has been pinching John.
b. Mary is pinching John.
c. Mary has pinched John.
d. Mary was pinched by John.

Additionally, different auxiliaries have fixed morphological forms and semantic functions depending on their position in the verbal complex. For example, in all of these sentences it is the first verb that is inflected for tense. The shape of any successive (auxiliary) verbs can be predicted based on the function of the verb that precedes them: a verb following an auxiliary *have*, will be inflected with past-participle morphology (usually either *-en* or *-ed*), (9-a) and (9-c). A verb following a progressive *be* will be in the present participle form, (9-a) and (9-b). A verb following a passive *be* will have past-participle inflection, (9-d). This suggests that a one-size-fits-all inflectional projection is not enough. There are different types of inflection and therefore it is plausible, and now commonly assumed, that the Inflectional Phrase can be further subdivided into a series of functional heads, (10), which host the different types of inflectional morphology and are responsible for the respective semantics of aspect, perfect, and tense.

(10) Expanded inflectional domain tree



The following four subsections will provide additional information about the syntax, morphology and semantics of each of these heads.

1.2.1 Tense

1.2.1.1 The morphosyntax of tense

As stated above, the first verb in any simple sentence will be the one inflected for tense. This is one reason for placing the Tense Phrase highest in the hierarchy of the phrases in the functional domain. The tense head will be the location of tense morphology, of which there are two parts. The first and most obvious of these parts is the phonological realization of the morphology. An example of this is the *-ed* that marks the past tense in a verb like *walk-ed*. The second part is an abstract, formal morphological feature.

This abstract feature is needed because it is not the case that there is always a single morpheme to express a given meaning. The English past tense provides one example. While the *-ed* suffix is added to regular verbs to mark the past tense, there are irregular verbs that use stem changes to mark the past tense, (cf. *eat* + PAST → *ate* (**eat-ed*)), or do not change their forms at all (cf. *put* + PAST → *put* (**put-ed*)). Thus, it seems reasonable to say that there is a formal feature [PAST], which can be pronounced in different ways. These abstract formal features are present in the syntax. Tense features like [PAST] and [PRESENT] ([PRES]) and perhaps [FUTURE] ([FUT]) will be present on the T head. The phonological component will use the features to produce the proper phonological realizations, Table 1.1.

Table 1.1: Tense features and their phonological outputs in English.

Past	Present	Future
live + PAST → *lived*	*live* + PRES → *lives*	*live* + FUT → *will live*
put + PAST → *put*	*put* + PRES → *put*	*put* + FUT → *will put*

The interpretive component of the grammar will use these features to assign the sentence a temporal meaning, (11).[1]

(11) a. PAST → past interpretation
b. PRES → present interpretation
c. FUT → future interpretation

1.2.1.2 The semantics of tense

This section begins with basic assumptions about the semantics of tense based on Klein's (1994) reformalization of a Reichenbach (1947)-style account. The exploration of the semantics of tense begins by defining some key terms, starting with the **Utterance or Speech Time** (UT), which is the smallest time interval in which a sentence is uttered (said). It is tempting to think of the Utterance Time as 'now' and in many instances this is correct. However, caution is needed in that the notion of 'now' can be stretched beyond just the smallest time interval in which the sentence is said to a larger interval including that time, roughly corresponding to something like 'in the present era.' This use of 'now' is shown in (12-a), where 'now' refers to a span of over 200 years. 'Now' can also be used to give a recent past meaning, (12-b), or an imminent future/futurate (Copley (2008), Copley (2009)), (12-c).

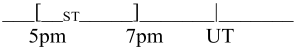
(12) a. The US has its own government now.
b. He came just now.
c. I'm going home now.

The second term that will be used to talk about time is the **Situation or Event Time** (ST), which is the time interval in the actual world throughout which the predicate (roughly the event) holds. Like all intervals, the Situation Time has a

1 Things are a bit more complex when it comes to the future. The future is frequently argued to include a modal auxiliary, WOLL, in English and in other languages (cf. Copley 2002, 2009; Matthewson (2006) for St'at'imcets (Salish), a. o.). This WOLL in combination with present tense is pronounced as *will* while with past tense it is pronounced as *would*. This book abstracts away from these issues.

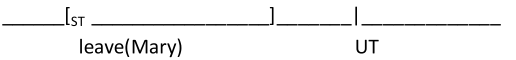
Left Boundary (LB) and a Right Boundary (RB), indicated in (13-b) and the other timelines with '[' and ']' respectively. For the Utterance Time, this does not really come up, as it is all right to think of the Utterance Time as a point in time.

(13) a. What happened yesterday: Mary fell asleep at 5 pm and woke up at 7 pm.

b. 

The English past tense will be used as an illustration to help the reader better answer the question of what tense is. Looking at the sentence in (14-a) and its graphic representation (read left to right) in (14-b) the first and seemingly most intuitive hypothesis (Hypothesis 1) is that PAST encodes the temporal relationship that the entire Situation Time precedes the Utterance Time. This seems to work for (14).

(14) a. Mary left.

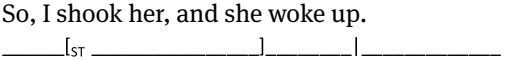
b. 

However, under closer scrutiny, it becomes obvious that Hypothesis 1 cannot properly account for the semantics of tense. For (15-b), Hypothesis 1 predicts at the Utterance Time that 'Mary' is not asleep anymore (the entire Situation Time precedes the Utterance Time). This seems correct in that (15-b) can be followed by (15-c), yielding the timeline in (15-d).

(15) a. I walked into the room and saw Mary lying on the floor.

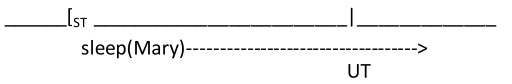
b. She was sleeping.

c. So, I shook her, and she woke up.

d. 

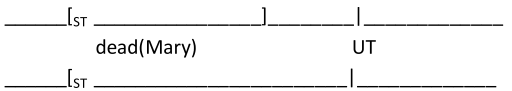
However, the sentence in (15-b) could be followed by the sentence in (16-a), which would have the timeline in (16-b). In this case, the Situation Time starts before the Utterance Time but can continue into and even beyond the Utterance Time. Thus Hypothesis 1 cannot be correct.

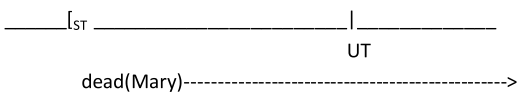
(16) a. In fact, she was sleeping so soundly that it was impossible to wake her up. She is still lying there asleep. (And, since I know she hasn't slept in 3 days, I'm sure she will still be lying there asleep tomorrow morning.)

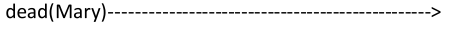
b.


An even more striking example that illustrates the same concept is found in (17). For (17-b), Hypothesis 1 predicts at the Utterance Time that 'Mary' is not dead anymore (the entire Situation Time precedes the Utterance Time), as shown in (17-c). The obvious problem with this is that world knowledge tells us that the state of 'Mary being dead' still holds at the Utterance Time (and will hold forever beyond that). As a result, the proper timeline is the one in (17-d).

(17) a. I walked into the room and saw Mary lying on the floor.
b. She was dead.

c.




d.


Examples (16)–(17) show that Hypothesis 1 is wrong: Past tense says nothing about whether the predicate holds at the Utterance Time or not. Instead, world knowledge and context play this role. Sometimes world knowledge dictates a particular interpretation, as in the case of 'dead,' and other times it does not as in the case of 'sleeping.' As far as we know, there are no languages where PAST encodes the relationship that the Situation Time precedes the Utterance Time. Since Hypothesis 1 has failed, a new hypothesis about what tense means is needed. Researchers, starting with Reichenbach (1947), have argued that in order to properly understand temporal semantics, a third interval is needed. Klein (1994) calls this interval the **Topic or Reference Time** (TT). It is the interval that the sentence is 'about.' The Topic Time can be set by temporal adverbs, (18), descriptive phrases, (19), context, (20), or a previous sentence, (21-b).

(18) a. At 5 pm, he was asleep.
b. He performed at the Orpheum Theater yesterday.

(19) a. When I saw her, she was asleep.
b. Bill sang, while Mary cut the cake.

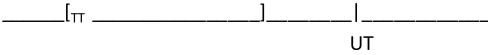
(20) I saw Mary. [At some relevant time to the conversation]

(21) a. I walked in the room and saw Mary lying on the floor.
b. She was dead/asleep.

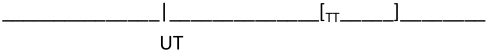
Notice that the Topic Time always precedes the Utterance Time when the sentence is a past tense sentence. This leads to a broader conclusion that, semantically

speaking, tense is the relationship between the Topic Time and the Utterance Time. The different tenses are schematized in (22). The corresponding timelines are given in (23).

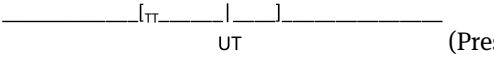
(22) a. Topic Time < Utterance Time (Past tense)
b. Utterance Time < Topic Time (Future tense)
c. Utterance Time ⊆ Topic Time (Present tense)

(23) a. 

(Past tense)

b. 

(Future tense)

c. 

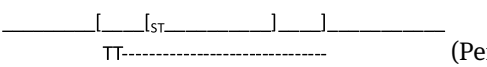
(Present tense)

1.2.2 Aspect

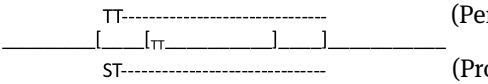
1.2.2.1 The semantics of viewpoint aspect

The definition of tense in (22) refers to only two of the three intervals that have been discussed here, the Utterance Time and the Topic Time. Languages also encode the relationship of the Situation Time and Topic Time, and this relationship is called '(viewpoint) aspect.' Examples of the different aspects are given in (24) and their timelines in (25).

(24) a. Situation Time ⊆ Topic Time (Perfective aspect)
b. Topic Time ⊆ Situation Time (Progressive aspect)

(25) a. 

(Perfective aspect)

b. 

(Progressive aspect)

The sentence in (26) and (27) are helpful for understanding the concept of aspect. The Topic Times here have been bolded while the Situation Times have been italicized. In the perfective sentence in (26) the entire event of reading *Anna Karenina* is contained inside the Topic Time 'last week.' This sentence would be an acceptable thing to say when the book was read in its entirety in the week prior to the week containing the Utterance Time. The progressive sentence in (27) simply means that at the time that the speaker walked into the room, there was an event of 'John reading *Anna Karenina*' going on. The aspect does not specify if 'John' is still reading *Anna Karenina* in (27) at the Utterance Time (that is the job of tense). It only specifies that the Topic Time is contained inside of John's reading event.

Perfective aspect

(26) a. **Last week**, *John read Anna Karenina*.
_____[TT____[ST_____]____]_____
read AK

b. last week----------

Progressive aspect

(27) a. **When I walked in**, *John was reading Anna Karenina*.
_____[ST____[TT_____]____]_____
I walk in

b. read AK----------

1.2.2.2 The morphosyntax of viewpoint aspect & the semantics of lexical aspect

Like tense morphology, aspectual morphology, located in the Aspect head, also has two components: an abstract, formal morphological feature present at the Aspect head: [PERFECTIVE (PFV)][2] and [PROGRESSIVE (PROG)], respectively. The interpretive component of the grammar will use these features to assign the sentence a temporal meaning, (28).

(28) a. [PFV] → perfective interpretation (Situation Time ⊆ Topic Time)
b. [PROG] → progressive interpretation (Topic Time ⊆ Situation Time)

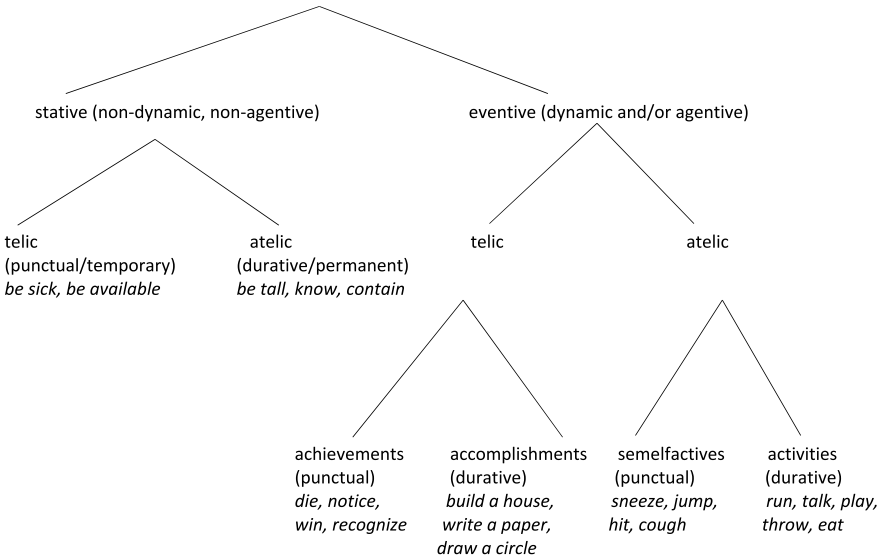
In order to talk about the phonological realization of these viewpoint aspect features, a brief but important segue into lexical/inner aspect (also called aktionsart) is needed.

Lexical aspect is a property of individual predicates. The lexical aspect gives further information about the type of event occurring. This 'information' is hierarchically organized. Predicates are broadly separated into statives and eventives (cf. Vendler (1957)). Stative predicates are non-dynamic, non-agentive predicates such as *love, know, be tall*, etc. Dynamic and/or agentive predicates, such as *throw, win, build a house, eat, develop, talk*, etc. are called 'eventives.' These predicate classes are further divided into telic and atelic predicates. Telic predicates are those which have a telos/culmination and atelic ones are those that do not. Both

2 Chapter 3 assumes, following the arguments in Bjorkman (2011) and Bjorkman (under revision) that English, in fact, lacks a [PFV] aspect feature. For now, this is not relevant. The point of this section is to sketch a basic overview of what a simplified grammar for tense and aspect might look like.

telic and atelic predicates can be further divided into those predicates which are punctual and those which are durative. A graphic representation of these relationships is given in (29).

(29) lexical aspect hierarchy (Cable, 2008), (Levin, 2007)



The phonological realization of the progressive viewpoint aspect feature will be expressed on non-statives using *be* + Verb-*ing*. Some examples include *be throwing, be building, be eating, be developing, be talking*, etc. Perfective aspect is simply spelled out using simple past forms such as *threw, built, ate, developed, talked*, etc. It is more difficult to tell if non-dynamic, non-agentive verbs are in the progressive or perfective aspect in English, as stative verbs cannot be marked with *be* + Verb-*ing* in English (cf. **I am loving my mother*). Instead the simple tense forms, i. e. *I love my mother*, must be used.

1.2.3 Interim summary

So far the following components of the Tense-Aspect system have been identified: lexical aspect, (viewpoint) aspect, and tense. Lexical aspect is a property of individual predicates which gives further information about the type of event being described by the verb Phrase. On the other hand, tense and (viewpoint) aspect are properties of a clause. Tense encodes the relationship between the Utterance Time and the Topic Time while (viewpoint) aspect encodes the relationship be-

tween the Topic Time and the Situation Time. They together work to convey the temporal interpretation of a sentence, as (30) shows. Example (30-b) asserts that the Topic Time precedes the Utterance Time (past) and the Topic Time is a subset of the Situation Time (progressive). In other words, my walking into the room (Topic Time) happens while 'Mary' is sleeping (Situation Time) and my walking into the room (Topic Time) preceded the Utterance Time.

(30) a. I walked into the room and saw Mary lying on the floor.
b. She was sleeping.
_____[ST____[TT_____]____|_____
c. ST----------> UT

Remember from the discussion of 'dead' versus 'asleep' that the relationship between the Situation Time and the Utterance Time is not specified by the tense. Due to the lack of world knowledge mitigating otherwise (as in the case of 'dead'), (30-b) is compatible with the meaning expressed by either (31-a) or (31-b):

_____[ST____[TT_____]__]__|_____
(31) a. ST---------- UT
_____[ST____[TT_____]____|_____
b. ST----------UT(----------)

In other words, the sleeping event could have completed before the Utterance Time (31-a) or be continuing at the Utterance Time (or beyond it), (31-b).

Phonologically, the combination of tense and aspect in English is represented in (32).

(32) a. He is eating chicken. [PRES][PROG]
b. He was eating chicken. [PAST][PROG]
c. He will be eating chicken. [FUT][PROG]

d. He ate chicken. [PAST][PFV]
e. He will eat chicken. [FUT][PFV]

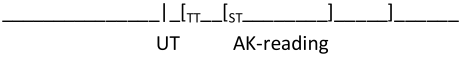
Notice that the combination of present perfective is missing. This form would look like *He eats chicken*. However, the interpretation of this form has a different meaning from that of a present perfective. The present perfective would assert that the Utterance Time contains the Topic Time (say 'at this very instant') and that the Situation Time ('eat chicken') is contained inside the Topic Time ('at this very instant'). However, this is not what the sentence *He eats chicken* means. Rather, this sentence suggests that, generally, he eats chicken (i. e. he's not a vegetarian, though maybe he does not eat red meat). Cross-linguistically, present perfectives

are rare, possibility because it is difficult to get a completed event occurring inside the Utterance Time.

This basic review ends with a bit more practice regarding the way that tense and aspect combine. By looking at the sentences below one can see that a future perfective, (33), and a past perfective, (34), only differ in that the Utterance Time precedes the Topic Time in the future while the reverse is true in the past. Both sentences have perfective semantics and, as a result, the Situation Time ('reading of *Anna Karenina*') is contained inside the Topic Time. The difference between the past perfective, (34), and the past progressive, (35), is that the Situation Time ('*Anna Karenina* reading') in the progressive contains the Topic Time ('last week') while the reverse is true in the perfective (Situation Time ⊆ Topic Time). Both sentences are past tense and thus the Topic Time ('last week') precedes the Utterance Time.

(33) future: UT<TT, perfective: ST ⊆ TT

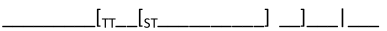
a. Next week I **will read** *Anna Karenina*



b. next week----------

(34) past: TT<UT, perfective: ST ⊆ TT

a. Last week I **read** *Anna Karenina*



b. last week----------

(35) past: TT<UT, progressive: TT ⊆ ST

a. Last week I **was reading** *Anna Karenina*

b. last week-------

1.2.4 Perfect

The sentence in (36) is an example of a perfect sentence. Although commonly confused with the perfect because of the closeness of names in English, the perfective is not equivalent to the perfect. One of the reasons this is so can be seen from the fact that it is possible to have a sentence with a perfect progressive interpretation, (37). This section will first examine three potential candidates for a semantic account for the perfect, ultimately choosing a Perfect Time Span account (Iatridou et al. (2002); Pancheva (2003); Pancheva (2013); Pancheva and von Stechow

(2004); and Rothstein (2008); a.o). The second part of the section will discuss the different readings the perfect can have and the third will address the morphosyntax of the perfect.

(36) I have been to the Met.

1.2.4.1 The semantics of the perfect

Given the framework advanced so far, one might ask whether the perfect is a type of aspect or a type of tense. This is not a trivial question and there has been much debate about the exact nature of the perfect. In Anteriority theory (Reichenbach 1947, Inoue 1989, Klein 1992, Klein 1994, a. o.) the perfect is viewed as syntactically and semantically being a viewpoint aspect. This position predicts that other viewpoint aspects, such as the perfective and progressive, should be in complementary distribution with the perfect. However, this is not the case. In English, the perfect combines with the three tenses (present, future and past) and two aspects (perfective and progressive) in a morphologically visible manner:

(37) a. I have visited the Met (present perfect perfective)
b. I will have visited the Met (future perfect perfective)
c. I had visited the Met (past perfect perfective)
d. I have been visiting the Met (present perfect progressive)
e. I will have been visiting the Met (future perfect progressive)
f. I had been visiting the Met (past perfect progressive)

The sentences in (37) show that the perfect is not in complementary distribution with viewpoint aspect, as predicted by Anteriority Theory.

Another possibility is that the perfect is a type of lexical/inner aspect (aktionsart). This, in fact, is the position of the Result State theory (Parsons 1990, Kamp and Reyle 1993, a. o.). On this theory, the perfect is a type of derived lexical aspect, specifically a derived result state. This would predict that the perfect, as a type of lexical aspect, should appear below viewpoint aspect in the syntax, as the role of lexical aspect is to provide more information about what type of event is occurring. The role of viewpoint aspect, on the other hand, is to relate eventualities with times (Smith 1991, Klein 1994). Given the English, Greek (Hellenic, Greece), and Bulgarian (Slavic, Bulgaria) data pointed out in Iatridou et al. (2002) and Pancheva (2003), this ordering would be problematic for the morphology, assuming that the morphological derivations directly reflect the syntactic derivations, following the **Mirror Principle** (Baker 1985). If viewpoint aspect was located below the perfect, as per this theory, it would also need to be derived lexical aspect. In other words, viewpoint aspect would no longer link events and times

but would simply give further information about the type of event occurring. If the move was made to view viewpoint aspects as derived lexical aspect, it would require a new answer about how events are related to times. A potential solution, proposed by Kamp et al. (2013), is for verbs to have temporal features in their lexical entries.

A third option, that requires less extreme modifications of the grammar, is that of the Perfect Time Span account for the perfect (Iatridou et al. 2002; Pancheva 2003, 2013; Pancheva & von Stechow 2004; and Rothstein 2008; a. o.). This is an approach in the spirit of what is known as the Extended Now theory (McCoard 1978, Dowty 1979, a. o.). On this account the perfect is neither a tense nor a viewpoint aspect but a third, independent category. In this account, the function of the perfect is to set up the **Perfect Time Span** (PTS).

Like all intervals, the Perfect Time Span has a left and a right boundary. The left boundary (LB) of this time span is set by an adverbial (*since 1990, for 3 years, always*, etc.) or by the context (for example, the speaker's birth). The right boundary (RB) of the time span is set by tense (i. e. the Topic Time is a final subinterval (i. e. RB) of the Perfect Time Span).

(38) Perfect Time Span

a. present perfect

```
|_____________________|
LB                    RB
Context/adv           UT
```

b. past perfect

```
|_____________________|_____UT

LB                    RB
Context/adv
```

c. future perfect

```
|_____________________|________|
LB                    UT       RB
Context/adv
```

The English sentences below show this more concretely. In the present, the right boundary is the Utterance Time, (39). In the past, the right boundary is before the Utterance Time, (40). In the future, the right boundary is after the Utterance Time, (41).

(39) Present perfect perfective

a. (Since 2012,) I have read *The Brothers Karamazov* (two times).

b. Present Existential Perfect

```
LB_____x_____x____________RB
2012                      UT
```

(40) Past perfect perfective

a. I saw him last Tuesday. At that point, he had read *The Brothers Karamazov* (two times).

b. Past Existential Perfect

LB___x_____x_____RB_____|
his birth last Tues UT

(41) Future perfect perfective

a. By Monday, he will have read *The Brothers Karamazov* (two times).

b. Future Existential Perfect

LB_____x_____|_____x____RB
he is born UT Monday or
LB_____x_____x_____|_____RB
he is born UT Monday or
LB_____|__x__x_____RB
he is born UT Monday

The middle reading in (41-b) becomes particularly salient if something like, 'In fact, for all I know, he may have read *The Brothers Karamazov* twice already' is added.

The Perfect Time Span account provides an explanation for the morphological ordering that does not require redefining viewpoint aspect as a type of derived lexical aspect, as in the Result State theory. This approach also does not make a prediction that the perfect should be in complementary distribution with viewpoint aspect, unlike the Anteriority theory. For the reminder of this book, the Perfect Time Span account will be assumed.

1.2.4.2 Readings the perfect can have

The discussion so far has been centered on the basic semantics of the perfect. The rest of the section will focus on two different types of readings (Existential and Universal) the perfect can have. The Perfect Time Span account assumes a single semantics for these two readings. It claims the differences are the result of the interpretation and/or scope of adverbs combined with the type of viewpoint aspect present and the lexical aspect of the predicate.

Examples (39)–(41) are an instance of what is known as the Existential perfect. This simply means that there has been at least one instance of the event in the Perfect Time Span. The precise number of instances can be explicitly spelled out by an adverbial (i. e. *two times*) or simply be *at least once*. In other words, the Existential perfect requires that there be existential quantification over points in the time span. It says nothing, however, about whether or not the event still holds at the Utterance Time.

A second reading that the perfect can have is called the Universal perfect reading. On this reading, the eventuality holds throughout the Perfect Time Span (i. e. there is universal quantification over points in the time span). Universal perfects have the 'subinterval property': if there is an instantiation of a predicate that occurs at *i*, it also occurs at every subinterval of *i*. In order to create a Universal perfect, the set of pieces listed in (42) is needed.

(42) Components of a Universal perfect
  a. Perfect morphology
  b. tense
  c. a durative adverb
  d. atelic/stative lexical aspect or
     progressive viewpoint aspect morphology

The function of the perfect morphology is to set up the Perfect Time Span, i. e. specifies that this verb can only be used when the Perfect Time Span has been set up by adverbs/context and tense.

Tense sets the right boundary of the Perfect Time Span. Present Universal perfects assert that the eventuality holds at the Utterance Time (since the right boundary of the Perfect Time Span is set by tense and in a present Universal perfect, the right boundary will be the Utterance Time), (43). In the other tenses the eventuality need not hold at the Utterance Time. For example, (44) could be followed up with either 'But now he is finished.' (eventuality does not hold at the Utterance Time) or 'And I'm sure he has been writing ever since.' (eventuality does hold at the Utterance Time).

(43) a. I have been writing this paper for one week. (Present Universal Perfect)
  LB_____RB
  b. a week ago.....paper writing.....UT
  c. #I have been writing this paper for one week but I am not writing it anymore/now its finished.

(44) a. I saw him last Tuesday. At that point, he had been writing the paper for one week. (Past Universal Perfect)
  LB_____RB_____|
  b. Tues.....paper writing.....Tues UT

(45) a. On Thursday, I will have been writing this paper for one week. (Future Universal Perfect)
  LB_____|_____RB
  b. Thurs.....paper writing.....UT.....Thurs

The durative adverb sets the left boundary of the Perfect Time Span & provides universal quantification/subinterval property. Durative Perfect Time Span level adverbs, such as *for one week now*, *ever/at least since Monday*, require a perfect reading (high scope). Durative Eventuality level adverbs, such as *for one week*, *since Monday*, allow but do not force a Universal perfect reading (low scope). Some English perfect sentences allow either an Existential or a Universal perfect reading. In these cases adverb scope and interpretation determine the reading. In Example (46) the reading varies depending on what the adverbial phrase *for three months* modifies (i. e. the adverb scope is the critical factor).

(46) Betsy has been in Boston for three months
  a. Universal: ADV is a PTS modifier (high scope)
  b. Existential: ADV is an event-time modifier (low scope) (Pancheva 2013 slide 14)

In (47) the way the adverbial phrase *since Monday* is interpreted will determine which reading the sentence gets.

(47) Betsy has been in Boston since Monday.
  a. Universal: durative PTS-modifying ADV
  b. Existential: inclusive PTS-modifying ADV (Pancheva 2013 slide 14)

In order for a form to be compatible with a Universal perfect meaning, it must have an aspectual specification that is compatible with the universal quantification needed for a Universal Perfect. In other words, Universal perfects can only occur with stative or activity predicates (which naturally involve the subinterval property) or progressive marked non-stative/non-activity predicates (which obtain the subinterval property by their viewpoint aspect).[3]

The sentences in (48)–(51) highlight the role of viewpoint aspect and lexical aspect. With a telic predicate like 'write a letter,' the availability of the different readings is highly constrained by the viewpoint aspect: the progressive is needed for a universal reading, (48), while the perfective can only yield an existential reading, (49). This is due to the fact that telic predicates do not by themselves license the subinterval property. Therefore, progressive aspect must do this job.

3 It is possible in English to get an Existential perfect reading with a progressive marked verb:

(i) Have you ever been watching TV when the tube exploded?
Existential: progressive viewpoint aspect (Comrie 1976)

(48) Betsy has been writing a letter since Monday. (progressive telic)
  a. universal: progressive durative PTS-ADV
  b. ?[4]existential: progressive inclusive PTS-ADV

(49) Betsy has written a letter since Monday. (perfective telic)
  a. *universal: perfective durative PTS-ADV
  b. existential: perfective inclusive PTS-ADV (Pancheva 2013 slide 19)

Atelics and statives, on the other hand, can license the subinterval property themselves and are thus compatible with a universal reading even without the progressive. They allow universal with both perfective and progressive viewpoint aspects, (50)–(51).

(50) Ann has been watching TV since Monday. (prog atelic, activity)
  a. universal: progressive durational PTS-ADV
  b. ?existential: progressive inclusive PTS-ADV

(51) Ann has watched TV since Monday. (perfv atelic, activity)
  a. universal: perfective durative PTS-ADV
  b. existential: perfective inclusive PTS-ADV (Pancheva 2013 slide 19)

The role of lexical and viewpoint aspect in determining which perfect reading(s) a form can have in the Perfect Time Span view predicts that, cross-linguistically, the types of lexical and viewpoint aspects a language has will influence the readings of the perfect that it allows. Pancheva (2013) argues, based on data from Greek, Bulgarian, Saisiyat (Northwest Formosan, Taiwan) and Niuean (Polynesian, Niue) that this prediction is, in fact, borne out. Chapter 5 will show that, despite the substantial differences between the perfect in English and Malayalam, Malayalam actually provides further evidence in support of this prediction.

4 Pancheva gives this reading a ? but I would give it a *.

1.2.4.3 Morphosyntax of the perfect

Turning to the morphosyntax, perfect morphology appears on a Perfect head/Phrase located between the Tense Phrase and the (viewpoint) Aspect Phrase in the syntax. This head contains the [PERFECT (PRF)] feature which will trigger the correct pronunciation and the interpretive component of the grammar will use these features to assign the sentence a temporal meaning, (52). The phonological spell outs of the different types of the perfect are given in (53).

(52) [PRF] → set up the Perfect Time Span, i. e. specifies that this verb can only be used when the Perfect Time Span has been set up by adverbs/context and tense.

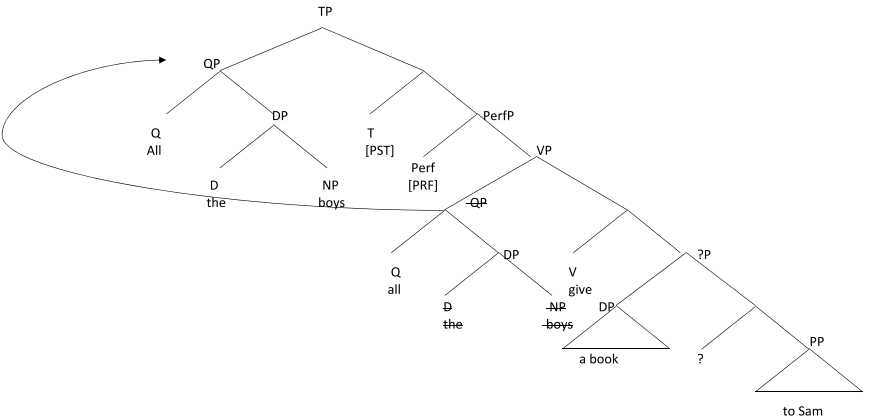
(53) a. I have visited the Met [PRS][PRF][PFV]
b. I will have visited the Met [FUT][PRF][PFV]
c. I had visited the Met [PST][PRF][PFV]
d. I have been visiting the Met [PRS][PRF][PROG]
e. I will have been visiting the Met [FUT][PRF][PROG]
f. I had been visiting the Met [PST][PRF][PROG]

1.2.5 Voice/little v

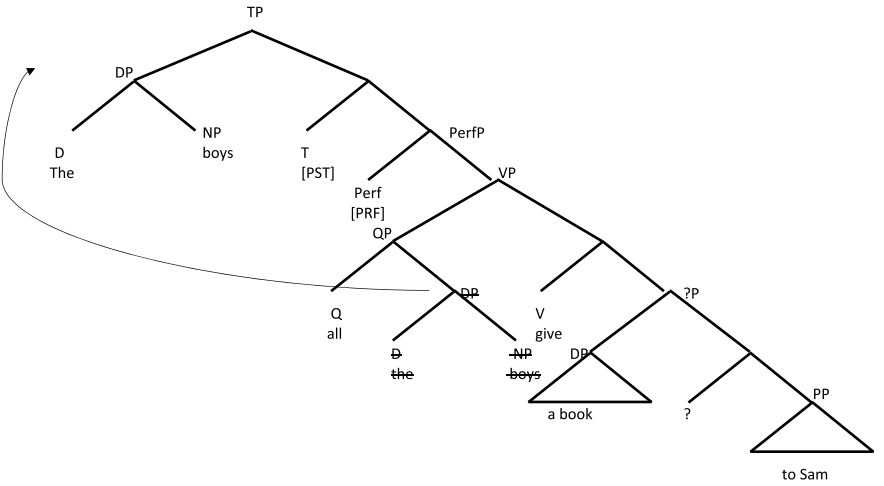
In order to understand all the assumptions about the verbal domain made in this book, a bit of additional information about the nature of the verb phrase and the argument structure is needed. This section will first argue that external arguments do not originate in the Specifier of the Tense Phrase, but rather inside the Verb Phrase. It will then motivate splitting the verb phrase into a verb Phrase (vP) and a Verb Phrase (VP).

Beginning in the late 1980s, a number of researchers including McNally (1992), Burton and Grimshaw (1992), Sportiche (1988), Koopman and Sportiche (1991), Aoun and Li (1989), Huang (1993), and McCloskey (1991), among others, presented arguments from coordination, quantifier floating, scope interactions, reconstruction effects, ellipsis and right node raising that surface subjects do not originate in the Specifier of the Tense Phrase, but instead originate inside the Verb Phrase. This is known as the **VP Internal Subject Hypothesis**. An argument from quantifier floating (Sportiche, 1988) is illustrated by the data in (54)–(55).

(54) a. [$_{QP}$All [$_{DP}$the boys]] have given a book to Sam.
b. QP movement



(55) a. [$_{DP}$The boys] have all given a book to Sam.
b. DP movement; Q stays in Spec/VP



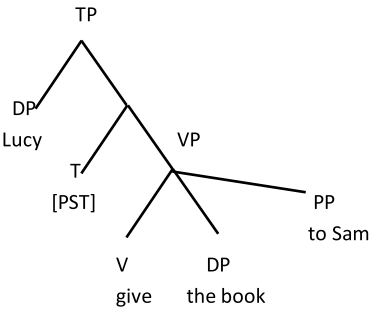
a. *[$_{DP}$The boys] have played all hockey.
b. *[$_{DP}$The boys] have played hockey all.

In (54-a) there is a quantificational subject. Evidence that this subject is indeed in the Specifier of the Tense Phrase comes from the fact that it appears before the tense bearing perfect auxiliary, *have*. However, this is not the only position that the quantifier *all* can occur in, as (55-b) shows. Here the Determiner Phrase *the boys* is the subject but *all* is located just before the lexical verb. Examples 1–2 show that the position of *all* in a sentence is not simply free. In order to account for these facts, it has been proposed that surface subjects, like the Quantificational Phrase here, originate within the Verb Phrase, as the trees in (54-b) and (55-b) show. The VP Internal Subject Hypothesis has the general advantage of locally linking the verb and all its arguments: the external argument is introduced in the Specifier of the Verb Phrase and the internal argument is introduced as the complement of the Verb head.

Around the same time the VP Internal Subject Hypothesis was being formulated, work on the asymmetries between internal and external arguments, ditransitives and the causative/transitive alternation suggested that the Verb Phrase needed to be further subdivided. Beginning with the first set of work, Marantz (1984) argued that external arguments are not arguments of individual verbs but of predicates, based on the fact that the type of internal argument a verb has influences the way the external argument is interpreted, but not vice versa (e. g. *throw a baseball, throw a party, kill an audience (i. e. wow them), kill a cockroach*). Kratzer (1996), building on Marantz' work, proposed that the Verb Phrase is composed of the verb and its internal argument(s) while the external argument is introduced by a separate head located above the Verb Phrase.

Around the same time, Larson (1988) proposed the Verb Phrase Shells analysis of ditransitive predicates to deal with an obvious problem that one faces when trying to draw a tree for a ditransitive predicate with a basic Verb Phrase structure and the VP Internal Subject Hypothesis: there is only one slot for an internal argument but a ditransitive predicate has two internal arguments. Evidence from constituency tests, such as VP-preposing, (57-a), suggests the simplest, ternary branching structure, (56), is not correct. Under this account, there would be no special constituency among the arguments. This prediction, however, does not match the facts as (57-b) shows: the verb and the direct object do not form a constituent. Additionally, evidence from coordination constituency tests, (57-c), suggests that the direct and indirect object form a constituent to the exclusion of the verb.

(56) Ternary branching structure for ditransitives

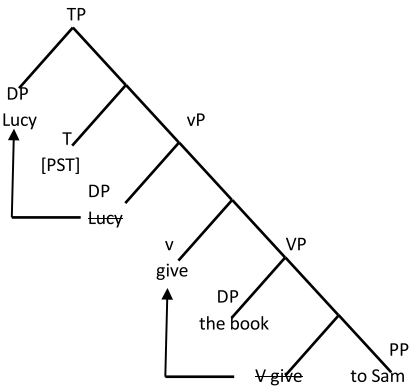


(57) Lucy gave the book to Sam.

a. Lucy said that she would give the book to Sam and [give the book to Sam] she did.
b. *Lucy said that she would give the book to Sam and [give the book] she did to Sam.
c. Lucy gave [the book to Sam] and [the pencil to Kim].

An alternate binary structure for this construction is given in (58). This structure correctly predicts that the direct and indirect objects should form a constituent, to the exclusion of the verb, and that the verb and direct object should not form a constituent. It also shows that the external argument is introduced by a separate head above the Verb Phrase, called Voice or little v.

(58) Binary branching structure for ditransitives



Further work, such as Hale and Keyser (1993), Hale and Keyser (2002), Borer (2005), Ramchand (2008), Alexiadou et al. (2015), a. o., has argued that verbal structure should be further decomposed. One motivation for this is causative al-

ternations, (59). The (b) and (d) examples show that the unaccusative, intransitive verbs in (a) and (c) have transitive alternates.

(59) a. Kim fell.
b. Lucy made Kim fall.

c. Kim stopped.
d. Lucy made Kim stop.

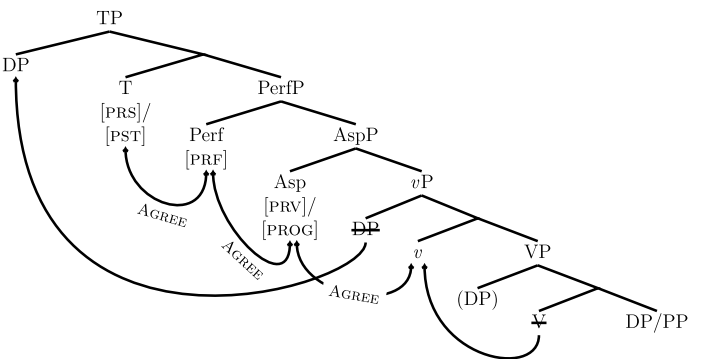
Borer (2005), Ramchand (2008) and Alexiadou et al. (2015), a. o. account for these alternations using a common-base approach which proposes that both unaccusatives and their causative/transitive counterparts are separately derived from a common base. Ramchand, for instance, argues roughly that the verb Phrase might more compositionally be described as consisting of three separate heads: Initiator Phrase (causation), Process Phrase (duration) and Result Phrase (result). Alexiadou et al. argue that little v is a verbal categorizing head for the category neutral root (Halle and Marantz (1993), Halle and Marantz (1994), et seq., a. o.) and that a Voice head distinct from little v, is located above vP to introduce the external argument. This book will not take a stand on the exact nature of the phrase directly above the Verb Phrase that introduces the external argument and will simply call it little v.

1.2.6 Putting it all together

1.2.6.1 The final morphosyntactic system

The tree in (60) provides an illustration of how the morphosyntatic system developed here works. This book will explore how these morphosyntactic features 'drive' the syntax via their participation in Agreement relationships.

(60) Syntax & morphology of the Tense-Aspect system



The tree in (60) shows that there are Agreement relationships between the little v head and the Aspect head, the Aspect head and Perfect head, and the Perfect head and the Tense head. So far, the proposed grammar introduces inflectional features, such as [PST], [PRF], [PROG], etc. in functional projections that are separate from that of the verb. The obvious question then becomes, how do the verb and inflectional material unite? One answer that has been given is that this happens via local movement (Pollock 1989 et seq.; Travis 1984; Bobaljik 1995; Embick and Noyer 2001). In more recent Minimalist approaches, this question has been handled using the operation Agree. The idea here is that instead of requiring movement, features can simply be valued in situ if the relationship between the two heads is local. If the required locality exists, then a dependency can be established between the two heads, i. e. an Agreement relationship can be established.

This type of proposal is advantageous in that it can explain multiple occurrences of the same inflectional features on multiple verbs. This is found in constructions such as Serial and 'quasi-Serial' Verb Constructions (Aikhenvald and Dixon 2006, Zwicky 1969, Pullum 1990, Cardinaletti 2001), and 'parasitic participles' (Den Dikken and Hoekstra 1997, Wurmbrand 2003, a. o.). Under an Agree analysis this data can be straightforwardly accounted for by saying that multiple verbs have an Agree relationship with a single inflectional head. This type of data is difficult for a movement-based theory to account for. In fact, in Minimalism, it is often assumed, following Chomsky (2000), that Agreement between the probe and goal is a necessary precursor of movement. As such, an Agree based theory has greater empirical coverage than a strictly movement based one. Exactly how one formulates Agree is some matter of controversy (Chomsky 1998, Adger 2003, Baker 2008b, Zeijlstra 2008, Zeijlstra 2010, Haegeman and Lohndal 2010, Merchant 2011, Wurmbrand 2011, Bjorkman 2011, under review, a. o.). This book does not take a position regarding what formulation is correct.

1.2.6.2 The final semantics system

Much more has been said about the semantics of tense and aspect than has been presented here.[5] Only two parts of this larger body of work will be relevant here. First, the semantics for tense and aspect will be formalized. Second, an overview of what is called the imperfective paradox is given. This will help serve as a back-

5 For example, see work by Sauerland (2002), Thomas (2014), Abusch (1991), Von Stechow (2002), Altshuler and Schwarzschild (2013), Altshuler and Schwarzschild (2012), among many others, for further puzzles and complications.

drop for chapter 3, where the task of examining viewpoint aspect in Malayalam will be undertaken.

The first task is to formalize the semantics of tense and viewpoint aspect.[6] Following Partee (1973) and Kratzer (1998), a. o., this book will assume a referential account for tense. Nothing in particular follows on this assumption. It was chosen due to being the account used in past literature on tenseless languages. A quantificational account (Prior (1967), Ogihara (1989), Kusumoto (1999), Beck and von Stechow (2015), a. o.) could just as easily have been chosen. Entries for the past and present tenses, which is the main focus of the book, are given in (61). Here the relationship of the Utterance Time to the Topic Time, i. e. tense, as discussed in section 1.2.1.2, is encoded via a presupposition. The superscript *g* represents the variable assignment function and the superscript *c* represents the context.

(61) a. $[\![\text{PRS}]\!]^{g,c} = [\![\text{PRS}]\!]^{g,c}$ is only defined if c provides an interval t that includes t_0 (UT). If defined, then $[[\text{PRS}]]^{g,c}$ =t.
b. $[\![\text{PST}]\!]^{g,c} = [\![\text{PST}]\!]^{g,c}$ is only defined if c provides an interval t that precedes t_0 (UT). If defined, then $[[\text{past}]]^{g,c}$ =t.
(Kratzer 1998 p10)

Kratzer's entry for the perfective is given in (62). Her entry for perfective aspect will generally be modified in this book to remove the world argument, as the presence of the world argument in perfectives is not crucial for the points being made in this book. The types are as follows: *i* is used for times, *t* for truth-values, *s* for worlds, and *v* for events. As discussed in section 1.2.2, perfective viewpoint aspect encodes that the Situation Time is contained within the Topic Time. In her entry, *t* represents the Topic Time and τ is a function which maps events to the time in which they occur (the Situation Time in Kleinian terms).

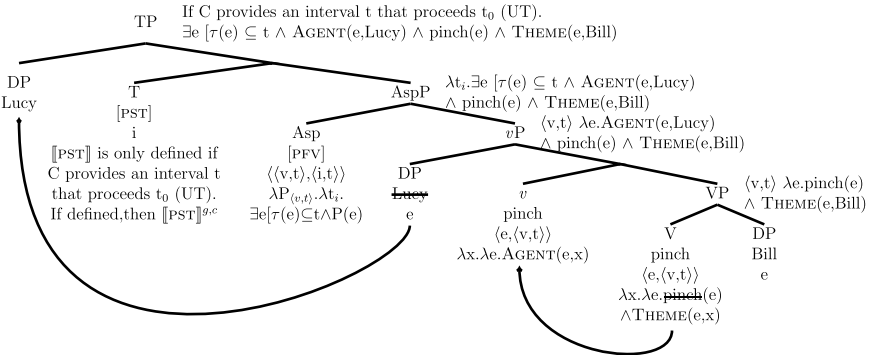
(62) $[\![\text{PFV}]\!]^{g,c} = \lambda P_{<v,<s,t>>}.\ \lambda t_i.\ \lambda w_s.\ \exists e[\tau(e) \subseteq t \ \&\ P(e)(w)=1]$ (Kratzer 1998, p17)

As the semantic pieces are put together, remember that the Aspect and Tense nodes in the syntax contain [PFV] and [PST] features, respectively. The presence of these morphological features in the syntax tell the interpretative component of the grammar to use the relevant lexical entries. The tree in (63) gives an example of a past perfective sentence.

6 For more on lambda calculus and the general compositional framework background assumed see Heim and Kratzer (1998), von Fintel and Heim (2011), and Portner (2005).

(63) a. Lucy pinched Bill.

b. Tree with semantic interpretation of the morphological features



Before giving the entry for the progressive, the imperfective paradox must be introduced. This puzzle has to do with the different entailments different types of predicates have in the progressive. Specifically, the progressive of an activity predicate like 'play basketball' entails that there was an event of playing basketball. However, the progressive of an achievement predicate like 'draw a circle' does not entail that an event of drawing a circle occurred (the drawer could have been interrupted and left the circle unfinished). This puzzle is called the 'imperfective paradox' not the 'progressive paradox' because in many languages there is a single morphological form which expresses both the 'event-in-progress' reading and the 'characterizing/generic/habitual' reading (see Krifka et al. 1995 for an overview of the 'characterizing/generic/habitual' reading). English uses the progressive to express 'event-in-progress' readings and the form that morphologically looks like it should express the present perfective ('He eats meat.') to express the 'characterizing/generic/habitual' reading.

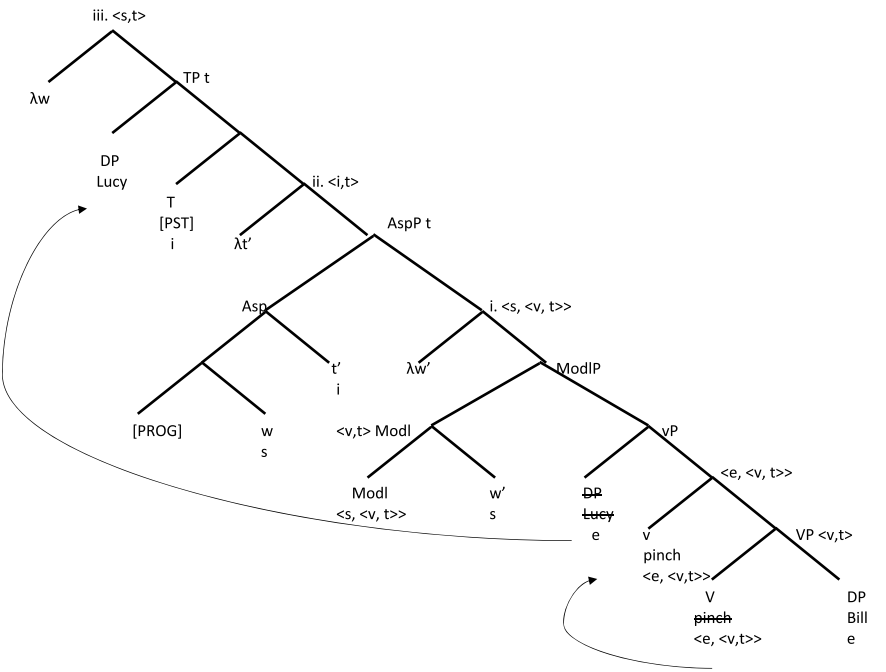
In order to account for the imperfective paradox, Dowty (1979) proposed the notion of 'inertia worlds'. These are those worlds in which everything goes as expected (i. e. where there is culmination of all predicates). Worlds (including the actual world) where unexpected events happen that prohibit culmination are not allowed into the inertia worlds. For a clause with progressive aspect to be true, this simply means that the Topic Time (represented by t in (64)) must be contained, non finally, in the larger interval t' and τ (the function which maps events to the time in which they occur (i. e. the Situation Time)) must be contained inside t'. This formulation allows the Situation Time to contain the Topic Time, as per the Klein (1994) progressive meaning, but for there to be additional time, here represented by t' for the event to culminate in an inertia world.

(64) $[\![\text{PROG}]\!] = \lambda w.\lambda t.\lambda P_{<s,<v,t>>}.\forall w'[w \text{ INERT}_t\ w' \rightarrow \exists t'[t \text{ is a non-final part of } t' \ \& \ \exists e[\tau(e) \subseteq t' \ \& \ P(w')(e)]]]$ (Beck & von Stechow 2015, cf. Dowty, 1979)

The tree in (65) provides an example of a past progressive computation.

(65) a. Lucy was pinching Bill.

b. Tree with semantic interpretation of the morphological features



c. $[\![\text{VP}]\!]=\lambda e.\text{pinch}(e) \wedge \text{Theme}(e,\text{Bill})$

d. $[\![\text{vP}]\!]=\lambda e.\ \text{Agent}(e,\text{Lucy}) \wedge \text{pinch}(e) \wedge \text{Theme}(e,\text{Bill})$

e. $[\![\text{i}]\!]=\lambda w'.\lambda e.\ e \leq w' \wedge \text{Agent}(e,\text{Lucy}) \wedge \text{pinch}(e) \wedge \text{Theme}(e,\text{Bill})$

f. $[\![\text{ii}]\!]=\lambda t'.\forall w''[w\text{INERT}_{t'}\ w'' \rightarrow \exists t''[t' \text{ is a non-final part of } t'' \wedge \exists e[\tau(e) \subseteq t'' \wedge e \leq w'' \wedge \text{Agent}(e,\text{Lucy}) \wedge \text{pinch}(e) \wedge \text{Theme}(e,\text{Bill})]]]$

g. $[\![\text{iii}]\!]=\lambda w$: if c provides an interval t that proceeds t_0(UT).$\forall w''[w\text{INERT}_t\ w'' \rightarrow \exists t''[t \text{ is a non-final part of } t'' \wedge \exists e[\tau(e) \subseteq t'' \wedge e \leq w'' \wedge \text{Agent}(e,\text{Lucy}) \wedge \text{pinch}(e) \wedge \text{Theme}(e,\text{Bill})]]]$

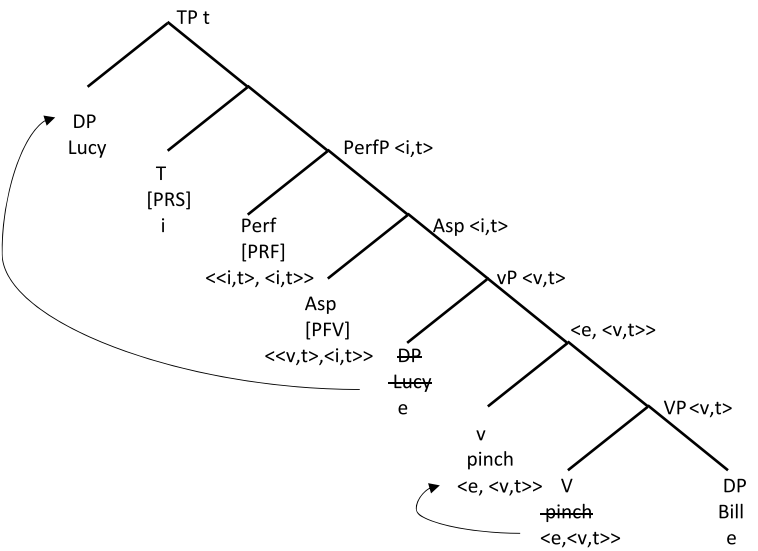
Turning now to the perfect, Pancheva (2003) provides the formal Perfect Time Span account entry for the perfect in (66). As discussed in section 1.2.4, the first function of the perfect here is to set up the Perfect Time Span, a Topic Time interval, represented by the time interval variable *t"* in (66). The second function of the

perfect is to locate the Topic Time (represented by the time interval variable *t'*) in (66) in a final subinterval of the Perfect Time Span, in other words, with the right boundary of the Perfect Time Span.

(66) $[\![PRF]\!] = \lambda p_{<i,t>}. \lambda t'_i. \exists t_i"[PTS(t", t') \& p(t")]$
PTS (t", t') iff t' is a final subinterval of t" (Pancheva 2003 p284: 9b)

The calculation for a present perfect perfective sentence is given in (67) and a present perfect progressive sentence in (68). Just like other functional categories, a morphological [PERF] feature located on the Perf head tells the interpretative component to use the entry in (66).

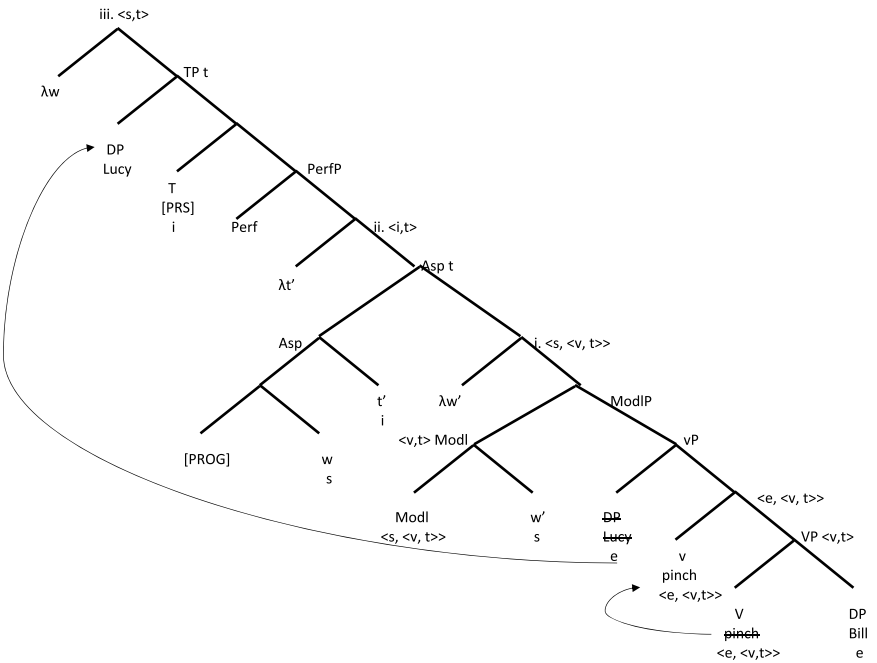
(67) a. Lucy has pinched Bill.
b. Tree with semantic interpretation of the morphological features



c. $[\![VP]\!]= [\![VP]\!]=\lambda e.pinch(e) \wedge Theme(e,Bill)$
d. $[\![vP]\!]=\lambda e.\ Agent(e,Lucy) \wedge pinch(e) \wedge Theme(e,Bill)$
e. $[\![AspP]\!]=\lambda t.\exists e[\tau(e) \subseteq t \wedge Agent(e,Lucy) \wedge pinch(e) \wedge Theme(e,Bill)$
f. $[\![PerfP]\!]=\lambda t'.\exists t"[PTS(t",t') \wedge \exists e[\tau(e) \subseteq t" \wedge Agent(e,Lucy) \wedge pinch(e) \wedge$ Theme(e,Bill), PTS(t",t') iff t' is a final subinterval of t"
g. $[\![TP]\!]$=if c provides an interval that includes t_0(UT). $\exists t"[PTS(t",t) \wedge$ $\exists e[\tau(e) \subseteq t" \wedge Agent(e,Lucy) \wedge pinch(e) \wedge Theme(e,Bill)$, PTS(t",t) iff t is a final subinterval of t"

(68) a. Lucy has been pinching Bill.

b. Tree with semantic interpretation of the morphological features



c. ⟦VP⟧= ⟦VP⟧=λe.pinch(e) ∧ Theme(e,Bill)

d. ⟦vP⟧=λe. Agent(e,Lucy) ∧ pinch(e) ∧ Theme(e,Bill)

e. ⟦i⟧=λw'.λe. e≤w' ∧ Agent(e,Lucy) ∧ pinch(e) ∧ Theme(e,Bill)

f. ⟦ii⟧=λt'.∀w"[wINERT$_{t'}$ w"→ ∃t"[t' is a non-final part of t" ∧ ∃e[τ(e) ⊆ t" ∧ e≤w" ∧ Agent(e,Lucy) ∧ pinch(e) ∧ Theme(e,Bill)]]]

g. ⟦PerfP⟧=λt.∃t'[PTS(t',t) ∧ ∀w"[wINERT$_{t'}$ w" → ∃t"[t' is a non-final part of t" ∧ ∃e[τ(e) ⊆ t" ∧ e≤w" ∧ Agent(e,Lucy) ∧ Theme(e,Bill)]]]], PTS(t',t) iff t is a final subinterval of t'

h. ⟦iii⟧=λw: if c provides an interval t"' that includes t_0(UT).∃t'[PTS(t',t) ∧ ∀w"[wINERT$_{t'}$ w" → ∃t"[t' is a non-final part of t" ∧ ∃e[τ(e) ⊆ t" ∧ e≤w" ∧ Agent(e,Lucy) ∧ pinch(e) ∧ Theme(e,Bill)]]], PTS(t',t) iff t is a final subinterval of t'

This concludes the overview of the type of basic options Universal Grammar provides for the syntax, semantics, and morphology of the verbal domain. The next section will turn back to the empirical question at the heart of the book: What types of cross-linguistic variation occur in the verbal domain?

1.3 Cross-linguistic variation in the verbal domain

Languages can vary in a number of ways. This section will first preview variance in the number of morphemes a language has to express a given functional category. It will then overview considerations about how much syntactic structure should be projected and the role of morphological variation in determining this. Finally, it will consider variation with respect to the precise semantic features carry.

One of the most obvious ways languages can vary is with respect to the type of morphology they have to encode tense, aspect, perfect, etc. Languages can lack morphology that English has or have multiple morphemes to express an idea that is expressed using a single English morpheme. Chapter 2 will provide one example of this in the domain of tense. There it will be shown that some languages lack tense morphemes completely while others make finer distinctions than English does. The sentences in (69) shows that in St'át'imcets (Lillooet Salish, Canada), while the verbs both bear person, number and indicative subject marking and the verb in (69-b) bears a directive transitivizer morpheme, tense morphology is absent. The sentences in (70) illustrate the opposite side of the spectrum: Gĩkũyũ (Bantu, Kenya) contains morphemes that provide gradations of past tense which yield the meaning differences listed in parentheses.

(69) St'át'imcets

a. táyt-kan
hungry-1SG.SUBJ
'I was hungry/I am hungry.'

b. k'ác-an'-lhkan
dry-DIR-1SG.SUBJ
'I dried it/I am drying it.' (Matthewson 2006 p4: 4)

(70) Gĩkũyũ

a. Mwangi nĩ-e-kũ-in-aga.
Mwangi ASRT-3sgS-current-dance-PST.IPFV
'Mwangi was dancing (within the day).'

b. Mwangi nĩ-a-ra-in-aga.
Mwangi ASRT-3sgS-near-dance-PST.IPFV
'Mwangi was dancing (before today, but recently).'

c. Mwangi nĩ-a-a-in-aga.
Mwangi ASRT-3sgS-remote-dance-PST.IPFV
'Mwangi was dancing (some time ago, not recently).' (Cable 2013 p223: 3)

This type of scale of zero morphemes to three plus morphemes will be seen in the other domains as well. Chapter 4 will show that some languages use less viewpoint aspect morphology than English, as is the case in Inuktitut (Inuit, Canada), while others, Kinande (Bantu, Democratic Republic of the Congo), for example, have more viewpoint aspect morphology than English. The examination of the perfect in Chapter 5 will reveal that languages like Turkish (Turkic, Turkey) lack perfect morphology all together. Other languages like Greek (Hellenic, Greece) have perfect morphology that is used in some types of perfect but not others, while English uses perfect morphology in all types of perfect constructions. Chapter 6 will show that some languages like English have only one copula ('being' verbs), while languages like Spanish (Italic) have two. Other languages like Oriya (Indo-Aryan, India) have four.

Turning to syntactic variation, the fact that functional morphemes have syntactic correlates (Tense Phrase, Aspect Phrase, Perfect Phrase, etc.) raises questions regarding the mapping between the morphology and syntax. For example, if a language lacks a visible exponent of a certain morpheme or set of morphemes, does this mean that it lacks the corresponding syntactic projection? The answer need not be affirmative. Possible solutions to this puzzle are given in (71).

(71) a. Covert morpheme(s), which appear(s) in the respective syntactic projection.
b. No covert or overt morpheme or set of morphemes & no corresponding syntactic projection.
c. No covert or overt morpheme or set of morphemes but the projection is present in the syntax.

If a language chooses option (71-b), this raises a questions due to past assumptions that some functional phrases do more than just host the relevant functional morphology. For example, the Tense Phrase has been theoretically linked with case licensing, licensing an [EPP] feature that triggers movement of the subject out of the Verb Phrase to the Specifier of the Tense Phrase, nominalization, finiteness and binding in a number of languages. If a language were to lack a Tense Phrase then these other domains linked with the Tense Phrase should also be affected.

If a language uses option (71-b) or (71-c) this raises questions for the mapping of the morphosyntax and semantics. For example, if a language lacks a set of morphology and the corresponding syntactic projection, what other mechanism does it use to get the semantics? Such a language would need to make use of other related inflectional morphemes, along with pragmatic (contextual) information to indicating these relationships. The specifics of the alternate mechanism could vary from language to language. The puzzle for each language is then two-fold:

what is the alternate mechanism being used and what language internal factors along with universal principles cause that mechanism to be selected?

On the flipside, if a language has more specifications for a certain category, questions regarding the nature of the morphology-syntax mapping also need to be asked. For example, does each individual piece of morphology license its own syntactic projection (in the spirit of the Cartographic tradition (Rizzi 1997, Cinque 1999, Cinque 2002) or are there just more featural specifications possible for certain heads in certain languages? If the first option is chosen, is there a fixed order to these heads language internally and cross-linguistically? Relatedly, do all these heads have to project in all languages? Questions of these sorts have been entertained in the cartographic literature and also in work by Ritter and Wiltschko (2005, 2010, 2014), a. o. No matter the specifics of the morphosyntax in a given language, the pieces and structures involved in any account that might be presented should be compositional (Frege 1884).

Turning to the semantics, languages can also vary in the exact semantics a particular feature encodes. For example, German and English both have a [PRS] tense feature.[7] However, the semantics of the present have been argued by Pancheva and von Stechow (2004) to be slightly different in the two languages given the data in (72).

(72) German (Germanic, Germany)

a. Fritz ist krank.
Fritz be.PRS.3SG sick
'Fritz is sick.'

b. Fritz ist in 10 Tagen krank.
Fritz be.PRS.3SG in 10 days sick
'Fritz will be sick in 10 days.' [lit. 'Fritz is sick in 10 days.'] (Pancheva & von Stechow 2004 p5, 11)

As (72-b) shows, in German, a future adverb can be used with a present tense sentence. In English this is not possible, as shown by the use of the future in the English translation of this German sentence.

These issues will be further taken up in subsequent chapters, especially in chapter 7. This book will use the Dravidian language Malayalam to further explore the type of cross-linguistic variation found in human language. The next section will provide a brief overview of the verbal domain in Malayalam.

7 While the copula in both German and English does not inflect in the usual way, the fact that there is a copula present in the sentence is an argument for the presence of a [PRS] feature. See chapter 2 for further details.

1.4 A snapshot of Malayalam verbs

This section will provide a very brief overview of the relevant Malayalam verbal morphology one would find by opening a grammar of the language.[8] Turning to tense, most grammars (Caldwell (1875), Peet (1841), Frohnmeyer (1913), Raja Raja Varma (1917), Asher and Kumari (1997), a. o.) state that Malayalam has tense morphology: *-unnu* (present), *-u/i* (past) and *-um* (future). Note though from the glosses that this morphology is not quite so simple.

(73) a. avan paaṭ-unnu
he sing-PRS/IPFV1
'He sings/is singing.'

b. avan paaṭ-um
he sing-FUT/MOD/GEN
'He will sing/sings.'

c. avan paaṭ-i
he sing-PST
'He sang.'

(74) a. avaḷ cirikk-unnu
she laugh-PRS/IPFV1
'She laughs/is laughing.'

b. avaḷ cirikk-um
she laugh-FUT/MOD/GEN
'She will laugh/laughs.'

c. avaḷ ciricc-u
she laugh-PST
'She laughed.'

As can be seen in the translation in (73-a) and (74-a), the *-unnu* morpheme also has a continuous aspect and generic/characterizing element to it, which led Asher & Kumari to gloss it in some places as a present morpheme and in others as an imper-

8 Transcription of all data in the book follows the Malayalam script, as is the tradition in work on Dravidian languages. The script though does not distinguish between alveolar and dental stops and nasals. Alveolar stops usually occur in geminated form. Some words with alveolar stops/nasals include *avan* 'he', *avan-te* 'his', *ɲaan* 'I', *tett-aaɳə* 'be wrong', *sigarettə* 'cigarette', *cennai* 'Chennai', *sneehikk-* 'love', the infinitival marker *-uvaan*, the 't' in *ente* 'my', and the 'n' in *tiirumaniccu* 'decided'. Malayalam also only pronounces voiceless retroflex sounds when they are geminated. In all other contexts, they are voiced. For additional information on Malayalam phonology see Mohanan and Mohanan (1984), Dutta and Francis (2017), and Francis (in preparation), a. o.

fective morpheme (IPFV1). Malayalam also has another form, *-uka*, which Asher & Kumari gloss as both an imperfective (IPFV2) and as an infinitive (INF), (75).

(75) a. avan cirikk-uka(y)-aaɳə
he laugh-IPFV2-be.PRS
'He is laughing.'

b. avan bhakʂikk-ukay-oo uraŋŋ-ukay-oo samsaarikk-ukay-oo
he eat-INF1-DISJ sleep-PROG-DISJ talk-INF1-DISJ
ceyt-illa
do.PST-NEG
'He didn't eat, sleep or talk.' (Asher & Kumari 1997 p141: 671a)

The language has another infinitive marker *-(uv)aan*, (73), but *-uka* is used as the citation form.

(76) avan ennooʈə kuuʈe cell-uvaan paraŋŋ-u
he I.SOC along.with go-INF2 tell-PST
'He told me to go along with (him).' (Asher & Kumari 1997 p49: 233)

Chapter 2 will argue that *-unnu* is not, in fact, a present tense morpheme, though the language does have a null present tense morpheme. Chapter 4 examines the functions of *-unnu* and *-uka* more closely and argues that they are both types of progressive viewpoint aspect markers.

Turning to the *-um* morpheme, in addition to giving future semantics it can also give a generic/characterizing reading, as (73-b) and (74-b) show. John (1987) and Hany Babu (1997) have argued that *-um* is really a modal.[9] Often times the modal *–aam* is more commonly used in places where, in English, a *will* form would be used.

The *-aam* modal has a number of uses. In addition to indicating that one may do something, (77), it can also be used to summon someone/call someone to do something, (78-a). Another use involves accepting a request. It is a normal thing to say in response to a friend saying (79). Saying (78-b) here indicates that the speaker plans to pass on the well wishes. When (78-c) is said, say after making plans to meet the next day, it indicates that, if all goes as planned, the interlocutors will meet tomorrow.

(77) a. avaɭ paaʈ-aam
she sing-MOD
'She may sing.'

9 This morpheme also has a number of other uses. See Hany Babu (2006) for a discussion.

b. avaḷ cirikk-aam
she laugh-MOD
'She may laugh.'

(78) a. pook-aam.
go-MOD
'Let's go.'
b. paray-aam
tell-MOD
'(I) will tell (them).'
c. naaḷe kaaɳ-aam
see-MOD
'See you tomorrow.'

(79) viiṭṭ-il uḷḷ-a ellarodum ente anweshanam paray-aɳam
house-LOC be-REL all I.GEN regards tell-MOD
'Say/tell my regards to your family.'

The modal, *-aɳam*, used in (79) is a cliticized form of *veeɳam* 'want/need' that provides stronger modal force than *-aam*. Since modals will largely be abstracted away from in this book, the overview of them will conclude here.

Returning to the data in (74), one will notice that the present and future forms use a different stem than the past. The past tense morpheme is also different based on the verb, as one can see by comparing (74-b) and (73-b). One might wonder then if the choice between using -u or *-i* as the past tense morpheme might be phonologically conditioned. However, this has proven a formidable task, which, so far, has not been accomplished (see chapter 3). Chapter 2 will argue that the *-u/i* morpheme is a genuine past tense marker.

Turning to the perfect, Asher & Kumari (1997) claim there are two perfect constructions. The first, (80), uses the morpheme *irikk-*, which they gloss as a perfect morpheme (PRF1). The second, (81) uses a combination of the morpheme *iṭṭə*, glossed as PRF2, plus a tensed version of the *uɳṭə* copula.

(80) a. avaḷ ciricc-irikk-unnu
she laugh.PART-PRF1-PRS
'She has laughed.'
b. avaḷ ciricc-irikk-um
she laugh.PART-PRF1-FUT/MOD
'She will have laughed.'
c. avaḷ ciricc-irunn-u
she laugh.PART-PRF1-PST
'She had laughed.'

(81) a. avaɭ ciricc-iṯṯ-uɳṭə
she laugh.PART-PRF2-be.PRS
'She has laughed.'
b. avaɭ ciricc-iṯṯ-uɳṭaakum
she laugh.PART-PRF2-be.FUT/MOD
'She will have laughed.'
c. avaɭ ciricc-iṯṯ-uɳṭaayirunnu
she laugh.PART-PRF2-be.PST
'Se had laughed.'

In both of these constructions, the Conjunctive/Adverbial Participle form (PART) forms the base of the construction. This form looks identical to the past tense stem of the verb, but, for a number of reasons, it has traditionally been assumed to be a distinct form (Raja Raja Varma 1917, Asher & Kumari 1997, a. o.). Chapter 3 will explore this construction in detail and argue that it is a distinct morpheme from the past tense morpheme.

It will be argued in chapter 5 that the forms in (80) are not actually either Existential or Universal perfect forms, while the form in (81) is the Existential perfect form. In the Existential form the copula *uɳṭə* is used to convey tense. Malayalam, like Spanish, has more than one copula. The other copula, *aaɳə* , is used in (82), which chapter 5 will argue is one option for expressing the Universal perfect. In order to better understand the contributions these different copulas make to the forms in (81) and (82) and their behavior in different types of copula constructions, chapter 6 will explore of their syntax and semantics. The morphemes *iṯṯə* and *koɳṭə*, which are, respectively, involved in forming the Existential and Universal perfects, will be examined in chapter 5.

(82) a. aɲcə miniṯṯə aayi avan ciricc-ə-koɳṭ-irikk-uka(y)-aaɳə
five minute ADV he laugh-PART-CONT-PRF1-PROG-be.PRS
'For five minutes he has been laughing.'
b. aɲcə miniṯṯə aayi avan ciricc-ə-koɳṭ-irikk-unnu
five minute ADV he laugh-PART-CONT-PRF1-IPFV1/PRS
'For five minutes he has been laughing.'

Regarding the Voice/little v domain, Malayalam has a transitivizer/causativizer morpheme, *-ikk-*, which has the phonological variants *-icc-* and *-ipp-*, (83). It can be stacked, as (83-c) shows, to make an (unaccusative) intransitive verb into a causativized, transitive verb.

(83) a. paatram poʈʈ-i
pot break-PST
'The pot broke.'

b. kuʈʈi paatram pooʈʈ-icc-u
child pot break-TR/CAUS-PST
'The child broke the pot.'

c. ɲaan kuʈʈi-(y)ekkoɳʈə paatram poʈʈ-ipp-icc-u
I child-INST pot break-TR/CAUS-TR/CAUS-PST
'I made the child break the pot.' (Asher & Kumari 1997 p277: 1386a-c)

This morpheme is frequently used to transform nouns/bare roots into verbs. The passive marker, *peʈʈ*, can also be attached to these verbs, (84-e).

(84) a. paʈh-
study
root: study

b. paaʈh-am
study-NMLZ
'lesson/study'

c. avaɭ paaʈh-aŋŋaɭ paʈh-ikk-unnu
she study-NMLZ.PL study-TR-PRS/IPFV1
'She studies/is studying lessons.'

d. avaɭ paaʈh-aŋŋaɭ paʈh-ipp-ikk-unnu
she study-NMLZ.PL study-TR-CAUS-PRS/IPFV1
'She teaches/is teaching lessons' [lit. teach = cause to study]

e. paaʈh-aŋŋaɭ paʈh-ipp-ikk-apeʈʈu-koɳʈ-irunn-iʈʈ-uɳʈə
study-NMLZ.PL study-TR-CAUS-PASS-CONT-PRF1-PRF2-be.PRS
'Lessons have been being taught.' (Asher & Kumari 1997 p304: 1525)

This book will not address the syntax and semantics of these morphemes and will simply assume that there is a little v head whose main function is to introduce the external argument.

The next five chapters explore the questions in (85) for different parts of the verbal domain, using Malayalam as the main case study.

(85) a. What types of cross-linguistic variation exist in the given domain?
b. How can this variation be theoretically accounted for?
c. What can this variation teach the field about Universal Grammar?

Chapters 2 and 3 explore these questions in the domain of tense. While chapter 2 focuses on 'finite' forms, chapter 3 focuses on 'non-finite' forms. Chapter 4 con-

siders the viewpoint aspectual domain. Chapter 5 investigates the perfect domain and chapter 6 examines the syntax and semantics of the *unʈə* and *aaɳə* copulas.

The first section of chapters 2 and 4–6 provides a brief snapshot of the cross-linguistic picture, in addition to an overview of the theoretical account the chapter will propose for Malayalam. The summary section of each chapter, in addition to a summary, will contain a brief reflection about the implications of the proposed account for Universal Grammar. The sections in between first provide an overview of past proposals of how Malayalam fits into the typology/how to account for cross-linguistic variation in this domain and then develop a novel theoretical account for the Malayalam data. Chapter 7, after providing a summary of the major claims of the book, will discuss the implications these claims have for Universal Grammar.

2 The Puzzle of Tense in Malayalam: A Cross-linguistic Perspective

2.1 The questions & main claims

This chapter focuses on tense[1] and investigates the broad questions in (1).

(1) a. What types of cross-linguistic variation exist in the domain of tense?
b. How can this variation be theoretically accounted for?
c. What can this variation teach the field about Universal Grammar?

Beginning with the first question, one way languages can vary is with respect to the type of tense morphology they have. English has two-three tenses, depending on if the future is classified as a tense or a modal.

(2) a. Liz is dancing. [present tense]
b. Liz danced. [past tense]
c. Liz will dance. [future tense/modal]

Other languages, such as St'át'imcets (Lillooet Salish, Canada) (Matthewson 2006) and Mandarin (Sinitic, China) (Lin 2006, Lin 2010), have no tense morphology, (3)–(4). In these types of languages, while the verb may be marked with other morphology, there is no morphology that encodes the relationship between the Topic Time and the Utterance Time.

(3) St'át'imcets
a. táyt-kan
hungry-1SG.SUBJ
'I was hungry/I am hungry.'
b. k'ác-an'-lhkan
dry-DIR-1SG.SUBJ
'I dried it/I am drying it.' (Matthewson 2006 p4: 4)

1 Recall that in this book the term 'tense' is being used to refer to the relationship in (i).

(i) Tense = Utterance/Speech Time & the Topic/Reference Time (Klein 1994)
a. Utterance Time ⊆ Topic Time (Present tense)
b. Topic Time < Utterance Time (Past tense)
c. Utterance Time < Topic Time (Future tense)

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(4) Mandarin

a. Wo zhu zai Lutedan.
I live in Rotterdam
'I live in Rotterdam.' [ok Pres, X Past, X Fut]

b. Zhangsan dapuo yi-ge heaping
Zhangsan break one-Cl vase
'Zhangsan broke a vase.' [X Pres, ok Past, X Fut] (Lin 2010 p307: 3a–b; Lin 2006 p3:3a)

Some other languages that lack tense morphology include Navajo (Athabaskan, United States) (Smith et al. 2003, Smith et al. 2007), Hausa (West Chadic, Nigeria) (Mucha 2012, Mucha 2013), Yucatec Maya (Mayan, Mexico/Belize) (Bohnemeyer 2009), Paraguayan Guaraní (Tupi, Paraguay) (Tonhauser 2011), Kalaallisut (Inuit, Greenland) (Shaer 2003, Bittner 2005), Halkomelem (Coast Salish, Canada) and Blackfoot (Algonquian, Canada/United States) (Ritter & Wiltschko 2005, 2009, 2014).

Languages can also have a multiplicity of tense forms, which make finer grained distinctions than the two/three tenses common in languages like English. As can be seen from data below, languages differ in how many additional distinctions they make. South Baffin Inuktitut (Inuit, Canada) splits the notion of past encoded by a single morpheme in English into five distinct flavors of past morphemes while Gĩkũyũ (Bantu, Kenya) only makes three finer distinctions.

(5) South Baffin Inuktitut

a. jaan tiki-kainnaq/rataaq-tuq
John arrived-recent.PST/recent.PST-PTCP.3SG
'John just arrived.'

b. jaan tiki-qqau-juq ullaaq
John arrived-same.day.PST-PTCP.3SG this.morning
'John arrived this morning.'

c. jaan tiki-lauq-tuq ippatsaq
John arrived-yesterday.PST-PTCP.3SG yesterday
'John arrived yesterday.'

d. jaan tiki-juu-juq
John arrived-distant.PST-PTCP.3SG
'John arrived (yesterday or before).'

e. jaan tiki-lauqsima-juq
John arrived-long.ago.PST-PTCP.3SG
'John arrived (a long time ago).' (Hayashi 2011 p40, 58: 60, 101)

(6) Gĩkũyũ

a. Mwangi nĩ-e-kũ-in-aga.
Mwangi ASRT-3sgs-current-dance-PST.IPFV
'Mwangi was dancing (within the day).'

b. Mwangi nĩ-a-ra-in-aga.
Mwangi ASRT-3sgs-near-dance-PST.IPFV
'Mwangi was dancing (before today, but recently).'

c. Mwangi nĩ-a-a–in-aga.
Mwangi ASRT-3sgs-remote-dance-PST.IPFV
'Mwangi was dancing (some time ago, not recently).' (Cable 2013 p223: 3)

Some additional languages that make finer distinctions in their tense morphology include Luganda (Bantu, Uganda) (Bochnak and Klecha 2015) Medumba (Grassfields Bantu, Cameroon) (Mucha 2015, Mucha 2017) and Awing (Grassfields Bantu, Cameroon) (Mucha and Fominyam 2017).

If a language lacks tense morphology, this raises the question of whether or not it still projects a Tense Phrase. If a language has a plethora of tense morphemes, one might wonder if each individual piece of morphology licenses its own syntactic projection or if there are just more featural specifications possible for the Tense head in certain languages. This morphosemantic and morphosyntactic variation and how to diagnose it and theoretically account for it will be the focus of this chapter and the next. The focus of this chapter will be on 'finite' verb forms/clauses (defined here as verb forms/clauses that could stand on their own as independent sentences) and will concentrate on discovering where Malayalam fits in the typology.

The main claim of this chapter is that Malayalam is a tensed language, and that despite its surface differences, is underlyingly basically English, when it comes to the tense domain. The next section will overview the tense debate in Malayalam. Section 2.3 will identify the criteria past accounts have used to diagnose a language as tenseless. Section 2.4 will show that Malayalam is empirically different from other tenseless languages. Section 2.5 concludes.

2.2 The tense debate in Malayalam

In the literature, the investigation of the tense/aspect system in Malayalam focuses almost exclusively on whether or not Malayalam has a Tense Phrase in its clausal structure and what the role of the morphology is in drawing this conclusion. On one side, Amritavalli and Jayaseelan (2005), Amritavalli (2014), and

Jayaseelan (2014))[2] claim that Malayalam, as well as the other major Dravidian languages Kannada, Telugu and Tamil, lacks tense morphology and a Tense Phrase and does not use tense to anchor clauses. This is not a priori impossible as a diverse number of languages have been argued to lack tense morphology and/or a Tense Phrase cross-linguistically, as discussed above.

However, this position is a controversial and novel claim for Malayalam. Grammars have long claimed that Malayalam has tense morphology (Caldwell 1875, Peet 1841, Frohnmeyer 1913, Raja Raja Varma 1917, Asher & Kumari 1997, a. o.) and Hany Babu and Madhavan (2003) and Menon (2011) have argued in favor of Malayalam having a Tense Phrase in the syntax. This chapter will argue, along with the grammars and Hany Babu & Madhavan (2003) and Menon (2011) that Malayalam has tense morphology and a Tense Phrase. The focus in this chapter will be on the structure and semantics of finite clauses. Chapter 3 will debunk Amritavalli & Jayaseelan's arguments from non-finite clauses.

While this book argues that Amritavalli & Jayaseelan are wrong in calling Malayalam a tenseless language, a core claim of the book is that they are right in their intuition that the tense/aspect/perfect system in Malayalam, is, in some ways, very different from that of English. That being said, the ways in which Malayalam differs from English are not random or chaotic. The differences are just the result of Malayalam having some different parameters (or more precisely, having a slightly different set of morphosyntactic features) than English has. In other words, the differences and similarities between Malayalam and other languages are exactly as Universal Grammar predicts.

Before diving into the arguments that Malayalam is not a tenseless language, it is necessary to understand why one might propose that it is a tenseless language. To this end, the next page or so will provide a brief overview of Amritavalli & Jayaseelan's work on this subject. In general, Amritavalli & Jayaseelan (2005) rely heavily on negation data and on intra-Dravidian comparison, particularly with Kannada, to build their claim that Malayalam is a tenseless language. Another crucial factor is what constitutes 'finiteness' in Dravidian languages. One goal of their proposal is to provide a unified clause structure for positive and negative sentences across Dravidian.

Amritavalli & Jayaseelan begin their proposal with a puzzle from Kannada. Negative root clauses in Kannada do not contain 'finite' verbs. At this point, they

2 Throughout this book Amritavalli & Jayaseelan (2005), Amritavalli (2014), and Jayaseelan (2014) will be referenced as a single account since the 2014 papers simply offer further arguments for the account put forth in the 2005 paper. It will be specifically noted in cases where the papers differ from one another.

follow the Latin grammatical tradition in defining 'finite' verbs as those verbs marked with tense and agreement morphology.[3] Instead, Kannada uses 'non-finite' forms in negative clauses. The gerund is used in negative root clauses to express present tense, (8-a). Infinitives are used to express past tense in negative root clauses, (8-b). The puzzle is that, in the absence of the 'finite' tense and agreement morphology found in positive clauses, some other morphology, namely that of infinitives and gerunds, seems to be controlling tense interpretation in Kannada negative clauses.

(7) Kannada

a. avanu bar-utt-aanne.
He come-PRS-3MSG
'He comes.'

b. avanu ban-d-anu.
He come-PST-3MSG
'He came.'

(8) Kannada

a. avanu bar-uvud(u) illa.
he come-gerund NEG
'He does not come.'

b. avanu bar-al(u) illa.
He come-INF NEG
'He did not come.' (Amritavalli & Jayaseelan 2005: 3, p181)

At this point, two questions present themselves: first, what type of semantic or pragmatic explanation could be given for how and why infinitives yield a past interpretation in negative sentences and gerunds yield a present one? Secondly, if all sentences have to have at least one finite verb, what functions as the finite verb in negative sentences? Amritavalli & Jayaseelan engage primarily with the second question. They conclude that, since these root negative verbs should be just as 'finite' as their positive counterparts, (7), which have tense and agreement marking, the negation, *illa*, itself incorporates 'finiteness.' Perhaps this could be understood to mean that *illa* is a negative 'finite' verb. Since *illa* does not contain either tense or agreement marking, they conclude that tense and agreement cannot be what makes a verb 'finite' in Malayalam; something else must be responsible for marking the verb as being 'finite.' There is cross-linguistic support

3 Unlike Malayalam, Kannada has verbal agreement morphology, as seen in (7). The other major literary Dravidian languages Tamil and Telugu also have verbal agreement morphology.

for such a definition, as McFadden & Sundaresan (2014) point out that the Latin based definition of a finite verb runs into a number of problems when faced with data from a wider range of languages.

In searching for a possible candidate, they note that modals, like *illa*, take infinitival complements in Kannada. Modals, like the 'finite' verbs in (7), also cannot co-occur with *illa*; instead they have dedicated negative counterparts. Based on these parallels, they argue that what makes both *illa* and modals 'finite' is mood[4] and that both modals and *illa* target a single projection in the syntax, Mood Phrase. Amritavalli (2014) further explains that this means for them that the clause is anchored to the utterance via worlds, which is a possibility in line with the proposal in Ritter & Wiltschko (2005, 2009). They further argue that agreement is a reflex of indicative mood, and thus provide a unified 'finiteness'-as-mood account for both positive and negative root sentences. Why the assumption is made that there is a link between agreement and indicative mood is not clear, since languages like Spanish and Ancient Greek show agreement in the subjunctive mood (and optative mood in Ancient Greek), in addition to the indicative mood. In sum, for Amritavalli and Jayaseelan, what makes a verb 'finite' is the relationship it has with the Mood Phrase not the Tense Phrase. This is a reflection of their main insight: tense and 'finiteness' are separate notions in Dravidian. This is the first part of their account.

The second part of their account argues that tense marking in positive root clauses cannot actually be tense marking; otherwise, due to the presence of the agreement morphology that is a reflex of the indicative mood, it would cause a verb to be 'doubly marked' for 'finiteness,' here assuming that finiteness is a property of individual verbs, since this is where the relevant morphology appears.[5] To avoid this problem, they propose that all morphemes previously analyzed as tense morphemes are actually aspect morphemes. Then, since the language now lacks tense morphemes, they assert that there is no longer any need for a Tense Phrase in the syntax.

Temporal semantics are then to be obtained as follows: when an infinitive is in the scope of a Mood Phrase, it yields a past tense interpretation and when a gerund is in the scope of a Mood Phrase, it gives a present tense interpretation.

4 Most probably what is mainly meant by 'mood' is 'modality,' as cases involving modals are what are discussed in the Amritavalli and Jayaseelan papers, not cases involving other moods than the indicative. Malayalam, for instance, does not have a subjunctive mood (Jayaseelan 2000).

5 It will be pointed out below that this issue of being 'doubly marked' for 'finiteness' does not actually take their first conclusion, that tense and 'finiteness' are separate notions in Dravidian, seriously.

How exactly the semantics would work is not spelled out beyond a suggestion in Amritavalli (2014) that something along the lines of the system in Lin (2006) might work.

Amritavalli and Jayaseelan argue for this same system in Malayalam by pointing out that, while it uses fully inflected regular verb forms in both positive and negative sentences, unlike Kannada, it, nonetheless, appears to have 'finite' and 'non-finite' negation forms. Example (10) shows that the finite negation in Malayalam regular verbs is also *illa*. Modals in Malayalam, as in Kannada, are defective and have their own negative forms that are not inflected for tense and take infinitival complements, (9).[6] They take this as evidence that Malayalam, like Kannada, encodes 'finiteness' as mood and that *illa*, along with modals located in Mood Phrase, serve as 'finiteness' markers. Note that Malayalam, unlike Kannada and the other Dravidian languages, lacks agreement morphology.

(9) avan var-uka-(y)ee veeṇṭa
he come-INF-EMPH need.NEG
'He need not come at all.' (Amritavalli & Jayaseelan 2005 p201: 41)

(10) avan var-unn-illa
he come-PRS-NEG
'He is not coming/he does not come.' (Amritavalli & Jayaseelan 2005 p181: 4a)

Turning to negative clauses in Malayalam like those in (10), which contain both tense marking and the finite negation, *illa*, they argue that the problem of having 'double finiteness marking' again occurs if tense markers are also 'finiteness' markers in Malayalam. To remedy this, they reanalyze tense marking as aspect marking. Since Malayalam no longer has tense morphology, they argue that it no longer has need of a Tense Phrase to host that morphology.[7] In negative clauses, *illa* is the finite element. In positive clauses, they propose that, parallel with Kannada, agreement (as the reflex of indicative mood) is the finite element, in order to have a parallel account for negative and positive sentences in Malayalam. However, unlike Kannada, Malayalam does not have verbal agreement. As such, a null

6 In the positive sentence the form of the modal would be *veeṇam*.

7 Jayaseelan (2014) argues that Mood Phrase is part of an expanded Complementizer Phrase-level. Below Mood Phrase there is an Inflection Phrase which hosts the subject in its specifier position. He still maintains though that an Inflection Phrase is not a Tense Phrase and that Malayalam is a tenseless language (no Tense Phrase, no tense morphology, no anchoring via tense). This raises interesting questions regarding the role of the Inflection Phrase versus the Tense Phrase, and how much syntatic structure languages must project, which will be taken up in chapter 7.

agreement marker is proposed to exist in Malayalam positive clauses. Agreement, modals and *illa* occur in a Mood Phrase. In Malayalam then, temporal interpretations would be obtained as follows: perfect(ive) aspect[8] in the scope of a finiteness element yields past tense and imperfective aspect in the scope of a finiteness element yields present tense.

One of the first problems for Amritavalli & Jayaseelan's account is that this supposed problem of being 'doubly marked' for 'finiteness' does not actually take their first conclusion seriously. Namely, if tense is not a 'finiteness' marker in Dravidian, then it should be able to co-occur in a clause with mood (modal) marking or its reflex, agreement, without causing any problems of 'double finiteness marking.' Perhaps Amritavalli and Jayaseelan might try to explain away this problem by saying that what counts as 'finiteness' marking in a given language is subject to parametric variation. Even if this is so, it still does not take their claim that 'finiteness' does not equal tense in Dravidian seriously.

It is possible, in principle, to accept Amritavalli and Jayaseelan's assertion that 'finiteness' is not linked to tense in Dravidian without accepting their second claim that Dravidian languages lack tense morphology and a Tense Phrase. This chapter will show, however, that neither of these claims are empirically supported. That Malayalam is emperically different from other tenseless languages is a strong argument against a tenseless account. The first half of the chapter will focus on identifying the different criteria past accounts have used to diagnose a language as tenseless, while the second half of the chapter will show that Malayalam is empirically different from other tenseless languages.

2.3 What is a tenseless language?

There are basically two different things that can be meant by the term 'tenseless.' This section presents a brief summary of these two camps. Before getting into the details of any of these accounts though, all parties involved agree that all languages, even tenseless ones, have a way to express the semantic component of tense (i. e. all languages have a way of communicating what relationship holds between the Topic Time and the Utterance Time for a given sentence). Instead, tenseless languages are ones in which part or all of (both) the morphological or syntactic components of tense are missing. Exactly what is missing is where the disagreement lies.

8 Amritavalli & Jayaseelan use the terms 'perfect' and 'perfective' interchangeably; however, as detailed in chapter 1, they are not the same thing.

2.3.1 'No overt morphology' camp

In the first camp, which will be referred to as the 'no overt morphology camp,' a tenseless language is one which lacks overt morphology that encodes temporal semantics (Smith et al. 2003, 2007 for Navajo; Smith & Erbaugh 2005 and Lin 2003, 2006, 2010 for Mandarin; Mucha 2012, 2013 for Hausa; Bohnemeyer 2009 for Yucatec Maya; Tonhauser 2011 for Paraguayan Guaraní; Shaer 2003 and Bittner 2005 for Kalaallisut, Matthewson 2006 for St'at'imcets) as opposed to lacking a Tense Phrase (which is what the second camp will claim). Those accounts that define tenselessness as languages with 'no overt morphology' can broadly be separated into a tensed account (have a single covert [TENSE] morpheme, i. e. a single phonologically null, tense feature/morphology) or a tenseless account (have no covert or overt tense features/morphology).

2.3.1.1 Tensed account for tenseless language

Matthewson (2006) is an example of a tensed account for a language which lacks overt tense morphology. In St'át'imcets root sentences can receive a present or past interpretation but not a future one, (11-a). As such, she argues that the language has a single [TENSE] feature that is defined as in (12). Notice that Matthewson assumes a pronominal account of tense. Here *i* represents a time variable.

(11) St'át'imcets

a. **matq** [kw s-Mary]
walk DET NOM-Mary
'Mary walked/Mary is walking' [ok Pres, ok Past, X Fut](Matthewson 2006 p8: 14)

b. **matq** kelh [kw s-Mary]
walk WOLL DET NOM-Mary
'Mary will walk.' (Matthewson 2006 p19: 37)

(12) $[\![\text{TENSE}]\!]^{g,c}$ is only defined if no part of g(i) is after t_c.
If defined $[\![\text{TENSE}]\!]^{g,c}$ =g(i) (Matthewson 2006 p8: 13)

This feature is spelled out by a covert tense morpheme. It does not necessarily have to be located at the Tense head, though it could be. As such a sentence such as (11-a) would have the non-future meaning in (13).

(13) λw_s. $\exists e$[walk(e)(w) & agent(Mary)(e)(w) & τ(e) $\subseteq$ g(i)] (where no part of g(i) follows t_c.) (Matthewson 2006 p8: 15b)

In order to get future interpretations, *kelh* must be added, (11-b). Matthewson argues that *kelh* is not a tense marker, as previously thought but the equivalent of English WOLL. Future temporal semantics are obtained when *kelh* combines with the [TENSE] feature. The calculation for the St'át'imcets future sentence in (11-b) is given in (14-b)–(14-d).

(14) a. $[\![kelh]\!]^{g,c} = \lambda P_{<i,<s,t>>}.\ \lambda t_i.\ \lambda w_s.\exists t'[t < t' \ \&\ P(t')(w)=1]$

b. $[\![AspP]\!]^{g,c} = \lambda t_i.\lambda w_s.\exists e.$ [walk(e)(w) & agent(Mary)(e)(w) & $\tau(e) \subseteq t$]

c. $[\![kelhP]\!]^{g,c} = \lambda t_i.\lambda w_s.\exists t'$ [t< t' & $\exists e$ [walk(e)(w) & agent (Mary)(e)(w) & $\tau(e) \subseteq t'$]]

d. $[\![TP]\!]^{g,c} = \lambda w_s.\exists t'[g(i)<t' \ \&\ \exists e[$walk(e)(w) & agent(Mary)(e)(w) & $\tau(e) \subseteq t']]$ (where no part of g(i) follows t_c) (Matthewson 2006 p20: 36, 38b–d)

2.3.1.2 Tenseless accounts for tenseless language

A tenseless account of a tenseless language is one in which there is no abstract, formal morphological tense feature (and as a result no covert tense morpheme). Remember that there is universal agreement that tenseless languages still have a way to express temporal semantics. Also recall that in the grammar spelled out so far, the abstract, formal, morphological [TENSE] feature is what has been communicating to the interpretative component that a given string should receive a particular temporal interpretation. Since this feature is absent in tenseless accounts of languages without tense morphology, something else must play this role.

Tonhauser (2011), Bittner (2005), Bohnemeyer (2009), Smith et al. (2003, 2007), Smith & Erbaugh (2005), and Mucha (2012, 2013) argue that when a language lacks tense morphology and a [TENSE] feature, other mechanisms like pragmatic factors, temporal anaphora and aspectual specification, are used to express the relationship between the Topic Time and the Utterance Time. Temporal anaphora is roughly the idea that tense is pronominal and that tense can relate one Topic Time to another contextually determined Topic Time, instead of relating the Topic Time and Utterance Time. This arises for Tonhauser as the result of different semantic rules that tenseless as opposed to tensed languages have. For Bittner, Bohnemeyer and Mucha, temporal anaphora arise as a result of pragmatic reasoning.

Tonhauser (2011) focuses on Paraguayan Guaranı. As in St'át'imcets, simple sentences can have a present or past, but not future, interpretation, (15). The use of adverbs also confirms this: a given sentence can be modified by a past or present

adverb but not a future one.[9] However, in certain contexts where a previous conjunct is morphologically marked to express the future, a given unmarked verb can receive a future interpretation. This asymmetry is the key point Tonhauser needs to account for. An example of future marking in a previous conjunct is given in (16). The future marker in (16) is the prospective aspect marker (glossed as PROSP) on the verb in the 'since' clause.[10]

(15) (Kuehe/ko'ãga/#ko'ẽro) a-jahu
Yesterday/now/tomorrow A1sg-bathe
'I am/was/#will be bathing (now/yesterday/#*tomorrow*.' [ok Pres, ok Past, X Fut] (Tonhauser 2011 p4: 5)

Context: It's morning and the speaker is talking about a goose walking past her and the addressee.

(16) Ja'ú-ta-re ko gánso ko'ẽro, a-juka ko ka'arú-pe.
A1pl.incl-eat-PROSP-for this goose tomorrow A1sg-kill this afternoon-at
'Since we are going to eat this goose tomorrow, I will kill it this afternoon.' (Tonhauser 2011 p260: 5, 4c)

Tonhauser explains this asymmetry by using two separate semantic rules in tenseless and tensed languages. On Kratzer's (1998) formalization of a pronominal account for tense, the entries for tense include a presupposition that the context provides a Topic Time that precedes the Utterance Time (in the case of past tense) or contains the Utterance Time (in the case of present tense). For tensed languages, Tonhauser's rule basically does the same work as Kratzer's presupposition, though instead of being written into a lexical entry for tense, Tonhauser assumes that the final step of the computation is to apply the rule in (17).

(17) Matrix clause rule (tensed analysis): The final translation of a matrix clause translated as ϕ of type <w, <i, <i, τ> > > is $\phi(w_0, t_{topic\ time}, now)$ of type τ. (Tonhauser 2011 p270, 22)

In a tenseless language, the final step of the computation is to apply the rule in (18). The only difference between (17) and (18) is that in (18), another Topic Time interval is used instead of the Utterance Time.

9 Matthewson (2006) also shows parallel facts in St'át'imcets that present and past, but not future, temporal adverbs are allowed with such sentences.

10 A1=a type of prefix that marks transitive subjects as well as some intransitive subjects.

(18) Matrix clause rule (tenseless analysis): The final translation of a matrix clause translated as ϕ of type <w, <i, <i, τ > > > is $\exists$t(ϕ (w_0, $t_{topic\ time}$, t) of type τ. (Tonhauser 2011 p288: 50)

Basically, in more Kratzerian terms, in a tenseless language there is no presupposition that defines the Topic Time in relation to the Utterance Time. Instead, tense is defined via relating one contextually given Topic Time to another such Topic Time. Since tenseless languages lack formal, tense morphology features, this information is encoded in a semantic rule, not the lexical entry for the tense feature. If the Topic Time of the 'antecedent' clause follows the Utterance Time, say because the verb in that clause is marked with a prospective aspect which licenses future readings, then the Topic Time of the clause containing the zero-marked verb can also be interpreted as occurring after the Utterance Time. Specifically Tonhauser uses the mechanism of context update in a dynamic semantics Aloni (2000), to say that a context σ' can be updated with a future Topic Time only if the current context, σ, already supports a future Topic Time. She argues that temporal reference is contextually restricted to non-future times in Paraguayan Guaraní because Paraguayan Guaraní lacks a future tense (in the sense of the Utterance Time precedes the Topic Time), and instead uses an event time option, Utterance Time equals the Topic Time which precedes the Situation Time, for future reference. As such, future discourse is expressed using prospective aspect/modal markers, possibility and necessity modals, and prospective moods.

Kalaallisut, the focus of Bittner's (2005) work, like Paraguayan Guaraní and St'át'imcets, has no present or past tense morphemes, and unmarked sentences can receive both past and present interpretations, (19), (also see Shaer (2003) who makes the same point).

(19) aggir-puq
come.IND-3sg
'He is/was coming.' (Shaer 2003 p146: 7a)

The basic idea of Bittner's analysis is similar to Tonhauser's. In Kalaallisut certain markings on the verb yield certain default interpretations. Since events can only be reported as facts if they have already happened, the presence of a factive mood marker will yield a past default interpretation. Likewise, in isolation, current states, processes, and habits will obtain a default present reading from the Utterance Time, which is the default Topic Time. Future readings are obtained via one of many prospective mood markings. However, when the context introduces a Topic Time that has a different relationship with the Utterance Time than the default Topic Time, that new Topic Time can be used instead of the Utterance Time in

calculating the temporal semantics of the clause. This temporal anaphora allows non-default tense interpretations to appear.

Bohnemeyer, studying Yucatec Mayan, proposes that this language also expresses tense semantics by using temporal anaphora instead of tense features with lexical entries specifying the relationship of the Topic Time with respect to the Utterance Time. His model generates temporal anaphora by using the definition in (20) along with the pragmatic principles in (21) and (22).

(20) *Natural temporal reference point*: A time interval *t* is a Natural Temporal Reference Point in a given discourse if and only if *t* is identified in that discourse as either
   a. the coding time of some utterance or
   b. a calendrical time interval or
   c. an event time (the 'run' time of an event described in the discourse). (Bohnemeyer 2009 p34: 31)

(21) *Preferred topic time selection*: The topic times selected in a given discourse context are preferred to be identical to or include Natural Temporal Reference Points identified in the same discourse context. (Bohnemeyer 2009 p36: 33)

(22) *iconicity implicature*: "The order of clauses iconically reflects the order of events." (p38)

Root perfective marked sentences without any adverbs will be interpreted as past based on (20-c), (21) and (22) because the perfective aspect introduces its own event time that can serve as the Topic Time, (21), and this event presumably occurs before the event of uttering the sentence (Topic Time precedes Utterance Time). Root progressive marked sentences without any adverbs will take the Utterance Time as their Topic Time due to (20-a) and (21), (Utterance Time is a subset of the Topic Time). Temporal adverbs providing calendrical intervals will provide another potential Topic Time for the sentences, due to (20-b).[11]

In Hausa, sentences lack tense morphemes but have aspectual marking. Mucha (2012, 2013) builds off of the system first presented in Smith et al. (2003, 2007) for Navajo[12] and extends and adapts the analysis to Mandarin (Smith and

11 Bohnemeyer does not have isolated simple root sentences with adverbs in his paper, so it is not completely clear what happens when, say, a present tense adverb is added to a root perfective marked sentence.

12 According to Smith et al. Navajo is 'partially tensed' in having tense participles that appear to encode tense semantics but are not obligatory. As such, Navajo may not be a tenseless language in the sense meant in this section.

Erbaugh (2005)) to account for temporal interpretation in Hausa. The core of the proposal here is that aspectual information is used along with pragmatic principles to provide default interpretations for clauses. However, these defaults can be overridden, as in other languages surveyed in this section, when the context provides another Topic Time that has a different relationship with the Utterance Time than that of the default Topic Time.

In this account, viewpoint aspect interacts with the pragmatic principles in (23)–(25) to yield temporal interpretation.

(23) *Deictic Principle*: Situations are located with respect to Speech Time [=Utterance Time]. (Smith et al. 2007 p44: 1)

(24) *Bounded event constraint*: Bounded events are not located in the present. (Smith et al. 2007: 2, p45)

(25) *Simplicity Principle of Interpretation*: choose the interpretation that requires the least info added or inferred (Smith et al. 2003 p186: 18)

Smith et al. (2003) further propose the pragmatic principle in (26) to account for zero-marked verbs, i. e. verbs that are not overtly marked for viewpoint aspect. Such verbs are common in Navajo and Mandarin, (27).

(26) *Temporal Schema Principle*: Interpret zero-marked clauses according to the temporal schema of the situation expressed. (Smith et al. 2003 p187: 19)

(27) Mandarin

a. Wo **zhu** zai Lutedan.
I live in Rotterdam
'I live in Rotterdam.' [ok Pres, X Past, X Fut]

b. Zhangsan **dapuo** yi-ge heaping
Zhangsan break one-Cl vase
'Zhangsan broke a vase.' [X Pres, ok Past, X Fut] (Lin 2010 p307: 3a–b; Lin 2006 p3:3a)

The term 'temporal schema' here refers to whether a predicate is bounded or unbounded. In these zero-marked cases, stative (unbounded) verbs will be interpreted as having progressive viewpoint aspect while the eventive (bounded) verbs will be interpreted as having perfective aspect. This basic idea has previously been proposed by Welmers and Welmers (1968) for Igbo and Damoiseau (1982) and Déchaine (1991) for Haitian.

The system then works as follows to obtain temporal semantics in Hausa: progressive marked sentences receive default present interpretations as a result

of the Deictic Principle and the Simplicity Principle. Since situations are located with respect to the Speech/Utterance Time, as stated in the Deictic Principle, and the event is unbounded, the simplest interpretation is that of the present. The same principles plus the Bounded Event Constraint apply to perfective marked sentences to give a default past interpretation: since bounded events cannot occur in the present, a past interpretation is simpler than a future interpretation because it does not require the addition of a modal base. Future interpretations are obtained when the verb is marked with a future mode in Navajo, a modal marker plus prospective aspect marker in Hausa and a modal marker in Mandarin, (as (28-b) below shows).

These principles are viewed as pragmatic principles not semantic ones because they can be overridden by adverbs and context such that verbs have tense interpretations other than their default interpretations. In Mandarin, the addition of a past time adverb like 'yesterday' or 'in 1989' to a sentence with a default progressive viewpoint aspect is enough to override the default present interpretation obtained from the default aspectual specification and to give a past interpretation, (28-a).

(28) Mandarin

a. wo *1989 nian* **zhu** zai Lutedan.
I 1989 year live in Rotterdam
'I lived in Rotterdam in 1989.' [ok Past] (Lin 2010 p307: 3c)

b. wo *hui* **zhu** zai Lutedan.
I will live in Rotterdam
'I will live in Rotterdam.' [ok FUT]

An adverb alone is not sufficient to override the default in Hausa, (29-b). However, when put in a context that makes an alternate Topic Time salient, the default is overridden, (30). As a result of this possibility, a given progressive or perfective sentence in the right context can receive a present,[13] past, or future interpretation.

(29) Hausa

a. Ali yaná wásā
Ali 3SG.M.PROG play
'Ali is playing.'

13 Mucha notes that it is hard to get a present perfective sentence because bounded events generally do not happen in the instant that is the Utterance Time.

b. Yaná wấsā jiyá.
3SG.M.PROG play yesterday
'He was playing yesterday.'

Context question: What was Hasan doing when Ali entered his house yesterday?

(30) Lōkácîn dá Ali ya zō, Hasán yaná wấsā.
When Ali 3SG.M.REL.PFV come Hasan 3SG.M.PROG play
'When Ali came, Hasan was playing.' (Mucha 2012, p195–196: 17, 21)

To account for this, Mucha proposes the principle in (31).

(31) *Contextual Reference Time Anchoring*: Explicit temporal information may override pragmatic defaults. If the previous discourse context provides a Topic Time alternative to the pragmatic default, this Topic Time serves as a temporal anchor for the time variable of the sentence. (Mucha 2013, p393: 48)

The time variable, say t_6, referred to here is located in the Tense head. All sentences will have this variable, which simply refers to the Topic Time provided by the context, whatever that may be. The calculation for a simple sentence like 'Hawwa ran' is provided in (32).

(32) a. $[\![\text{AspP}]\!]^g = \lambda t_i.\ \lambda w_s.\ \exists e\ [\text{run}(e)(w) \ \&\ \text{agent}(\text{Hawwa})(e)(w) \ \&\ \tau(e) \subseteq t]$
b. $[\![\text{TP}]\!]^g = \exists = \lambda w_s.\ \exists e[\text{run}(e)(w) \ \&\ \text{agent}(\text{Hawwa})(e)(w) \ \&\ \tau(e) \subseteq g(6)]$ (where g(6) is the contextually provided topic time) (Mucha 2013 p395: 52)

This section began with a review of a tensed account (Matthewson 2006) for the tenseless language St'át'imcets where a phonologically null [TENSE] feature present in the syntax indicates that sentences receive a non-future interpretation. It then surveyed tenseless accounts (Tonhauser 2011, Bittner 2005, Bohnemeyer 2009, Smith & Erbaugh 2005, and Mucha 2012, 2013) which lack any [TENSE] features and instead use temporal anaphora, aspectual information and pragmatic principles to obtain temporal interpretations. The next section briefly examines three accounts (those of Lin 2006, 2010, Shaer 2003, and Ritter & Wiltschko 2005, 2009, 2014) that the authors consider to be tenseless accounts, because they do not propose any covert tense morphemes/tense features, but that others in the literature consider to be tensed accounts for various reasons.

2.3.1.3 Accounts for tenseless languages that are of controversial status

Let us begin with Lin (2006), Lin (2010) for Mandarin. Lin views his approach as a tenseless account because he does not have any covert tense morphemes. However, Matthewson (2006) and Tonhauser (2011) both consider his account to be tensed, presumably because Lin's entry for the perfective has past temporal semantics written into it, (33-a).

(33) a. $[\![\text{perfective aspect}]\!] = \lambda P_{<i,t>}.\ \lambda t_{Top}.\ \lambda t_0.\exists t[t \subseteq t_{Top} \ \&\ P(t) \ \&\ \mathbf{t_{Top} < t_0}]$

b. $[\![\text{progressive aspect}]\!] = \lambda P_{<i,t>}.\ \lambda t_{Top}.\exists t[t_{Top} \subseteq t \ \&\ P(t)]$ (Lin 2006 p6: 8, p4: 5b)

As such, they argue that Lin's analysis is not tenseless; it just bundles tense and aspect together. In other words, one might say that Lin shifts the location of the [PAST] feature from the Tense head to the Aspect head. Note that he does not write any temporal interpretation into his entry for progressive aspect, (33-a). Here one could say that in progressive sentences there is no [TENSE] feature present in the syntax and the temporal interpretations are obtained via one/some of the default processes mentioned in the previous section.

The particular formulation that Lin adopts is similar to that of Smith et al. (2003, 2007) in many ways. First, sentences with no aspectual marking, like those in (27), will obtain their viewpoint aspect via telicity: telic verbs will have a default perfective aspect while atelic verbs will have a default progressive interpretation in telicity dependent languages (Bohnemeyer and Swift 2004). Secondly, perfective verbs will receive a past tense interpretation via the entry for the perfective, (33-a). Progressive verbs will receive a default present tense interpretation, since matrix clauses are evaluated with respect to the Utterance Time, as (27-a) showed. As expected for a default, this present progressive interpretation can be overridden by past temporal adverbs, (28-a), which introduce an alternative Topic Time to the context. This present default could be derived using the principles in (23) and (25) proposed by Smith et al. (2007).

In a similar vein as Lin, Shaer (2003), focusing on Kalaallisut, questions whether there must be a one to one mapping between the syntax, morphology and semantics; in other words, must tense morphology/tense features be located in the Tense head. He argues that temporal semantics could, for both English and Kalaallisut, be obtained from the Verb Phrase through a dynamic semantics approach based on Muskens (1995) and that the Tense Phrase is not needed for tense semantics/to host temporal morphology/features. Like Lin, Shaer simply shifts the location of the [TENSE] features. While he does not propose any covert tense morphemes, he proposes to put them at the Verb Phrase-level via writing temporal meanings into lexical entries for verbs themselves.

The final account of controversial status in the 'no overt morphology' camp is that of Ritter and Wiltschko (2005), Ritter and Wiltschko (2010) and Ritter and Wiltschko (2014), which defines tense/tenselessness in relation to anchoring (i. e. what connects the event in a clause to the utterance context). Ritter and Wiltschko propose that all languages project an Inflection Phrase, which selects for other functional categories like Aspect Phrase and is the syntactic locus of anchoring. Languages vary, however, with respect to the exact substantive content of the Inflection head. In English, this substantive content is tense, in Blackfoot it is person and in Halkomelem it is location. What syntactically distinguishes tensed languages from tenseless ones is that the substantive content of the Inflection head in a tensed language will be tense; whereas in a tenseless one, it will be something else.

The substantive content of the Inflection head is determined by looking at what type of contrastive morphological marking that language has. The term 'contrastive' here means a feature that has content even if it is not marked in the morphology (i. e. there is some overt and opposite morphology that it contrasts with). In other words, in order for there to be a null Inflection substantive content morpheme, say a null proximal locative marker, there must be an opposite overt marker such as an overt distal locative marker. This is formalized using a [*u*coincidence]-feature (in the sense of Hale (1986)) located in the Inflection head. Since Halkomelem and Blackfoot do not have any overt tense morphology and they do not propose any covert tense morphology, they consider their account to be a tenseless account. However, Tonhauser (2011) considers their account as a tensed account, because these languages do have overt locative and person markers which check the [*u*coincidence]-feature and thus constrain temporal interpretations.

In Ritter & Wiltschko's system, languages obtain their temporal interpretation in three ways: i) valuation of the [*u*coincidence]-feature via the morphology representing the substantive content in the Inflection head (deictic valuation), ii) real world knowledge given the valuation of the [*u*coincidence]-feature (deictic valuation) and iii) via default valuation of the [*u*coincidence]-feature in such atemporal contexts as counterfactuals (anaphoric valuation). Tensed languages obtain their temporal interpretation from i) and iii). Tenseless languages receive valuation via ii) and iii). An example of valuation via ii) follows: if a Halkomelem sentence has a distal morpheme that values the [*u*coincidence]-feature negatively and a 1st or 2nd person subject, the sentence must have a past interpretation since the same person cannot be in two places at once. Crucially, though, if there is a 3rd person subject, no such inferences can be drawn, and the sentence will be ambiguous between a present and a past interpretation.

This concludes the overview of the 'no overt morphology' camp. Those in this camp define tenselessness using morphological criteria. Specifically, a tenseless language is one which lacks overt morphology. This camp further bifurcates into those who assume a tensed account for tenseless languages and those who assume a tenseless account for tenseless languages. In a tensed account, the abstract, formal morphological [TENSE] feature is present in the syntax. It is simply not pronounced. On a tenseless account, a tenseless language lacks the abstract, formal morphological [TENSE] feature. In these languages, temporal interpretation is obtained via temporal anaphora, aspectual information and pragmatic principles.

2.3.2 'No Tense Phrase' camp

This section turns to the other component that could conceivably be missing: the syntactic component of tense, i. e. the Tense Phrase. Those taking this position, the 'no Tense Phrase camp,' include Bošković (2012) for Serbo-Croatian, Turkish, Japanese, a. o., Todorovic (2014) for Serbo-Croatian and Kang (2014) for Korean. The basic idea is that, typologically, languages which lack a Determiner Phrase tend to also lack its clausal counterpart, the Tense Phrase. The basic idea is set forth in Boskovic's paper and extended and expanded in the Todorovic and Kang works. This camp assumes that properties linked with the Tense head will be absent in tenseless languages. For them the absence of Extended Projection Principle properties (such as the presence of *there* expletives), the presence of nominative as a default (as opposed to structural) case, evidence of lack of movement to the Specifier of the Tense Phrase (such as subject-object asymmetries in extraction), the absence of Sequence of Tense effects, the inability of the Complementizer Phrase to be a phase, allowance of null copulas in predicate nominative constructions and finiteness mismatches in Verb Phrase ellipsis are all taken as evidence that a language lacks a Tense Phrase.

With respect to the morphological component, there are suggestions that morphemes previously analyzed in some languages as tense morphemes are really aspect or agreement morphemes. However, for Boskovic and Kang, it is possible for a language to lack tense morphology and a Tense Phrase yet still have an abstract, formal morphological tense feature in the syntax. Given the lack of the Tense, Boskovic suggests that such a feature could be located at the Verb head, for example. In principle, this feature could have an overt or covert realization. For languages that lack this feature, Boskovic suggests that the semantics could be worked out using a system such as Lin's (2006), and Kang (2014) works out a semantics along these lines for Korean. Notably, the account in Lin (2006) fits in

the 'no overt morphology' camp and into the 'no Tense Phrase' camp in that while its main diagnostic for a tenseless language is the lack of tense morphology, Lin, in his 2006 paper and especially in his more syntax-oriented 2010 paper, argues that Mandarin, as a tenseless language, must lack a Tense Phrase, in addition to lacking covert tense morphology.

Thus, in sum, for the 'no Tense Phrase' camp, a tenseless language is one that lacks a Tense Phrase. With respect to the morphological component, it can still have an abstract, formal morphological [TENSE] feature located on, say, the Verb head (or the Aspect head), and this feature could have an overt or covert realization. This camp suggests that if a language lacks the abstract, formal morphological [TENSE] feature, an account like Lin (2006)'s could be formulated to account for the temporal interpretations of sentences in these languages.

Based on the past work summarized in this section, languages have been classified as being tenseless if they have at least one of the properties in (34).

(34) a. Matrix sentences with verbs not marked with tense morphology are allowed (and are temporally underspecified).
b. Temporal adverbs and/or contextually salient Topic Times can override the default temporal interpretations provided by either lexical or viewpoint aspect.
c. The properties linked with the Tense head are absent in the language.

It will be shown in the next section that Malayalam does not have any of these properties. It will be shown in chapter 3 that Amritavalli & Jayaseelan's arguments from non-finite forms that Malayalam lacks a Tense Phrase are, at best, not conclusive.

2.4 Malayalam is a tensed language

The Malayalam data presented in this section will show that Malayalam is empirically different from other tenseless languages, irrespective of how one defines a tenseless language. Section 2.4.1 will argue that Malayalam has obligatory, overt tense morphology. Section 2.4.2 will provide evidence for Malayalam having properties linked with the Tense head, and therefore, that Malayalam has a Tense Phrase.

2.4.1 Malayalam has tense morphology: Evidence from lack of unmarked matrix verbs, adverb & contexts tests

To begin with, unlike many tenseless languages such as Paraguayan Guaraní, Navajo, Blackfoot, Halkomelem, St'át'imcets, and Mandarin, matrix sentences with bare verb stems are not allowed in Malayalam. This can be seen by contrasting the Paraguayan Guaraní sentence in (35), repeated from above, with the Malayalam sentence in (36). One might argue that this form is bared in Malayalam due to the phonological constraint against stops appearing word finally. However, even if one adds an epenthetic vowel here, (36) is still ungrammatical. Note that the A1 marker in Paraguayan Guaraní is a type of prefix that marks transitive subjects as well as some intransitive subjects.

(35) (Kuehe/ko'ãga/#ko'ẽro) a-jahu (Paraguayan Guaraní)
yesterday/now/tomorrow A1sg-bathe
'I am/was/#will be bathing (now/yesterday/#*tomorrow*.' [ok Pres, ok Past, X Fut] (Tonhauser 2011 p4: 5)

(36) *(innale/ippum/naaḷe) kulikk
yesterday/now/tomorrow bathe
'I (will) bath(ed)/am/was/will be bathing (now/yesterday/tomorrow)'

The next two subsections will show that, unlike tenseless languages like Mandarin and Hausa, in Malayalam, temporal adverbs and/or contextually salient Topic Times cannot override the default temporal interpretations provided by either lexical or viewpoint aspect.

2.4.1.1 Applying the tests to the imperfective morphologies

Recall from the discussion in section 2.2 that Malayalam has morphology that has traditionally been analyzed as tense morphology which has been reanalyzed as aspect morphology by Amritavalli & Jayaseelan. A summary of the relevant morphemes and their proposed meanings is given in 2.1.

Table 2.1: Hypotheses for the meanings of *-unnu* and *-u*.

Morphology	traditional	Amritavalli & Jayaseelan
var-**unnu**	present	imperfective
vann-**u**	past	perfective/perfect

This section examines Amritavalli & Jayaseelan's argument that *-unnu* is an imperfective marker that can yield a default present reading. It begins by sketching why Amritavalli and Jayaseelan probably reached the conclusion that *-unnu* is an imperfective marker. It ultimately argues that they are right in concluding that *-unnu* is a viewpoint aspectual marker, though they are wrong in arguing that it yields a default present tense (or alternately, that it is a form that bundles viewpoint aspect and present tense).

It is quite probable that knowledge of the paradigm in 2.2 though not spelled out in any of their papers, is one of the reasons they argue that *–unnu* is an imperfective marker.

Table 2.2: Tense/aspect paradigm for *var-* 'come'.

–	**'Imperfective 1'**	**'Imperfective 2'**	**Perfective**
Present	var-**unnu** (*unʈə*)	var-uka(y) *aaɳə*	—
Past	var-**unnu** *unʈaayirunnu*	var-uka(y) *aayirunnu*	vann-u
Future	var-**unnu** *unʈaayirikkum/unʈaakum*	var-uka(y) *aayirikkum*	var-um

Specifically, at least at first glance, like an imperfective marker, the same *-unnu* verb can be used to express both the progressive (*ɲaan var-unnu* 'I am coming (right now)') and the generic (*ɲaan var-unnu* 'I come (in general)'). Secondly, *-unnu* marking appears in both the past and future forms of 'imperfective 1,' as shown in Table 2.2. If *-unnu* were genuinely a present tense marker, this would be surprising. However, if *-unnu* is a viewpoint aspectual marker used with an auxiliary verb that encodes tense semantics, then its use in all tenses of 'imperfective 1' is not surprising. For now, *-unnu* will be glossed as an imperfective viewpoint aspect marker (IPFV1) but chapter 4 will show that this form is better understood to be a slightly different type of viewpoint aspect marker, specifically an iterative pluractional progressive viewpoint aspectual morpheme.

Given the acceptance of *-unnu* as a viewpoint aspectual marker, the question now is, does *-unnu* simply receive a default present tense in the absence of a temporal auxiliary? If this were so, this default present tense would be expected to be overrideable by things like past tense adverbs or context, as in Mandarin and Hausa. This would then result in a past imperfective meaning. The Mandarin data in (37) provides an informal illustration of how this process would work. The sentence in (37-a) has a present interpretation when uttered in an out-of-the-blue context because the sentence has imperfective aspect obtained via the default telicity principle spelled out in Lin (2006). However, when a past adverbial is added to

the same sentence, (37-b), the default present is overridden to yield a past tense meaning.

(37) Mandarin

a. wo zhu zai Lutedan.
I live in Rotterdam
'I live in Rotterdam.'(#'I lived in Rotterdam' when uttered in isolation.)

b. wo 1989 nian zhu zai Lutedan.
I 1989 year live in Rotterdam
'I lived in Rotterdam in 1989.' (Lin 2010, p307: 3)

Now turning to Malayalam, we see in (38) that the facts here are different. Only the 'traditional' past tense form of the verb, *taamasicc-u*, is compatible with the past tense adverbial 'in 1966.' The *-unnu* form is not licit with the past tense adverbial, contrary to what a default tense analysis like Lin's (2006) would predict.

(38) ɲaan aayiratti tolḷaayiratti arupatti aar-il Kochi-yil {taamasicc-u,
I thousand nine.hundred sixty six-LOC Kochi-LOC live-PST
*taamasikk-unnu, *tamasikk-uka(y)-aaɳə, *taamasikk-um}
live-IPFV1 live-IPFV2-be.PRS live-FUT
'I lived in Kochi in 1966.'

This pattern holds with other types of verbs and adverbs as well. The sentence in (39) uses the telic achievement predicate *jayikk-* 'win' and (40) uses the stative predicate *peeṭikk/peeṭi var-* 'be afraid/scared.'[14] These sentences show that a past tense adverb like *innale* 'yesterday' is only compatible with the traditional past tense marked verb, *jayicc-u* and *peeṭicc-u*, respectively.

(39) innale ɲaan {jayicc-u, *jayikk-unnu, *jayikk-uka(y)-aaɳə, *jayikk-um}
yesterday I win-PST win-IPFV1 win-IPFV2-be.PRS win-FUT
'Yesterday I won.'

(40) a. ɲaan innale vaikkunneeram {peeṭicc-u, *peeṭikk-unnu,
I yesterday evening fear-PST fear-IPFV1
*peeṭikk-uka(y)-aaɳə, *peeṭikk-um}
fear-IPFV2-be.PRS fear-FUT
'I was scared/afraid yesterday evening.'

14 For some reason the present tense of *peeṭikk-*, *peeṭikk-unnu*, is not possible when *ippum* now is added; the compound form must be used in this case. Without the adverb, *peeṭikk-unnu* is fine. The explanation for this alternation is left to further research.

b. *enikkə innale vaikkunneeram peeʈi var-unnu
I.DAT yesterday evening fear come-IPFV1
'I was scared/afraid yesterday evening.'

These facts also hold for embedded clauses. Just as in root clauses, a past adverb cannot override the default present tense that would be obtained from the imperfective aspect. Here only the traditional past tense form, *jayicc-u*, is possible.

(41) a. [innale ɲaan {jayicc-u, *jayikk-unnu, *jayikk-uka(y)-aaɳə,
yesterday I win-PST win-IPFV1 win-IPFV2-be.PRS
*jayikk-um} ennə] vinu vicaaricc-u
win-FUT COMP Vinu think-PST
'Vinu thought that yesterday I won.'

b. [innale ɲaan {jayicc-u, *jayikk-unnu, *jayikk-uka(y)-aaɳə,
yesterday I win-PST win-IPFV1 win-IPFV2-be.PRS
*jayikk-um} ennə] vinu vicaarikk-unnu
win-FUT COMP Vinu think-IPFV1
'Vinu thinks that yesterday I won.'

Additionally, future adverbs cannot occur with *-unnu*, or the traditional past tense, (42). Either the simple future form, *-um*, or the periphrastic 'going to' future is required. Imperfective 2 can also be used here on a futurate reading in say, a situation where an optimist claims that tomorrow he will win, despite having failed in previous attempts. Chapter 4 argues that the ability of imperfective 2 to get futurate readings while imperfective 1 cannot fall out from their different semantics.

(42) naaɭe ɲaan {jayikk-um, jayikk-aan pook-unnu, jayikk-uka(y)-aaɳə,
tomorrow I win-FUT win-INF go-IPFV1 win-IPFV2-be.PRS
*jayikk-unnu, *jayicc-u}
win-IPFV1 win-PST
'Tomorrow I will win/am going to win.'

The same facts hold for stative predicates like *peeʈikk-/peeʈi var-* 'be afraid/scared.'

(43) a. ɲaan naaɭe raavile {peeʈikk-um, *peeʈicc-u}
I tomorrow morning fear-FUT fear-PST
'I will be scared/afraid tomorrow morning.'

b. *enikkə naaɭe raavile peeʈi var-unnu
I.DAT tomorrow morning fear come-IPFV1
'I will be scared/afraid tomorrow morning.'

This data strongly argues against a Mandarin-style default tense analysis, where past tense adverbs can override the present temporal defaults that would be gained from imperfective aspect, for the imperfective marker *-unnu* in Malayalam. One might try to rescue the default tense analysis by appealing to the context override system in Hausa. Mucha (2012, 2013) points out that in Hausa the default temporal interpretations obtained from the morphologically marked aspect are strong enough that adverbs alone cannot override them. However, Mucha shows that contexts can override the default interpretations in Hausa. In (44-a) a sentence with progressive marked aspect receives a default present interpretation in an out-of-the-blue context. Unlike in Mandarin, the presence of a past time adverbial in an out-of-the-blue context with a progressive marked sentence only marginally yields a past tense interpretation in Hausa, (44-b). However, when an additional context question like that given in (45) is added, a progressive marked verb can receive a past tense interpretation.

(44) Hausa

a. Ali yaná wásā
Ali 3SG.M.PROG play
'Ali is playing.'

b. ??Yaná wásā jiyá.
3SG.M.PROG play yesterday
'He was playing yesterday.'

Context question: What was Hasan doing when Ali entered his house yesterday?

(45) Lōkácîn dá Ali ya zō, Hasán yaná wásā.
When Ali 3SG.M.REL.PFV come Hasan 3SG.M.PROG play
'When Ali came, Hasan was playing.' (Mucha 2012, p195–196: 17, 21)

However, these facts do not replicate in Malayalam. Example (46) shows that, unlike Hausa, a past tense context question, (46-a), cannot override the default present interpretation that would be obtained from the imperfective, (46). Instead, one of the past imperfective verbs must be used here.[15]

15 IPFV 2 is the best form to use in a situation like (46) and also (49), as speakers frequently comment that it is the best form to use in response to a question (what many speakers call a 'second person answer'). IPFV1 is used to give a report to someone else (what many speakers call a 'third person answer'). There will be further discussion of these facts in chapter 4.

(46) a. anu innale viiʈʈ-il vann-appooɭ vinu entə
Anu yesterday house-LOC come.PST-at.that.time Vinu what
ceyy-uka(y)-aayirunnu?
do-IPFV2-PST
'What was Vinu doing when Anu came to his house yesterday?'

b. anu vann-appooɭ vinu {kalikk-unn-unʈaayirunnu,
Anu come.PST-at.that.time Vinu play-IPFV1-be.PST
kalikk-uka(y)-aayirunnu, *kalikk-unnu, *kalikk-uka(y)-aaɳə}
play-IPFV2-be.PST play-IPFV1.PRS, play-IPFV2-be.PRS
'When Anu came, Vinu was playing.'

In Hausa, progressive marked verbs are not compatible with future adverbs, (47), but if the progressive marked sentence with a future adverb is put in the right context, (48), it is grammatical.

(47) #Tana wasa gobe.
3.SG.F.PROG play tomorrow
'She will be playing tomorrow.' (Mucha 2012 p195: 18)

Context question: What will Ali be doing when I come home tomorrow?

(48) Ali yana wasa gobe.
Ali 3SG.M.PROG play tomorrow
'Ali will be playing tomorrow (....when you come).' (Mucha 2012 p197: 24)

However, once again, the Malayalam facts are different. Example (49) shows that a future context question cannot override the proposed default present interpretation that would be obtained from the imperfective *–unnu* marking in Amritavalli & Jayaseelan's system. Here the future would need to be used.

(49) a. ɲaan naaɭe viiʈʈ-il var-um-pooɭ vinu entə
I tomorrow house-LOC come.FUT-when Vinu what
ceyy-uka(y)-aayirikkum?
do-IPFV2-be.FUT
'What will Vinu be doing when I come home tomorrow?'

b. Vinu naaɭe {kalikk-uka(y)-aayirikkum,
Vinu tomorrow play-IPFV2-be.FUT
kalikk-unn-unʈaayirkkum *kalikk-unnu, *kalikk-uka(y)-aaɳə}
play-IPFV1-be.FUT play-IPFV1-PRES play-IPFV2-be.PRS
'Vinu will be playing tomorrow.'

The fact that neither adverbs nor context can override the proposed default present tense obtained from the *-unnu* imperfective suggests that, in fact, no such default present tense is available.

We might also think that Malayalam simply bundles present and imperfective together and expresses them as *-unnu*. However, recall that *-unnu* is used in the present, past and future forms of imperfective 1. This argues against such an analysis. A plausible hypothesis at this point is that Malayalam has a null present tense morpheme that locates the Utterance Time as a subset of the Topic Time. An overt correlate of this generally null present tense marker is the present auxiliary *uɳʈə*.

The next subsection offers evidence from the adverb and contexts tests, used in this section to argue that the traditional past tense morpheme is, in fact a past tense morpheme, not a perfect or perfective morpheme, as Amritavalli & Jayaseelan claim. Their arguments from non-finite forms for reanalyzing the past tense marker as a perfective/perfect marker will be examined in chapter 3.

2.4.1.2 Applying the tests to the past morpheme

Turning now to the *-u/i* morpheme, this section argues that it indeed is just a past tense marker, following the traditional intuitions. The argument begins with the adverb and context tests used in the previous section. That section showed that when past tense adverbs like *innale* 'yesterday' and *aayiratti toll̪aayiratti arupatti aar-il* 'in 1966' occur in a sentence, only the past tense *-u/i* form is licensed. Example (50) shows that the present adverb *ippum* 'now' can only be used with the past and future forms when the 'now' is in the preceding or upcoming second. As such, this parallels English sentences like *I won (just) now*, and *I will/am going to win now* (said just before putting an opponent in checkmate in a game of chess).

(50) a. ippum ɲaan {jayikk-uka(y)-aaɳə, jayikk-unnu-∅}
now I win-IPFV2-be.PRS win-IPFV1-PRS
'Now I am winning.'

b. ippum ɲaan jayicc-u
now I win-PST
'I (just) won.' #'I am winning.'

c. ippum ɲaan {jayikk-um, jayikk-aan pook-unnu-∅}
now I win-FUT win-INF go-IPFV1-PRS
'I will/am going to win now.' #'I am winning.'

Again, the same facts hold for stative predicates like *peeʈikk/peeʈi var-* 'be afraid/scared.' In (51) *ippum* 'now' can be used with the future tense when it conveys 'I will be afraid in the upcoming instant' and with the past tense when it

means 'Just a second ago, I was afraid.' Neither the past nor the present can be used with *ippum* 'now', however, to mean 'I am scared/afraid right now.'

(51) a. enikkə ippum peeʈi var-unnu-∅.
I.DAT now fear come-IPFV1-PRS
'I am scared/afraid right now.'
b. ɲaan ippum {peeʈicc-u, peeʈikk-um}
I now fear-PST fear-FUT
'I {was afraid a second ago, will be afraid in the upcoming instant.}'

Thus present adverbs are no more able to override the past or future defaults than mismatching adverbs can with the imperfective forms. Examples (52) and (53) also show that, unlike their Hausa counterparts in (55) and (56), that present and future contexts are not able to override the past tense semantics of *-u/i*. Example (52) shows that a future context cannot override the default past interpretation that would be obtained from the perfective/perfect verb in Amritavalli and Jayaseelan's system. Likewise, (53) shows that a present context cannot override their proposed past temporal default.[16]

(52) a. innə raatʈi ɲaan kuɲ-unə bhakʂaɳum koʈukk-aam-oo?
today night I baby-DAT food give-MOD-Q
'Am I supposed to feed the baby tonight?'
b. nii var-um-pooɭ eekkum, kuɲɲə {uraŋŋ-irikk-um, *uraŋŋ-i.}
You come.FUT-when by.then baby sleep-irikk-FUT sleep-PST
'When you arrive, the baby will already be asleep.'

(53) a. enikkə bhayaŋkaramaayi viʃakk-unnu-∅! enikkə kaʑikk-uvaan
I.DAT great hunger-IPFV1-PRS I.DAT take-INF
vaɭɭatə unʈ-oo?
anything be-Q
'I'm starving! Is there anything to eat?'
b. vinu ippum kappa {paakam ceyt-ə kaʑiɲɲ-at-ee uɭɭ-uu,
Vinu now tapioca cook do-PART finish-NMLZ-EMP be-EMP
*paakam ceyt-u}
cook do-PST
'Vinu has cooked (finished cooking) tapioca root now.'

16 See Chapter 3 for more information on the Conjunctive/Adverbial Participle, glossed as -PART in (53-b).

These Malayalam facts are different from the Hausa ones, (55) and (56), where these contexts do allow for the perfective marked sentences to receive future and present meanings, despite their default past tense meanings, (54).

(54) Hausa

a. Ali yấ yi wấsā.
Ali 3SG.M.PFV do play
'Ali played.'

b. #Háwwa tā daf='a wākē yánzu
Hawwa 3.SG.F.PFV cook beans now
'Hawwa cooks/has cooked beans now.'

c. #Háwwa tā dafấ wākē gṓbe.
Hawwa 3SG.F.PFV cook beans tomorrow
'Hawwa will cook beans tomorrow.' (Mucha 2012 p195: 16, 19–20)

Context question: Am I supposed to feed the baby tonight?

(55) Kấfin ká iso járirín yā yi barci
Before 2SG.M.SBJV arrive baby.DEF 3SG.M.PFV do sleep
'When you arrive, the baby will already be asleep.'

Context question: I'm starving, is there anything to eat?

(56) Háwwa tā dafấ wākē yánzu
Hawwa 3SG.F.PFV cook beans now
'Hawwa has cooked (finished cooking) beans now.' (Mucha 2012 p196–197: 25-22)

Amritavalli and Jayaseelan are not clear about whether they are reanalyzing the traditional past tense as a perfective or a perfect marker. The fact that *ippum* 'now' cannot be used with a present perfect meaning, (53-b), perhaps suggests that traditional past tense morphology should not be reanalyzed as perfect morphology, since present adverbs can occur with present perfect verbs in English and with perfect verbs in Korean, even though in Korean (Isolate, Korea), perfect marked verbs have default past interpretations, (57).

(57) Korean

a. John-un hakkyo-ey ka-ss-ta
John-TOP school-LOC go-PRF-DECL
'John went to school.'

b. John-un cikum hakkyo-ey ka-ss-ta
John-TOP now school-LOC go-PRF-DECL
'John has gone to school now.' (Kang 2014, p75: 61)

Based on these tests, it looks like *-u/i* is simply a past tense marker and not a perfective or perfect marker. However, a few caveats are in order. First, adverbs meaning 'now' do not always refer to the utterance time but can also refer to times like 'in the present age.' This makes their usage as a diagnostic tool a bit suspect. Secondly while Malayalam, unlike Hausa (Mucha 2012, 2013) and Navajo (Smith et al. 2007), does not allow a recent past/result state interpretation when a present adverb occurs with a perfective marked verb, suggesting that *-u/i* is simply a past marker, it is possible that an additional factor is at play here. Specifically, in many languages, present perfectives are hard to obtain. So, perhaps it is just particularly difficult to get any present perfective meaning in Malayalam and the present adverb and context tests with *-u/i* just reflect this fact.

However, there are reasons beyond the adverb and context tests to believe that –u/i is simply a past tense and not a perfect or perfective marker. One reason has to do with the Universal Perfect. There are multiple ways that one can express a Universal Perfect in Malayalam, two of which are given in (58) and (59). In (58) there is an *–i* that appears after the verbal root. This *–i* is traditionally assumed to be the marker of the Conjunctive/Adverbial participle (see chapter 3 for more information and a defense of the traditional position). However, Amritavalli & Jayaseelan try to argue that all *-u/i* markers are perfective or perfect. If this were a perfective marker, it would be expected to destroy the homogeneity needed for a Universal perfect reading. One might try to counter this by saying that the imperfective marker that follows it can override the perfective semantics. However, such an analysis could not be offered for the data in (59). Here there is no imperfective marking following the *-u*. Such an analysis in general creates problems, as the second past imperfective form of 'write' is *ezut-uka(y)-aayirunn-u*. This form could be used to explain to someone why you missed a call—'I was writing a paper.' If *-u/i* is a perfective marker, then it is not clear how this form would get its imperfective meaning.

(58) ɲaan pook-um-poo̲ɭ, ava̲ɭ muunnə maɳikkuur-aayi paper
I leave-UM-when she three hours-ADV paper
ezut-i-kkoɳʈ-irikk-uka(y)-aayirunnu
write-PART-LAM-AUX-IPFV2-be.PST
'When I left, she had been writing the paper for 3 hours.'

(59) ɲaan pook-um-pooḷ, avaḷ muunnə maṇikkuur-aayi paper
I leave-UM-when she three hours-ADV paper
eẓut-uka(y)-aayirunnu
write-IPFV2-be.PST
'When I left, she had been writing the paper for 3 hours.'

If *-u/i* were exclusively a morpheme with perfect semantics, then it would seem that Malayalam has no way to express a simple past perfective. These interpretations, as we have seen in this section, are available, however. Additionally, if this *-u/i* were really a perfect marker and we assume the Mirror Principle of Baker (1985) and the ordering of functional projections outlined in chapter 1, it is not in the expected location in (58). Here it is below both aspect and tense marking instead of being above the aspect morphology but below the tense morphology. These tests lend further support to *-u/i* being simply a past tense morpheme. The next section will present another piece of evidence from the distribution of auxiliaries arguing against the past tense marker being reanalyzed as a perfect or perfective marker. It also provides the beginnings of a formal analysis for tense and aspect in Malayalam. Chapter 5 will explore the perfect in detail, providing additional evidence that *-u/i* in (58) is not a perfect marker.

2.4.2 Malayalam has a Tense Phrase: Arguments from auxiliaries & copulas

The previous section argued that Malayalam is not a tenseless language based on morphological criteria. Specifically, it was argued that Malayalam has both a past tense morpheme, *-u/i*, and a null present tense morpheme. This section will use the account for the distribution of auxiliaries and copulas cross-linguistically in Bjorkman (2011, under review) to argue that Malayalam lacks a [PERFECTIVE (PFV)] feature and that the *-u/i* is simply a past tense marker, thus further supporting the conclusions drawn in the previous section.

It also provides the beginnings of a more formal account for the tense and aspect system in Malayalam and shows, using syntactic criteria, that Malayalam is not a tenseless language. Following Bjorkman's work, it will propose that Malayalam has a Tense Phrase with tense features, which spell out as tense morphemes when nothing intervenes between the verb and the Tense head, and as auxiliaries when another active head intervenes. This account explains the distribution of auxiliaries and the obligatory nature of copulas in Malayalam. Having a Tense Phrase would make Malayalam a tensed language for those in the 'no Tense Phrase' camp. The first subsection will provide an overview of Bjorkman's account and the second will extend this account to Malayalam.

2.4.2.1 Bjorkman's (2011, under revision) proposal for auxiliaries and copulas

The central idea of Bjorkman's work goes back to a question discussed in chapter 1: if inflectional information is introduced in a separate syntactic position from the verb, how does it unite with the verb? The answer given in chapter 1 is that local Agreement is responsible for uniting the verb and inflectional material. However, sometimes features may appear in a location where it is not possible to have local Agreement. The basic idea then in Bjorkman's work is that auxiliaries occur to rescue these features that become 'stranded,' i. e. have no local head to Agree with. Bjorkman frames her account using a Distributed Morphology framework (Halle and Marantz 1993, Halle and Marantz 1994, et seq., a. o.). This is a particularly attractive framework since it is one in which inflectional features are introduced separately from the verb (in places like the Tense, Perfect and Aspect heads) and so during the derivation it is possible for these inflectional features to get 'stranded' (i. e. not be united with the verb).

Looking at a diverse set of languages, including English (Germanic), Basque (Isolate, Spain), Finnish (Uralic, Finland), Kinande (Bantu, Democratic Republic of the Congo), Latin (Italic), French (Italic), Romanian (Italic, Romania), and Arabic (Semitic), Bjorkman notices two basic patterns in the distribution of auxiliaries cross-linguistically. The first is the Additive pattern found in the passive voice (*was eaten*, *is eaten*) and progressive aspect in English, the imperfective and perfective aspects in Basque, and the Finnish perfect. In these cases, an auxiliary occurs with every instance of the verb, as (60) shows for the English progressive.

(60) a. He **is** studying.
b. He **was** studying.
c. He will **be** studying.

The second pattern is the Overflow pattern found in interactions between tense and aspect in Kinande, the perfect and the passive in Latin and past tense and imperfective aspect in Arabic. In this pattern, an auxiliary does not occur uniformly in a given paradigm, but only in certain combinations. The Arabic data in (61) provides an example. In Arabic auxiliaries only appear with the past imperfective, (61-c), but not with the present imperfective, (61-b), or the simple past form, (61-a). In other words, neither the past nor the imperfective alone triggers the presence of an auxiliary. It is only the combination that results in the presence of an auxiliary.

(61) Arabic
a. darasa
study.PST.PFV.3MSG

'He studied.'

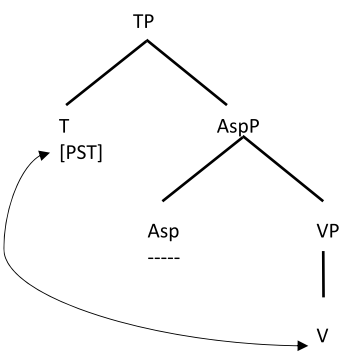
b. ya-drusu
3M-IPFV.study
'He studies.'

c. Kaana ya-drusu
Be.PST.3MSG 3M-IPFV.study
'He was studying/He used to study.' (Benmamoun 2000, p. 27–29)

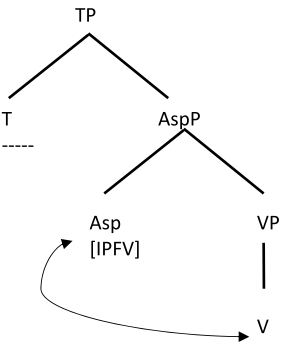
Bjorkman accounts for the cross-linguistic range of patterns in the distribution of auxiliaries by making use of the idea that languages can vary with respect to what features they have that are involved in encoding the syntax of inflectional categories. She begins with the observation that a language does not have to have both [PAST] and [PRESENT] features or both [IMPERFECTIVE/PROGRESSIVE] and [PERFECTIVE] features in the syntax. Rather, it could simply have just a [PAST] feature or just a [PRES] feature appearing in the Tense head and/or just an [IMPERFECTIVE] feature or a [PERFECTIVE] feature appearing in the Aspect head, with the opposite feature being contrastively underspecified. In her system, auxiliary verbs appear when a feature cannot be united with a verb (i. e. is stranded) because another feature is intervening.

Turning back to Arabic, Bjorkman argues that the pattern in (61) occurs because Arabic has only a [PAST] feature appearing in the Tense head and only an [IMPERFECTIVE] feature appearing in the Aspect head. As a result, no auxiliary is needed in the present imperfective or the past perfective because the verb can unite with the [IMPERFECTIVE] feature in the case of the present imperfective and with the [PAST] feature in the case of the past perfective. This is schematized in (62)–(63).

(62) darasa (Past (Perfective))
study.PST.PFV.3MSG
'He studied.'



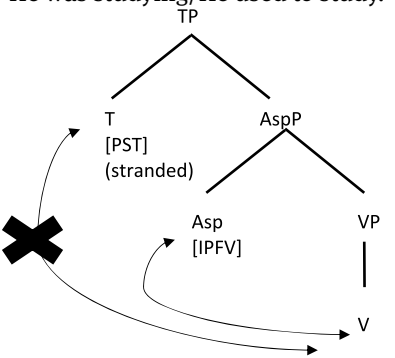
(63) ya-drusu
3M-IPFV.study
'He studies.'



(Bjorkman under review, p20: 13)

However, an auxiliary is needed in the past imperfective because the [PAST] feature at T is stranded due to the intervening [IMPFV] feature at Asp. This is schematized in (64).

(64) kaana ya-drusu
be.PST.3SGM 3M-IPFV.study
'He was studying/He used to study.'



(Bjorkman under revision p21: 14)

In English the progressive form uniformly contains an auxiliary in all tenses and the perfective uniformly lacks an auxiliary in all tenses. This, Bjorkman argues, is because English has both [PRESENT] and [PAST] tense features and only a [PROGRESSIVE] aspect feature, as illustrated in 2.3.

As further evidence for her account, Bjorkman notes that the copula is absent in Arabic in the present but mandatory in the past and future, (65).

Table 2.3: Features associated with English tense/aspect auxiliaries.

English	Tense/aspect combination	features
is walking	present progressive	[PRES][PROG]
was walking	past progressive	[PAST][PROG]
walked	past 'perfective'	[PAST]

(65) Arabic

a. ʔibnuh ṭaalib-un
son.his student-NOM
'His son is a student.'

b. kaana ʔibnuh ṭaalib-an
be.PST.3MSG son.his student-ACC
'His son was a student.'

c. sa-ya-kunnu ṭaalib-an
FUT-2M-be student-ACC
'He will be a student.' (Bjorkman under revision p21: 15 from Benmamoun (2000) p43)

These facts follow if there is no [PRESENT]-feature in the syntax in Arabic. She also provides independent evidence that Arabic has only an [IMPERFECTIVE] feature due to the fact that perfective marking can be used in sentences that do not have perfective interpretations. English equative sentences, unlike Arabic, also require a copula irrespective of the tense, (66).

(66) a. His son is a student./*His son student.
b. His son was a student.
c. His son will be a student.

This is compatible with the features Bjorkman proposes for English.

2.4.2.2 Extending Bjorkman's account to Malayalam

Turning now to Malayalam, recall that this chapter has so far argued for the meanings given in (67-a)–(67-b). The meaning in (67-c) follows the general consensus in the literature. Chapter 4 will further discuss and refine the meanings of the morphemes in (67-d) and (67-e).

(67) a. -∅ present
b. -*u*/*i*: past
c. -*um*: modal

d. *-unnu*: 'imperfective'
e. *-uka*: 'imperfective'

Recall from table 2.4, repeated below, that in all instances of imperfective 2 and, in the past and future of imperfective 1, a copula is required to express tense.

Table 2.4: Tense/aspect paradigm for *var-* 'come'.

–	**'Imperfective 1'**	**'Imperfective 2'**	**Perfective**
Present	var-**unnu** (*unʈə*)	var-uka(y) *aaɳə*	–
Past	var-**unnu** *unʈaayirunnu*	var-uka(y) *aayirunnu*	vann-u
Future	var-**unnu** *unʈaayirikkum/unʈaakum*	var-uka(y) *aayirikkum*	var-um

In the present form of imperfective 1, the presence of the copula gives verum focus. Section 2.4.1 argued that Malayalam has a null present tense marker, when the copula is not present, based on the fact that *-unnu* without an auxiliary can only be used with present adverbs and present contexts. No auxiliaries are present in the perfective forms. Using Bjorkman's proposal, this pattern suggests that Malayalam has a [PRESENT] feature in the syntax, which corresponds to either the null present morpheme or an overt auxiliary, the copula *unʈə*. In addition, it has a [PAST] feature that corresponds to the past tense morpheme *-u/i*. Such a position is supported by the fact that Malayalam, unlike Arabic, does not generally allow null copulas in present sentences (or past sentences), (68).

(68) a. ɲaan doctor aaɳə
I doctor be.PRS
'I am a doctor.'
b. ɲaan doctor aayirunn-u
I doctor be-PST
'I was a doctor.'
c. *ɲaan doctor
I doctor
'I am/was a doctor.'

Based on this, we also can assume that, like Arabic, Malayalam has just an [IMPERFECTIVE] feature and no [PERFECTIVE] feature. This aligns with the conclusion of the previous section: the past tense marker *-u/i* does not double as a perfective marker. Malayalam could, in principle, just have a null perfective marker for main verbs. However, given Bjorkman's system, the distribution of auxiliaries

in Malayalam suggests that this is not the case. If Malayalam did have a [PERFECTIVE] feature, null or otherwise, this feature would be expected to intervene between the verb and the Tense head causing the tense feature in the perfective to become stranded. This would then trigger the insertion of an auxiliary. However, no auxiliary appears in the perfective in Malayalam.

As such, we could posit the Vocabulary Insertion Entries in (69) and the lexical entries in (70) for Malayalam.[17] This book follows Bjorkman in assuming a Distributed Morphology framework here, though nothing in what follows crucially relies on this framework. The difference between (d) and (e) will be explored in chapter 4 and the Vocabulary Insertion rules and lexical entries revised accordingly.

(69) Vocabulary Insertion Rules (Version 1)

a. -∅ ↔ [PRS]
b. *-um* ↔ [FUT/MOD]
c. *–u/i* ↔ [PST]
d. *-unnu* ↔[IPFV]
e. *–uka* ↔ [IPFV]

(70) a. $[\![\text{PRS}]\!]^{g,c} = [\![\text{PRS}]\!]^{g,c}$ is only defined if c provides an interval t that includes t_0 (UT). If defined, then $[[\text{PRS}]]^{g,c}$ =t.
b. $[\![\text{PST}]\!]^{g,c} = [\![\text{PST}]\!]^{g,c}$ is only defined if c provides an interval t that precedes t_0 (UT). If defined, then $[[\text{past}]]^{g,c}$ =t.
(Kratzer 1998 p10)

Table 2.5 shows that in all the tense and aspect combinations where there are two features ([IMPERFECTIVE] plus [PRESENT], [PAST] or [(FUTURE)MODAL]) an auxiliary is present. This is because when the [IMPERFECTIVE] feature intervenes between the verb and a higher head like the Tense head, the feature at the Tense head becomes stranded and an auxiliary is needed. Contrastingly, none of the perfective verbs have auxiliaries, suggesting that there is only one feature here, that of tense.

When a tense or aspect feature is present at the Aspect or Tense head, this feature will be used by the interpretative component to spell out the semantics corresponding to the feature valuation, as explained in chapter 1. Given that Malayalam lacks a perfective feature, there is a question of how to obtain perfective semantics. Two options one might consider include the following. The first option is

17 The choice of referential over quantificational entries for tense here was simply done for concreteness. It was not theoretically motivated; quantificational entries could also have been used.

Table 2.5: Features associated with Malayalam tense/aspect auxiliaries (Version 1).

–	**'Imperfective 1'**	**'Imperfective 2'**	**Perfective**
Present	var-**unnu** (*undu*)	var-uka(y) *aanu*	–
–	[PRS][IPFV]	[PRS][IPFV]	–
Past	var-**unnu** *undaayirunnu*	var-uka(y) *aayirunnu*	vann-u
–	[PST][IPFV]	[PST] [IPFV]	[PST]
Future	var-**unnu** *undaayirikkum/undaakum*	var-uka(y) *aayirikkum*	var-um
–	[FUT/MOD][IPFV]	[FUT/MOD][IPFV]	[FUT/MOD]

that there is an Aspect Phrase in the syntax. It just has no features. Such an Aspect head would be interpreted as being valued for the unmarked feature. In the case of Malayalam and English, that would be the perfective feature since both languages have other dedicated imperfective/progressive morphology. The second option is that there is no Aspect Phrase in the syntax when there is no feature on the Aspect head. In this case the semantics of verbs would be enriched with viewpoint aspectual properties in the perfective but not in the imperfective. Moving forward it will be assumed that the first option is correct, but see chapter 7 for a larger discussion of these issues. How exactly the intricacies of tense semantics work in Malayalam, for example whether a quantificational or pronominal approach to tense is best, is left to future research. The main claim of this section is that the auxiliary and copula data fit with the morphological, adverb and context data from the previous section to argue that Malayalam is not a tenseless language.

2.5 Conclusion

The first question this chapter addressed was, What types of cross-linguistic variation exist in the domain of tense? This chapter showed that languages vary with the amount of overt morphological tense marking they have, ranging from no overt morphology to six plus tense morphemes. Additionally, not all languages have the set of syntactic properties usually associated with the presence of the Tense Phrase/Tense head. Linked with these types of variations, is the way the event is anchored to the utterance context. Crucially though, all languages have a way to express the semantics of tense. As a case study, this chapter examined the controversy in Malayalam regarding whether the language is a tensed or tenseless one. The specific question was, Does Malayalam have present and past morphology that anchors the clause or is that morphology really aspect morphology, leaving Malayalam without tense morphology and with anchoring via mood?

The second question the chapter examined was, How can this variation be theoretically accounted for? It proposed that the morphological variation can be accounted for as follows. For languages with tense morphology, different values for the [TENSE] feature located at the Tense head provide the range of available temporal interpretations. In languages that lack all overt tense morphology, there are two options. Some such languages may have a covert tense morpheme, while others may have no covert tense morpheme/[TENSE] feature and instead use other mechanisms such as lexical/viewpoint aspect, adverbs and/or pragmatic reasoning to obtain tense semantics. One could account for the syntactic variation by proposing either of the following. First, the Tense Phrase simply may not project in all languages. This may result in no [TENSE] feature(s) appearing in a language or it may result in (a) [TENSE] feature(s) appearing on a head other than the Tense head in the language. Another option is that the Tense Phrase does project in all languages; however, other factors may prevent a language from exhibiting the syntactic properties usually associated with the Tense Phrase.

This chapter claims that the Malayalam data is best accounted for under a tensed account. Specifically, it proposed that Malayalam has [PRESENT], [PAST], and [FUTURE/MODAL] features located at the Tense head, just as Bjorkman (2011, under review) proposes English does. The main arguments for these conclusions are the fact that Malayalam does not allow bare matrix verbs, adverbs or contextually salient Topic Times to override the proposed defaults and that Malayalam has the Overflow pattern in auxiliaries, and that copulas are obligatory in all tenses of equative sentences in Malayalam. Given the arguments presented in this chapter that Malayalam has obligatory, contrastive tense morphology, under Ritter & Wiltschko's system, this would mean that tense is what anchors clauses in Malayalam. Perhaps, a different way of measuring anchoring could be found, but for now it seems that Amritavalli & Jayaseelan are incorrect in arguing that mood not tense anchors clauses in Malayalam.

These results bring up the final question, What can this variation teach the field about Universal Grammar? First of all the findings of this chapter show, as many other works have shown before, that languages that are as different as Malayalam and English can underlyingly be exactly the same in certain ways. The cross-linguistic variation in this domain raises crucial questions about how the syntax, semantics and morphology interface and what the architecture of the grammar should look like. For example, must all languages have a Tense Phrase or can this phrase be omitted in certain languages? It also raises questions regarding what type of syntactic properties are fundamentally linked with the Tense head. These questions will be further taken up in chapter 7.

3 Tense in Malayalam: Debunking Potential Arguments from Non-finite Forms

3.1 The questions & main claims

Before moving on to a new domain, this chapter will examine potential arguments for a tenseless account from non-finite forms. The goals of this chapter are threefold. First, it will further support the conclusion of chapter 2 that Malayalam is a tensed language. Secondly, this chapter will provide a better understanding of the morphosyntax and morphosemantics of two common non-finite constructions in Malayalam, the Conjunctive/Adverbial Participle and the *-atə* nominalization. The first plays a crucial role in the formation of the perfect, the topic of chapter 5. Thirdly, this chapter will shed light on how these non-finite forms in Malayalam compare to non-finite forms cross-linguistically.

This chapter is organized as follows. Section 3.2 investigates the properties of the Conjunctive/Adverbial Participle and argues that these constructions are distinct from the finite, matrix past tense constructions examined in the previous chapter (contra Amritavalli & Jayaseelan 2005). It shows that these constructions are structurally small, i. e. verb Phrases, and are semantically underspecified for tense and viewpoint aspect. Clauses involved in this construction must be pragmatically linked either via causation, manner or sequence of events. It is suggested that a modified version of a Stump (1985) style approach can account for these facts. Section 3.3 shows that the *-atə* forms that have traditionally been called 'gerunds' (in the sense of an English-style 'poss-ing' gerund (Abney, 1987)) are actually tensed, relative clauses with number and gender agreement acting as the head noun. As a result, they do not argue against the presence of a Tense Phrase in Malayalam. Section 3.3 concludes with an exploration of the bearing these findings have on the cross-linguistic picture, in addition to highlighting an open issue regarding negation.

3.2 The Conjunctive/Adverbial Participle puzzle

In his typological study of South Asian languages, Subbārāo (2012) generalizes that the term **Conjunctive/Adverbial Participle** refers to a non-finite construction (defined as verb forms/clauses that cannot stand on their own as independent sentences), whose verb is marked with a particular 'participle' marker. One of the main uses of the Conjunctive/Adverbial Participle in South Asian languages is in what has been called the Conjunctive/Adverbial Participle Construction. This

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construction has also been called a Serial Verb Construction (Jayaseelan, 2004). This construction contains two clauses: one is a finite matrix clause, and the other clause consists of the Conjunctive/Adverbial Participle. The Conjunctive Participle Clause can be interpreted in a number of ways, such as temporally preceding the finite clause, being temporally simultaneous with the action described by the finite verb, or acting as the cause of the action described by the finite verb. Examples of Conjunctive Participle Constructions with these readings in Malayalam are shown in (1). The Conjunctive Participles, which are italicized, are glossed as –PART. Main verbs are bolded.

(1) a. katakə turakunna ʃabdam *keeʈʈ-ə* annamma **uɳarnn-u**.
door opening noise hear-PART Annamma wake.up-PST
'Annamma woke up on hearing the sound of the door being opened.'
b. mani avan-te katha *karaɲɲ-ə* **paraɲɲ-u.**
Mani he-GEN tale cry-PART tell-PST
'Weeping, Mani told his tale.'
c. ʃaanta kaɲɲi *vecc-ə* **kuʈicc-u**.
Shantha rice.porridge make-PART drink-PST
'Shantha made rice porridge and drank it.' (Gopalakrishnan 1985 p17–18: 4, 8)

There is variation with respect to the specific properties of these constructions from one South Asian language to another. For example, in Malayalam, as opposed to those in other South Asian languages, Conjunctive Participles with no aspectual marking are allowed. In other languages, such as Bangla (Indo-Aryan), (2-a), Hindi (Indo-Aryan), (2-b), Gadaba (Munda), (2-c), Kannada (Dravidian), (2-d), and Kurux (Dravidian), (2-e) (Abbi, 1991) the Conjunctive Participle always contains some type of additional marking.

(2) a. Mary chithi-ta tul-e rakh-lo (Bangla)
Mary letter-CLF pick.up-PFV keep-PST.3
'Mary moved the letter and kept it.' (Basu & Wilbur 2010 p2: 2a)
b. pitaji khana kha-kur so guye (Hindi)
father food eat-PRF.PART sleep go.3MSG.HON.PST
'Having taken his meals the father went off to sleep.'
c. in-ji (Gadaba)
say-PST.PART
'having said'
d. male band-u kere tumbi-tu (Kannada)
rain come-PST.PART tank fill-PST
'The tank filled as a result of rain.'

e. en nalux nunn-on-ki cail kal-on (Kurux)
1SG work do-FUT.PART walk go-FUT
(Abbi 2012 p9–10)

Since Malayalam allows Conjunctive Participles with no aspect or tense marking, this naturally raises questions about how their temporal semantics are obtained. Answering these questions will be the focus of the rest of the majority of the section. However, before moving on to this, one note is in order.

3.2.1 Tense & the controversial status of the Conjunctive/Adverbial Participle in Malayalam

Amritavalli & Jayaseelan (2005) use Conjunctive Participle Constructions to try to argue for a tenseless account of Malayalam. They start by observing two facts, one having to do with a potential phonological issue and a second with a semantic issue that arises if their phonological concern is correct. The phonological concern has its basis in the following facts: Conjunctive Participle forms are identical with the past tense forms of the verb except that, in verb forms whose past tense marker is *-u*, the Conjunctive Participle form has a schwa instead of the *-u* in spoken and written Malayalam.[1] Raja Raja Varma (1917), Asher & Kumari (1997), Jayaseelan (1984, 2004), and Hany Babu & Madhavan (2003) have taken this distinction to indicate that Conjunctive Participles are distinct constructions from past tense verbs, with the schwa functioning as a specialized participial marker distinct from the past tense marker. However, in verb forms whose past tense ends in *-i*, there is no change in form between the past tense marker and the Conjunctive participle marker. Both are pronounced and written as *-i*.

Amritavalli & Jayaseelan (2005), Amritavalli (2014), Jayaseelan (2014), seeing these facts, suggest that a general vowel reduction process in the language is responsible for the schwa which occurs in the Conjunctive Participle forms of verbs whose past tense forms are marked with *–u*. As such, the schwa is simply a reduced form of the *-u* marker used in finite, matrix clauses. Pillai (1965) notes that 864 of the 2,881 verbs in his sample use *–i* as their past tense marker, while 2,017 use *–u*. This easily makes *–u* the most common past tense marker, which potentially adds weight to Amritavalli & Jayaseelan's proposal, in that, as the more marked form, *-i* would be more likely to be preserved from the reduction process. Given these facts, their argument that there is no special Conjunctive

1 Though sometimes in colloquial writing the *-u* marker is found instead of the schwa marker in Conjunctive Participles.

Participle marker and that finite, matrix past tense morpheme and the Conjunctive Participle morpheme should receive a uniform analysis seems all the more plausible.

The following semantic puzzle arises if this reanalysis is correct. In (3) the *-u/i* morpheme, as argued in chapter 2, semantically functions as the past tense marker on the main verb (bolded).

(3) a. (innale) ɲaan paẓam **kaẓicc-u**.
Yesterday I banana take-PST
'I ate a banana (yesterday).'
b. (innale) ɲaan paḷḷi-yil **pooy-i**.
Yesterday I church-LOC go-PST
'I went to church (yesterday).'

However, in sentences like (4-b)–(4-c) the *-ə/i* in Conjunctive Participles (italicized) does not seem to encode past semantics. These sentences, respectively, receive a present and future interpretation, despite the fact that the Conjunctive Participle has the *-u/i* marker. This suggests that the *-u/i* marker is, in fact, not a past tense marker, in these constructions. At this point, one might think, as Amritavalli & Jayaseelan (2005) have done, that the *-u/i* is a perfective marker, since the Conjunctive Participle event precedes the main event in the sentences in (4). Recall from chapter 1, though, that such temporal precedence is not, in fact, a component of a Klein (1994) style perfective.

(4) a. vaʃanta peena kaṭa-yil *pooy-i* **vaaŋŋ-i**.
Vasantha pen shop-LOC go-PART buy-PST
'Vasantha went to the shop and bought a pen.' (Gopalakrishnan 1985 p71: 68a)
b. vaʃanta peena kaṭa-yil *pooy-i* **vaaŋŋ-unnu-∅**.
Vasantha pen shop-LOC go-PART buy-IPFV1-PRS
'Vasantha goes to the shop and buys (is going to the shop and buying) a pen.'
c. vaʃanta peena kaṭa-yil *pooy-i* **vaaŋŋ-um**.
Vasantha pen shop-LOC go-PART buy-FUT
'Vasantha will go to the shop and buy a pen.'

Furthermore, as Hany Babu & Madhavan (2003) have pointed out, when sentences like (5) are added to the data set, a perfective analysis becomes unlikely. In (5) the main verb is in the present tense and the events denoted by the Conjunctive Participles occur simultaneously with the event denoted by the main verb. Given the arguments against *-u/i* being a perfective/perfect morpheme in finite clauses

presented in chapter 2, analyzing the Conjunctive Participle marker as a perfective would also pose a challenge for a unified account.

(5) avaḷ paṯhicc-ə paṯhippicc-ə jooli ceyt-ə jeevikk-unnu-∅.
she study-PART teach-PART job do-PART live-IPFV1-PRS
'She lives studying, teaching and working.'

If the Conjunctive Participle *-ə/i* is, in fact, neither a perfective nor a past tense marker, one might consider the option that it is semantically vacuous, which will, in fact, be what this section argues for. This leads to the question, if the *-ə/i* in Conjunctive Participles does not have any features associated with it, how are the temporal semantics of Conjunctive Participle Constructions obtained?

Before moving on to this question, a few more words about Amritavalli & Jayaseelan's phonological concern are in order. Especially in light of Amritavalli & Jayaseelan's proposal, one might consider if even the choice between using *-u* or *-i* as the past tense morpheme might be phonologically conditioned. However, this has proved to be a difficult task. As Asher & Kumari (1997) note 'Other descriptions (Wickremasinghe and Menon 1927, Sekhar and Glazov 1961, Asher 1969, Prabodhachandran Nayar 1972 and Valentine 1976) have sought to make explicit what in Kunjan Pillai (1965) is only implicit, and so provide rules which, where possible, allow the prediction of a past tense form from a statement of the phonology of the stem. All accounts agree that it is not possible to move beyond the two major groups proposed by Kunjan Pillai. This is because there are pairs of verb roots which are phonologically similar, but of which one has past tense in *–i* and the other in consonant plus *-u*' p317. In other words, thus far, no one has found a way to explain why a given verb marks the past tense via using a consonant plus *–u* versus just simply using *–i*.

One general, relevant assumption in this literature that is incorrect is that, when *-u* is used as the past tense marker, the consonant is part of the past tense marker. Semantically, this is problematic because the past tense stem is always what is used in Conjunctive Participle forms. As (4) and (5) have shown, these forms do not have to have past tense interpretations. This suggests that, whatever the cause of the change in the stem, this change is semantically vacuous. It is left to future work in phonology to explain how and why the sound change occurs in the stem form and if the *-u/i* alternation can be predicted on phonological grounds.

Returning to the question of whether the schwa in the Conjunctive Participle marker is a reduced form of the past tense *-u* marker, the fact that the form of the Conjunctive Participle parallels that of the past tense form of the main verb in some cases but not others does not, a priori, need to force a unified analysis. For example, English weak/regular verbs often have an identical past/perfect partici-

ple and a past tense form that ends in *–ed*, (6)–(7), while English strong/irregular verbs often have a past/perfect participle and a past tense form that uses something other than *–ed*. As (8)–(9) show, these two forms can be distinct or identical.

(6) a. The dog walked to the park.
b. The dog was walked to the park.
c. The dog has walked to the park.

(7) a. The girl hummed the song.
b. The song was hummed.
c. The girl has hummed the song.

(8) a. The fish ate the food.
b. The fish was eaten.
c. The fish has eaten the food.

(9) a. The boy fed the dog.
b. The dog was fed.
c. The boy has fed the dog.

In order to reject Amritavalli & Jayaseelan's reduction theory once and for all an experiment must be done. Undertaking that is left for future work. In the meantime, the impressionistic judgments of speakers I have consulted suggest that Conjunctive Participles always are realized with a schwa while past tense forms are always realized with a *-u* and never reduced to a schwa. Shijith S (p. c.) confirms that, as far as he has generally observed in the spectrograms he has recorded for other purposes, this seems to be the case. Given these considerations and the arguments to come, this section follows the traditional, more widely accepted analysis that the *–ə/i* marker in Conjunctive Participles is a specialized participle marking and glosses it as PART.

3.2.2 Properties of Conjunctive Participle Constructions

Based on their reanalysis of the Conjunctive Participle marker as a perfective morpheme, Amritavalli & Jayaseelan argue that Conjunctive Participle Constructions lack Tense Phrases. In this section it will be shown that, while Amritavalli & Jayaseelan do generally seem to be right that Conjunctive/Adverbial Participles are structurally small, they are incorrect in arguing that this serves as evidence that Malayalam, as a whole, lacks tense morphology and a Tense Phrase.

The rest of this section focuses on the question of how Malayalam Conjunctive Participle Constructions obtain their temporal semantics and argues that Malay-

alam Conjunctive Participles are semantically underspecified for tense and viewpoint aspect and that their temporal interpretations are generally gained via pragmatics. After providing an overview of the syntactic and pragmatic factors governing the use of this construction, this section points out the similarity of the Malayalam Conjunctive Participle Construction to the English absolutive construction. It suggests, following Swenson (2017a) that the Stump (1985) based adjunct account proposed in Swenson (2016b), must be modified to capture certain facts about the compatibility of Conjunctive Participles Constructions with Individual Level Predicates and multiple adverbs in Malayalam.

3.2.2.1 Syntactically small

Let us begin with a brief overview of the syntactic properties of Conjunctive Participle Constructions. Previous work has identified Conjunctive Participles as being non-finite (Jayaseelan 1984; Jayaseelan 2004; Amritavalli & Jayaseelan 2005; Hany Babu & Madhavan 2003; Gopalakrishnan 1985), Inflectional Phrase or Aspect Phrase sized adjuncts (Jayaseelan 2004). Evidence that Conjunctive Participle clauses are at least as big as verb Phrases comes from the fact that they can have separate subjects (10).

(10) [paampə *kaʈicc-ə*] goopi **maricc-u**
snake bite-PART Goopi die-PST
'The snake bit (Gopi) and Gopi died.' (Gopalakrishnan 1985 p55: 41)

The fact that no tense or viewpoint aspect morphemes[2] can be added to Conjunctive Participles suggests that they are even smaller than a (viewpoint) Aspect Phrase. As Amritavalli & Jayaseelan (2005) point out, the verb Phrase negation, *-aa-*, (11-a), but not the higher *illa* negation, (11-b) can be used on Conjunctive Participles.[3] This suggests that indeed, these Conjunctive Participles are syntactically

2 Examples like (5) argue that *–ə/i* is not a perfective marker itself. The forms *–iṯṯə* and *–koɳʈə*, which can be added to Conjunctive Participles, and which Asher & Kumari (1997) have called perfective and progressive markers, respectively seem to more accurately be involved in modifying or emphasizing lexical aspect. See chapter 5 for further details.

3 *illa* negation on the main verb can scope over both clauses, (i-a) or just the Conjunctive Participle clause, (i-b).

(i) a. ente aʈuttə aarum *vann-ə* **irunn**-illa
I.GEN near anybody come-PART sit.PST-NEG
'Nobody came and sat near me' [i. e. neither came nor sat]
b. innu soobha skuul-il *naʈann-ə* **pooy**-illa
today Shobha school-il walk-PART go.PST-NEG

small. When *-aa-* negation is present, it only scopes over the Conjunctive Participle clause, as is expected if it is verb Phrase negation.

(11) a. krishnankuṭṭi gauriiamma-yuṭe viiṭṭ-il vaaṭaka *koṭukk-aa-te*
Krishnankutti Gauriamma-GEN house-LOC rent give-NEG-PART
taamassicc-u
live-PST
'Krishnakutty stayed in Gauriamma's house without paying rent.' (Gopalakrishnan 1985 p76: 76b)

b. *krishnankuṭṭi gauriiamma-yuṭe veeṭṭ-il vaaṭaka *koṭukk*-illa
Krishnankutti Gauriamma-GEN house-LOC rent give-NEG
taamassicc-u
live-PST
'Krishnakutty stayed in Gauriamma's house without paying rent.'

Another property of Conjunctive Participle Constructions is that they can have different, (12), or same objects, (13).

(12) ɲaan [katti *eṭutt-ə*] appam **muricc-u**
I knife take-PART bread cut-PST
'I took the knife and cut the bread.' (Jayaseelan 2004 p79: 43)

Jayaseelan (2004) provides some reasons for thinking that when there is a shared object it is generated in the Verb Phrase containing the Conjunctive Participle. First, the shared object can scramble/be generated within the Conjunctive Participle clause, as shown in (13-a)–(13-b). The Conjunctive Participle can also be scrambled over the subject, leaving the subject behind, (13-c). However, when the shared object occurs in the object position of the main verb, the sentence is 'more or less unacceptable,' (14).

(13) a. ɲaan [oru maaŋŋa] *pooṭṭicc-ə* **tinn-u**.
I one mango pluck-PART eat-PST
'I plucked and ate a mango.' (Jayaseelan 1984 p624: 1a)

b. [oru maaŋŋa] *pooṭṭicc-ə* ɲaan **tinn-u**.
one mango pluck-PART I eat-PST
'I plucked and ate a mango.' (Jayaseelan 2004 p81: 48)

'Shobha did not go walking to school' [i. e. Shobha went to school but she did not walk down to it] (Gopalakrishnan 1985 p86–87: 90, 93)

c. *pooṯṯicc-ə* ɲaan [oru maaŋŋa] **tinn-u**.
pluck-PART I one mango eat-PST
'I plucked and ate a mango.' (Jayaseelan 1984 p624: 1a")

(14) ?*ɲaan [*pooṯṯicc-ə*] oru maaŋŋa **tinn-u**
I pluck-PART one mango eat-PST
'I plucked and ate a mango.' (Jayaseelan 2004 p81: 47)

While one can see his point, at an intuitive level it seems puzzling why a shared object must be generated in the adjunct, given that adjuncts are optional. In other words, given that (15) is a perfectly grammatical sentence of Malayalam, it is not clear why the addition of the adjunct *pooṯṯicc-ə* 'pluck' in the sentences above should force the now shared object to be generated in the adjunct Verb Phrase as opposed to simply continuing to be generated in the Verb Phrase of the main verb.

(15) ɲaan [oru maaŋŋa **tinn-u**]
I one mango eat-PST
'I ate a mango.'

Given that Conjunctive Participle Constructions can share objects, one might argue that these are Serial Verb Constructions. However, Serial Verb Constructions also generally have a single negation which takes scope over all verbs (cf. Carstens (2002) for Yoruba (Volta-Congo, Nigeria) and Ijo (Ijioid, Nigeria)). This is not the case in Malayalam, as (11-a) shows. Aboh (2009) and Aboh (2016) further point out that Serial Verb Constructions almost never contain more than one lexical verb; all additional verbs have a functional use. This leads to questions about the exact nature of Serial Verb Constructions and how to differentiate them from things like auxiliaries. See chapter 5 and 7 for further discussion of these questions.

A third property of Conjunctive Participle Constructions is shown in (16): Conjunctive Participle can appear in a variety of places in the sentence, just like the adjuncts in their English translations.

(16) a. ɲaan school-ilekku **naṯann-u** [apple *kaẓicc-ə*].
I school-to walk-PST apple take-PART
'I walked to school, eating an apple.' [school must be reached; apple does not have to be eaten (though it could be)]
b. ɲaan [apple *kaẓicc-ə*] school-ilekku **naṯann-u**.
I apple take-PART school-to walk-PST
'I walked, eating an apple, to school.' [school must be reached; apple does not have to be eaten (though it could be)]

c. [apple *kaẓicc-ə*] ɲaan school-ilekku **naṭann-u.**
apple take-PART I school-to walk-PST
'Eating an apple, I walked to school.' [school must be reached; apple does not have to be eaten (though it could be)]

3.2.2.2 Pragmatically licensed

Also like their English absolutive counterparts, Malayalam Conjunctive Participle Constructions require pragmatic licensing conditions. According to Gopalakrishnan (1985), Conjunctive Participle Constructions presuppose that the Conjunctive Participle is linked to the main verbs via one of the relationships demonstrated in (17): manner adverbial, (a), sequential part of a larger action, (b), and cause and resulting effect, (c).

(17) a. mani avan-te katha *karaɲɲ-ə* **paraɲɲ-u**.
Mani he-GEN tale cry-PART tell-PST
'Weeping, Mani told his tale.'
b. ʃaanta kaɲɲi *vecc-ə* **kuṭicc-u**.
Shantha rice.porridge make-PART drink-PST
'Shantha made rice porridge and drank it.'
c. katakə turakunna ʃabdam *keeṭṭ-u* annamma **uɳarnn-ə**.
door opening noise hear-PART Annamma wake.up-PST
'Annamma woke up on hearing the sound of the door being opened.'
(Gopalakrishnan 1985 p18: 8, p52: 37a, p17: 3)

When such a relationship is lacking, she claims that the sentence becomes bad, (18-a). Instead to link these two sentences, coordination is required, (18-b).

(18) a. #giita paccakkari *ariɲ-ə* chaaya **uɳṭ-aakk-**i.
Gita vegetables chop-PART tea exist-CAUS-PST
'Gita chopped vegetables and made tea.' [doesn't meet criteria] (Gopalakrishnan 1985 p32: 18)
b. giita [paccakkari ariy-uka-yum] [chaaya uɳṭ-aakk-uka-yum]
Gita vegetables chop-IPFV2-CONJ tea exist-CAUS-IPFV2-CONJ
ceyt-u
do-PST
'Gita chopped vegetables and made tea.'

However, if (18-a) is put into the right context, it becomes fine for at least some speakers.

Context: A line in a suspense novel. Gita is a family servant. Her job is to chop the vegetables. After finishing her work, she always makes herself a glass of tea before going.

(19) ella divasate poleyum giita paccakkari *arinn-ə* chaaya
every day other Gita vegetables chop-PART tea
unɳ-aakk-i. uɭane, urakkeyuḷḷa ʃabdam **keeɳɳ-u**.
exist-CAUS-PST suddenly loud noise hear-PST
'Just like any other day, Gita chopped the vegetables and made tea. Suddenly, she heard a loud noise.'

Another example that illustrates the same point comes from (20). Here there is no obvious connection, outside of a list of future plans, between drinking tea and oiling one's hair.

Context: You are sitting in your hostel and talking with a close friend and hostelmate after work. You have just been talking about what the plan for the rest of the evening is. She asks if you have had tea yet. You say that you have not. While she asks that question she is oiling her hair. You remember while seeing her do that, that you also need to oil your hair and say so. You know though that she wants to have tea together now so you say...

(20) chaaya *kuɽicc-ə* eɳɲa use **cheyy-um**.
tea drink-PART oil use do-FUT
'Having had tea, I will oil my hair.'

Another way in which this pragmatic licensing requirement can be seen is in a constraint on when different subjects are allowed in main versus Conjunctive Participle clauses. According to Gopalakrishnan (1985), different subjects are generally disallowed, except, as in (21), where the subject of the main clause is an argument in the Conjunctive Participle clause.[4]

4 Some additional examples are provided below. The case of the subject in the Conjunctive Participle clause confirms that it is, in fact, in the main clause subject position.

(i) nambiyaar (enikkə veeɳɽi) offis-il *paraɲn-ə* enikkə aviɽe oru jooli **kiɳɳ-i**.
Nambiyar I.DAT for office-LOC speak-PART I.DAT there a job get-PST
'Nambiar spoke (to them) at the office (for me) and I got a job there.'

(ii) ɲaan (ʃobha-ye) *nirbandhicc-ə* ʃobha/aval skuul-il **pooy-i**.
I Shobha-ACC force-PART Shobha/she school-LOC go-PST
'I forced (Shobha) (to go to school) and so she/Shobha went to school.'

(21) a. ʃanta kaɲɲi *vecc-ə* **kuʈicc-u**
Shantha rice.porridge make-PART drink-PST
'Shantha made rice porridge and drank it.'
b. #[ʃanta kaɲɲi *vecc-ə*] ɲaan **kuʈicc-u**
Shantha rice.porridge make-PART I drink-PST
'Shantha made rice porridge, and I drank it.' (Gopalakrishnan 1985 p52: 37)

However, according to my fieldwork, for at least some speakers, (21-b) is fine in a context where I am sick and Shantha is taking care of me and thus makes *kaɲɲi* for me. It is also ok if I visit Shantha's house and I drink *kaɲɲi* because she made it especially for me or if Shantha brought *kaɲɲi* to the office especially for me, so I should eat it.[5] The generalization here seems to be that different subjects are allowed only when some type of a connection can be established between the main and Conjunctive Participle clauses.

Another place where the pragmatic restrictions can be seen is in reduplication. Example (22) shows that Conjunctive Participle forms can be reduplicated for emphasis.

(22) mani cuttum *nookk-i nookk-i* **naʈunn-u**.
Mani around look-PART look-PART walk-PST
'Mani walked, looking around' (intensive) [lit. Mani walked around looking, looking] (Gopalakrishnan 1985 p95: 107b)

Gopalakrishnan (1985) claims that in certain contexts reduplication is not possible due to semantic constraints, (23-b). This is probably due to the fact that, generally, saris do not tear after only one washing. According to my fieldwork, (23-b) is acceptable in a context where the speaker is complaining about someone who washed a sari that was not supposed to be washed, and as a result, tore it.

(iii) paampu *kaʈicc-ə* goopi **maricc-u**.
snake bite-PART Goopi die-PST
'The snake bit (Gopi) and Gopi died.'

(iv) josef *caviʈʈ-i* ente peena **poʈʈ-i**
Joseph step-PART I.GEN pen break-PST
'Joseph stepped on my pen and it broke.' (Gopalakrishnan 1985, p54–55: 39–42)

5 Though *kaɲɲi* is usually given to sick people, so some other food makes more sense to bring to the office.

(23) a. saari *nanacc-ə* nanacc-ə kiir-i.
sari wash-PART wash-PART tear-PST
'The sari tore due to repeated washing.'
b. #saari *nanacc-ə* kiir-i.
sari wash-PART tear-PST
'The sari tore after washing.' (Gopalakrishnan 1985 p99: 112)

3.2.2.3 Temporally underspecified

The next thing to note is that event type and iconicity play key roles in specifying the temporal semantics of Conjunctive Participle Constructions. Let us first turn to the role of event type. In (24) simultaneous (wake up at the same instant as hearing the noise) and successive interpretations (hear the noise one instant and then wake up the next instant) are possible, if the opening of the door is viewed as an instantaneous event. If a speaker assumes that the door is slowly creaking open, i. e. that hearing the noise is not an instantaneous event, a proper containment interpretation (wake up while hearing the noise) is also possible. This is strong evidence that Conjunctive Participles in Malayalam are semantically underspecified and do not have their own tense or viewpoint aspect. It also provides an additional argument against an account where *–ə/i* is a perfective marker.

(24) katakə turakunna ʃabdam *keeʈʈ-ə* annamma **uɳarnn-u**.
door opening noise hear-PART Annamma wake.up-PST
'Annamma woke up on hearing the sound of the door being opened.' (Gopalakrishnan 1985 p17: 3)

Iconicity is also important in determining the temporal semantics of Conjunctive Participle Constructions. The role of iconicity can clearly be seen in cases where a sequential reading is preferred. Here, switching the order of the clauses results in a different temporal interpretation, (25). Gopalakrishnan considers sentences like (25-b) to be semantically infelicitous because, according to Hindu etiquette, one should always bathe before going to a temple. If a speaker assumes that not everyone follows temple etiquette, then there is nothing wrong with (25-b). This is simply an example of the role of world knowledge.

(25) a. asha raavile *kuɭicc-ə* ampalat-il **pooy-i**.
Asha morning bathe-PART temple-LOC go-PST
'Having bathed in the morning, Asha went to the temple.'

b. asha raavile ampalat-il *pooy-i* **kuɭicc-u**
Asha morning temple-LOC go-PART bathe-PST
'Asha went to the temple in the morning and then came home and bathed.' [lit. 'Having gone to the temple in the morning, Asha bathed.']

In sum, this section has shown that Conjunctive Participles are structurally small, roughly verb Phrases, and that Conjunctive Participle Constructions are semantically underspecified for tense and viewpoint aspect and require the clauses involved to be pragmatically linked either via causation, manner or sequence of events.

3.2.3 Conjunctive Participles as modified Stump (1985)-style adjuncts

This section argues against a conjunction account and highlights the similarities between English absolutives and Malayalam Conjunctive Participle Constructions. Based on this it suggests that a modified version of Stump's (1985) analysis, as proposed in Swenson (2017a), is needed to account for the incompatibility of Conjunctive Participles with Individual Level Predicates and multiple temporal adverbs in Malayalam. This section begins with an overview of Stump's account for English absolutives.

3.2.3.1 Against a coordination analysis

Based on the name 'Conjunctive Participle', one might attempt to argue for a conjunction account for Conjunctive Participle Constructions. However, this section will argue that such a move faces a number of problems.

The name Conjunctive/Adverbial Participle comes from the two ways these constructions can be translated, either as participle adjuncts serving an adverbial type function, (25-a), or as conjoined sentences, (21-a). While they are sometimes translated using conjunction, they are different from 'genuinely' coordinated sentences in the language. These require the addition of the conjunctive particle, *-um*, (26-a). In order to coordinate two independent sentences, using *–um* coordination, one must attach *-um* to *–uka*, what has so far been called the IPFV2 form of the two verbs. Chapter 4 will argue that this form is actually the progressive participle form. The tense and aspect of the sentence are then encoded by the light verb *ceyy-* 'do.' This structure must be used because finite clauses cannot be coordinated in Malayalam by simply adding *–um* to each verb, (26-b).

(26) a. raaman var-uka-yum krishnan pook-uka-yum ceyt-u.
Raman come-IPFV2-CONJ Krishnan go-IPFV2-CONJ **do-PST**
'Raman came and Krishnan went.' (Asher & Kumari 1997 p135: 647c)
b. *raaman **vann-u**-yum krishnan **pooy-i**-yum.
Raman come-PST-CONJ Krishnan go-PST-CONJ
'Raman came and Krishnan went.'
c. *raaman *vann-ə*-yum krishnan **pooy-i**-yum.
Raman come-PART-CONJ Krishnan go-PST-CONJ
'Raman came and Krishnan went.'

Example (26-c) shows that it is not possible to conjoin a Conjunctive Participle and a main verb with *–um*. Example (27-b) shows this same fact with a Conjunctive Participle Construction with a single subject.

(27) a. ʃaanta kaɲɲi *vecc-ə* **kuʈicc-u**
Shantha rice.porridge make-PART drink-PST
'Shantha made rice porridge and drank it.'
b. *ʃaanta kaɲɲi *vecc*-um **kuʈicc-u**-yum
Shantha rice.porridge make.PART-CONJ drink-PST-CONJ
'Shantha made rice porridge and drank it.'

It is possible to coordinate multiple Conjunctive Participles with *–um*, though this structure is not generally used, (28). The crucial point though is that it is not possible to coordinate a Conjunctive Participle and a main verb using *–um*, (26-c).

(28) ɲaan maaŋa *tinn*-um veḷḷam *kuʈicc*-um vayarə **niracc-u**.
I mango eat.PART-CONJ water drink.PART-CONJ stomach fill-PST
'I filled (my) stomach, eating mangoes and drinking water.' (Jayaseelan 2014 fn15)

In addition to not allowing coordination via the *–um* particle, there are several other reasons to argue against a syntactic conjunction account for Conjunctive Participle Constructions. First, as seen above, Conjunctive Participles can appear in many positions in the sentence. If syntactic conjunction were assumed, one would worry about Coordinate Structure Constraint violations. Secondly, a syntactic coordination account might try to say that the different pragmatic relationships could be explained by different syntactic configurations. For example, one might try to draw links with a Ramchand (2008) expanded verb Phrase since the projections there deal with relationships similar to those involved in Malayalam Conjunctive Participle Constructions: causation (Initiator Phrase), manner (Process Phrase) and sequence (Result Phrase). However, in addition to it being challenging to work out the details of such an analysis, such an account would transfer

a largely pragmatically driven phenomenon to the syntax, which seems undesirable. With these points in mind, what follows takes inspiration from the second traditional name for Conjunctive Participles, the 'Adverbial Participle' and suggests that they are more like English absolutives for the type dealt with in Stump (1985) than syntactic coordinations.

3.2.3.2 Overview of Stump (1985)

The adjuncts Stump deals with are those that express relations such as causation, (29-a), serve as temporal adverbials, (29-b), and conditional clauses, (29-c), a. o.

(29) a. The school is determined to avoid a scandal. The father is equally determined to find somebody to blame. The reader, being more experienced in such things, knows the truth: it was murder. [causation]
b. Grabbing a newspaper from a guard, Tom went back out, wiped up the dog shit and deposited it and the day's news in a refuse can. [time adverbial]
c. Transposed to a trumpet or saxophone, her creations would probably herald a new school. [conditional clause] (Stump 1985 p2: 2–4)

Stump's general proposal is that these adjuncts, if not serving as an argument of a modal, frequency adverb or generic operator, belong to the same category as Main Tense Adverbs. He defines Main Tense Adverbs as 'functors, [that] join with tense to characterize the interval at which some sentence is true. In this role, time adverbs are regarded as denoting functions from properties of time intervals to sets of time intervals… Main Tense Adverbs join with temporal abstracts to produce temporal abstracts' (Stump 1985 p118).[6] Some examples of Main Tense Adverbs include *at that time, since noon, in the morning, when Mary sang, before Mary sang, after Mary sang*, as well as any adjuncts that are not arguments of modals, frequency adverbs or generic operators.

A key tenant of Stump's proposal is indeterminacy, which occurs when, in order to assign an interpretation to a sentence, some type of inference is needed because it constitutes part of the truth conditional meaning. Stump uses the sentence in (30) to illustrate this concept. Here 'Picasso' could refer to a number of things: a painting by Picasso, a man named Picasso, a postage stamp with Picasso's picture, etc. However, for (30) to be true, the speaker/hearer must infer

6 Main Tense Adverbs are distinct from time adverbs like *yesterday, today, tomorrow, during the past summer* which may function as 'the argument of certain expressions…the purpose of such a time adverb is simply to specify a set of time intervals.' p116

that the two 'Picassos' are of the same category, i. e. two paintings by Picasso not a painting by Picasso and a man named Picasso.

(30) I saw two Picassos today. (Stump 1985 p305: 12)

The claim is that Main Tense Adverbs (i. e. those adjuncts that are not the arguments of a modal, frequency adverb or generalization operator) are semantically indeterminate with respect to the temporal relationship of the two clauses and relevance of the adjunct clause to the main clause. He models this indeterminacy in the semantics using contextual variables.

The obvious question now is, how is this indeterminacy resolved? Stump proposes that the temporal and relevancy relations in Main Tense Adverbs can be derived using information such as event type (instantaneous versus state of affairs/non-instantaneous), word order/iconicity, world knowledge, and predicate type (Individual Level versus Stage Level). The middle two pieces of information are relatively self-explanatory. With respect to event type, there are three possibilities, as shown in Table 3.1.

Table 3.1: Possible Readings for Different Event Types in Absolutives.

Event Type Combinations	Possible Readings
#1: both verbs describe instantaneous events	sequential simultaneous
#2: one verb describes instantaneous event & one describes non-instantaneous event	sequential proper containment
#3: both verbs describe non-instantaneous events	sequential simultaneous proper containment

The sentence in (31) can have a simultaneous interpretation where John notices the smoke at the same instant as having the realization, or it can have a successive interpretation where John notices smoke one instant and the next instant has the realization. It cannot, however, have a proper containment interpretation.

(31) Noticing the smoke, John realized Bill's house was on fire. (Stump 1985 p319: 40)

Example (32) allows a proper containment interpretation where John discovers the box while climbing or a successive interpretation where he discovers the box after arriving at the bottom. It cannot, however, have the simultaneous interpretation of climbing and discovering at the same time.

(32) John climbed down the well, discovering a sealed metal box at the bottom. (Stump 1985 p320: 42)

In (33) the singing could occur throughout the interval of walking, a simultaneous interpretation, or the singing could occur at some point during the walking, a proper containment interpretation.

(33) Walking beside the river, John sang. (Stump 1985 p320: 43–44)

The intuition regarding predicate type is that **Stage Level Predicates** (SLP) play an essentially temporal role because they naturally represent short and discrete intervals which pin-point a particular time, (34).

(34) a. When John was drunk, he fell down the stairs. [SLP]
b. Crossing the street, he was almost hit by a car. [SLP] (Stump 1985 p308: 17a, p309: 19)

Individual Level Predicates (ILP), on the other hand, describe the essential properties of an individual (dispositions, potentials), (35). These are things upon which assumptions about reasons or causes for an action are built.

(35) a. Having blue eyes, Jane looks a lot like Mary. [ILP]
b. His father having been a sailor, John knows all about boats. [ILP] (Stump 1985 p308: 18)

3.2.3.3 Applying Stump's analysis to Malayalam Conjunctive Participle Constructions

Thinking back to section 3.2, there are a number of parallels that can be drawn between English absolutive constructions and Malayalam Conjunctive Participles: both have pragmatic requirements, can occur in a number of positions in the sentence and are semantically indeterminate with respect to temporality. They also gain their temporal interpretations based on the event type, world knowledge, and iconicity. The sentences in (36)–(68) provide some additional examples of the role of event type and world knowledge in determining the semantics in Malayalam.

The sentence in (36-a)[7] shows that, when one event is instantaneous and the other is non-instantaneous/a state of affairs, either a successive or a proper con-

7 Gopalakrishnan says this sentence is semantically infelicitous. However, according to my consultants, (36-a) is fine when complaining about someone who washed a sari that was supposed to not be washed, and as a result, tore it.

tainment relationship is possible, as expected. World knowledge rules out the otherwise expected proper containment relationship in (36-a).

(36) a. saari *nanacc-ə* **kiir-i**.
sari wash-PART tear-PST
'The sari tore after washing.' (Gopalakrishnan 1985 p99: 112)
b. ɲaan oru maaŋa *poṯṯicc-ə* **tinn-u**.
I one mango pluck-PART eat-PST
'I plucked and ate a mango.' (Amritavalli & Jayaseelan 2005 p199: 37a, my glosses)

When both events are non-instantaneous, all three interpretations are possible, as predicted, (37).

(37) avaḷ paaṭṭu *keeṭṭ-ə* paper **ezuṯ-i**.
she song sing-PART paper write-PST
'Listening to music, she wrote a paper.'

Turning to the puzzle from section 3.2.1 about Conjunctive Participle Constructions with present imperfective, (38-a), or future (39) main verbs, Stump's proposal works with things that are already known about Malayalam to provide an explanation. As with Conjunctive Participle Constructions with a past tense main verb, one can easily see that pragmatic information such as world knowledge plays a role in constraining the temporal interpretations of the sentences in (38). John (1987) and Hany Babu (1997) have argued that the future maker *-um* is a modal. As such, in (39), the contextual variable in Conjunctive Participle clauses would be bound, not via pragmatic factors as in Main Tense Adverbs, but by the modal operator taking scope over it, causing the interpretation of the Conjunctive Participle clause to vary with that of the main clause.

(38) a. ɲaan oru maaŋa *poṯṯicc-ə* **tinn-unnu-**∅.
I one mango pluck- PART eat-IPFV-PRS
'I pluck and eat (or am plucking and eating) a mango.' (Amritavalli & Jayaseelan 2005 p199: 38a, my glosses)
b. avan paṯhicc-ə paṯhippicc-ə jooli ceyt-ə **jeevikk-unnu-**∅.
he study-PART teach-PART job do-PART live-IPFV1-PRS
'He lives studying, teaching and working.'

(39) ɲaan oru maaŋa *poṯṯicc-ə* **tinn-um**.
I one mango pluck- PART eat-MOD
'I will pluck and eat a mango.' (Jayaseelan 2004 p68: 2b, my glosses)

However, there are several important areas where Malayalam Conjunctive Participles and English absolutives differ. The first is with Individual Level Predicates. English absolutives are compatible with Individual Level Predicates as well as Stage Level Predicates, (35). However, Conjunctive Participle Constructions are not, (40-a). Instead, the *–atə* nominalization must be used, (40-b).

(40) a. *taʈi-yan *aayi*, avan orupaaʈu **buddhimuʈʈ-i**.
fat-M be-PART he much have.trouble-PST
'Being a fat man, he had a lot of trouble.'
b. taʈi-yan **aay-atə** koɳʈə, avan orupaaʈu **buddhimuʈʈ-i**.
fat-M be.PST-NMLZ INST he much have.trouble-PST
'Because he is a fat man, he had a lot of trouble.'

Secondly, sentences with multiple temporal adverbs must use *–atə* nominalization. They cannot use a Conjunctive Participle Construction. The examples in (41)–(73) illustrate this with a number of predicates and temporal adverbs. Note that the different temporal adverbs are fine in English absolutive constructions, as can be seen in the English glosses for these sentences.

(41) a. *innale gundakaɭ vinu-vine *tall-i* innə avan **maricc-u**.
Yesterday thugs Vinu-ACC beat-PART today he die-PST
'The thugs having beaten Vinu yesterday, he died today.'
b. innale gundakaɭ vinu-vine **tall-i**y-**atə** koɳʈə innə avan **maricc-u**.
Yesterday thugs Vinu-ACC beat-PST-NMLZ INST today he die-PST
'The thugs having beaten Vinu yesterday, he died today.'

(42) a. *taamasicc-ə *pooy-i* avan samaya-ttinnə ett-(uv)aan **patti-yilla**.
late go-PART he time-DAT reach-INF could-NEG
'Having left very late, he didn't arrive on time.'
b. taamasicc-ə **poy-atə** koɳʈə avan samaya-ttinnə ett-(uv)aan **patti-yilla**.
late go.PST-NOMLZ INST he time-DAT reach-INF could-NEG
'Having left very late, he didn't arrive on time.'

(43) a. *kazɻɲɲa kollam avadhi-kkə varanasi-yil *pooy-i*,
last year holiday-DAT Varanasi-LOC go-PART
var-unn-ø-a avadhi-kkə uɳɳi tirupati-yil sandarʃikk-aan
come-IPFV1-PRS-REL holiday-DAT Unni Tirupati-LOC visit-INF
tiirumaanicc-u.
decide-PST
'Having visited Varanasi on holiday last year, Unni decided to visit Tirupati for the upcoming holiday.'

b. kazɻɲɲa kollam avadhi-kkə varanasi-yil **poy-atə** koɳɭə,
last year holiday-DAT Varanasi-LOC go.PST-NMLZ INST
var-unn-ø-a avadhi-kkə uɳɳi tirupati-yil sandarʃikk-aan
come-IPFV1-PRS-REL holiday-DAT Unni Tirupati-LOC visit-INF
tiirumaanicc-u
decide-PST
'Having visited Varanasi on holiday last year, Unni decided to visit Tirupati for the upcoming holiday.'

Different manner adverbs are, however, allowed, at least sometimes. Jayaseelan (1984) provides the example in (44), which all speakers I have consulted accept. However, when the adverb modifying the Conjunctive Participle is changed from *nallavannam* 'well' in (44) to *vegam* 'quickly' in (45), speakers report a strange feeling. It is not completely clear to me at this point if they find this sentence ungrammatical or if it is due to a pragmatic constraint in that *vegam* 'quickly' often gives a negative connotation, i. e. that it is done hastily and sloppily. This would then contradict with the type of 'savoring' reading sometimes induced by *patukke* 'slowly.'

(44) ɲaan oru maaŋa nallavaɳɳam *muricc-ə* patukke **tinn-u**.
I one mango well cut-PART slowly eat-PST
'I cut the mango nicely and ate it slowly.' (Jayaseelan 1984 p624: 2a)

(45) */#ɲaan oru maaŋa vegam *muricc-ə* patukke **tinn-u**.
I one mango quickly cut-PART slowly eat-PST
'I cut the mango quickly and ate it slowly.'

This section has shown that both English absolutives and Malayalam Conjunctive Participles have pragmatic licensing requirements, can occur in a number of positions in the sentence, are semantically indeterminate with respect to temporality and gain their temporal interpretations based on the event type, world knowledge, and iconicity. However, unlike English absolutives, Malayalam Conjunctive

Participles cannot occur with Individual Level Predicates or multiple temporal adverbs.[8]

It is interesting that in both of these cases, when provided with the ungrammatical Conjunctive Participle Constructions, speakers correct the sentence by changing the Conjunctive Participle into an *–atə* nominalization. Swenson (2016a) argues that this form is nominalized above the Tense Phrase, which would then account for why this structure is compatible with different temporal adverbs while the Conjunctive Participle is not: there simply is no space for a unique temporal adverbial in Conjunctive Participle clauses because they are syntactically too small, roughly the size of a verb Phrase. This analysis fits with the facts presented at the beginning of the section, namely that no viewpoint aspect or tense marking can be added to Conjunctive Participles, while the verb Phrase-negation *–aa-*, which attaches directly to verbal roots, can be added.

One might object to this analysis by saying that, while temporal adverbs generally require a *'s* genitive marker to modify nouns, (46-a), they can sometimes modify nouns without this marker as the English example in (46-b) shows.

(46) a. Yesterday's/last week's mail was late.
b. The destruction of the city yesterday/last week/in 2012 was sad.

However, in Malayalam temporal adverbs cannot modify nouns directly, (47-a). Instead either the *-atə* nominalizer, created as will be argued in the next section from the relativizer and number and gender agreement, attaches to a dummy verb which appears with a relative participle marker, (47-b).

(47) a. *viiṯṯ-inte innale viiẓca bhayaanakam aayirunnu.
house-GEN yesterday fall horribleness be.PST
'The fall of the house yesterday was horrible.'
b. viiṯṯ-inte innale uṇṭaayirunn-a viiẓca bhayaanakam aayirunnu
house-GEN yesterday be.PST-REL fall horribleness be.PST
'The fall of the house yesterday was horrible.' [lit. 'The fall of the house which was yesterday was horrible.']

These facts provide support for the idea that Conjunctive Participles are simply too small to host temporal adverbs. The fact that Individual Level Predicates can-

8 In addition to these differences, it is worth noting that, while at least some speakers do accept benefactive subjects which do not appear in a non-subject position in the main clause in Conjunctive Participle Constructions, it is harder to force these readings than in English absolutives. The general feeling among speakers seems to be that the pragmatic restrictions on these constructions are stronger than in English absolutives.

not be used in Conjunctive Participle Constructions might also be a result of their small size. For example, depictives, which describe the state of a given argument of the verb during the duration of the event the verb denotes, (48-a), are not compatible with Individual Level Predicate adverbial adjuncts, (48-b).

(48) a. Mary ate the meat raw.
b. *Intelligent, Mary uses the elevator.

Depictives are generally assumed to be syntactically small (Williams 1980, Pylkkänen 2008). Perhaps a further connection between depictives and Malayalam Conjunctive Participles could be made in the future.

3.2.4 Interim summary

This section began by introducing Conjunctive Participles and the Conjunctive Participle Construction in South Asian languages. The first subsection summarized the controversy surrounding these forms and suggested that the traditional account of there being a Conjunctive Participle marker is on the right track. The second subsection showed that the Conjunctive Participle *–ə/i* marker is, in fact, neither a perfective nor a past tense marker. This opened the option that it is semantically vacuous. It further showed that Conjunctive Participles are structurally small, roughly verb Phrases, and that Conjunctive Participle Constructions are semantically underspecified for tense and viewpoint aspect and require the clauses involved to be pragmatically linked either via causation, manner or sequence of events. The third subsection argued for a modified version of a Stump (1985) style approach. It showed that both English absolutives and Malayalam Conjunctive Participles have pragmatic licensing requirements, can occur in a number of positions in the sentence and are semantically indeterminate with respect to temporality and gain their temporal interpretations based on the event type, world knowledge, and iconicity. However, unlike English absolutives, Malayalam Conjunctive Participles cannot occur with Individual Level Predicates or multiple temporal adverbs, possibly due to the structurally small nature of Malayalam Conjunctive Participles.

The data presented here argue against the tenseless account put forth by Amritavalli & Jayaseelan (2005, et. seq.) where there is a single *–u/i* in both Conjunctive Participles and main verbs which functions as a perfective marker. Conjunctive Participle Constructions with sequential readings with present or future interpretations have been one piece of evidence for their tenseless account. They argue that since the morpheme that appears on the Conjunctive Participle in these

constructions cannot be a past tense marker, given the non-past meaning of the whole sentence, it is a perfective marker. However, the facts presented in this section, namely that certain Conjunctive Participle Constructions allow simultaneous readings, proper containment readings or sequential readings, serves as evidence against their account. This suggests that Conjunctive Participle Constructions actually are not evidence for Malayalam being tenseless. The next section will examine a second non-finite construction that Amritavalli & Jayaseelan (2005, et seq) claim argues against a tenseless account for Malayalam, the *-atə* construction. Interestingly, this is the construction all speakers consulted responded must be used instead of a Conjunctive Participle when different temporal adverbs modify the non-finite and matrix clause.

3.3 The nominalization puzzle

The focus of this section is on what have traditionally been called gerunds in Malayalam, (49), due to their resemblance to English 'poss-ing' gerunds (Abney 1987).

(49) a. [avan var-unn-∅-atə] nann-aayi
he come-IPFV1-PRS-NMLZ good-is
'His coming is good.' (i. e. 'It is good that he is coming.') (Amritavalli & Jayaseelan 2005, p196: 30a)

b. [avan vann-(u)-atə] nann-aayi
he come-PST-NOMLZ good-is
'His having come is good.' (i. e. 'It is good that he came.') (Amritavalli 2014: 30)

3.3.1 Properties of English 'poss-ing' gerunds & Malayalam *-atə* nominalizations

Before getting into the Malayalam data, this section begins with a review of the puzzle raised by the prototypical gerund, what Abney (1987) calls the 'poss-ing' gerund in English. An example of this type of gerund can be found in the bolded part of (50). Like a verb, a 'poss-ing' gerund assigns accusative case to its object, (51-a), and is modified by an adverb (51-b). However, like a noun, it can occur in subject position, (52).

(50) **His coming** is good.

(51) a. Mary's meeting him…
b. Mary's eating slowly…

(52) I thought [that [Mary's meeting him] would bother you].

This is puzzling because it seems to suggest that a gerund is both a verb and a noun. To account for this, Abney (1987) argues that a gerund starts as a verb in the syntax but that, at a point further along in the syntax, it becomes a noun. For the 'poss-ing' gerund, the nominalization occurs above the Verb Phrase but before the Tense Phrase. In this way, a gerund can be a verb on the 'inside' but a noun on the 'outside.' One of the reasons that Abney argues that the nominalization occurs above the Verb Phrase for 'poss-ing' gerunds is that there must be a Verb Phrase with a Verb head to assign accusative case to the object of the gerund and for there to be adverbial modification. One of the arguments that nominalization occurs before Tense Phrase involves the case of the subject. In a simple sentence like the one in (53-a), the subject receives nominative case from the Tense head. In the gerund in (53-b), however, the subject gets genitive case and cannot have nominative case, (53-c). An explanation for this set of facts is that there is no Tense head to license the nominative case for the subject in gerunds.

(53) a. She met him.
b. Her meeting him…
c. *She meeting him…

Another reason that this analysis seems plausible is that gerunds are not inflected for tense, which is assumed to be located in the Tense head. Evidence for this can be seen in (54) where gerunds are compatible with past, present and future oriented adverbs. Note that the gerund form stays the same here, i. e. there is no morphological change to match the changing temporal interpretation.

(54) a. her meeting him yesterday…
b. her meeting him today…
c. her meeting him tomorrow…

The constructions in (49), like English 'poss-ing' and 'acc-ing' gerunds, have properties of both verbs and nouns. In Malayalam, as in English, verbs assign accusative case to their objects, (55-a). Nouns, on the other hand, cannot assign accusative case to their object: the object of the noun in (55-b) is marked with genitive case and not accusative case, (55-c). This is analogous to English where a nominal object must be a Preposition Phrase not a bare accusative, as the translations show.

(55) a. anu nitin-e nuɭɭ-i.
Anu nithin-ACC pinch-PST
'Anu pinched Nithin.'
b. nagarat-inte naaʃam
city-GEN destruction
'destruction of the city'
c. *nagarat-ine naaʃam
city-ACC destruction
'destruction of the city' [lit. 'destruction (the) city']

Malayalam verbs can also be modified by adverbs, (56-a), while nouns cannot be, (56-b). Instead they are modified by adjectives, (56-c).

(56) a. melle ɲaan kuɭikk-unnu-Ø.
slowly I bathe-IPFV1-PRS
'I bathe slowly.'
b. *melle kuɭi
slowly bath
'slow bath'
c. melle uɭɭ-a kuɭi
slowly be-REL bath
'slow bath'

Like verbs, *-atə* constructions case mark their objects with accusative case, (57-a), and are modified by adverbs, (57-b).

(57) a. vinu asha-ye kaanʈumuʈʈ-unn-Ø-atə...
Vinu Asha-ACC meet-IPFV1-PRS-NMLZ
'Vinu's meeting Asha...'
b. melle avan kaʐikk-unn-Ø-atə...
slowly he eating-IPFV1-PRS-NMLZ
'His eating slowly...'

They also look nominal in that they can be case marked themselves, (58-a), and can appear in the subject position of an embedded clause, (58-b).

(58) a. [ɲaan paraɲɲ-at]-ine avan etirtt-u
I say-PST-NMLZ-ACC he oppose-PST
'He opposed what I said.' (Asher & Kumari 1997 p43: 185)

b. [divaseena niint-unn-∅-atə aaroogyatt-innə nall-atə aaɳə
daily swim- IPFV1-PRS-NMLZ health-DAT good-NMLZ
ennə] ɲaan vicaaricc-u
be.PRS COMP I think-PST
'I thought that swimming daily is good for the health.' (cf. Asher & Kumari 1997 p42: 178)

3.3.2 Tense & the controversial status of *-atə* nominalizations in Malayalam

While, at first glance, *-atə* constructions might look like English gerunds, the data above present two challenges. First, examples (49), (55-a), (57) and (58) show that these constructions, unlike those in English, license a nominative subject not a genitive one as in 'poss-ing' gerunds or the accusative found in 'acc-ing' gerunds. Secondly, in all of the Malayalam *-atə* constructions, tense morphology appears, which is also different from both types of English gerunds. At this point, there are at least two options for how to interpret this difference between Malayalam and English.

One option is to keep the English-based analysis of what it means to be a gerund and question if tense morphology in Malayalam is really tense morphology and if case assignment happens the same way in Malayalam as it does in English. This option is the one taken up by Amritavalli & Jayaseelan (2005 et seq). They then claim that *-atə* 'gerunds' provide evidence for their claim that the traditional tense morphemes are actually aspect morphemes, located in the head of the Aspect Phrase. With this reanalysis in place, they can maintain that gerunds are nominalized above the Verb Phrase and before the Tense Phrase.

One might further argue their position by pointing out that nominative is the default case in Malayalam, as can be seen in a sentence like (59). Here there is no Tense head to license nominative case, yet it still appears. As such, a Tense head is not needed in Malayalam to license nominative case. The nominative subjects in *-atə* nominalizations could lack a Tense Phrase but be getting their nominative case via a default mechanism. This type of an account would raise a new question for English. Namely, in English accusative case is the default case, as can be seen in the gloss of (59). However, English 'poss-ing' gerunds do not have an accusative subject. If it is simply a matter of assigning the subject default case when there is no Tense head present, the lack of accusative subjects in English is puzzling.

(59) ɲaan viruupay-oo?
I ugly-Q
'Me ugly!?'

An alternate option would be to keep the traditional analysis for tense morphology in Malayalam and assume that case is assigned in both constructions in the same way and question if an Abney-style 'poss-ing' gerund account is the correct one for *-atə*. Given the arguments in chapter 2 and earlier in this section that Malayalam does have tense morphology and Tense Phrases, this seems like a promising path to explore. English gerunds have been argued to be nominalized before Tense Phrase since they lack tense morphology and cannot be marked with nominative case. By the same logic, it is possible to argue that Malayalam gerunds do, in fact, have a Tense Phrase present in the syntax since they have both tense morphology and nominative subjects. If this is so, then it is possible to say that nominalization takes place somewhere after, not before, the Tense Phrase.

The next section will first present an argument from adverbs that *-atə* constructions are still verbal at the level of the Tense Phrase. Then it will argue that the nominalization in these constructions potentially occurs at the Complementizer Phrase-level. The main evidence for this hypothesis comes from a comparison of *-atə* nominalizations and relative clauses in Malayalam.

3.3.3 *-atə* nominalizations as Complementizer Phrase-level nominalizations

3.3.3.1 Evidence from adverbs that *-atə* nominalizations are still verbs at the Tense Phrase-level

Additional language internal empirical evidence in favor of this option comes from adverbs. Recall that Abney (1987) argued that the nominalization occurs above the Verb Phrase for 'poss-ing' gerunds in order to account for the option of adverbial modification in these structures. Assuming that temporal adverbs like *innale* 'yesterday' are Tense Phrase-level adverbs, one could then argue that their presence in *-atə* signals that the nominalization must occur above the Tense Phrase, (60-a). Additionally, unlike in English 'poss-ing' gerunds, the morphology must change based on the tense indicated by the adverb, as (60) shows. This suggests that the morphology argued to be tense morphology in chapter 2 also functions as tense morphology in these nominalizations.

(60) a. [innale avan vann-∅-atə] nann-aayi
yesterday he come.PST-NMLZ good-is
'His coming yesterday was good.'

b. *[innale avan var-unn-∅-atə] nann-aayi
yesterday he come-IPFV1-PRS-NMLZ good-is
'His coming yesterday was good.'

c. [innu avan avan var-unn-∅-atə] nann-aayi
today he come-IPFV1-PRS-NMLZ good-is
'His coming today was good.'

Additionally, the data in (61)–(63) showed that Conjunctive Participles cannot host an independent temporal adverb, due to their small (vP) size. What is interesting is that when asked to translate the English sentences into Malayalam, all speakers consulted gave *-atə* constructions. By the same reasoning, one could argue that this lends support to the idea that *-atə* constructions have enough syntactic structure to host a temporal adverb, i. e. they contain a Tense Phrase.

(61) a. *innale gundakaɭ vinu-vine *tall-i* innə avan maricc-u.
Yesterday thugs Vinu-ACC beat-PART today he die-PST
'The thugs having beaten Vinu yesterday, he died today.'
b. innale gundakaɭ vinu-vine tall-iy-**atə** koɳʈə innə avan
Yesterday thugs Vinu-ACC beat-PST-NMLZ INST today he
maricc-u.
die-PST
'The thugs having beaten Vinu yesterday, he died today.'

(62) a. *taamasicc-ə *pooy-i* avan samaya-ttinnə ett-(uv)aan patti-yilla.
late go-PART he time-DAT reach-INF could-NEG
'Having left very late, he didn't arrive on time.'
b. taamasicc-ə poy-**atə** koɳʈə avan samaya-ttinnə ett-(uv)aan
late go.PST-NMLZ INST he time-DAT reach-INF
patti-yilla.
could-NEG
'Having left very late, he didn't arrive on time.'

(63) a. *kaz̨jɲɲa kollam avadhi-kkə varanasi-yil *pooy-i*,
last year holiday-DAT Varanasi-LOC go-PART
var-unn-∅-a avadhi-kkə uɳɳi tirupati-yil sandarʃikk-aan
come-IPFV1-PRS-REL holiday-DAT Unni Tirupati-LOC visit-INF
tiirumaanicc-u.
decide-PST
'Having visited Varanasi on holiday last year, Unni decided to visit Tirupati for the upcoming holiday.'

b. kaz̤ɲɲa kollam avadhi-kkə varanasi-yil poy-**atə** koɳʈə,
last year holiday-DAT Varanasi-LOC go.PST-NMLZ INST
var-unn-ø-a avadhi-kkə uɳɲi tirupati-yil sandarʃikk-aan
come-IPFV1-PRS-REL holiday-DAT Unni Tirupati-LOC visit-INF
tiirumaanicc-u
decide-PST
'Having visited Varanasi on holiday last year, Unni decided to visit Tirupati for the upcoming holiday.'

One might object to this theory by pointing out that temporal adverbs in English can modify nouns, (64).

(64) a. Yesterday's/last week's mail was late.
b. The destruction of the city yesterday/last week/in 2012 was sad.

However, as was pointed out above, this option is not possible in Malayalam, as (65-a), repeated from above, shows. In order for temporal adverbs to modify nouns in colloquial Malayalam, a relative clause structure must be used, (65-b).

(65) a. *viiʈʈ-inte innale viiz̤ca bhayaanakam aayirunnu.
house-GEN yesterday fall horribleness be.PST
'The fall of the house yesterday was horrible.'
b. [viiʈʈ-inte innale uɳʈaayirunn-a viiz̤ca] bhayaanakam
house-GEN yesterday be.PST-REL fall horribleness
aayirunnu
be.PST
'The fall of the house yesterday was horrible.' [lit. '[The fall of the house which was yesterday] was horrible .']

3.3.3.2 Evidence from relative clauses for Complementizer-level nominalization

The temporal adverb facts presented in the previous section provide a strong argument that nominalization occurs after the Tense Phrase in *-atə* constructions. This section will offer arguments based on a closer examination of the nominalizer morphology itself. This investigation begins with a summary of some basic facts about Malayalam relative clauses.

There are two types of relative clauses in Malayalam. The first type is formed by suffixing the relativizer morpheme *–a* to the end of the verbal complex. This can simply be a tense suffix as in (66-a)–(66-b) or a modal suffix like the debitive, (66-c). The relative clause precedes the head noun. This construction will be referred to here as a 'type I' relative clause.

(66) a. [joon kaɳ-unn-∅-a] kuʈʈi
John see-IPFV1-PRS-REL child
'The child whom John sees'' (Mathew 2007, p227: 1)
b. [joon kaɳʈ-a] kuʈʈi
John see.PST-REL child
'The child whom John saw.'
c. [kaaɳ-eeɳʈ-a] kaazʐca-kaɭ
see-DEB-REL sight-PL
'sights that (one) should see'(Asher & Kumari 1997, p327: 1619)

In the second type of relative clause, there is no head noun that the relative clause modifies. Instead, an agreement suffix for number and gender is added directly to the relativizer, (67). These relative clauses, instead of providing additional information about a particular noun, provide more general information about 'whoever' is doing the action.[9] These constructions will be referred to as 'type II' relative clauses.[10]

(67) a. var-unn-∅-a-van
come-IPFV1-PRS-REL-M.SG
'the person (MASC) who is coming'
b. var-unn-∅-a-vaɭ
come-IPFV1-PRE-REL-F.SG
'the person (FEM) who is coming'
c. var-unn-∅-a-var
come-IPFV1-PRS-REL-PL
'the people who is coming'
d. var-unn-∅-a-tə
come-IPFV1-PRS-REL-N.SG
'the person who is coming' (Asher & Kumari 1997, p328)

9 According to Asher & Kumari the neuter form is commonly also used to refer to human beings and to provide the example in (i). However, this is a clefted question and so may not be the best example, as examples further down suggest.

(i) aa var-unn-∅-a-tə aarə aaɳə
that come-IPFV1-PRS-REL-N.SG who be.PRS
'Who is that person who is coming?' (Asher & Kumari 1997, p328: 1624)

10 Past tense forms can also have this done to them: i. e. *vann-a-van* 'the person (M) who came' etc.

These constructions parallel the construction of third person pronouns: *a/i-van* 'he', *a/i-vaḷ* 'she', *a/i-var* 'they', *a/i-tə* 'it' are created from distal/proximal markers plus the number and gender agreement morphemes (Mathew 2007, p232: fn4). The relative marker *–a* is also derived from the proto-Dravidian distal marker *–aa* (Menon 2013).

The critical point to note here is that the form in (67-d) looks identical to the *-atə* form seen above. Based on this similarity, one can hypothesize that the *–atə* morphology that was previously glossed as a nominalizer is in fact the relativizer plus number and person agreement. This has precedence in work such as Raja Raja Varma (1917) and Mathew (2007). Mathew argues that the relativizer morpheme, *-a*, has interpretable, unvalued phi-features based on the fact that it must always occur with either a head noun or an agreement suffix, (68). She takes this to mean that there is, in fact, only one type of relative clause and, in type II relative clauses, the agreement morpheme is playing the same role as the head noun in type I relative clauses.

(68) a. kaɳ-unn-∅-a kuṭṭi
see-IPFV1-PRS-REL child
'the child who sees'
b. kaɳ-unn-∅-a-van
see-IPFV1-PRS-REL-M.SG
'one (MASC) who sees'
c. kaɳ-unn-∅-PRS-a *(kuṭṭi)
see-IPFV1-REL child
(Mathew 2007, p230:9)

Several additional pieces of evidence for the reanalysis of the 'nominalizer' morpheme into the relativizer plus number and gender agreement are as follows. The first additional piece of evidence for this bifurcation is the fact that the agreement component of the nominalizer morpheme changes with the type of agreement used in the clause. Examples (69)–(72) show that when the nominalized clause can be replaced with a neuter pronoun, the neuter suffix *–tə* is required. On the other hand, when the nominalized clause can be replaced with an animate, here masculine, pronoun, an animate pronoun is required. The sentences in (69)–(70)[11]

11 It is a bit puzzling why, with the predicate in (70), it is not possible to have masculine agreement in (a) given the data in (i).

(i) avan nann-aayi.
He good-be.PST
'He became good.'

show nominalized clauses in subject position, while those in (71)–(72) show them in direct object position.

(69) a. [newspaper konʈuvar-unn-∅-a-van] uʈane var-um.
newspaper bring-IPFV1-PRS-REL-M.SG soon come-FUT
'The guy bringing the newspaper will come soon.'
b. *[newspaper konʈuvar-unn-∅-a-tə] uʈane var-um.
newspaper bring-IPFV1-PRS-REL-N.SG soon come-FUT
'The person bringing the newspaper will come soon.'
c. [newspaper konʈuvar-unn-∅-a-yaal] uʈane var-um.
newspaper bring-IPFV1-PRS-REL-N.SG-INST soon come-FUT
'The thing bringing the newspaper will come soon.' [in a world where robots deliver the paper]

(70) a. *[newspaper konʈuvar-unn-∅-a-van] nann-aayi.
newspaper bring-IPFV1-PRS-REL-M.SG good-is
'The guy bring the newspaper has become good'
b. [newspaper konʈuvar-unn-∅-a-tə] nann-aayi.
newspaper bring-IPFV1-PRS-REL-N.SG good-is
'Bringing the newspaper is good.'

(71) a. [(vinu) asha-ye sneehikk-unn-∅-a-tə] ɲaan etirtt-u.
Vinu Asha-ACC love-IPFV1-PRS-REL-N.SG I oppose-PST
'I opposed Vinu's loving Asha.'
b. [(*vinu) asha-ye sneehikk-unn-∅-a-van]-e ɲaan etirtt-u.
Vinu Asha-ACC love-IPFV1-PRS-REL-M.SG-ACC I oppose-PST
'I opposed the person who loves Asha loving Asha.' #'I opposed Vinu's loving Asha.'

(72) a. Vinu [newspaper konʈuvar-unn-∅-a-van]-e aʈikk-um.
Vinu newspaper bring-IPFV1-PRS-REL-M.SG-ACC beat-FUT
'Vinu will beat the guy bringing the newspaper.'
b. *Vinu [newspaper konʈuvar-unn-∅-a-tə]-e aʈikk-um.
Vinu newspaper bring-IPFV1-PRS-REL-N.SG-ACC beat-FUT
'Vinu will beat the person bringing the newspaper.'

The sentences in (73)–(74)[12] show the same pattern holds when nominalized clauses are in indirect object position: the agreement ending matches the type of pronoun that could be substituted for the clause.

12 Since the dative ending and the neuter singular ending are the same it is difficult to say if the *-ata* clause is case marking or not in (74-b).

(73) a. ɲaan [avan var-unn-Ø-a-tə] calendar-il eẓut-i.
I he come-IPFV1-PRS-REL-N.SG calendar-LOC write-PST
'I put his coming on the calendar.'
b. *ɲaan [(avan) var-unn-Ø-a-van] calendar-il eẓut-i.
I he come-IPFV1-PRS-REL-M.SG calendar-LOC write-PST
'I put his coming on the calendar.'

(74) a. Vinu [newspaper konṯuvar-unn-Ø-a-van]-ə pustakam
Vinu newspaper bring-IPFV1-PRS-REL-M.SG-DAT book
koṯukk-um
give-FUT
'Vinu will give a book to the guy who is bringing the newspaper.'
b. *Vinu [newspaper konṯuvar-unn-Ø-a-t-]ə pustakam
Vinu newspaper bring-IPFV1-PRS-REL-N.SG-DAT book
koṯukk-um
give-FUT
'Vinu will give a book to the person who is bringing the newspaper.'

If the nominalizer morpheme is really the relative marker plus the same agreement morphemes used in type II relative clauses, then the pattern in (69)–(74) is exactly as one would expect.

Another piece of evidence in favor of a relative clause plus agreement analysis of nominalized clauses is the morphological shape of the 'being' verb in the nominalization, (75). The matrix verb form of the verb in (75-a) is given in (76). Here the form is *unṯə*. In (75-a) the form changes and is the same as the form used in relative clauses, (75-b).

(75) a. [nii terrə ceyt-iṯṯ-uḷḷ-a-tə...]
you wrong do.PART-iṯṯ-PRS-REL-N.SG
'...that you have done wrong.' (Asher & Kumari 1997, p51: 243b)
b. aviṯe uḷḷ-a kuṭṭi-kaḷ
there be-REL child-PL
'the children who are there' (Asher & Kumari 1997, p337)

(76) nii terrə ceyt-iṯṯ-unṯə.
you wrong do.PART-iṯṯ-be.PRS
'You have done wrong.'

A third piece of evidence for a bifurcated account comes from examples (77)–(82). Here both types of relative clauses and *-atə* constructions pattern the same way with respect to tense and negation. Example (77) shows that the relativizer in both type I and type II relative clauses, as well as the 'nominalizer' morpheme attach

to the null present tense morpheme that goes with the imperfective aspect morpheme when no tense auxiliary is there.

(77) a. joon kaɳ-unn-∅-a kuʈʈi
John see-IPFV1-PRS-REL child
'The child whom John sees' (Mathew 2007, p227, 1)

b. var-unn-∅-a-van
come-IPFV1-PRES-REL-M.SG
'the person (MASC) who is coming'

c. [nii kooʐa vaaŋŋ-unn-∅-a-tə] ellaavarum ariy-um
you bribe take-IPFV1-PRS-REL-N.SG all know-FUT
'Everyone knows that you take bribes.'

The data in (78) shows us that the relativizer in both types of relative clauses and the 'nominalizer' morpheme attach to past tense verbs.

(78) a. joon kaɳʈ-a kuʈʈi
John see.PST-REL child
'The child whom John saw'

b. vann-a-van
come.PST-REL-M.SG
'the person (MASC) who came'

c. [nii kooʐa vaaŋŋ-iy-a-tə] ellaavarum ariy-um
you bribe take-PST- REL-N.SG all know-FUT
'Everyone knows that you took bribes.' (Asher & Kumari 1997, p51: 239)

The relativizer cannot attach to the future morpheme in either type of relative clause. The same facts hold for the 'nominalizer' morpheme.

(79) a. *[ɲaan kaaɳ-um-a] kuʈʈi
I see-FUT-REL child
'(the) child that I will see'(Jayaseelan 2014: 9, p195)

b. *var-um-a-van
come-FUT-REL-M.SG
'the one who is coming'

c. *[nii kooʐa vaaŋŋ-um-a-tə] ellaavarum ariy-um
you bribe take-FUT- REL-N.SG all know-FUT
'Everyone knows that you will take bribes.'

Instead, the periphrastic future composed from the infinitive plus the present tense of the verb *pook-* 'go' must be used in both types of relative clauses and in the 'nominalized' form, (80).

(80) a. john kaaɳ-aan pook-unn-Ø-a kuʈʈi
John see-INF go-IPFV1-PRS-REL child
'(the) child John is going to see'
b. var-aan pook-unnu-Ø-a-van
come-INF go-IPFV1–PRS-REL-M.SG
'The one who is going to come.'
c. [nii kooẓa vaaŋŋaan pook-unn-Ø-a-tə] ellaavarum ariy-um.
you bribe take-INF go-IMPFV-PRES-REL-N.SG all know-FUT
'Everyone knows that you are going to take bribes.'

Turning now to negation, example (81) shows that neither type I nor II relative clauses nor the 'nominalizer' can be used with the *illa* form of negation.

(81) a. *ɲaan kaaɳʈ-a illa kuʈʈi.
I see.PST-REL NEG child
'the child that I didn't see' (Jayaseelan 2014: 23, p200)
b. *van-a-van illa
come.PST-REL-M.SG NEG
'the one who did not come'
c. *[nii kooẓa vaaŋŋ-unn-Ø-a-tə illa] ellaavarum ariy-um
you bribe take-IPFV1-PRS-REL-N.SG NEG all know-FUT
'Everyone knows that you do not take bribes.'

Instead, the *–aa-* negation must be used in both type I and II relative clauses and 'nominalized' forms, (82).

(82) a. ɲaan kaaɳ-aatt-a kuʈʈi.
I see-NEG-REL child
'the child that I don't/didn't/will not see'
b. var-aatt-a-van
come-NEG-REL-M.SG
'the one who is/was/will not (be) coming.'
c. [nii kooẓa vaaŋŋ-aatt-a-tə] ellaavarum ariy-um
you bribe take-NEG- REL-N.SG all know-FUT
'Everyone knows that you do/did/will not take bribes.'

This identical pattern with respect to tense and negation suggests that what have been called 'nominalized' clauses are, in fact, simply relative clause structures with neuter agreement. In sum, this section has presented arguments in favor of bifurcating the 'nominalizer' morpheme in Malayalam into the relative marker and an agreement suffix using evidence from agreement, morphological shape and tense and negation. One plausible account for these constructions is that they

are headless relative clauses where the relativizer *–a* spells out a Complementizer head. Another possibility would be that they involve adding a pronominal form which nominalizes clauses at a level higher than the Tense Phrase. Either conclusion is not unexpected given that nominalization should be able to occur at any of the increased number of functional projections now assumed. Also, in general, Malayalam uses relative clauses for more purposes than English does. One example of this comes from adjective formation.

Anandan (1985), Hany Babu (1997), Mathew (2007), Menon and Pancheva (2014), Menon (2016), a. o. have pointed out that most, if not all, adjectives in Malayalam are types of relative clauses. In this way, the use of relative clause structure for purposes beyond English-style relative clauses seems to be a general property of Malayalam. These adjectives have the same type of distribution with respect to the head noun as relative clauses do. If the head noun follows the adjective, no agreement suffix is required, (83-a). However, if the noun being modified precedes the adjective or is absent an agreement suffix is required or the phrase is ungrammatical, (83-b)–(83-f).

(83) a. itə valiy-a miin aaɳə
this big-REL fish be.PRS
'this is a big fish'

b. miin valiy-a-tə aaɳə
fish big-REL-N.SG be.PRS
'fish is big'

c. vinu valiy-a-van aaɳə
Vinu big-REL-M.SG be.PRS
'Vinu is big'

d. *miin valiy-a aaɳə
fish big-REL be.PRS
'fish is big' (Mathew 2007, p231: 13)

e. *valiy-a aaɳə
big-REL be.PRS
'It is big.'

f. valiy-a-tə aaɳə
big-REL-M.SG be.PRS
'It is big.'

Observe that the *-atə* constructions in Malayalam do not have any noun following them that they are modifying. This explains why they must have an agreement suffix, (84-b). Notice that in the English translation the word 'what' is used. However, no such word is present in the Malayalam sentence in (84-a). Instead, it is the agreement that is playing this role in Malayalam.

(84) a. [ɲaan paraɲɲ-a-t]-ine avan etirtt-u
I say.PST-REL.NEUT.SG-ACC he oppose-PST
'He opposed what I said.'
b. *[ɲaan paraɲɲ-a]-(y)ine avan etirtt-u
I say.PST-REL-ACC he oppose-PST
'He opposed what I said.'

In conclusion, this section has shown that nominalized clauses, relative clauses and adjectives all require number and gender agreement morphology to be attached to the relativizer when they do not precede the noun they modify. These constructions could be headless relative clauses where the relativizer *–a* spells out a Complementizer head, or they could simply involve adding a pronominal form which nominalizes clauses at a level higher than the Tense Phrase. As such these nominalizations say nothing about whether or not there is a Tense Phrase in Malayalam.

3.4 Conclusion

This chapter explored two non-finite constructions that Amritavalli & Jayaseelan (2005) claim provide arguments for analyzing Malayalam as a tenseless language. The main conclusion of this chapter, though, is that these forms actually support the tensed analysis presented in chapter 2. Conjunctive Participles have no [TENSE] or [VIEWPOINT ASPECT] features and no Aspect or Tense Phrase and instead gain their semantics via the mechanisms proposed in Stump (1985). The fact that in (85) simultaneous, successive and proper containment interpretations are all possible, depending on how the event of door opening is conceived, argues strongly for temporal underspecification and argues against an account where *–ə/i* is a perfective marker.

(85) katakə turakunna ʃabdam *keeʈʈ-ə* annamma **uɳarnn-u**.
door opening noise hear-PART Annamma wake.up-PST
'Annamma woke up on hearing the sound of the door being opened.'
(Gopalakrishnan 1985 p17: 3)

Tests from temporal adverbs and relative clause formation argued that *-atə* nominalizations involve tense morphology and nominalization above the Tense Phrase, potentially at the Complementizer Phrase-level.

This chapter concludes with a brief discussion of cross-linguistic variation in non-finite forms and their implications for Universal Grammar. The results of this chapter support the idea in Abney (1987) that differences in the amount and

type of syntactic structure present in a non-finite construction can account for variation in the properties of non-finite forms. The particular constraints on the syntax and type of morphology in a given language can then account for cross-linguistic variation. Conjunctive Participles were argued to be structurally small (vPs) while English Stump (1985)-style absolutives are generally assumed to be structurally larger. This syntactic difference can account for the different behavior of the two constructions with respect to the temporal adverb and Individual Level Predicate data.

This data, along with data from relative clause formation, also suggested that *-atə* nominalization occurs in a higher place than English nominalizations do. Borsley and Kornfilt (2000) and Baker (2011) provide evidence from Turkish (Turkic, Turkey), Tabasaran (Northeast Caucasian, Republic of Dagestan), Basque (Isolate, Spain), Polish (Slavic, Poland), Greek (Hellenic, Greece), Georgian (Kartvelian, Georgia), Kabardian (Northwest Caucasian, Kabardino-Balkaria/Karachay-Cherkessia Republics), Spanish (Italic), and Sakha (Turkic, Sakha Republic) that languages can nominalize in a wider and higher range of locations than just the places English nominalization occurs. They point out that, with the expanded number of heads often assumed in the functional domain, this is, in fact, predicted. Some examples of Complementizer Level nominalization from Polish, Kabaridian and Sakha follow.

(86) Jan oznajmil [to, ze Maria zmienia prace]. (Polish)
Jan announced [that COMP Maria is-changing job
'Jan announced that Mary is changing her job.' (Borsley & Kornfilt 2000: p113: 45)

(87) [a-be txel psens"ew zer-i-txe-nu-r]
he-ERG book quickly PTCP-SBJ3SG-write-FUT-ABS
z-je-?-a-s'. (Kabardian)
PreV-SBJ3SG-say-PST-ASSERT
'He said that he will write the book quickly.' (Borsley & Kornfilt 2000: p116: 64)

(88) Sardaana bügün Aisen kel-er dien ihit-te. (Sakha)
Sardaana today Aisen come-AOR.3sS that hear-PST.3sS
'Sardaana heard that Aisen is coming today.' (Baker 2011 p1165: 1a)

These facts raise a number of questions about what it means to be finite or non-finite, which is, in general, a poorly understood distinction. One of the reasons for this is it is not clear what the hallmarks of a finite structure are cross-linguistically. Work by Nikolaeva (2010) and McFadden and Sundaresan (2014) highlights this

difficulty. In Dravidian, a common standard for diagnosing finiteness has been the type of negation used. This chapter closes by questioning this diagnostic.

3.4.1 Open issue: 'Finite' & 'non-finite' negation

Commonly, Dravidian languages are viewed as having two types of negation (Asher & Kumari 1997, Amritavalli & Jayaseelan 2005, Amritavalli 2014, a. o.): a 'finite' one and a 'non-finite' one. The 'finite' negation, *illa* in Malayalam, gets its name from the fact that it occurs with main verbs, (89). In infinitival constructions, this negation cannot be used, (90-a). Instead the 'non-finite' *–aa-* negation must be used, (90-b). This 'non-finite' negation cannot be used to negate main verbs, (91).[13]

(89) a. avan var-unn(u)-∅ illa.
He come-IPFV1-PRS NEG
'He does not come.'

b. avan vann-(u) illa.
He come-PST NEG
'He did not come.' (Amritavalli & Jayaseelan 2005: 4, p195)

(90) a. *avan [PRO niinth-uvaan illa] nookk-i.
He swim-INF NEG look-PST (i. e. tried)
'He tried not to swim.'

b. avan [PRO ninth-aa-tte irikk-uvaan] nookk-i.
He swim-NEG-AUG irikk-INF look-PST (i. e. tried)
'He tried not to swim.' (Amritavalli & Jayaseelan 2005: 31, 32b, p196)

13 As Jayaseelan (2004) notes, the nature of the augment in (91) is poorly understood. Examples such as (i-a), where *–aa-* appears without *–tte*, show that the negation is just *–aa-* not *–aatte*.

(i) a. avann-ə jooli kiʈʈ-aa-ɲɲ-atə albhutam aaɳə
He-DAT job get-NEG-??-NMLZ surprise be.PRS
'It is suprising that he didn't get the job.' (Asher & Kumari 1997 p16: 74b)

b. ellaavarum var-aa-tt-irunn-aal…
all come-NEG-AUG-irikk-COND
'If no one comes…' (Mathew 2014 p22: 11–12)

It is possible that the *–tt-* may be appearing for phonological reasons, i. e. to prevent hiatus. Note that the *–e* does not always occur with the *–tt-*, for example in (i-b).

(91) a. *avan var-aa(-tte)
he come-NEG-AUG
'He does not come.'
b. *avan var-aa-tt-unnu-∅
he come-NEG-AUG-IPFV1-PRS
'He does not come.'
c. *avan var-unn(u)-∅-aa(-tte)
he come-IPFV1-PRS-NEG-AUG
'He does not come.'

Example (92) shows that the *–aa-* versus *illa* distinction cannot be accounted for in terms of *illa* being matrix negation while *–aa-* is embedded negation. This example shows that *illa* can occur in embedded clauses.

(92) [asha raaman-e premikk-unn(u)-∅ illa ennə] uɳɳi paraɲɲ-u
Asha Raman-ACC love-IPFV1-PRS NEG COMP Unni say-PST
'Unni said that Asha does not love Raman.'

3.4.1.1 Problems for a finite based account

In general, 'finiteness' is not well understood. It is defined in a variety of ways by different researchers (Nikolaeva 2010, McFadden and Sundaresan 2014, a. o.). For the purpose of describing the negation facts, the Dravidian literature talks in terms of 'finite' versus 'non-finite' forms. For example, Amritavalli (2014) argues that when the tense morpheme shifts from the lexical verb to the dummy verb *irikk-* 'sit', as in (93-b)/(94-b), the lexical verb is demoted to a participle (a 'non-finite' form). As such, this participle requires 'non-finite' *–aa-* negation, while the dummy 'main/finite' verb requires 'finite' *illa* negation, (94-b). One weakness of this account is that it does not explain why the dummy verb occurs. Example (95) shows that no such verb is needed in the positive counterparts of (93-b)–(94-b).

(93) a. rajan onnum paraɲɲ-illa.
Rajan nothing said.PST-NEG
'Rajan said nothing.'
b. rajan onnum paray-aa-tte irunn-u
Rajan nothing say-NEG-AUG irikk-PST
'Rajan did not say anything.' (Mathew 2014 p23: 14-17)

(94) a. *avan var-unn(u)-∅ illa illa
he come-IPFV1-PRES NEG NEG
'He doesn't not come.'

b. avan var-aa-tte irukk-unn(u)-Ø illa
he come-NEG-AUG irikk-IPFV1-PRS NEG
'He doesn't not come.' (Amritavalli 2014 p299: 24)

(95) a. rajan entoo paraɲɲ-u
Rajan something say-PAST
'Rajan said something.'
b. avan vann-u
he come-PST
'He came.'

If the view that finiteness is about clauses not about forms is adopted, then (93-b) shows that *–aa-* negation can, in fact, occur in a main 'finite' clause just like *illa* can, (93-b). At this point, one might wonder if the negated lexical verb could be constituting its own separate, 'non-finite' clause. If this were so, then it might suggest that *–aa-* can, in fact, only be used in 'non-finite' clauses.

However, a biclausal analysis for the *–aa-* negation constructions in (93)–(94) can be ruled out through binding tests. Malayalam has a form *taan*, which disallows co-argument binding, (96-a).[14] The antecedent must be either separated from *taan* by a clause boundary, (96-b), or a Preposition Phrase or Determiner Phrase boundary, (96-c)–(96-d). For co-argument binding, another form, *tanne tanne*, is used, (96-e). Example (97) shows that only *tanne tanne* is allowed when there is *–aa-* negation on a main verb. This suggests that the *–aa-* negation participle and the dummy verb, *irikk-* 'sit', form a single clause.

(96) a. *anu$_i$ tan-ne$_{i/*j}$ nuḷḷ-i.
Anu self-ACC pinch-PST
'Anu$_i$ pinched herself$_{i/*j}$.'
b. [uɳɲi$_j$ tan-ne$_{i/*j/*k}$ premikk-unn(u)-Ø ennə] anu$_i$ paraɲɲ-u.
Unni self-ACC love-IPFV1-PRS COMP Anu say-PST
'Anu$_i$ said that Unni$_j$ loves {her$_{i/*k}$, *himself$_j$}.'
c. anu$_i$ [tan-te$_{i/*j}$ kuṭṭi-ye] nuḷḷ-i.
Anu self-GEN child-ACC pinch-PST
'Anu$_i$ pinched her$_{i/*j}$ child.'
d. anu$_i$ [tan-te$_{i/*j}$ mukaḷil] oru vimaanam kaṇṭ-u.
Anu self-GEN above one plane see-PST
'Anu$_i$ saw a plane above herself$_{i/*j}$.'

14 See Swenson and Marty (under revision) for more details about the behavior of *taan*.

e. anu$_i$ tan-ne tanne$_i$ nuḷḷ-i.
Anu self-ACC EMP pinch-PST
'Anu$_i$ pinched herself$_i$.'

(97) a. *avan$_i$ tan-ne$_{i/*j}$ aṭikk-aa-tte irunn(-u)
he self-ACC beat-NEG-AUG irikk-PST
'He$_i$ didn't beat himself$_{i/*j}$.'

b. avan$_i$ tan-ne tanne$_i$ aṭikk-aa-tte irunn-u
he self-ACC EMP beat-NEG-AUG irikk-PST
'He$_i$ didn't beat himself$_i$.'

Such a clausal definition of finiteness seems more fitting if it is assumed that the dummy verb *irikk-* 'sit' is functioning as a type of 'do' support and that 'do' support occurs when Tense and the inflectional head with which it agrees are not immediately local (Bjorkman 2011). In other words, if this account is right, 'do' support should only occur when something prevents the verb from agreeing with the Tense head. In the case of (93-b), (94-b), and (97-b) that should be the *–aa-* negation.

The presence of this negation would then trigger 'do' support. In this system, the dummy verb appears because the presence of negation causes the lexical verb to be unable to agree with Tense. The negation does not appear because the lexical verb has already been demoted by the presence of the dummy verb, as in Amritavalli's system. Given that other languages with 'do' support that have been studied do not have multiple types of negation like Malayalam, there is, of course, nothing in any of the existing analyses for 'do' support that tells what type of negation should occur where. Providing an account for these facts is a task for future work. See chapter 5 for some further discussion of 'do' support cross-linguistically.

The takeaway point for now is the following: example (90) shows that 'non-finite' clauses only allow *–aa-* negation. However, the examples in (93) show that main verb 'finite' clauses can have both *illa* and *–aa-* negation, albeit with a slight meaning difference according to Mathew's translations.[15] Given these facts, 'finiteness' does not seem to be the governing factor in determining the use of negation in Malayalam.

15 A reviewer points out that the contrast here is not very clear. Exploring the subtleties in meaning is left to further research.

3.4.1.2 Possible alternate analysis

Based on the data and discussion so far, it seems like a new analysis that is not defined in terms of the poorly understood concept of 'finiteness' is in order. An alternative approach might rest on *–aa-* and *illa* having different scope restrictions. One possibility would be to understand *-aa-* negation as low level negation and *illa* negation as higher level negation. Mathew (2014), in fact, has already argued that *–aa-* in Malayalam is not 'non-finite' negation, but verb Phrase-level negation based on evidence from quantifier scope and Negative Polarity Item licensing. The sentences in (98) show that *illa* scopes over subject quantifiers, while *–aa-* scopes under them, (99).[16]

(98) Neg>Subj *Subj>Neg (*illa*>*ellaavarum* **ellaavarum*>*illa*)

a. ellaavarum vann-illa
all come.PST-NEG
'Not all came.'

b. ellaavarum vann-ill-eŋkil...
all come.PAST-NEG-COND
'If not all of them come...'

Subj>Neg (*ellaavarum*>*-aa-*)

(99) ellaavarum var-aa-tt-irunn-aal..
all come-NEG-AUG-irikk.PART-COND
'If no one comes..' (Mathew 2014 p22: 11–12)

These data suggest that the subject is higher than *–aa-* but lower than *illa*. This is supported by data from Negative Polarity Items, such as *aarum* and *onnum*,[17]

16 A reviewer points out that the scope properties in (i) are the same as the *-aa-* negation.

(i) ellaavarum viḻicc-ill-eŋkil...
all call-NEG-COND
'If not all of them called...'

17 When the negation is removed, the sentences in (i) are unacceptable, as expected with Negative Polarity Items.

(i) a. *aarum uttaram paraɲɲ-u.
nobody answer say-PST
'Nobody said the answer.'

b. *rajan onnum paraɲɲ-u.
Rajan nothing said-PST
'Rajan said nothing.'

where we see that subject and object Negative Polarity Items are licensed with *illa*, (100) and that object, (102-a),[18] but not subject, (101), Negative Polarity Items are licensed with –*aa*-.

(100) *illa*>Subj/Obj NPI

a. aarum uttaram paraɲɲ-illa.
Nobody answer said.PST-NEG
'Nobody said the answer.'

b. rajan onnum paraɲɲ-illa.
Rajan nothing said.PST-NEG
'Rajan said nothing.'

(101) *-*aa*->Subj NPI

a. *aarum uttaram paray-aa-tt-irunn-u
no.one answer say-NEG-AUG-irikk-PST
'No one said the answer.'

b. *uttaram aarum paray-aa-tt-irunn-u
answer none say-NEG-AUG-irikk-PST
'No one said the answer.'

(102) -*aa*->Object NPI (in its scope)

a. rajan onnum paray-aa-tt-irunn-u
Rajan nothing say-NEG-AUG-irikk-PST
'Rajan did not say anything.' (Mathew 2014 p23: 14–17)

b. *onnum rajan paray-aa-tt-irunn-u
nothing Rajan say-NEG-AUG-irikk-PST
'Rajan did not say anything.' (Madhavan p. c.)

illa > scrambled Obj NPI

(103) onnum rajan paraɲɲ(-u)-illa
nothing Rajan say-PST-NEG
'Rajan said nothing.' (Madhavan p. c.)

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18 A reviewer points out that (i) does not seem that bad to him/her.

(i) aarum onnum paray-aa-tt-irunn-u
Nobody nothing say-NEG-AUG-irikk-PST
'Nobody did not say anything.'

Example (102-b) shows that, with *-aa-* negation, when an object Negative Polarity Item is scrambled above the subject, the sentence becomes bad, suggesting that the Negative Polarity Item is no longer in the scope of *–-aa-*. However, when *illa* is used, (103), the sentence is good, suggesting that the scrambled object is in the scope of the negation.

Based on the data in (100)–(102-a) and the fact that *–aa-* can only attach directly to verbal roots, Mathew concludes that *–aa-* is verb Phrase level negation. As such, *-aa-* does not seem to be 'non-finite' negation but, rather, simply verb Phrase-level negation (which is therefore 'non-finite'). One advantage of such an analysis is that if the locus of *–aa-* negation is a Negation Phrase just above the verb Phrase, then this would create the type of intervention environment that is predicted to trigger 'do' support, as discussed above. Regarding the subject, which the quantifier scope data showed was higher than *–aa-*, Mathew concludes that it moves outside of the verb Phrase but to a position lower than *illa*. Taking the next natural step, which Mathew does not take, one could investigate the following possibility: if the subject is in the Specifier of the Tense Phrase, and *illa* is higher than the subject, *illa* selects for something larger than a Tense Phrase. As such, it could not appear with infinitives because they could not be structurally large enough. Given that finiteness is frequently linked with higher positions such as Tense Phrase or Complementizer Phrase, this could explain why it has been called 'finite' negation.

One might try to account for the facts in (102) and (103) in the following way. Asher & Kumari (1997), Mathew (2014) and Swenson et al. (2015) argue that the sentence initial position is a topic position. Assuming anti-symmetry Kayne (1994), Jayaseelan (2001) argues that Malayalam needs a Topic Phrase directly above the verb Phrase to account for different possible word orders. If Jayaseelan's account is adopted, and it is assumed that the subject is in Spec/verb Phrase, then the object in (103) could simply be outside the verb Phrase but lower than Tense Phrase. Alternatively, if it is assumed, following Rizzi (1997), that there are Topic Phrases in the expanded Complementizer Phrase-level, then this data could be showing that the object is outside of the Tense Phrase in a Complementizer Phrase-level Topic Phrase and that *illa* is located higher than this Topic Phrase. The fact that *illa* can scope over subjects but that the verb Phrase-level negation *–aa-* cannot suggests that subjects move outside of the verb Phrase. This suggests that the second option assuming a Complementizer Phrase-level Topic Phrase is the right one. If so, this suggests that *illa* is, indeed, very high-level negation.

An account which assumes that the type of negation is linked with the respective clausal projections present would nicely handle the Conjunctive/Adverbial Participle data. Example (104-a) shows that the 'finite' negation, *illa*, cannot be used with Conjunctive/Adverbial Participles. Instead the 'non-finite' negation,

-aa-, is required, (104-b). Note that *–aa-* cannot be used by itself with a main verb, (104-d); only *illa* is allowed, (104-c).

(104) a. *avan onnum paraɲɲ-illa pooy-i.
he anything say.PART-NEG go-PST
'He left without saying anything.'
b. avan onnum paray-aa-tte pooy-i.
he anything say-NEG-AUG go-PST
'He left without saying anything.'
c. avan onnum paraɲɲ-illa.
he anything say.PST-NEG
'He did not say anything.' (Jayaseelan 2004 p77: 36–38)
d. *avan onnum paray-aa-(tte).
he anything say-NEG-AUG
'He did not say anything.'

Since Conjunctive/Adverbial Participles are vPs, it naturally follows that *illa* cannot be used with them and that the vP-level negation *–aa-* is required. However, such a story is more difficult with *–atə* nominalizations, which have also been argued to be non-finite based on the distribution of negation in them.

(105) a. *[nii kooẓa vaaŋŋ-unn-∅-atə illa] ellaavarum ariy-um
you bribe take-IPFV1-NMLZ NEG all know-GEN
'Everyone knows that you do not take bribes.'
b. [nii kooẓa vaang-aa-tt-athu] ellaavarum ariy-um
you bribe take-NEG-AUG-NMLZ all know-GEN
'Everyone knows that you do/did/will not take bribes.'

However, these constructions were argued to be larger than Tense Phrases, potentially nominalized at the Complementizer level. One would then have to say that *illa* selects for something larger than this nominalization. While this is possible, how exactly it would be done in a way that is not highly stipulatory is not clear-cut. Another possibility is that this high *illa* only occurs with verbs and that the nominalization occurs before the verb reaches the level where *illa* is.

3.4.1.3 Interaction of negation & modals

Another problem for the alternate suggestion comes from the future. Unlike in the present and past tenses, there seems to be a co-occurrence restriction on *illa* and the future marker, (106-a). The negation of the future is accomplished by either the *–uka* marker plus *illa* or just the verbal root plus *illa*, (106-b)–(106-c).

(106) a. *john var-um illa
John come-FUT NEG
'John will not come.'
b. john var-uka illa
John come-IPFV2 NEG
'John will not come.'
c. john var-illa
John come-NEG
'John will not come.' (Jayaseelan 2014 p198–199: 18–20)

This pattern depends on the type of verb. In the case of stative verbs, the bare verb stem can also be used for the negation of the present and the future, (107).

(107) a. enikkə ariy-illa.
I.DAT know-NEG
'I don't know.'
b. avaɾ-ə nammaɭ-e kaɳʈ-aal ariy-illa
they-DAT we(INCL)-ACC see-COND know-NEG
'They won't know us if they see us.'

This complementary distribution between *–um* and *illa* mirrors that of modals, which cannot be negated by *illa* but, instead, have their own negative forms.

(108) a. enikkə veeɳam
I.DAT want
'I want (it).'
b. *enikkə veeɳam-illa
I.DAT want-NEG
'I don't want (it).'
c. enikkə veeɳʈa
I.DAT want.NEG
'I don't want (it).'

Also like modals *-um* can be followed by the past tense form of the copula *aaɳə* to express past tense, (109). Hany Babu (1997) takes this as an argument that *–um* is not a future tense marker but a modal.

(109) a. pook-aam aayirunnu
go-MOD be.PST
'could have gone'

b. pook-aɳam aayirunnu
go-MOD be.PST
'should have gone'
c. pook-um aayirunnu
go-MOD be.PST
'would have gone' (Hany Babu 1997 p83: 19)

The alternative account sketched above would not, in any obvious way, explain the co-occurrence restriction between modals and the *illa* negation. Finding an analysis that can account for all the facts is a task for future research.

4 Viewpoint Aspect in Malayalam

4.1 The questions & main claims

This chapter focuses on viewpoint aspect[1] and investigates the following broad questions:

(1) a. What types of cross-linguistic variation exist in the viewpoint aspectual domain?
b. How can this variation be theoretically accounted for?
c. What can this variation teach the field about Universal Grammar?

Parallel with the discussion of tense morphology in chapter 2, one way languages can vary is with respect to the type of viewpoint aspect morphology a language has. For example, some languages have an imperfective morpheme which is used to encode both event-in-progress (progressive) and generic/characterizing/habitual semantics. This is the case in French (Italic), Greek (Hellenic, Greece), Russian (Slavic, Russia), Bulgarian (Slavic, Bulgaria), Georgian (Kartvelian, Georgia) (Comrie, 1976), Arabic (Semitic) (Ryding, 2005), Bambara (Mande, Mali) (Tröbs, 2004) and Gujarati (Indo-Aryan, India) (Deo, 2009). Examples from Gujarati are given here.[2] Note that the verb form is exactly the same in both (2-a) and (2-b) despite (2-a) being a progressive and (2-b) being a generic.

(2) Gujarati
a. niśā (atyāre) rasoḍā-ma roṭli **banāv-e**
Nisa.NOM.SG now kitchen-LOC bread.NOM.SG make-IPFV.3.SG
ch-e
PRS-3.SG
'Nisa *is making* bread in the kitchen (right now).' [event-in-progress]

1 Recall that in this book the term 'viewpoint aspect' is being used to refer to the relationship in (i).

(i) Viewpoint aspect = Situation/Event Time and the Topic/Reference Time (Klein 1994)
a. Situation Time ⊆ Topic Time (Perfective aspect)
b. Topic Time ⊆ Situation Time (Progressive aspect)

2 This form is also used in Gujarati to express continuous readings with stative predicates:

(i) niśā navsāri-mā rah-e ch-e
Nisa.NOM.SG Navsari-LOC live-IPFV.3SG PRS-3.SG
'Nisa *lives* in Navsari.' [continuous] (Deo 2009 p476: 3c)

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b. niśā (roj) roṭli **banāv-e** **ch-e**
Nisa.NOM.SG everyday bread.NOM make-IPFV.3.SG PRS-3.SG
'Nisa *makes* bread (everyday).' [generic] (Deo 2009 p476: 3a-b)

Other languages have separate morphology for progressives and generics, as is the case in English.

(3) a. Mary **is eating** meat. [event-in-progress]
b. Mary **eats** meat (i. e. is not a vegetarian). [generic]

Yet other languages have separate morphemes that each encode finer distinctions in the aspectual domain. One example of this is Kinande (Bantu, Democratic Republic of the Congo) which has separate imperfective, progressive, incipient, and continuative aspect morphemes.

(4) Kinande
a. tu-**ká**-húma
1PL-IPFV-hit
'We hit (habitually)/we are hitting.' [generic/event-in-progress]
b. tu-**nému**-húma
1PL-PROG-hit
'We are hitting.' [event-in-progress]
c. tu-**limu**-húma
1PL-INCP-hit
'We are starting to hit.'[incipient]
d. tu-**kiná**-humá
1PL-CONT-hit
'We are still hitting.' [continuative] (Bjorkman 2011 p26: 10)

The flipside of a language like Kinande is Inuktitut (Inuit, Canada), which does not obligatorily require any viewpoint aspect morphology to appear on verbs. Instead, Inuktitut uses viewpoint aspect defaults based on whether or not the predicate is telic or atelic to obtain viewpoint aspect semantics. Specifically, telics yield default perfectives while atelics yield default imperfectives in the absence of viewpoint aspect morphology.

(5) Inuktitut
a. Ani-juq.
go.out-PART.3.SG
'(S)he went out.' [telic → default perfective]

b. Pisuk-juq.
walk-PART.3.SG
'(S)he is walking.' [atelic → default imperfective] (Bohnemeyer and Swift (2004) p267: 4–5)

The focus of this chapter will be on exploring the viewpoint aspect system in Malayalam. In beginning this exploration, recall the table of aspectual forms from chapter 2, repeated below.

Table 4.1: Full tense/aspect paradigm for *var-* 'come'.

-	**'Imperfective 1'**	**'Imperfective 2'**	**Perfective**
-	**stem-*unnu*-tense.ending/aux**	**stem-*uka*-tense.aux**	**stem-tense.morph**
Present	var-**unnu**-∅ (*uɳţə*)	var-uka(y) *aaɳə*	—-
Past	var-**unnu** *undaayirunnu*	var-uka(y) *aayirunnu*	vann-u
Future	var-**unnu** *undaayirikkum/undaakum*	var-uka(y) *aayirikkum*	var-um

Chapter 2 argued that Malayalam does not have a perfective viewpoint aspect morpheme (or the corresponding [PFV] feature). As such, the main focus of this chapter will be on the two 'imperfective' forms. This chapter will, in fact, argue that neither of these forms is an imperfective. Instead, it will argue that the 'imperfective 2' morpheme, *-uka*, is a progressive morpheme, equivalent to the English progressive. Building on the intuitions in Swenson (2017b), the 'imperfective 1' morpheme, *-unnu*, will be argued to bundle iterative pluractionality (in the sense of Henderson 2012, 2015) and progressive viewpoint aspect together. This chapter will further show that *-unnu* marked verbs compete with progressive, *-uka*, marked verbs and suggest that this competition is the result of a scalar implicature. Besides being interesting, in and of themselves, the semantics of these two forms play a critical role in determining a set of fine-grained semantic differences present in the set of possible ways to express the Universal perfect in Malayalam. This puzzle will be taken up in chapter 5.

The structure of this chapter is as follows. Section 4.2 will make the case that *-uka* is a progressive morpheme of the sort familiar from English. Section 4.3 will then argue against *-unnu* being an imperfective morpheme. Section 4.4 will apply Henderson's (2012, 2015) diagnostics for an iterative pluractional morpheme to *-unnu* and show that *-unnu* has the expected distribution. However, section 4.5 will show that, unlike other iterative pluractionals, *-unnu* bundles progressive viewpoint aspect and iterative pluractionality together. One piece of evidence here will be the competition that arises between the *-unnu* and *-uka* forms. A scalar impli-

cature account for the competition between the two forms will be proposed. Section 4.6 summarizes and highlights some open issues in addition to reflecting on the implications of the main claims for Universal Grammar.

4.2 *-uka* is a progressive morpheme

This section begins the exploration of viewpoint aspect in Malayalam by examining the so-called second imperfective, *-uka*. If *-uka* were an imperfective morpheme, it should behave like other imperfective morphemes cross-linguistically. Recall that imperfective viewpoint aspect marking can be used to express both event-in-progress and generic readings, as the examples from Gujarati repeated here show.

(6) Gujarati

a. niśā (atyāre) rasoḍā-ma roṭli **banāv-e**
Nisa.NOM.SG now kitchen-LOC bread.NOM.SG make-IPFV.3.SG
ch-e
PRS-3.SG
'Nisa *is making* bread in the kitchen (right now).' [event-in-progress]

b. niśā (roj) roṭli **banāv-e** **ch-e**
Nisa.NOM.SG everyday bread.NOM make-IPFV.3.SG PRS-3.SG
'Nisa *makes* bread (everyday).' [generic] (Deo 2009 p476: 3a-b)

However, what has been called 'Imperfective 2' in Malayalam cannot express both of these readings, (7). Rather, it only conveys the event-in-progress reading.

(7) ɲaan cirikk-uka(y) aaɳə
I laugh-PROG be.PRS
'I am laughing (now).' #'I laugh (in general).'

As such, it is simply a progressive morpheme, which we could give the entry in (8). As in English, the modal component of this entry is needed because *-uka* can be used in cases requiring access to inertia worlds, as (9) shows.

(8) [[*-uka*]]=λw.λt.$\lambda P_{<s,<v,t>>}$.$\forall$w'[w INERT$_t$ w' $\rightarrow$ $\exists$t'[t is a non-final part of t' & $\exists$e[τ(e)$\subseteq$ t' & P(w')(e)]]] (Beck & von Stechow 2015, cf. Dowty, 1979)

(9) avan marikk-um-poo̱l avan-te aatmakatha ezu̱t-uka(y) aayirunnu
he die-UM-when he-GEN autobiography write-PROG be.PST
'He was writing his autobiography when he died.' [no event of autobiography writing occurred, i. e. no completed autobiography exists]

Despite generally glossing the *-uka(y) aaŋə* combination as an imperfective, Asher & Kumari (1997) do sometimes gloss *-uka* as a progressive. This glossing difference does not seem to correlate with any particular meaning shift but seems rather to be the result of using terms casually without carefully defining them. However, as explained above, there is a difference between the way the two terms are used in the semantic literature. From now on, the *-uka* form will be glossed as a progressive.

Before moving on to the semantics of the 'first imperfective' marker, *-unnu*, two potential objections one might have against the progressive account for *-uka* will be addressed. The first is that, as discussed in chapter 1, Asher & Kumari also sometimes gloss *-uka* as an infinitive marker. It is quite possible that the *–uka* form, which is used as the citation form of the verb in Malayalam, may have begun to be called an infinitive simply because the citation form in languages like Latin is the infinitive. However, in both finite and non-finite forms, the *-uka* morpheme seems to be functioning analogously to a progressive participle in English.

(10) a. [kaɭam paray-uka] tett-aaŋə
lie say-PROG wrong-be.PRS
'Telling lies is wrong.' (Asher & Kumari p322: 1591)

b. avan bhakşikk-ukay-oo uraŋŋ-ukay-oo samsaarikk-ukay-oo
he eat-PROG-DISJ sleep-PROG-DISJ talk-PROG-DISJ
ceyt-illa
do.PST-NEG
'He didn't eat, sleep or talk.' (Asher & Kumari 1997 p141: 671a) [lit. He didn't do eating, sleeping or talking.]

Furthermore, arguing that *-uka* is not an infinitive marker does not mean that Malayalam lacks an infinitive marker altogether. Malayalam has another form, *-(uv)aan* which is often called the 'purposive infinitive' in the generative literature because it is the form used in embedded and purposive infinitives, such as those in (11) and (12).

(11) a. raaman [bhakşaŋam unṯ-aakk-uvaan (*ennə)] tiirumaanicc-u.
Raaman food be-CAUS-INF COMP decide-PST
'Raman decided to make food.'

b. raaman [ooṯ-uvaan] ʃramicc-u.
Raman run-INF try-PST
'Raman tried to run.'

c. amma [viʃakk-aan] aagrahicc-u.
mother hungry-INF want-PST
'The mother wanted to be hungry.' (Menon 2011 p5–7: 8a, 14a,c)

(12) avan kuʈikk-aan-um sigarettə valikk-aan-um kl̪abb-il pook-unnu-Ø
he drink-INF-CONJ cigarette smoke-INF-CONJ club-LOC go-IPFV1-PRS
'He goes to the club to drink and smoke cigarettes.' (Asher & Kumari 1997 p145: 691)

The second objection one might have is that, according to Asher & Kumari, the *-uka* morpheme has an imperative use. However, *-uka* can only be used as an imperative marker in formal contexts where there is no direct addressee (i. e. specific individual interlocutor) such as on road signs, in recipe books or in science textbooks detailing experimental procedure. It is never used as an imperative marker in colloquial spoken or written Malayalam to address an individual interlocutor.

Cross-linguistically, it is known that languages can morphologically divide the imperative space into those imperatives that refer to direct addressees and those that refer to indirect addressees (no specific individual, but rather a general command to (some subset of) the public at large, such as in safety signage, mottos, protest cries, etc). An example of this split in Korean is illustrated in (13). If a language lacks a dedicated 'indirect' imperative form, then another form in the language will be used, as in Italian, (14).

(13) Korean

a. Nayil wuli cip-ey o-si-eyo! [direct imperative]
tomorrow our house-to come-HON-IMP.POL
'Come to my house tomorrow!'

b. mithwu-ey ungtapha-la! [indirect imperative]
#metoo-to respond-IMP.PLAIN
'Respond to #metoo!' (to the government or a company) (Pak et al. (2018) p10: 24, 27)

(14) Italian

a. Chiama-ci quando sei pronto. [canonical imperative]
call.IMP-us when are-2s ready
'Call us when you're ready.'

b. Venga, si accomodi. [polite imperative]
Come.3s.SUBJ self make.comfortable.3s.SUBJ
'Come in, make yourself comfortable.'

c. Rispett-are l'ambiente! [indirect imperative]
respect-INF the-environment
'Respect the environment!' (Pak, et al. 2018 p2: 5–7)

One could then argue that Malayalam, like Italian, uses a non-imperative form to express the 'indirect' imperative. Italian uses the infinitive form while Malayalam

uses the progressive form, *-uka*. The exact nature of the form that is 'borrowed' to do the job of expressing the 'indirect' imperative need not be the same across languages or lead to a major revision of the original function of the 'borrowed' form. This section has shown that *-uka* is a progressive viewpoint aspect marker on finite verbs, that non-finite uses also seem to have progressive meaning, and that imperative uses are limited to 'indirect' imperatives where borrowing of non-imperative verb morphology can occur.

4.3 Against an imperfective account for *-unnu*

Turning now to 'imperfective 1', *-unnu*, this morpheme seems to be a better candidate for an imperfective morpheme because it seems to allow both a generic and an event-in-progress meaning, (15).

(15) ɲaan cirikk-**unnu**-∅
I laugh-IPFV-PRS
'I am laughing (now)' or 'I laugh (in general).'

However, both the generic and the event-in-progress readings of *-unnu* behave differently than canonical generics or event-in-progress readings, as the following three examples show. First, as Hany Babu (2006) points out, one of the properties of generics, according to Krifka et al. (1995) and Carlson (2005), among others, is that they cannot be used in the case of accidental generalizations. The data in (16-b) suggest that while *-um*[3] fits this aspect of Krifka et al.'s definition of a generic, *-unnu* does not.

(16) a. Chennai-yil daivaŋŋaḷ tiŋŋi-ppaarkk-unnu-∅
Chennai-LOC gods dense-dwell-???-PRS
'Gods dwell densely in Chennai, i. e. Chennai happens to have a lot of temples.'
b. ??Chennai-yil daivaŋŋaḷ tiŋŋi-ppaarkk-um
Chennai-LOC gods dense-dwell-MOD
'Gods dwell densely in Chennai, i. e. the essential property of Chennai is that it has a lot of temples.' (ok as a prediction: 'Chennai will have a lot of temples.') (Hany Babu 2006 p10: 11 from Jayamohan (2001))

3 As mentioned in chapter 1, *-um* expresses a generic meaning (in addition to a future meaning); Hany Babu (2006) argues that *-um*, unlike *-unnu*, is a true generic marker.

Secondly, Hany Babu (2006) further points out that *-unnu* has an episodic property, as can be seen when adverbs like *ennum* 'every day/daily' are present. This is also not expected with a generic (Carlson 2005). Hany Babu, as well as some other speakers consulted, find (17-a) very odd because it suggests that Usha has been getting up at 6 am since the beginning of time. These speakers note that when an adverb like *oru aaẓca(y)-aayi* 'for one week' that limits the interval containing the events being generalized over is added, (17-c), it no longer has a strange feel. The parallel sentence with *-um*, (17-b), suffers from no such problem; it simply expresses a generic/characterizing reading.

(17) a. #usha ennum aaɾə-maɲikkə eẓunneelkk-unnu-∅
Usha daily 6-o'clock get.up-???-PRS
'Usha has been/is getting up daily at six o'clock.'
b. usha ennum aaɾə-maɲikkə eẓunneelkk-um
Usha daily 6-o'clock get.up-MOD
'Usha gets up daily at six o'clock.' (Hany Babu 2006 p11: 12)
c. oru aaẓca(y)-aayi usha ennum aaɾə-maɲikkə eẓunneelkk-unnu-∅
one week-ADV Usha daily 6-o'clock get.up-???-PRS
'For the last one week, Usha has been getting up daily at six o'clock.'
(Hany Babu 2006 p11: 13)

Thirdly, an unexpected 'happenstance factor' is required for the use of *-unnu*, (19-a). Unlike an English progressive, (18), or a Malayalam progressive, (19-b), the *-unnu* form in Malayalam can be used in Scenario 2 but not Scenario 1.

Scenario 1: He is sitting at his desk, pen in hand/keyboard in front of him, writing his autobiography, when he suddenly has a heart attack and dies instantly.

Scenario 2: He dies in his sleep. One of the many projects he happened to have going on around the time of his death was the writing of his autobiography. [He was not actually engaged in the act of writing at the moment when he died.]

(18) He was writing his autobiography when he died. [ok Scenario 1, ok Scenario 2]

(19) a. avan marikk-um-pooḷ avan avan-te aatmakatha
he die-UM-when he he-GEN autobiography
eẓut-unn-uɳṭaayirunnu
write-???-be.PST
'He was writing his autobiography when he died.' [X Scenario 1, ok Scenario 2]

b. avan marikk-um-poo⌊ avan avan-te aatmakatha
he die-UM-when he he-GEN autobiography
ezut-uka(y)-aayirunnu
write-PROG-be.PST
'He was writing his autobiography when he died.' [ok (preferred) Scenario 1, ok Scenario 2]

Given these distinctions in usage, it is not possible that *-unnu* is an imperfective marker. Beginning the quest for *-unnu*'s true identity, the next section draws a parallel between the behavior of *-unnu* and that of iterative pluractional markers (Henderson 2012, 2015).

4.4 *-unnu* is an iterative pluractional morpheme

Roughly speaking, pluractional markers on verbs are the equivalent of plural marking on nouns. They indicate that there are plural events. Henderson (2012) and Henderson (2015), building on Cusic (1981), Lasersohn (1995), Xrakovskij (1997), Wood (2007), and Tovena and Kihm (2008), a. o., identifies two broad types of pluractionals cross-linguistically. The first is the event-internal (repetitive) pluractional, which 'denote[s] plural events that have the character of a single event. It is as if the repetitions that compose the plurality take place internal to an event that is conceived of as a single happening' (Henderson 2015 p1). An example of this type of pluractional can be seen in (20).

(20) Kaqchikel (Mayan, Guatemala)

a. X-Ø-in-ch'ar-ach'a' ri tros.
COM-A3S-E3S-split-PLUR the stump
'I kept chopping at the stump.' [It's like if your axe is really dull.] (Henderson 2012 p6: 10)

b. X-Ø-ki-chok-**ocha'** ri ch'ich'.
COM-A3S-E3p-push-PLUR the bus
'They kept pushing on the bus.' [A group of people are trying to push a big bus, but it's having trouble moving. It just keeps rocking back and forth.] (Henderson 2012 p110, 280)

The second type of pluractional is what is called an event-external (iterative) pluractional. These pluractionals 'denote plural events whose repetitions are more easily individuable as separate happenings' (Henderson 2015, p1). An example of an iterative pluractional in Kaqchikel is given in (21). Notice that the bolded adverbs present in the English translation are not present in the

Kaqchikel. It is the pluractional marker *-löj-* that gives this iterative-like interpretation.

(21) Kaqchikel

a. X-Ø-chin-**ilöj** ri kanpana
COM-A3S-ring-PLUR the bell
'The bell rang **repeatedly**.'

b. Ri ak'wal x-Ø-jil-**ilöj** r-oma ri yab'il
the child COM-A3S-complain-PLUR E3S-because the illness
'The child complained **every little bit** because of the illness.' (Henderson 2012 p47: 87–88)

Interestingly, Malayalam speakers often add these types of adverbs when they are trying to explain the shades of meaning that *-unnu* has, as can be seen in (22).

(22) ɲaan veeɳ-appooḷ avan tumm-**unnu** uɳṭaayirunnu
I slip.PST-when he sneeze-PLUR be.PST
'He was sneezing when I slipped on the floor.' [he happened to be in a state of sneezing **every few seconds** (say because he had a cold)]

Also just as with Kaqchikel *-löj*, single events, even elongated ones, are incompatible with *-unnu*. This can be seen by examining the respective data in (23)–(24).

(23) Kaqchikel

a. X-Ø-b'ixan-ilöj.
COM-A3S-sing-PLUR
'She sang many times.' [X if she sang a really really long song, ok if you went to a concert and they kept singing more and more songs.]

b. X-e'-etz'an-ilöj.
COM-A3P-play-PLUR
'They played many times.' [X if they played a game that lasted a long time, ok if they are in many different places, or if they played one game, stopped, then played another, etc.] (Henderson 2012 p53: 110–111)

(24) Malayalam

a. avaḷ tumm-unnu uɳṭaayirunnu
she sneeze-PLUR be.PST
'She was in a state of sneezing every few seconds (say because she had a cold)' [X The moment I slipped, she was in the middle of an isolated sneeze]

b. avaḷ cirikk-unnu uṇṭaayirunnu
she laugh-PLUR be.PST
'She was laughing every little bit (say as she was reading jokes) [X isolated (even if its a very long laugh)]

c. avan-te aatmakatha ezhut-unnu uṇṭaayirunnu
he-GEN autobiography write-PLUR be.PST
'He was working on writing his autobiography from time to time.' [X isolated writing event (even if continuous writing goes on for a long time)]

d. ɲaan pook-unnu-Ø
I go-PLUR-PRS
'I'm getting ready to go (where getting ready involves a set of activities like finding ones shoes, packing ones bag, getting ones coat, etc.).' [X emphasizing the instantaneous single, isolated act of leaving]

4.4.1 Diagnosing *-unnu* as an iterative pluractional

These parallels are not the only ones that Malayalam *-unnu* and Kaqchikel *-löj-* share. Henderson (2012, 2015), following Wood (2007), identifies a number of properties that iterative (event-external) pluractionals have that repetitive (event-internal) pluractionals do not have. The rest of this section will show that Malayalam *-unnu* has all the expected properties of an event-external/iterative pluractional.

The first property that Henderson identifies has to do with aspectual selection. Event-internal/repetitive pluractionals only appear with semelfactive and achievement verbs while event-external/iterative pluractionals appear with predicates of a variety of lexical aspect classes. Example (25) shows that *-unnu* can be used with all lexical aspect classes of predicates. Unlike *-löj*, this includes statives. However, despite the usual stative nature of 'love', here it has been coerced into an activity predicate.[4]

(25) a. ɲaan tumm-unnu-Ø (semelfactive)
I sneeze-PLUR-PRS
'I am sneezing/I sneeze.'

4 Most stative predicates are formed via a noun plus one of the two copulas. Neither of these copulas inflect using *-unnu* or any of the other usual tense-aspect endings. As such, it has been difficult to further explore the behavior of *-unnu* when attached to a stative predicate.

b. ɲaan kaẓikk-unnu-∅ (activity)
I take-PLUR-PRS
'I am eating/I eat.'

c. ɲaan jayikk-unnu-∅ (achievement)
I win-PLUR-PRS
'I am winning/I win.'

d. ɲaan ii paper eẓut-unnu-∅ (accomplishment)
I this paper write-PLUR-PRS
'I am writing this paper/I write this paper.'

e. ɲaan ente amma-ye sneehikk-unnu-∅ (stative)
I I.GEN mother-ACC love-PLUR-PRS
'I love my mother' (often translated 'I am loving my mother') [meaning: I can look back through the course of my life and count multiple, separate situations that stand out as exemplars of me showing/feeling love to(wards) my mother]

The second test involves the proximity of the repetitions: in repetitive pluractionals the repetitions are generally contiguous in time and space, whereas in iterative pluractionals, strict temporal or spacial contiguity of the repetitions is not required and variation in the length of the gap occurs. Once again *-unnu* behaves like an iterative pluractional. In (26-a) there is a gap of 24 hours between events of the sun rising. In (26-b) there is a gap of only a few seconds and in (26-c), the gap is measured in an interval of minutes.

(26) a. suuryan kiẓakkə udikk-unnu-∅
sun east rise-PLUR-PRS
'The sun rises in the east.' [**generalization over a serious of episodes of individual risings**] or 'The sun is rising in the east.' (Hany Babu 2006)

b. ɲaan veeɳ-appooḷ avaḷ tumm-unnu uṇṭaayirunnu
I slip.PST-when she sneeze-PLUR be.PST
'She was sneezing when I slipped on the floor.' [she happened to be in a state of sneezing **every few seconds** (say because she had a cold)]

c. ɳangaḷ sinima kaaɳ-um-pooḷ avaḷ cirikk-unnu uṇṭaayirunnu
we.exclus movie see-UM-when she laugh-PLUR be.PST
'When we saw [watched] the movie, she was laughing.' [laughing **at multiple points throughout the movie** (perhaps whenever a particular line was said or a particular character appeared)]

The third property of iterative pluractionals offers an explanation for why *-unnu* marked predicates seems to have a generic/habitual/characterizing reading. It is

common for iterative pluractionals to allow repetitions across occasions such that they appear to give a habitual reading. Henderson (2012) argues, however, that these readings are merely the result of universal quantification, not a GEN operator. This patterns perfectly with the Malayalam facts in (16-a) and (26-a). Repetitive pluractionals never allow habitual readings due to their event internal nature.

The fourth test for iterative versus repetitive pluractionals has to do with whether or not the repetitions of the event must have a shared theme or telos. For repetitive pluractionals, this is a must. However, iterative pluractionals have no such requirement; the event they describe can be split into parts and distributed over different participants. This can be seen for *-unnu* in (27) where there are repetitions of a dying event, involving different people.

(27) avaɾ marikk-unnu unʈaayirunnu
they die-PLUR be.PST
'They were dying.' [like if there was a plague and people were dying one by one from the plague: one person one day and another person the next day and so on]

The fifth diagnostic involves cardinality. Specifically, with iterative pluractionals relatively small cardinalities are required, though larger ones can exist. With repetitive pluractionals, on the other hand, large cardinalities are usually required. With respect to this requirement, *-unnu* once again patterns with iterative pluractionals.

(28) a. ɲaan muʈʈa kaʐikk-unnu-∅
I egg-PL take-PLUR-PRS
'I am eating eggs.' [ok if only 3 eggs]
b. ɲaan ii paʐam kaʐikk-unnu-∅
I this banana eat-PLUR-PRS
'I am eating this banana.'

The sixth diagnostic has to do with entailments. Iterative pluractionals tend to entail the non-pluractional counterpart of the pluractional marked sentence. This is the case in Malayalam, where (29-a) entails (29-b). These entailments do not necessarily hold in repetitive pluractionals.

(29) a. avaɭ teeŋŋa poʈʈikk-unnu unʈaayirunnu # pakʂe poʈʈicc-illa
she coconut crack-PLUR be.PST but crack.PST-NEG
'She was cracking the coconut #but she did not crack it.'

b. avaɭ teeŋŋa poṯṯicc-u
she coconut crack-PST
'She cracked the coconut.'

The final test involves a property that all pluractionals have: atelicity. All pluractional predicates, as atelics, are compatible with 'for x time' adverbials. Example (30) shows that this is the case with *-unnu* marked predicates as well.

(30) a. ɲaan oru aaẓcha aayi ii paper ezuṯ-unnu-∅
I one week ADV this paper write-PLUR-PRS/be.PRS
'I have been writing this paper for one week.'
b. ɲaan oru vaṯsam aayi paaṯ-unnu-∅
I one year ADV sing-PLUR-PRS
'I have been singing for one year.'
c. muunnə vaṯsam-aayi asha uɳɳi-ye sneehikk-unnu-∅
three years-ADV Asha Unni-ACC love-PLUR-PRS
'For three years, Asha has loved Unni.'

In sum, this section has shown that *-unnu* has all the properties one would expect of an iterative pluractional. These are summarized in (31).

(31) Iterative Pluractional Properties of *-unnu*
a. compatible with 'for x time' adverbials, i. e. are atelics
b. compatible with a variety of lexical aspect classes (coerces telics & statives into atelics)
c. allows temporally discontinuous repetitions
d. often has habitual-like meanings (though they are the result of a ∀ quantification not a GEN operator)
e. no shared telos needed; the event can be split into parts and distributed over different participants
f. a large cardinality is not needed and the exact cardinality is vague
g. often entail a corresponding sentence without the pluractional marker

4.4.2 Formalizing the diagnosis

Henderson (2012) proposes that these properties of iterative pluractionals can be accounted for if the function of an iterative pluractional morpheme like Kaqchikel *-löj* is to partition an event *e*'s temporal trace (the function responsible for assigning events to the time in which they occur (the Situation Time in Kleinian terms),

τ(e),) into potentially discontinuous atomic subintervals of the same event. This is formalized in the entry in (32).[5]

(32) Where τ is a temporal trace that is a sum homomorphism and ϵ is a function from a comparison class (for example, 3 hours, if the adverbial *for three hours* is used) to a predicate of intervals that are very short relative to the the members of the comparison class (in this case, very short with respect to three hours, λt[hour(t) ≤ 0.5]) (Champollion, 2010)

$$[\![\textit{-löj}]\!]: \lambda V_{<v,t>}.\lambda e_v[V(e) \wedge \exists P[\text{Part}(P, \tau(e)) \wedge \forall t \in P \exists e'[\begin{array}{l} \text{i. } \tau(e') = t \wedge \\ \text{ii. } e' \leq e \wedge \\ \text{iii. atom}(e') \\ \text{iv. } \epsilon(\tau(e))(t) \end{array}]]]$$

(Henderson 2012 p63: 140)

If extended to *-unnu*, this entry accounts for the iterative pluractional facts in Malayalam in the following ways. First, the use of Champollion's (2010) ϵ function in Henderson's entry captures that all *-unnu* marked predicates are atelics (compatible with 'for' time adverbials), that *-unnu* can attach to a predicate of any lexical class, the entailment relationship in (29) and the cardinality requirements. The ϵ function formally models a common way of understanding atelics, while also solving a problem these type of accounts face (the minimal parts problem). Specifically, this approach proposes that atelics have the subinterval property (if there is an instantiation of a predicate that occurs at *i*, it also occurs at every subinterval of *i*) (Bennett and Partee 1972, Dowty 1979). Champollion's entry, (33), accounts for the fact that atelic predicates need not hold through every subinterval of a predicate (the minimal parts problem) but only at the relevant ones. For example, if one says 'I have been reading this book for one week' it does not necessarily mean that one has done nothing except read the book in question all week without breaks for eating, sleeping, etc. An additional illustration that atelic predicates need not hold through every subinterval of a predicate but only the relevant ones, comes from the compatibility of (34) with either Context A or B.

5 Henderson's entry for the repetitive pluractional *Ca'* is given below.
$[\![\textit{-Ca'}]\!]$: $\lambda V_{<v,t>}.\lambda e_v \exists$P[atom(e) ∧ Part(P,$\tau$(e))∧
∀t ∈ P∃e'[τ(e')= t∧e' $\leq_m$ e∧ϵ(τ(e))(t)∧V(e')∧e[τ]e']], where:
a. $\leq_m$ is the 'material part' relation defined in Link 1998, but adapted for events.
b. *e*[τ]*e'* means *e* and *e'* differ at most with respect to their temporal trace. That is, it is shorthand for T(*e*) = T(*e'*), where T ranges over all trace functions and thematic roles, excluding τ. (Henderson 2012 p108: 279)

(33) Subinterval property a la Champollion (2010)
$SUB_K(P): \Leftrightarrow \forall e[P(e) \rightarrow e \in *\lambda e'[(P(e') \wedge \epsilon(K)(\tau(e')))]]$
Suppoe that *e* is a *P* event. *P* has the subinterval property relative to interval *K* just as in case *e* can be exhaustively divided into short parts (those satisfying ϵK that satisfy *P*. (Henderson 2012 p81: 194)

Context A: said while sitting and sipping a cup of coffee during a break from the digging

Context B: said while actively digging

(34) I am (busy) digging in the yard. [ok Context A, ok Context B] (Iatridou et al. 2002 p159)

Predicates of all lexical aspects are compatible with *-unnu* because the addition of *-unnu* coerces the telic or stative predicate into an atelic predicate, i. e. one that has the type of subinterval property in (33). The use of the ϵ function in Henderson's entry also explains the entailment relations found in iterative pluractionals because, due to the subinterval property, each larger event of an event like cracking a coconut will involve subevents of cracking the coconut. The gradable nature of the ϵ function accounts for the vague cardinality requirements on iterative pluractionals.

Secondly, the fact that the event's temporal trace is a sum homomorphism in Henderson's entry accounts for the discontiguity requirements on *-unnu* and the habitual-like readings that *-unnu* can have. The key point here is that pluractionals differ from other atelic predicates in that, while they have the subinterval property at the relevant intervals, they also require stops and starts (the temporally discontinuous requirement). The entry in (32) captures this fact by proposing that the fundamental job of the pluractional is to partition an event *e*'s temporal trace into cells such that each cell of the partition is the temporal trace of a subevent of *e*. As a result, an event's temporal trace is a sumhomorphism and sum events can have discontinuous temporal traces, as exemplified in (35). Atomic events cannot have discontinuous traces. In effect, this says that a pluractional marked version of (34) would only be compatible in Context A, but not Context B, where it is assumed that Context B describes a single (elongated) event of digging and where the break in Context A is one of several the speaker takes between digging subevents.

(35) a. If $\tau(e) = t$ and $\tau(e') = t'$, then $\tau(e \oplus e')$ exists and is equal to $\tau(e) \oplus \tau(e') = \tau \oplus \tau'$, which is discontinuous.

b. If I wrote yesterday from 10–11 am and then again from 1–3 pm, then the temporal trace of my writing yesterday exists and is that discontinuous stretch of time consisting of 10–11 am and 1–3 pm. (Henderson 2012 p34)

Formalizing the discontinuity requirement this way explains two recurrent speaker comments: one regarding the oddity of third person subjects with certain predicates and one regarding the role of visual evidence with *-unnu* marked predicates. Turning to the first of these, speakers frequently comment that it is perfectly fine to use a first person subject with *marikk-* 'die' because the speaker always knows his own body/feelings, (36-a). It is also fine to use a third person plural subject as this gives a distributive reading where different people are dying off one by one, (36-b). However, many speakers find it much harder to use this predicate with a third person singular subject as they comment that one cannot feel someone else dying little by little, i. e. its much harder to know someone else's internal state and thereby confirm that the dying event has been partitioned into subevents with hiatuses in between them.[6]

6 Speakers comment that it is not possible to use a first person singular subject, (i-a), with a predicate like *saari vaŋŋ-* 'buy saris' in a context like the following one because no matter how long the span of time is the previous night or how many shops were visited, the shopping trip sums up to one event. If a 3rd person plural pronoun is used, (i-b), the sentence is fine with a distributive reading where the events of sari buying are distributed over the different individuals. The use of the first person singular is fine if a different, activity, predicate is used, (i-c) or a longer span of time is given, (i-d). In order to better understand these facts, additional work on nominal plurals and distributivity in both the nominal and verbal domains needs to be done.

Context: What were you doing last night at the time of the murder (either between 5 pm–5:02 pm or 5 pm–10 pm)?

(i) a. #(innale raatɽi) ɲaan (innale raatɽi) (aaɽə) saari vaaŋŋ-unnu unʈaayirunnu
yesterday night I yesterday night six sari-PL buy-PLUR be.PST
'(Last night,) I was buying (six) saris.' [speaker comment: viewed as a single event: it all just adds up to 1 shopping trip even if you go to 6 different shops]

b. innale raatɽi avaɽ saari vaaŋŋ-unnu unʈaayirunnu
yesterday night they sari buy-PLUR be.PST
'Last night they were buying saris.' (distributive)

c. innale raatɽi ɲaan saari tiray-unnu unʈaayirunnu
yesterday night I sari search-PLUR be.PST
'Last night I was searching saris.' (activity predicate)

d. bi.ed-inə paaʈhikk-um-pool ɲaan [saari vaaŋŋ]-unnu unʈaayirunnu
B.Ed.-DAT study-UM-when I sari buy-PLUR be.PST
'When I was studying for my B.Ed., I was buying saris.' (pc Keerthana Gopinathan)
(quirk/accidental genearlization: iterations over occasions)

(36) a. ɲaan marikk-unnu-Ø
I die-PLUR-PRS
'I am dying little by little.'
b. avaɽ marikk-unnu-Ø
they die-PLUR-PRS
'They are dying one by one.' [like in a plague]
c. #avaḷ marikk-unnu-Ø
she die-PLUR-PRS
'She is dying little by little.'

The entry in (32) also offers an explanation for a recurring comment speakers make regarding the role of visual evidence. Specifically, speakers frequently claim that *-unnu* marked sentences can only be said when giving a narration/running commentary of a situation the speaker can see, (37)–(38).

Context: You are sitting observing a group of people (consisting of your own children or strangers) eating and you are giving a running commentary about the situation to someone else (who is not a member of the group eating).

(37) avan dooʃa kaẓikk-unnu-Ø, avan cappaatti kaẓikk-unnu-Ø, avan cooɽə
he dosa take-PLUR-PRS he chapatti take-PLUR-PRS he rice
kaẓikk-unnu-Ø...
take-PLUR-PRS
'He is eating dosa; he is eating chapatti; he is eating rice...'

Context 1: describing that you see your classmate standing and reading in class

Context 2: describing when you see that someone is called to lunch but doesn't respond because she is frantically reading to prepare for an exam and has not stopped for even a second since she started reading (which you know because you've been sitting with her since she started reading)

(38) avaḷ vaayikk-unnu-Ø
she read-PLUR-PRS
'She is reading.' [ok Context 1, X Context 2]

There are many counterexamples to this claim, as section 4.5.2 will show, where, due to being on the phone, speakers cannot see each other but *-unnu* is perfectly fine. Additionally, not all running commentaries about things the speaker can see license an *-unnu* form, as the use of (38) in Context 2 shows. Despite these counterexamples, the intuition behind the comment seems to be that seeing a situation allows one to see visual evidence that hiatuses are, in fact, occurring (or not occurring). This further supports the claim that the role of *-unnu* is to the par-

tition an event *e*'s temporal trace, τ(e), into discontinuous atomic subintervals of the same event.

The discontinuity allowed by the sum event also accounts for the 'habitual-like' readings, in that it provides universal quantification over the subintervals of the temporal trace of the event. The distributivity facts are accounted for by assuming that theta-roles are also sum-homomorphisms.

Based on the data so far, *-unnu* looks like the direct parallel of Kaqchikel *-löj*. However, the next section will expand the data set to show that, while *-unnu* does encode the type of iterative pluractional semantics *-löj* does, this is not all it does. Specifically, it will be shown that, unlike *-löj*, *-unnu* bundles progressive viewpoint aspect in with iterative pluractionality. This will lead to a modified version of Henderson's entry in (32) for *-unnu*.

4.5 A progressive viewpoint aspectual iterative pluractional semantics for *-unnu*

In order to see that *-unnu* encodes viewpoint aspect in addition to iterative pluractionality, it is helpful to remember that *-unnu* often has been, erroneously, glossed as an imperfective. This chapter has argued against such a gloss and instead argued that *-unnu* is an iterative pluractional morpheme. In and of itself, this recasting presents a puzzle for how viewpoint aspect in *-unnu* marked clauses is obtained. The pluractional morpheme *-löj* is a piece of derivational morphology in Henderson's account, i. e. it does not relate events to times, as viewpoint aspect morphemes do (Smith 1991, Klein 1994). As a piece of derivational morphology it simply gives a plural reference to events. Therefore, if *-unnu* is like *-löj*, it should only give a plural reference time to events and not encode any viewpoint aspect information. This raises the question of how *-unnu* marked verbs obtain viewpoint aspect semantics.

One option is that viewpoint aspect is obtained via default mechanisms based on the lexical aspect of the predicate (cf. Smith et al. 2003; Bohnemeyer & Swift 2004; Lin 2006). Roughly, under this type of analysis, telic predicates like 'write his autobiography' and 'win' would receive a default perfective interpretation and atelics like 'laugh' and 'sneeze' would receive default progressive interpretations. A second option is that *-unnu* is not exactly like *-löj*, in that *-unnu* combines both the semantics in (32) and (some type of) viewpoint aspect semantics. This would mean that *-unnu* is a new subtype of iterative pluractionals. This is plausible, as it is well known that there is some variation with respect to the semantics of pluractionals cross-linguistically. For example, ǂHoan (Kx'a, Botswana) has a repetitive pluractional which has an additional requirement of there being multiple spatial

locations (Collins, 2001). Kalaallisut (Inuit, Greenland) and Tseltal (Mayan, Mexico) have multiple repetitive pluractionals which are distinguished by the type of hiatuses required (pauses vs rapid aperiodic pauses vs periodic pauses) (Henderson 2015).

In the rest of the chapter, four arguments in favor of adopting the second option (*-unnu* bundles viewpoint aspect and iterative pluractionality) to account for the Malayalam facts will be given. The first three arguments are that *-unnu* is in complementary distribution with other viewpoint aspect morphemes, that *-unnu* marked predicates when combined with frequency adverbs give rise to certain odd implications for some speakers, and that *-unnu* can only mark predicates that can be repeated multiple times with hiatuses in between each (sub)event *within the Topic Time*. After examining these arguments, a modified version of Henderson's semantic entry for *-unnu* will be given. The fourth argument comes from a pragmatic competition between *-unnu* and progressive, *-uka*, marked forms. Based on this, it will be argued that the use of *-unnu* in these contexts gives rise to a scalar implicature. This competition provides further evidence for the proposed new semantic entry for *-unnu*. Chapter 5 will show that this competition plays a crucial role in the perfect in Malayalam.

4.5.1 Bundling iterative pluractionality & viewpoint aspect

This section will focus on motivating the second option for the semantics of *-unnu*. The first piece of evidence for bundling iterative pluractionality and viewpoint aspect comes from the fact that *-unnu* is in complementary distribution with the progressive marker, *uka*, (39).[7]

(39) *ezu̱t/jayikk/tumm-unnu-uka(y)-aaṇə
write/win/sneeze-PLUR-PROG-be.PRS
intended: writing/winning/sneezing

If *-unnu* was simply derivational morphology, like *-löj*, this complementary distribution is unexpected. Example (40) shows that *-löj* is not in complementary distribution with viewpoint aspect markers. Here *-löj* co-occurs with the completive aspect marker (COM). Henderson also provides examples of *-löj* co-occurring with the incompletive aspect.

7 The reverse order of morphemes (progressive under pluractional) is also bad, **ezu̱t-uka(y)-unnu-aaṇə*, though if *-unnu* were derivational morphology this would be expected following normal Mirror Principle considerations.

(40) Kaqchikel

a. X-∅-chin-**ilöj** ri kanpana
COM-A3s-ring-PLUR the bell
'The bell rang **repeatedly**.'

b. Ri ak'wal x-∅-jil-**ilöj** r-oma ri yab'il
the child COM-A3s-complain-PLUR E3s-because the illness
'The child complained **every little bit** because of the illness.' (Henderson 2012 p47: 87–88)

If, however, *-unnu* is a type of inflectional morphology that bundles viewpoint aspectual and iterative pluractional semantics together, the complementary distribution with other viewpoint aspectual morphemes follows.

A second piece of evidence in favor of bundling viewpoint aspect and iterative pluractionality comes from the comments many speakers make about the oddness of (41-a). Specifically, many speakers find this sentence very odd because it suggests that Usha has been getting up at 6 am since the dawn of time. These speakers note that when an adverb like *oru aaẓcaaayi* 'for one week', (41-b), or *ippool̨* 'now', (41-c), that limits the interval containing the events is added, the sentence no longer has a strange feel.

(41) a. %usha ennum aaɽə-maŋikkə eẓunneelkk-unnu-∅
Usha daily 6-o'clock get.up-PLUR-PRS
'Usha has been/is getting up daily at six o'clock.' (Hany Babu 2006 p11: 12)

b. **oru aaẓca(y)-aayi** usha ennum aaɽə-maŋikkə eẓunneelkk-unnu-∅
one week-ADV Usha daily 6-o'clock get.up-PLUR-PRS
'For the last one week, Usha has been getting up daily at six o'clock.' (Hany Babu 2006 p11: 13)

c. **ippool̨** usha ennum aaɽə-maŋikkə eẓunneelkk-unnu-∅
now Usha daily 6-o'clock get.up-PLUR-PRS
'Now(adays) Usha has been/is getting up daily at six o'clock.'

Some speakers do not find (41-a) or the sentences in (42) odd. Based on this it seems that, when the Topic Time is not explicitly expressed, speakers take it to be (a contextually salient subset of) the history of the world. Those speakers who do not find (41) or (42) odd are those who can more easily restrict the Topic Time to be a subset of the history of the world (say to something like 'nowadays'), while other speakers need/highly prefer an overt adverbial to restrict the Topic Time. Either way, these comments suggest that *-unnu* encodes more than just iterative pluractionality.

(42) a. usha ennum paẓam kaẓikk-unnu-∅
Usha daily banana take-PLUR-PRS
'Usha daily eats bananas.'
b. usha ennum ampala-ttil pook-unnu-∅
Usha daily temple-LOC go-PLUR-PRS
'Usha daily goes to the temple.'

Thirdly, when the Topic Time is not long enough to contain multiple (sub)events with hiatuses in between them, the use of *-unnu* is banned. This can explain why the use of *-unnu* with Scenario 1 is ruled out in (19-a), repeated here as (43): the Topic Time (the instant he died from the heart attack) is not long enough to allow for there to be multiple subevents of writing with hiatuses between them.

Scenario 1 [Topic Time=instant]: He is sitting at his desk, pen in hand/keyboard in front of him, writing his autobiography, when he suddenly has a heart attack and dies instantly.

Scenario 2 [Topic Time≠instant]: He dies in his sleep. One of the many projects he happened to have going on around the time of his death was the writing of his autobiography. [He was not actually engaged in the act of writing at the moment when he died.]

(43) avan marikk-um-pooḽ avan-te aatmakatha eẓut-unnu uṇṭaayirunnu
he die-UM-when he-GEN autobiography write-PLUR be.PST
'He was writing his autobiography when he died.' [X Scenario 1, ok Scenario 2]

Similarly, speakers note that (44-a), where the Topic Time is a single night, the shopping trip is viewed as a single event of a night out shopping, i. e. it all just adds up to one shopping trip even if the shopper goes to six different shops and buys six saris. However, if the Topic Time is extended to 'when I was studying for my B.Ed.', which usually takes one to two years, this predicate is fine because there is time for there to be multiple shopping excursions with hiatuses in between them within the one to two year period that is the Topic Time.

(44) a. (innale raatṛi) ɲaan (innale raatṛi) [(aaṛə) saari vaaŋŋ]-unnu
yesterday night I yesterday night six sari-PL buy-PLUR
uṇṭaayirunnu
be.PST
'Last night, I was buying (six) saris.' [# Context: What were you doing last night at the time of the murder (where murder time can be very short (5–5:02 pm) or long (5–10 pm)]

b. bi.ed-inə paʈikk-um-poo‌ɭ ɲaan [saari vaaŋŋ]-unnu uɳʈaayirunnu
B.Ed.-DAT study-UM-when I sari buy-PLUR be.PST
'When I was studying for my B.Ed., I was buying saris.' (quirk/accidental generalization) (Keerthana Gopinathan, p. c.)

In contrast, the sentences in (45) and (46) involve predicates such as 'sneeze' and 'laugh' that can be iterated on a moment to moment basis. Therefore, these predicates can be *-unnu* marked, even when there is a short Topic Time, such as 'when I slipped'.

(45) ɲaan veeɳ-appoo‌ɭ avan tumm-unnu uɳʈaayirunnu
I slip.PST-when he sneeze-PLUR be.PST
'He was sneezing when I slipped on the floor.' [multiple sneezes occured inside Topic Time]

(46) ɲaan veeɳ-appoo‌ɭ avan cirikk-unnu uɳʈaayirunnu
I slip.PST-when he laugh-PLUR be.PST
'He was laughing when I slipped on the floor.'[multiple laughs occurred inside Topic Time]

Someone might raise (47) as a potential counterexample against the requirement that the Topic Time must contain multiple subevents within it because nothing suggests that the sleeping in (47) contains hiatuses. However, since the Topic Time is not specified here, it can be assumed that there is default Topic Time (a relevant subset of the history of the world, such as (a subset of) the classmate's life) and the use of *-unnu* here signals that the present instance of sleeping is one in a long string of sleeping subevents dispersed throughout the Topic Time.

Context: a classmate sitting in front of you falls asleep during a lecture

(47) avan uraŋŋ-unnu-∅
he sleep-PLUR-PRS
'He is sleeping.' [link in larger chain of sleeping events]

The incompatibility of *-unnu* with the progressive morpheme, the 'since the dawn of time' effects some speakers feel when an *-unnu* marked predicate occurs with a frequentive adverb and the sentences above showing the need for repetitions to occur within the Topic Time argue in favor of bundling viewpoint aspect and iterative pluractionality. The investigation now must turn to what type of viewpoint aspect is bundled with the iterative pluractional semantics. Based on the fact that the Topic Time must be long enough to contain multiple subevents, one might think that the bundled viewpoint aspect is a Kleinian perfective (Situation Time is a subset of the Topic Time). However, (48) shows that it is, in fact,

progressive aspect that is bundled since the Situation Time (time of sneezing here) can go on beyond the Topic Time ('when I slipped'). In other words, the Topic Time, which must be long enough to allow for the hiatuses between the plurality of events, need only be contained within the Situation Time.

Context: My hostelmate Vinu is sitting on the bed next to me. He has a cold and so is sneezing periodically. I get up from the bed to get a pencil and slip. During my slipping, he sneezes three times. After I get up off the floor and get my pencil, I go back to studying and Vinu keeps sneezing due to his cold.

(48) ɲaan veeɳ-appooḷ avan tumm-**unnu** uɳṯaayirunnu
I slip.PST-when he sneeze-PLUR be.PST
'He was sneezing when I slipped on the floor.'

4.5.2 Formalizing the semantics

The conclusion of the previous section was that *-unnu* is a progressive viewpoint aspect iterative pluractional morpheme. Formally, this can be expressed using the entry in (49).

(49) $[\![\textit{-unnu}]\!]: \lambda V_{<v,t>}.\lambda t_i'.\lambda e_v[V(e) \wedge \exists P[\text{Part}(P, \tau(e)) \wedge \forall t \in P \exists e'[$ i. $\tau(e') = t \wedge$ ii. $e' \leq e \wedge$ iii. $\text{atom}(e')$ iv. $\epsilon(\tau(e))(t)$ $]] \wedge$ $t' \subseteq \tau(e)]$

This entry is identical to Henderson's (2012) entry, repeated here as (47), except that it includes a progressive meaning (the Topic Time is a subset of the Situation Time) like the one in (51).

(50) Where τ is a temporal trace that is a sum homomorphism and ϵ is a function from a comparison class (for example, 3 hours, if the adverbial *for three hours* is used) to a predicate of intervals that are very short relative to the the members of the comparison class (in this case, very short with respect to three hours, $\lambda t[\text{hour}(t) \leq 0.5]$) (Champollion, 2010)

$[\![\textit{ -löj}]\!]: \lambda V_{<v,t>}.\lambda e_v[V(e) \wedge \exists P[\text{Part}(P, \tau(e)) \wedge \forall t \in P \exists e'[$ i. $\tau(e') = t \wedge$ ii. $e' \leq e \wedge$ iii. $\text{atom}(e')$ iv. $\epsilon(\tau(e))(t)$ $]]]$

(Henderson 2012 p63: 140)

(51) $[\![\text{PROG}]\!] = \lambda P_{<v,<s,t>>}.\ \lambda t_i.\ \lambda w_s.\ \exists e[t \subseteq \tau(e)\ \&\ P(e)(w)=1]$ (Kratzer 1998, p17)

While Beck & von Stechow's (2015) intensional progressive semantics were used for *-uka*, (52), a simpler, non-modal semantics can be used for the progressive component in *-unnu* because, as the accidental generalizations cases show, it is not an intensional operator.

(52) $[\![\text{-}uka]\!] = \lambda w.\lambda t.\lambda P_{<s,<v,t>>}.\forall w'[w \text{ INERT}_t\ w' \rightarrow \exists t'[t \text{ is a non-final part of } t' \ \&\ \exists e[\tau(e) \subseteq t' \ \&\ P(w')(e)]]]$

Basically, due to the pluractional component, the semantics of *-unnu* differ from a progressive with an entry like (51) or (52) in that the use of *-unnu* asserts that there are hiatuses in between the subeventualities of the predicate.

4.5.3 The pragmatics of *-unnu* & *-uka*

The presence of these two types of progressives in Malayalam leads to a pragmatic competition between the two forms. This section will first present the relevant data and then offer an explanation for this competition in terms of a scalar implicature account. Finally it will show how the scalar implicature account can explain the appropriateness effects that arise based on this competition. This competition provides the third piece of evidence in favor of *-unnu* bundling iterative pluractional and progressive viewpoint aspect semantics.

Let us begin by first considering the relevant data. As examples (53-b) and (54-b) show, speakers frequently strongly prefer the *-uka* marked sentences to mean the Context B scenarios. In this way, *-uka*, which has the same semantic entry as an English progressive, seems to differ from its English counterpart.

(53) Context A: He dies in his sleep. One of the many projects he happened to have going on around the time of his death was the writing of his autobiography. [He was not actually engaged in the act of writing at the moment when he died.]
Context B: He is sitting at his desk, pen in hand/keyboard in front of him, writing his autobiography, when he suddenly has a heart attack and dies instantly.

a. avan marikk-um-poo̱l avan avan-te aatmakatha ezu̱t-unnu
he die-UM-when he he-GEN autobiography write-PLUR
unṯaayirunnu
be.PST
'He was writing his autobiography when he died.' [ok Context A, X Context B]

b. avan marikk-um-poo̱l avan avan-te aatmakatha ezu̱t-uka(y)
he die-UM-when he he-GEN autobiography write-PROG
aayirunnu
be.PST
'He was writing his autobiography when he died.' [ok(preferred) Context B, ok Context A]

(54) Context A: He happened to be in a state of sneezing every few seconds (say because he had a cold)
Context B: The moment I slipped, he was in the middle of an isolated sneeze

a. ɲaan veen-appoo̱l avan tumm-unnu uṉt̪aayirunnu
I slip.PST-when he sneeze-PLUR be.PST
'He was sneezing when I slipped on the floor.'[ok Context A X Context B]

b. ɲaan veen-appoo̱l avan tumm-uka(y)-aayirunnu
I slip.PST-when he sneeze-PROG-PST
'He was sneezing when I slipped on the floor.' [ok (preferred) Context B, ok Context A]

Instead of arguing that these facts necessitate a modified semantic entry for *-uka*, what follows will propose that the strong preference for the 'continuously doing' reading (Context B) with *-uka* is the result of a scalar implicature.

The intuition behind such an account is the following. The use of *-unnu* asserts that there are gaps between the subevents of the predicate (Context A). The use of *-uka* has no such requirement, since it is a simple progressive marker with no iterative pluractional component. Due to their similar progressive semantics *-unnu* and *-uka* are scale mates. The requirement that there be hiatuses when *-unnu* is used makes it the stronger alternative/scale member. The usage of *-uka* in these contexts triggers a scalar implicature that there are no hiatuses, i. e. not *-unnu*.

In slightly more formal terms, the implicature can be calculated as in (55), where 'Quality' and 'Quantity' refer to the Gricean Implicatures in (56).

(55) a. S says ϕ (*-uka*)
b. Quality: S believes ϕ (*-uka*)
c. Quantity: If S believes ψ (*-unnu*) and ψ (*-unnu*) is more informative than ϕ (*-uka*), then S should have said ψ ((*-unnu*)
d. Assuming that S believes ψ (*-unnu*)or $\neg\psi$ (*-unnu*) (opinionatedness), then S believes $\neg\psi$ ((*-unnu*)

(56) Gricean Implicatures

a. Maxim of Quality:
i) Don't say what you believe to be false
ii) Don't say that for which you lack adequate evidence

b. Maxim of Quantity:
i) Make your contribution as informative as required
ii) Don't make your contribution more informative than is required.

This would mean that an *-unnu* marked sentence like (57-a) would have the meaning in (57-b). The parallel *-uka* marked sentence, (58-a) would have the meaning in (58-b).

(57) a. ɲaan ii paper vaayikk-unnu-∅
I this paper read-PLUR-PRS
≈'I am reading this paper'

b. [∃ multiple subevents of reading the paper with hiatuses in between them & at least some of these subevents are contained within the TT (progressive iterative pluractional, assertion) and the sum reading event is still going on at the UT (present tense (UT⊆ TT), assertion) though at the UT the speaker could be reading or taking a tea break after which they will go back to reading (no commitment)]

c. timeline
__x_____x_____x____[$_{TT}$ ___x_____x_____x___(x)]___(x)
UT

(58) a. ɲaan ii paper vaayikk-uka(y) aaɳə
I this paper read-PROG be.PRS
≈'I am reading this paper.'

b. [∃ a continuous (i. e. without any hiatuses) event (progressive, implicature) of reading the paper at least some of which is going on throughout the TT (progressive, assertion) & the reading is still ongoing at the UT (present tense(UT⊆ TT), assertion)]

c. timeline
----------[$_{TT}$----------]($_{UT}$---)

d. timeline
__x_____x_____x____[$_{TT}$ ___x_____x_____x___(x)]___(x)
UT

One prediction of this type of scalar implicature account, is that the implicatures should be able to be canceled. Evidence that the implicatures can be canceled comes from the fact that speakers can get the 'breaks' (Context A) reading with

(53-b) and (54-b) in addition to the preferred 'continuousness' reading (Context B). The 'breaks' reading can be brought out for an *-uka* marked sentence like (59-b) by a context like that in (59-a).

(59) a. Context: I run into you eating lunch in Kochi. Since you live in Bangalore, I didn't expect to see you in Kochi, so I ask you 'What are you doing in Kochi?'
b. reception-ə veeɳʈi ɲaan saari-(kaḷ) vaaŋŋ-uka(y)-aaɳə
reception-DAT BENEF I sari-PL buy-PROG-be.PRS
'I am buying saris for a reception.'

In sum, due to the scalar implicature that arises when *-uka* is used, *-uka* is the preferred form when a speaker wants to highlight that a continuous event, without hiatus between subevents, is in progress.

The presence of this scalar implicature with *-uka* can explain a number of 'appropriateness' effects that arise based on whether *-unnu* or *-uka* is used in a particular context. First, in the context of meeting someone new and answering a casual question about where you live, it is most natural to use (61-a) even if you have never lived outside of Kochi. In this case the need for multiple, discontiguous subevents within the Topic Time is suspended because the distinction is irrelevant for the question at hand. Just as it is odd to answer (60-a) with (60-c) in English, it is odd to answer with (61-b) in Malayalam because, due to the implicature, it is an overly informative answer. For this reason, (61-a) is normally used. The use of (61-b) is natural when one wants to make the implicature of 'continuous' living, for example to emphasize to a minister visiting Kochi to learn about the satisfaction of his constituents that the speaker is a long time resident of Kochi and so should be taken seriously or to emphasize that despite living in Kochi 'continuously'/for a long time that you still have not been to a famous place in Kochi, (61-c).

(60) a. Where do you live?/Where are you from?
b. I am from/live in Boston.
c. #I have lived in Boston my whole life.

(61) a. ɲaan kochi-yil tamasikk-unnu-∅
I Kochi-LOC live-PLUR-PRS
≈ 'I live in Kochi.']
b. ɲaan kochi-yil tamasikk-uka(y) aaɳə
I Kochi-LOC live-PROG-PRS
≈ 'I live in Kochi.'

c. ɲaan kochi-yil tamasikk-uka(y) aaɳə pakʂe lulu mall
I Kochi-LOC live-PROG be.PRS but Lulu Mall
kaɳʈ-iʈʈ-illa
see.PART-ittu-NEG
≈ 'I live in Kochi but I have never seen Lulu Mall.'

Secondly, in the context of a football match, to enquire about the score at half time, it is more acceptable to use the *-unnu* marked form. This is because, most of the time, one team does not win through the entire match, i. e. there are hiatuses to their winning when the other team takes the lead. Asking (62-b) in this context implies that one team has continuously been winning throughout the half. This can happen but, it is not what generally happens in games. For this reason, (62-a) is a more natural way to ask this question.

(62) Context: You have not been watching the football match and are not much of a football fan. Your friend comes in at half time. You ask…

a. aarə jayikk-unnu-∅?
who win-PLUR-PRS
≈ 'Who's winning?'

b. #aarə jayikk-uka(y) aaɳə?
who win-PROG be.PRS
≈ 'Who's winning?'

Thirdly, the implicature account can explain a hyperbolic use that arises with *-uka* marked predicates like (63-b). The (63-a) sentence is the most natural one to use if someone pays a complement after a performance and asks you how long you have been singing. Using (63-b) here signals that the speaker wants to add some extra comment like 'but even then (I didn't win any prize)/and now (I want to study more).' The account given in this chapter accounts for this by saying that the *unnu* marked (63-a) gives information about an activity that has been going on intermittently throughout the past year. While the *-uka* marked (63-b) can also mean this, because of the implicature it gains a hyperbolic use suggesting that singing is all that one has been doing.

(63) a. ɲaan oru vaɽʂam aayi paaɖ-unnu-∅
I one year ADV sing-PLUR-PRS
≈ 'I have been singing for one year.'

b. ɲaan oru vaɽʂam aayi paaɖ-uka(y) aaɳə
I one year ADV sing-PROG be.PRS
≈ 'I have been singing for one year.'

Fourthly, the implicature account also offers insight into why the pair of questions in (64) have the acceptability patterns they do with the following three contexts below. When (64-a) is used, due to its iterative pluractional component, it has the flavor of 'What have you been up to (today/lately)?' This type of question is overly casual in Contexts 2 and 3, but appropriate in Context 1. Due to the implicature, (64-b) has the flavor of 'What are you in the middle of?'. This type of question is appropriate in Context 2 and 3 but is too specific in Context 1.

Context 1: Your mother or friend calls you just to casually talk and find out about your day [ok(64-a), X (64-b)]

Context 2: Someone you don't know (say a sales person or bureaucrat) or someone that you have a strictly formal relationship with (say a business colleague that you do not know well) calls you on the phone [X (64-a), ok (64-b)]

Context 3: Your mother calls you during your exam period. She knows that you are somewhat lazy, so she is wondering if you are studying or if, as she suspects, you are just sleeping [ok (64-b)], X(64-a)].

(64) a. aviṯe entə ceyy-unnu-ø?
there what do-PLUR-PRS
≈'What are you doing?' (with the flavor of: 'What have you been up to?')

b. aviṯe entə ceyy-uka-aaɳə?
there what do-PROG-be.PRS
≈'What are you doing?' (with the flavor of: 'What are you in the middle of?')

Likewise, if your close friend is an editor of a journal, and she sends you an email in her official capacity reminding you that your review is due soon, to write back, thank her for the reminder, and tell her that you are writing the review the *-uka* form of 'write.' *ezṯut-uka(y) aaɳə*, should be used to signal (possibly falsely) that you are in the middle of continuously writing the review, i. e. that you are working on it and taking the approaching deadline seriously. The *–unnu* form, *ezṯut-unnu-ø*, is too casual in this context and might be interpreted as laziness due to *-unnu*'s assertion of multiple breaks. If she sent you an email simply as your friend about something else you were writing, it would be natural to answer with the *–unnu* form.

Finally, while either of the sentences in (65) could be used to express that one would like a snack or a cup of water, there is a preference to use the sentence in (65-a) because, due to the implicature, (65-b) tends to indicate on-going thirst/hunger instead of just intermittent pangs of thirst/hunger.

(65) a. (enikkə) daahikk-unnu-∅/viʃikk-unnu-∅
I.DAT thirst-PLUR-PRS/hunger-PLUR-PRS
'I am thirsty/hungry' [asserts: interspersed twangs of thirst/hunger]
b. (enikkə) daahikk-uka(y) aaɳə/viʃakk-uka(y) aaɳə
I.DAT thirst-PROG be.PRS/hunger-PROG be.PRS
'I am thirsty/hungry.' [Implies: continuous thirst/hunger with the flavor of 'I could drink a well/eat a horse, I'm so thirsty/hungry']

4.6 Conclusion

The first question this chapter addressed was, What types of cross-linguistic variation exist in the domain of viewpoint aspect? This chapter showed that languages vary in terms of the amount of overt morphological viewpoint aspect marking they have, ranging from no overt morphology to four plus viewpoint aspect morphemes. It also showed that languages have the option of bundling viewpoint aspect together with other features (such as the pluractional) in a single morpheme.

The second question the chapter examined was, How can this variation be theoretically accounted for? Using Malayalam as a case study, this chapter examined the semantics of what had previously been called the two 'imperfective' morphemes in Malayalam, *-uka* and *-unnu*. Building on past work in the semantics literature distinguishing progressives from imperfectives, it argued that *-uka* is strictly a progressive morpheme. It showed that *-unnu* is not an imperfective marker because it does not behave like a true imperfective marker in that *-unnu* marked verbs can be used to express accidental generalizations, give rise, for many speakers, to semantically odd sentences when they occur with frequentive adverbs, and have a 'happenstance' requirement that the Topic Time must contain multiple (sub)events with hiatuses in between them. These facts were accounted for by proposing that the *-unnu* morpheme encodes progressive viewpoint aspect and iterative pluractional semantics. While this chapter has argued against identical semantics for *-unnu* and *-uka*, the presence of two subtypes of the progressive aspect were shown to give rise to a pragmatic competition between the two forms.

Turning now to the final question about the implications for Universal Grammar, this chapter has at least the following implications. First, the new type of pluractional morpheme (one that bundles viewpoint aspect and pluractionality) proposed here raises several issues for the syntax-semantics interface. The focus of this chapter has mainly been on the semantics of the viewpoint aspect morphemes in Malayalam. Turning to the morphosyntax, there are two options. One option is for Malayalam to have a syntax that is basically the same as English with a single Aspect Phrase but to have, in addition to the [PROG(RESSIVE)] feature

English also has, an additional feature [PROG PLUR(ACTION)] that can appear on the Aspect head. Here the cross-linguistic differences in viewpoint aspect would be located in the features the respective languages have, (66). The syntax would be uniform across languages.

(66) Option 1: Locus of variation is the features on the Viewpoint Aspect head
  a. English: [PROG]
  b. Kaqchikel: [COMPLETIVE] vs [INCOMPLETIVE]
  c. Malayalam: [PROG] vs [PROG PLUR]

The other option is that Malayalam and Kaqchikel, like English, have an Aspect Phrase with viewpoint aspect features on the Aspect head. However, in Malayalam and Kaqchikel, below the Aspect Phrase, there would be a Number Phrase with a [PLUR] feature on the Number head. Languages without a pluractional would either not project the Number Phrase with the [PLUR] feature or they would project a Number head without any feature present.[8] In this case, the locus of the cross-linguistic variation would be in the syntax.

(67) Option 2: Locus of variation is in the syntax
  a. English: [$_{AspP}$ Asp[PROG] ([$_{\#P}$ #)....]]
  b. Kaqchikel: [$_{AspP}$ Asp[COM/INCOM] [$_{\#P}$ #[PLUR] ....]]
  c. Malayalam: [$_{AspP}$ Asp[PROG] [$_{\#P}$ #[PLUR]....]]

The difference between a Kaqchikel style language with distinct morphemes for viewpoint aspect and pluractionality versus a Malayalam style language with a single morpheme that expresses both might be the result of head movement in the latter but not the former. Whichever option turns out to be correct will have a bearing on how the syntax-semantics interface is understood.

A second implication for Universal Grammar has to do with the relationship between viewpoint aspect and the perfect. Recall Iatridou et al. (2002) and Pancheva (2003, 2013)'s claim that, cross-linguistically, the types of lexical and viewpoint aspects a language has will influence the readings of the perfect that it allows. If this claim is correct, the presence of the iterative pluractional progressive, in addition to the 'pure' progressive in Malayalam makes a prediction that both types of progressives can be used in the Universal perfect with the same type of pragmatic competition, resulting in a more finely nuanced Universal perfect than what is found in English. The next chapter will show that this prediction is in fact borne out, providing additional typological support for this claim.

8 See chapter 7 for further discussion of this issue.

5 Cross-linguistic variation in the perfect

5.1 The questions & main claims

This chapter will explore the perfect. Before turning to the focus questions of the chapter, a very brief overview of the perfect will be given. As detailed in chapter 1, the semantics for the perfect assumed in this book are those presented in Iatridou et al. (2002), Pancheva (2003), a. o., where the function of the perfect is to set up a time span called the Perfect Time Span. Under this account, the perfect is neither a tense nor a viewpoint aspect but a third, independent category. The left boundary (LB) of the Perfect Time Span is set by an adverbial (*since 1990*, *for 3 years*, etc.) or by the context (for example, the speaker's birth). The right boundary (RB) of the Perfect Time Span is set by tense (i. e. the relationship of the Topic Time and the Utterance Time, with the Topic Time being a final subinterval (i. e. RB) of the Perfect Time Span), as (1)–(3) respectively show.

(1) a. I have been writing this paper for one week. (Present Progressive Perfect)
LB_____RB

b. a week ago.....paper writing.....UT

c. #I have been writing this paper for one week but I am not writing it anymore/now its finished.

(2) a. I saw him last Tuesday. At that point, he had been writing the paper for one week. (Past Progressive Perfect)
LB_____RB_____|

b. Tues.....paper writing.....Tues UT

(3) a. On Thursday, I will have been writing this paper for one week. (Future Progressive Perfect)
LB_____|_____RB

b. Thurs.....paper writing.....UT.....Thurs

There are two readings the perfect can have: the Existential reading (existential quantification over points in the Perfect Time Span) and the Universal reading (universal quantification over points in the Perfect Time Span). The examples above are of Universal perfect readings. See chapter 1 for examples of sentences with the Existential reading. This concludes the overview of the semantics of the perfect.

The questions in (4) will be the focus of this chapter.

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(4) a. What types of cross-linguistic variation exist in terms of the perfect?
b. How can this variation be theoretically accounted for?
c. What can this variation teach the field about Universal Grammar?

The first question is a broad one and will be narrowed down a bit for the sake of space. As such, this chapter will mainly limit itself to the question of cross-linguistic variation in the morphological makeup of the Universal perfect. Two types of variation in this domain will be examined. The first type of variation deals with the different ways in which the aspectual resources of a language influence the meaning or availability of a Universal perfect reading. The second type of variation consists of whether or not perfect morphology is used in the verb form(s) with Universal perfect semantics. In addition to the case study on Malayalam, data from English, Turkish (Turkic, Turkey), Greek (Hellenic, Greece), Georgian (Kartvelian, Georgia), Bulgarian (Slavic, Bulgaria) and Saisiyat (Northwest Formosan, Taiwan) will inform the analysis of this variation.

The case study carried out in this chapter on Malayalam will shed light on these points of variation by exploring the morphosyntax and semantics of the four different ways Malayalam can express Universal perfect semantics, (5).

(5) a. ɲaan oru aaz̤ca aayi ii paper vaayikk-unnu-∅/uɳṯə
I one week ADV this paper read-PLUR-PRS/be.PRS
'I have been reading this paper for one week.'
b. ɲaan oru aaz̤ca aayi ii paper vaayikk-uka(y) aaɳə
I one week ADV this paper read-PROG be.PRS
'I have been reading this paper for one week.'
c. ɲaan oru aaz̤ca aayi ii paper vaayicc-ə-koɳṯ-irikk-unnu-∅
I one week ADV this paper read-PART-???-???-PLUR-PRS
'I have been reading this paper for one week.'
d. ɲaan oru aaz̤ca aayi ii paper vaayicc-ə-koɳṯ-irikk-uka(y) aaɳə
I one week ADV this paper read-PART-???-???-PROG be.PRS
'I have been reading this paper for one week.'

As expected with a Universal perfect, none of these sentences can be felicitously followed by (6).[1]

1 Present Universal perfects assert that the eventuality holds at the Utterance Time (since the right boundary of the Perfect Time Span is set by tense and in a present Universal perfect, the right boundary will be the Utterance Time), (1). In the other tenses the eventuality need not hold at the Utterance Time. For example, (2) could be followed up with either 'But now he is finished.' (eventuality does not hold at the Utterance Time) or 'And I'm sure he has been writing ever since.' (eventuality does hold at the Utterance Time).

(6) #pakṣe ippum kaẓiɳɲɳ-u.
but now finish-PST
'But now I finished.'

In section 5.2 the subtle shifts in meaning present in the Universal perfect sentences in (5) will be shown to be the result of the different types of lexical and viewpoint aspect resources Malayalam has at its disposal, as Iatridou et al. (2002) and Pancheva (2003, 2013) predict. Section 5.3 will argue that Malayalam lacks an overt perfect morpheme in the Universal perfect, on par with languages like Greek and Georgian. Even on a first glance at the verb forms in (5-a) and (5-b), it is easy to see that these forms are morphologically identical to the simple progressive forms discussed in chapter 4. The forms in (5-c) and (5-d) have several 'mystery' morphemes which will be identified as non-perfect morphemes in Section 5.3.1. The puzzle 'perfect-less' perfect forms raise for the Principle of Compositionality will be discussed in Section 5.3.2.

5.2 The role of aspect morphology in Universal perfect formation

Recall from chapter 1 that the only predicates that can receive a Universal perfect meaning are those that have an aspectual specification that is compatible with the universal quantification needed for a Universal perfect. As such, this section will explore the lexical and viewpoint aspect resources different languages have at their disposal to construct the Universal perfect. It will begin with a survey of the cross-linguistic data in section 5.2.1. Section 5.2.2 will examine the aspectual resources Malayalam has, and section 5.2.3 will show how these aspectual resources combine to yield the meaning shifts in the Malayalam Universal perfects.

5.2.1 Motivating the role of aspect cross-linguistically

Turning first to the cross-linguistic picture, chapter 1 showed that, in English, telic predicates require progressive viewpoint aspect in order to get a Universal perfect reading, (7)–(8), while atelic predicates are compatible with either progressive or perfective viewpoint aspect, (9)–(10).

(7) Betsy has been writing a letter since Monday. (progressive telic)
a. universal: progressive durative PTS-ADV
b. ?[2]existential: progressive inclusive PTS-ADV

2 Pancheva gives this reading a ? but I would give it a *.

(8) Betsy has written a letter since Monday. (perfective telic)
  a. *universal: perfective durative PTS-ADV
  b. existential: perfective inclusive PTS-ADV

(9) Ann has been watching TV since Monday. (prog atelic, activity)
  a. universal: progressive durational PTS-ADV
  b. ?existential: progressive inclusive PTS-ADV

(10) Ann has watched TV since Monday. (perfv atelic, activity)
  a. universal: perfective durative PTS-ADV
  b. existential: perfective inclusive PTS-ADV (Pancheva 2013 slide 19)

Iatridou et al. (2002) and Pancheva (2003, 2013) argue that the aspectual requirements on Universal perfects also explain why some languages with perfect morphemes cannot use these morphemes in the Universal perfect. Using Greek, (11), as their first case study, they show that the perfect participle in Greek is built on the perfective stem. Parallel with English, it is possible for the perfective to be used with atelics when the adverb *apo....meχri* 'from...to' is used, (11-a), because the lexical aspect of the predicate will provide the subinterval property. However, this perfective-based perfect participle cannot be used with telics, since they do not independently license the subinterval property, (11-b). As a result, it is not possible for Greek to use the perfect participle in telic sentences with Universal perfect semantics. These sentences instead use the simple tense form, (11-c).

(11) Greek
  a. Eχi kivernisi apo to 1990 meχri tora.
  has-3S governed.PFV.PTCP from the 1990 until now
  'S/he has goverened from 1990 to now.' (Iatridou et al. 2002 p176: 45)
  b. *eχo diavasi afto to paper (gia) mia vdomada
  have.1SG read.PFV.PTCP this the paper for a week
  'I have been reading this paper for one week.'
  c. diavazo afto to paper (gia) mia vdomada.
  Read.PRS.1SG this the paper for a week
  'I have been reading this paper for one week.' [lit. 'I am reading this paper for one week.']

Iatridou et al. and Pancheva then show that Bulgarian has two perfect participle forms, one built on the imperfective, (12-a)/(12-d) and another build on the perfective stem, (12-b)/(12-e). Unsurprisingly, only the perfect participle based on the imperfective allows Universal perfect readings with both telics and atelics/statives, as (12-e)(12-a) and (12-c) show. It is expected since the imperfective, by itself, licenses the subinterval property. The perfective-based perfect participle can only

be used with atelic predicates, (12-d). When the perfective stem is used with a telic predicate, an Existential perfect results, (12-b).

(12) Bulgarian

a. Investiciite sa narast-v-ali ot 1997 nasam.
investments are grow-IMP-PRF.PTCP from 1997 until/since.now
'Investments have been growing since 1997.' (Universal perfect)

b. Investiciite sa narast-n-ali ot 1997 nasam.
investments are grow-PFV-PRF.PTCP from 1997 until/since.now
'Investments have grown since 1997.' (Existential perfect) (Pancheva 2013 slide 24: 15)

c. Marija vinagi e obi-č-ala Ivan.
Maria always is love-IMP-PRF.PTCP Ivan
'Maria has always loved Ivan.' (Universal perfect) (Pancheva 2013 slide 25: 16a)

d. Az sum pi-la vinoto ot 12 nasam.
I am drink.PFV-PRF.PTCP the.wine from 12 until/since.now
'I have been drinking the wine since 12.' (Universal perfect)

e. Az vinagi sum si iz-pi-v-ala vinoto ot 12 nasam.
I am always REFL prefix-drink-IMP-PRF.PTCP the.wine from 12 until/since.now
'I have always drunk my wine.' (Universal perfect) (Pancheva 2013 slide 26-27: 17b, 17d)

Guekguezian (2014) provides further evidence from outside the Indo-European family for Iatridou et al. and Pancheva's claims. He notes that in the Austronesian language Saisiyat, when the perfect morpheme combines with an imperfective morpheme, a Universal perfect reading results, (13-a), but, when the perfect combines with the perfective, only an Existential perfect reading can be obtained (13-b).

(13) Saisiyat

a. Ataw Ø 'ayaeh ila
Ataw IMF sick PRF
'Ataw has been sick (and still is).' (Universal perfect)

b. Ataw ina 'ayaeh ila
Ataw PFV sick PRF
'Ataw has been sick (once).' (Existential perfect) (Guekguezian 2014 slides 5, 18: 2, 8)

This type of account also seems to be on the right track for the Kartvelian language Georgian. Example (14) shows Universal perfects use a simple tense form, (14-c), while Existential perfects use a form built on a participle using a preverb, (14-a). This participle cannot be used in Universal perfects, (14-b). This may be because the preverb *ts'a-*, like many other preverbs in Georgian, is contributing perfectivity (p. c. Lena Borise). As such, the same story could be told for why Greek and Georgian lack a perfect form in the Universal perfect.

(14) Georgian

a. (me) es ts'igni ts'a-k'itx-ul-i m-a-kv-s
1SG this.NOM paper.NOM PRV-read-PTCP-NOM 1SG-VER-have-3SG
'I have read this paper before.'

b. *(me) es ts'igni erti k'vira-a ts'a-k'itx-ul-i
1SG this.NOM paper.NOM one week-COP PRV-read-PTCP-NOM
m-a-kv-s
1SG-VER-have-3SG
'I have been reading this paper for one week.'

c. (me) am ts'ign-s erti k'vira-a v-k'itx-ul-ob
1SG this.DAT paper-DAT one week-COP 1SG-read-PTCP-SF
'I have been reading this paper for one week.' [lit. 'I am reading this paper for one week.']

In sum, perfective marked telics cannot get Universal perfect readings in any language, since these predicates are not compatible with the universal quantification present in Universal perfects. Since some languages (Greek and Georgian) build their perfects on perfective participles, they lack a way to mark telic verbs as perfect using imperfective/progressive perfect morphology. Instead they use simple, non-perfective viewpoint aspect forms in the Universal perfect. When a language (Bulgarian and English) has a perfect form based on either a perfective or imperfective/progressive form, Universal perfects of telics are only compatible with the imperfective/progressive form. Still, some languages (Saisiyat) require imperfective viewpoint aspect on both telic and atelic predicates in order for there to be a Universal perfect meaning. This shows that one important factor in cross-linguistic variation in the morphological form of Universal perfects is the type of aspectual morphology the language has and uses to create the perfect form.

This predicts that, cross-linguistically, the types of lexical and viewpoint aspects a language has will influence whether or not perfect morphology is used in Universal perfects in the language and the forms and readings of the perfect that a Universal perfect in the language allows. Given the arguments in chapter 4 that Malayalam has multiple types of progressive viewpoint aspect markers, which li-

cense the subinterval property, one might expect a rich spread of Universal perfect forms in Malayalam. As shown above, this prediction is borne out. The next two sections will focus on identifying and teasing apart the different meanings of the Universal perfects in Malayalam based on their lexical and viewpoint aspects.

5.2.2 Aspectual components of the Malayalam Universal perfects

Recall the four ways one can express Universal perfect semantics in Malayalam, (15), repeated from above.

(15) a. ɲaan oru aaɻca aayi ii paper vaayikk-unnu-∅/unʈə
I one week ADV this paper read-PLUR-PRS/be.PRS
'I have been reading this paper for one week.'

b. ɲaan oru aaɻca aayi ii paper vaayikk-uka(y) aaɳə
I one week ADV this paper read-PROG be.PRS
'I have been reading this paper for one week.'

c. ɲaan oru aaɻca aayi ii paper vaayicc-ə-koɳʈ-irikk-unnu-∅
I one week ADV this paper read-PART-???-???-PLUR-PRS
'I have been reading this paper for one week.'

d. ɲaan oru aaɻca aayi ii paper vaayicc-ə-koɳʈ-irikk-uka(y) aaɳə
I one week ADV this paper read-PART-???-???-PROG be.PRS
'I have been reading this paper for one week.'

The parts involved in these different options can be schematized as in (16). Based on this, one can separate out the components of a Universal perfect that need to be accounted for in Malayalam as in (17).

(16) a. (15-a): durative adverb V-PLUR-∅/tense form of *unʈə* 'be'
b. (15-b): durative adverb V-PROG-tense form of *aaɳə* 'be'
c. (15-c): durative adveb V-PART-*koɳʈə-irikk*-PLUR-tense ending/tense form of *unʈə* 'be'
d. (15-d): durative adverb V-PART-*koɳʈə-irikk*-PROG-tense form of *aaɳə* 'be'

(17) a. durative adverbs
b. tense morphology/tense auxiliaries
c. progressive viewpoint aspect iterative pluractional morpheme *-unnu*
d. progressive viewpoint aspect morpheme *-uka*
e. *-koɳʈə*
f. functional uses of *irikk-*
g. Conjunctive/Adverbial participles (PART)

This book has already considered the semantics of the parts in (17-b)–(17-d) and (17-g). Chapter 2 argued that Malayalam has tense morphology/auxiliaries that meet(s) the basic Kleinian definition of tense. For concreteness, this was formalized using the entries in Kratzer (1998), (18).

(18) a. $[\![\text{PRS}]\!]^{g,c} = [\![\text{PRS}]\!]^{g,c}$ is only defined if c provides an interval t that includes t_0 (UT). If defined, then $[[\text{PRS}]]^{g,c}$ =t.
b. $[\![\text{PST}]\!]^{g,c} = [\![\text{PST}]\!]^{g,c}$ is only defined if c provides an interval t that precedes t_0 (UT). If defined, then $[[\text{past}]]^{g,c}$ =t.
(Kratzer 1998 p10)

Chapter 4 showed that *-uka* is a progressive viewpoint aspect marker with the entry in (19), while *-unnu* is a progressive viewpoint aspect iterative pluractional marker, with the entry in (20). It further showed that the presence of these two closely related forms gives rise to a pragmatic competition, i. e. that the use of the *-uka* form gives rise to a scalar implicature that there are no hiatuses between (sub)events of the predicate.

(19) $[\![\text{-}uka]\!] = \lambda w.\lambda t.\lambda P_{<s,<v,t>>}.\forall w'[w \text{ INERT}_t\ w' \rightarrow \exists t'[t \text{ is a non-final part of } t' \ \&\ \exists e[\tau(e) \subseteq t' \ \&\ P(w')(e)]]]$

(20) $[\![\text{-}unnu]\!]: \lambda V_{<v,t>}.\lambda t_i'.\lambda e_v[V(e) \wedge \exists P[\text{Part}(P, \tau(e)) \wedge \forall t \in P \exists e'[\begin{matrix}\text{i. } \tau(e') = t \wedge \\ \text{ii. } e' \leq e \wedge \\ \text{iii. atom}(e') \\ \text{iv. } \epsilon(\tau(e))(t)\end{matrix}]] \wedge t' \subseteq \tau(e)]$

Chapter 3 explored the syntax and semantics of Conjunctive/Adverbial participles and argued that they are structurally small, roughly vPs, and are semantically underspecified for tense and viewpoint aspect.

The role of *irikk-* and durative adverbs will be taken up in section 5.3 of this chapter. *Irikk-* will be argued to be a viewpoint aspect auxiliary when it co-occurs with *koɳʈə*. By this it is meant that *irikk-* appears only to support *koɳʈə* but makes no semantic contribution itself. The remainder of this section will focus on *koɳʈə*.

Asher & Kumari (1997) cite *koɳʈə* as the frozen Conjunctive Participle of the verb *koḷḷ-* 'take.' Past intuitions about the function of *koɳʈə* have, generally, been that it is some kind of 'continuousness' marker (Mohanan 1983, Gopalakrishnan 1985, Asher & Kumari 1997, Madhavan (2006), Jayaseelan 2004). Asher & Kumari (1997) call it a progressive morpheme, and Jayaseelan (2004) states that it is an adverb meaning 'when' used to express durative aspect.

In what follows it will be argued that *koɳʈə* and *–uka* are not both progressive viewpoint aspect markers. First, chapter 4 argued that *-uka* is a genuine progres-

sive viewpoint aspect marker. One reason to think that *koɳɬə* is not a progressive viewpoint aspect marker is that it only occurs with conjunctive participles (which chapter 3 argued are vPs). In other words, it has a much more restricted distribution than *–uka* does. The genuine progressive viewpoint aspect marker, *-uka*, is what occurs with finite verbs.

Instead it will be argued that the function of *koɳɬə* is to assert that accomplishment predicates (what *koɳɬə* selects for) have not reached their telos. In order to establish this claim, an examination of the behavior of *koɳɬə* with different types of predicates is required. The use of *koɳɬə* with accomplishment predicates will be examined first, followed by its use with stative and activity predicates.

The first relevant piece of data for accomplishment predicates comes from non-Universal perfect contexts with what might be called the light verb use of *irikk-* (see section 5.4). In these contexts, an ambiguity appears when there is no *koɳɬə* in a sentence with an accomplishment predicate. Example (21-a) shows that, without *koɳɬə*, it is not clear whether Radha is still en route to the theater or if she is now sitting in the theater. When *koɳɬə* is added, (21-b), it is clear that she must be en route to the theater. The sentence in (21-b) cannot be used when Radha is sitting in the theater.

Context: You come to your friend Radha's house to meet her, expecting to find her there. When you get there she is not there. Her father tells you…

(21) a. raadha sinima-kkə pooy-irikk-uka(y) aanu
Radha cinema-DAT go.PART-???-PROG be.PRS
'Radha has gone to the cinema.' [en route to the theater or sitting in the theater, we don't know]

b. raadha sinima-kkə pooy-i-kkond-irikk-uka(y) aanu
Radha cinema-DAT go-PART-LAM-???-PROG be.PRS
'Radha is in the process of going to the cinema.' [*she is on her way now but hasn't yet reached the theater*]

Another example illustrating this point is given in (22). In the given context, the speaker needs to use the *koɳɬə* marked form, (22-a), since (s)he wants to emphasize that the action of learning is ongoing but not yet completed.[3]

Context: You are a foreigner learning Malayalam. You meet someone for the first time. They are impressed with your Malayalam and say 'So now you learned

3 The fact that the simple progressive form in (22-b) is infelicitous here is probably related to the multiplicity of progressive marked forms that exist in Malayalam. See the next section for discussion.

Malayalam.' You want to emphasize in your reply that *you did not fully learn Malayalam yet; you are simply engaged in the long process of learning Malayalam*.

(22) a. ɲaan malayalam padicc-ə-koɳʈ-irikk-uka(y) aaɳə
I Malayalam learn-PART-LAM-???-PROG be.PRS
'I am engaged in the ongoing process of learning Malayalam.' [though speakers generally just translate it as 'I am learning Malayalam.']

b. #ɲaan Malayalam padikk-uka(y) aaɳə
I Malayalam learn-PROG be.PRS
'I am learning Malayalam.'

In sum, the role of *koɳʈə* in (21) and (22) is to indicate that the activity is still ongoing and that Radha in (21-b) has not yet reached the endpoint of being in the theater and the speaker in (22-a) has not yet reached the endpoint of knowing Malayalam.

Turning now to stative predicates, the use of *koɳʈə* first coerces a stative predicate to an accomplishment predicate (since this is what *koɳʈə* selects for) and then further asserts that the accomplishment predicate has not reached its telos. This process can be seen in (23).

Context: Asha and Unni had an arranged marriage three years ago. Asha's mother is very worried about her because she has not adjusted to Unni and his family despite the fact that it has been three years.

(23) muunnə vaʈʂam-aayi asha unni-ye sneehicc-ə-koɳʈ-irikk-uka(y) aaɳə
three years-ADV Asha Unni-ACC love-PART-LAM-???-PROG be.PRS
'For three years Asha has been loving [*doing duties of a wife for] Unni but she has not yet succeeded in loving him [accepting/growing accustomed to the duties required of her*].'

The use of *koɳʈə* here makes this sentence not about Asha's feelings but rather about an activity that she is doing in order to reach an endpoint (becoming settled in her husband's family). This is the result of the coercion of the stative predicate to an accomplishment predicate. The fact that this coercion occurs suggests that *koɳʈə* does indeed select for an accomplishment predicate.

The sentence comments that for a span of three years Asha has been doing the actions/duties that a wife must do to be considered a good daughter-in-law/wife, but she is still having difficulties performing or accepting those duties. In other words, she is not settled in her role yet; she is still engaged in the process of moving towards that end. This is the second contribution of *koɳʈə*: the assertion that the telos of the accomplishment predicate has not been reached.

Turning to activity predicates, when *koɳʈə* is used with an activity predicate in non-perfect contexts, it indicates that the activity is prolonged, (24). It is not felicitous to say (24-b) in the case of a sudden shower. The sentence in (24-a) is used in that case. Instead, (24-b) is used in a context of a long/heavy rain. For example, it might be used by your mother to caution you to take precautions (carry an umbrella, take a rain coat) or not to go out because the rain is going on continuously and not stopping.[4]

(24) a. maẓa peyy-uka(y) aaɳə
rain fall-PROG be.PRS
'It is raining.'[case of sudden shower/to inform someone that it has started to rain, #long/heavy rain]
b. maẓa peyt-ə-koɳʈ-irikk-uka(y) aaɳə
rain fall-PART-LAM-???-PROG be.PRS
'It is going on raining.' [#case of sudden shower, ok long/heavy rain, st you should take precautions (carry an umbrella, take a rain coat) or not to go out because *the rain is going on continuously and not stopping*]

Following the pattern from accomplishment and stative predicates, one can propose that the use of *koɳʈə* coerces an activity predicate into an accomplishment predicate (since this is what *koɳʈə* selects for) and then asserts that the telos of the accomplishment predicate has not been reached. The 'prolonged' feel that (24-b) has is the result of this process. Evidence that this seems to be on the right track comes from the addition of the emphatic particle, *-ee*. Speakers comment that the prolonged feeling becomes more intense when this particle is attached to *koɳʈə*, (25).

(25) maẓa peyt-ə-koɳʈ-ee irikk-uka(y) aaɳə
rain fall-PART-LAM irikk-PROG be.PRS
'It is going *on* raining.' [emphasizes the prolonged feeling]

This is as expected given that the position of *-ee* determines its scope, as can be seen in (26).

(26) a. ɲaan-ee var-aam
I-EMPH come-MOD
'*I* will come.'

4 Speakers, when presented the sentences in (24) out of the blue, will often say that there is no difference. This is probably because they are translating them into English, where both seem to basically mean 'It is raining.'

b. naaɭe pattə maŋikk-ee var-uu
tomorrow ten o'clock-EMPH come-IMP
'Come at *ten* tomorrow.'
c. paray-aan-ee paaʈilla
say-INF-EMPH PROH
'(You) should not *talk*.'
d. raaman ippooẓ-ee var-unn-uḷḷ-uu
Raman now-EMPH come-PLUR-be-EMPH
'Raman is coming only *now*.'(Asher & Kumari 1997 p178: 868–869, 871–873)

In sum, this section has examined non-perfect and Universal perfect uses of *koɳʈə* with accomplishment, stative and activity predicates and shown that *koɳʈə* selects for an accomplishment predicate and then asserts that this predicate has not reached its telos. This is summarized in 5.1.[5]

Table 5.1: Summary of the interactions of different types of lexical aspect and *koɳʈə*.

Lexical aspect	when *koɳʈə* is added
accomplishment: [+dyn][+dur][+telic]	[+dyn][+dur][+telic]; telos not reached
achievement: [+dyn][+telic]	[+dyn][+dur][+telic]; telos not reached
activity: [+dyn][+dur]	[+dyn][+dur][+telic]; telos not reached
stative: [+dur]	[+dyn][+dur][+telic]; telos not reached

5.2.3 Confirming Iatridou et al.'s prediction: four ways to express a Universal perfect in Malayalam

This section will explore how to identify and account for the subtle meaning differences that occur in the different Universal perfect forms in Malayalam. It will show that the lexical aspect modifier *koɳʈə* interacts with the *-uka* and *-unnu* viewpoint aspect markers in a number of ways, as one would expect. This section will begin with an overview of the predictions a compositional account for the perfect makes. It will then examine how this type of account can explain the subtle meaning differences between the different forms in accomplishment, achievement and activity predicates.

From the outset, it should be noted that all four Universal perfect forms are completely acceptable as non-perfect forms when the durational adverb is re-

5 I have followed Olsen (1994) in assuming that features not specified in the table below are underspecified, though this is not a crucial assumption for what follows.

moved, as some of the data in the previous section suggested and the data in (27) shows. The question of how these forms gain perfect semantics will be addressed in section 5.3. For now, the focus will simply be on teasing out the subtle meaning differences the sentences in (27) have. These differences in meaning are the same in the simple aspect forms and in the Universal perfect forms, as accounts like Iatridou et al. (2002) and Pancheva (2003, 2013) predict.

(27) a. ɲaan ii paper vaayikk-unnu-∅/uɳʈə
I this paper read-PLUR-PRS/be.PRS
'I am reading this paper.'

b. ɲaan ii paper vaayikk-uka(y) aaɳə
I this paper read-PROG be.PRS
'I am reading this paper.'

c. ɲaan ii paper vaayicc-ə-koɳʈ-irikk-unnu-∅
I this paper read-PART-LAM-???-PLUR-PRS
'I am reading this paper.'

d. ɲaan ii paper vaayicc-ə-koɳʈ-irikk-uka(y) aaɳə
I this paper read-PART-LAM-???-PROG be.PRS
'I am reading this paper.'

The first consideration is whether *-unnu* or *-uka* is used. Those forms marked with *-unnu*, due to their iterative pluractional nature/hiatus requirement, are used only to express situations where assertions about the subeventuality of a predicate are made, (28). The usage of *-uka* contributes the semantics in (29) and also triggers a scalar implicature that there are no hiatuses between subevents of the predicate, i. e. not *-unnu*.

(28) $[\![\text{-}unnu]\!]: \lambda V_{<v,t>}.\lambda t'_i.\lambda e_v[V(e) \wedge \exists P[\text{Part}(P, \tau(e)) \wedge \forall t \in P \exists e'[\begin{array}{l}\text{i. } \tau(e') = t \wedge \\ \text{ii. } e' \leq e \wedge \\ \text{iii. atom}(e') \\ \text{iv. } \epsilon(\tau(e))(t)\end{array}]] \wedge$
$t' \subseteq \tau(e)]$

(29) $[\![\text{-}uka]\!] = \lambda w.\lambda t.\lambda P_{<s,<v,t>>}.\forall w'[w \text{ INERT}_t\ w' \rightarrow \exists t'[t \text{ is a non-final part of } t' \ \&\ \exists e[\tau(e) \subseteq t' \ \&\ P(w')(e)]]]$

The second consideration is whether or not *koɳʈə* is present. The function of *koɳʈə* is to select an accomplishment predicate and then asserts that the durative component of the accomplishment is in progress but that the the punctual component (i. e. telos) of the accomplishment has not been reached. Non-accomplishment predicates are coerced into accomplishment predicates when *koɳʈə* is present, as the previous section showed. This is summarized in 5.2.

Table 5.2: Summary of the interactions of different types of lexical aspect and *koŋʧə*.

Lexical aspect	when *koŋʧə* is added
accomplishment: [+dyn][+dur][+telic]	[+dyn][+dur][+telic]; telos not reached
achievement: [+dyn][+telic]	[+dyn][+dur][+telic]; telos not reached
activity: [+dyn][+dur]	[+dyn][+dur][+telic]; telos not reached
stative: [+dur]	[+dyn][+dur][+telic]; telos not reached

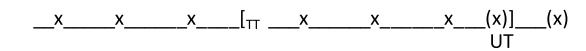
To see how these different components interact, examples of the four different options for expressing a progressive, and with the addition of a durative adverb, the Universal perfect will be examined. First the four uses with an accomplishment predicate will be examined followed by the uses with an achievement predicate and an activity predicate. Examples (30)–(33) show the four different ways to express the basic idea conveyed by the English sentence 'I am writing this paper.' A more precise meaning for each sentence is given in the (b) lines and a visual representation of that meaning is given in the (c) lines.

Example (30) would be a normal thing to say to tell one's sister what one has been up to lately. Using this sentence in a context where one's teacher inquires about one's progress reading a paper, however, gives rise to the feeling that the student is a lazy one because this form expresses a casual activity.

(30) a. ɲaan ii paper vaayikk-unnu-∅
I this paper read-PLUR-PRS
≈ 'I am reading this paper.'

b. [∃ multiple subevents of reading the paper with hiatuses in between them & at least some of these subevents are contained within the TT (progressive iterative pluractional, assertion) and the sum reading event is still going on at the UT (present tense (UT⊆ TT), assertion) though at the UT the speaker could be reading or taking a tea break after which they will go back to reading (no commitment)]

c. timeline

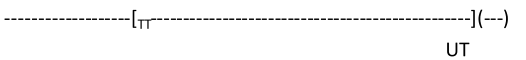


Due to the implicature, using example (31) implies that there are no breaks between subevents. This makes (31) useful when one wants to add an additional comment (cf. 'I am continuously writing this paper…so therefore it should be finished soon/that is why I did not hear you calling me', etc.)

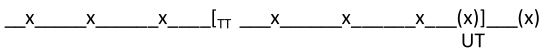
(31) a. ɲaan ii paper vaayikk-uka(y) aaŋə
I this paper read-PROG be.PRS
≈ 'I am reading this paper.'

b. [∃ a continuous (i. e. without any hiatuses) event (progressive, implicature) of reading the paper at least some of which is going on throughout the TT (progressive, assertion) & the reading is still ongoing at the UT (present tense(UT⊆ TT), assertion)]

c. timeline



d. timeline

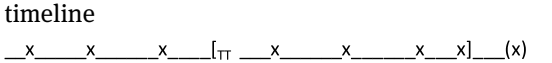


Example (32) is particularly useful when one wants to emphasize that they are in the process of reading (i. e. there are a lot of events of the speaker reading the paper) and, in fact, have the paper in hand reading at the Utterance Time, i. e. they are not on a tea break. It is not possible to say this sentence if the process of reading has been going on but currently the speaker is on a tea break from the reading.

(32) a. ɲaan ii paper vaayicc-ə-koɳʈ-irikk-unnu-∅
I this paper read-PART-LAM-???-PLUR-PRS
≈ 'I am reading this paper.'

b. [∃ multiple subevents of reading the paper with hiatuses in between these subevents and at least some of these subevents are contained within the TT (progressive iterative pluractional, assertion) and the reading is still going on at the UT (present (UT⊆ TT), assertion). The last subevent of reading the paper contained in the TT has not culminated at the UT (i. e. the speaker is currently reading the paper, not on a tea break) (*koɳʈə*, assertion)]

c. timeline

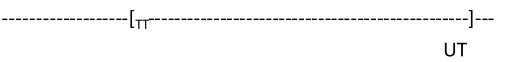


In the context of a teacher asking a student about his/her progress with a paper, it is best to use (33). Here, the combination of *koɳʈə* and *-uka* leads to the feeling that the whole ongoing action is pictured, as in a video, where all the details are there within the frame. Using this sentence conjures the image of seriously reading the paper, taking notes, and thoroughly observing the details. The use of *koɳʈə* adds a potentially hyperbolic sense that because the work is so intense, it will continue onwards past the Utterance Time. In general, these type of hyperbolic effects are considered polite and flattering and frequently found in formal contexts such as the lamp-lighting ceremonies that occur before important functions.

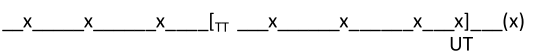
(33) a. ɲaan ii paper vaayicc-ə-koɳʈ-irikk-uka(y) aaɳə
I this paper read-PART-LAM-???-PROG be.PRS
≈ 'I am reading this paper.'

b. [∃ a continuous (i. e. without any hiatuses) event of reading the paper at least some of which is going on throughout the TT (progressive, implicature) and the reading is still on going at the UT (present (UT⊆ TT), assertion). The continuous (sum/whole) event of reading the paper has not culminated at the UT (i. e. the reading is going on beyond (not just at) the TT with potentially no end in sight) (*koɳʈə*, assertion)]]

c. timeline



d. timeline



The generalization that emerges is the following. With *-unnu* marked predicates, the presence of *koɳʈə* asserts that the last subevent of the durative component contained within the Topic Time has not culminated. The absence of *koɳʈə* leaves the speaker uncommitted with respect to whether or not the last subevent contained within the Topic Time has culminated. With *-uka* marked predicates, the presence of *koɳʈə* asserts that the telos of the sum/whole event has not been reached. The absence of *koɳʈə* leaves the speaker uncommitted with respect to whether or not the telos of the sum/whole event has been reached.

This same pattern can be seen with an achievement predicate such as 'they are dying.' Here (34) is a simple statement that some people are dying intermittently. Due to the implicature of there not being breaks between the different deaths, (35) emphasizes that the dying is continuous. Even if this is a slight exaggeration, this type of sentence would be most appropriate for a newspaper reporter to use while describing the 2018 nipah virus situation in Kozhikode because it expresses that there is an issue of continuous deaths occurring. The hyperbolic use of *-uka* emphasizes the seriousness of the situation. This could also be used if, as a resident of Kozhikode in 2018, I am afraid because my neighbors are dying one by one from the nipah virus, and I call my mother to tell her this. The hyperbolic use of *-uka* emphasizes my fear of the continuous deaths.

(34) a. avaɽ marikk-unnu-∅
they die-PLUR-PRS
≈ 'They are dying.'

b. [∃ multiple subevents of dying (distributed over individuals) with hiatuses in between them & at least some of these subevents are con-

tained within the TT (progressive iterative pluractional, assertion) and the sum dying event (i. e. the string of deaths) is still going on at the UT (present tense (UT⊆ TT), assertion) though at the UT someone may be dying or there might not be a death occurring at that moment but another one will occur shortly (no commitment)]

c. timeline

__x_____x_____x____[TT ___x_____x_____x___(x)]___(x)
UT

(35) a. avaɽ marikk-uka(y) aaɳə
they die-PROG-be.PRS
≈ 'They are dying.'

b. [∃ a continuous (i. e. without any hiatuses) event (progressive, implicature) of individuals dying at least some of which is going on throughout the TT (progressive, assertion) & the dying is still ongoing at the UT (present tense (UT⊆ TT), assertion)]

c. timeline

----------[TT----------](---)
UT

d. timeline

__x_____x_____x____[TT ___x_____x_____x___(x)]___(x)
UT

Example (36) could also be said in the context of calling your mother from Kozhikode in 2018, if one wants to focus on the fact that, in this string of deaths, even at this very moment, someone is dying from nipah. As a result, the speaker is afraid. Example (37-a) can be used in the case of an uncontrolled plague where people are dying off continuously with no end in sight, such as in the early stages of the 2018 nipah virus attack.

(36) a. avaɽ maricc-ə-koɳʈ-irikk-unnu-∅
they die-PART-LAM-???-PLUR-PRS
≈ 'They are dying.'

b. [∃ multiple subevents of dying (distributed over individuals) with hiatuses in between these subevents and at least some of these subevents are contained within the TT (progressive iterative pluractional, assertion) and the dying is still going on at the UT (present (UT⊆ TT), assertion). The last subevent of dying contained in the TT has not culminated at the UT (i. e. someone is currently dying; the UT is not a lull between the deaths) (*koɳʈə*, assertion)]

c. timeline
----------[TT----------]---
UT

(37) a. avaɽ maricc-ə-koɳɻ-irikk-uka(y)-aaɳə
they die-PART-LAM-???-PROG-be.PRS
≈ 'They are dying.'

b. [∃ a continuous (i. e. without any hiatuses) individuals dying at least some of which is going on throughout the TT (progressive, implicature) and the dying is still on going at the UT (present (UT⊆ TT), assertion). The continuous (sum/whole) event of individuals dying has not culminated at the UT (i. e. the dying is going on beyond (not just at) the TT with potentially no end in sight) (*koɳɻə*, assertion)]]

c. timeline
----------[TT----------]---
UT

d. timeline
__x_____x_____x____[TT ___x_____x_____x___x]___(x)
UT

Turning now to an activity predicate like 'I am eating', the same generalizations as previously seen once again hold. Example (38-a) is a statement that I am eating in a casual manner and so may not be in the middle of eating food at this instant. This could be because I am taking a break from putting more food in my mouth to read the paper more closely but will return to eating shortly. Example (39-a) suggests that the eating is going on continuously without breaks.

(38) a. ɲaan kazɻikk-unnu-Ø
I eat-PLUR-PRS
≈ 'I am eating.'

b. [∃ multiple (sub)events of eating with hiatuses in between these (sub)events and at least some of these (sub)events are contained within the TT (progressive iterative pluractional, assertion) and the eating is still going on at the UT (present, assertion) though at the UT the speaker could be eating or taking break after which they will go back to eating (no commitment)]

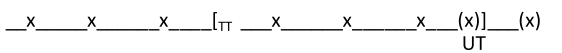
c. timeline
__x_____x_____x____[TT ___x_____x_____x___(x)]___(x)
UT

(39) a. ɲaan kazɻikk-uka(y)-aaɳə
I eat-PROG-be.PRS
≈ 'I am eating.'

b. [∃ a continuous (i. e. without any hiatuses) event of eating at least some of which is going on throughout the TT (progressive, implicature) and the eating is still on going at the UT (present, assertion)]

c. timeline

d. timeline

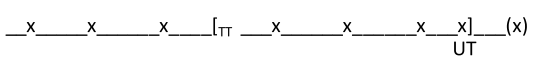


Example (40-a) is said if one wants to emphasize that the eating is going on intermittently but at the present moment the speaker is engaged in eating. Example (41-a) can be used if someone is starving and so stuffing themselves and it is not clear when they will stop eating.

(40) a. ɲaan kazɨcc-ə-konʈ-irikk-unnu-ø
I eat-PART-LAM-AUX-PLUR-PRS
≈ 'I am eating.'

b. [∃ multiple subevents of eating with hiatuses in between these subevents and at least some of these subevents are contained within the TT (progressive iterative pluractional, assertion) and the eating is still going on at the UT (present (UT⊆ TT), assertion). The last subevent of eating contained in the TT has not culminated at the UT (i. e. the speaker is currently eating, not taking a break to read the paper)(*konʈə*, assertion)]

c. timeline



(41) a. ɲaan kazɨcc-ə-konʈ-irikk-uka(y)-aaɳə
I eat-PART-LAM-AUX-PROG-be.PRS
≈ 'I am eating.'

b. [∃ a continuous (i. e. without any hiatuses) event of eating at least some of which is going on throughout the TT (progressive, implicature) and the eating is still on going at the UT (present, assertion). The continuous (sum/whole) event of eating has not culminated at the UT (i. e. the eating is going on beyond (not just at) the TT with potentially no end in sight) (*konʈə*, assertion)]]

c. timeline

d. timeline

__x_____x_____x____[$_{TT}$ ___x_____x_____x___x]___(x)
UT

The hyperbolic use of *koɳʈə* can once again be seen in (42). This is an appropriate response in the context of a teacher calling and asking if you are writing your paper, if you want to express the equivalent of 'Yes I'm writing my paper. Well, not right now actually, now I'm having my lunch but as soon as I finish I will start writing my paper again.'

(42) ɲaan paper ezut-i-koɳʈ-irikk-uka(y) aayirunnu; pakʂe ippool
I paper write-PART-LAM-AUX-PROG be.PST but now
kaʐicc-ə-koɳʈ-irikk-uka(y) aaɳə. bhakʂaɳam tinn-ə sheʂam ɲaan
take-PART-LAM-AUX-PROG be.PRS food eat-PART after I
veendum ezut-i tuʈaɳɳ-um.
again write-PART begin-MOD
≈ 'I was continuously/intensively writing my paper (and I'm doing it so carefully that its still in progress) but now I am continuously eating without breaks (so I can go back to writing soon). After eating food I again will begin writing.'

5.2.4 Interim summary

This section has focused on the contributions lexical and viewpoint aspect morphology make to cross-linguistic variation in the morphological forms of Universal perfects. It began by examining data from English, Greek, Bulgarian, Saisiyat and Georgian. This data showed that one factor in cross-linguistic variation is the type of aspectual morphology a language has and whether or not the perfect form in a language relies on a participle of a particular aspect.

It then turned to Malayalam and identified the different components of the four Universal Perfect forms. It focused on the semantics of the morpheme *koɳʈə*, since the semantics of most of the components were addressed in previous chapters. The claim was that *koɳʈə* selects for an accomplishment predicate and then asserts that the telos of that predicate has not been reached. Finally, it showed how the semantics and pragmatics proposed in the last chapter for the viewpoint aspect markers *-unnu* and *-uka* interact with the semantics of *koɳʈə* to yield the subtle meaning shifts found in the four progressive forms.

These respective semantics make the following predictions for how the lexical aspect modifier interacts with the different viewpoint aspects. With *-unnu* marked

predicates, the presence of *koɳʈə* asserts that the last subevent of the durative component contained within the Topic Time has not culminated. The absence of *koɳʈə* leaves the speaker uncommitted with respect to whether or not the last subevent contained within the Topic Time has culminated. With *-uka* marked predicates, the presence of *koɳʈə* asserts that the telos of the sum/whole event has not been reached. The absence of *koɳʈə* leaves the speaker uncommitted with respect to whether or not the telos of the sum/whole event has been reached.

Contra Swenson (2017b) it is not required that unmarked uses of the Malayalam Universal perfects require that predicates obtain the subinterval property via their lexical aspect (i. e. either be an activity or stative predicate to begin with or be a *koɳʈə* marked telic predicate), not through viewpoint aspect alone. 'Unmarked' is a term relative to particular contexts and what one wants to convey, and more careful scrutiny of data has shown that any of the forms can be unmarked in the right context.[6]

5.3 Variation with respect to the perfect morpheme

Another point of cross-linguistic variation in the morphological form of Universal perfects has to do with whether or not a language has a dedicated perfect morpheme.

6 Also contra Swenson (2017b), it is, in fact, possible to use *-unnu* marked forms in the past perfect, as (i) shows, if *pook-um-pooḷ* is used instead of the instantaneous *ponn-appoḷ*.

(i) a. ɲaan pook-um-pooḷ, avan muunnə maɳikkoor-aayi paper ezuʈ-unn-unʈaayirunnu
I leave-UM-when he three hours-adv paper write-PLUR-be.PST
'When I left, he had been writing the paper for 3 hours.'

b. ɲaan ponn-appoḷ, avan muunnə maɳikkoor-aayi paper ezuʈ-uka(y) aayirunnu
I leave-UM-when he three hours-adv paper write-PROG be.PST
'When I left, he had been writing the paper for 3 hours.'

c. ɲaan pook-um-pooḷ, avan muunnə maɳikkoor-aayi paper
I leave-UM-when he three hours-adv paper
ezuʈ-i-kkoɳʈ-irikk-unn-unʈaayirunnu
write-PART-LAM-???-PLUR-be.PST
'When I left, he had been writing the paper for 3 hours.'

d. ɲaan pook-um-pooḷ, avan muunnə maɳikkoor-aayi paper
I leave-UM-when he three hours-adv paper
ezuʈ-i-kkoɳʈ-irikk-uka(y) aayirunnu
write-PART-LAM-???-PROG be.PST
'When I left, he had been writing the paper for 3 hours.'

Languages like English, (43), and Saisiyat, (44), have perfect morphology in Universal perfects. The sentence in (43-b) shows that this perfect morphology is obligatory in English Universal perfects. In other words, a non-perfect progressive form cannot be used in a Universal perfect context.

(43) a. I have been reading this paper for one week.
b. *I am reading this paper for one week.

(44) Ataw ∅ ‘ayaeh ila
Ataw IMF sick PRF
‘Ataw has been sick (and still is).’ (Guekguezian 2014 slides 5: 2)

However, as mentioned in section 5.2, there are languages like Greek and Georgian which lack overt perfect morphology in the Universal perfect and instead form the Universal perfect by adding a durative adverb to the imperfective or progressive form. The data from Greek and Georgian, as well as data from Hindi (Indo-Aryan, India) and Turkish (Turkic, Turkey), which also lack perfect morphology in Universal perfects, is given in (45) through (48). The (a) examples give the perfect sentences and the (b) examples give the corresponding imperfective or progressive sentence that occurs when the durative adverb is removed. The crucial point to notice is that no change in the verb occurs between the (a) and the (b) sentences.

(45) Greek
a. **diavazo** afto to paper *(gia) mia vdomada*.
Read.PRS.1SG this the paper (for) a week
‘I have been reading this paper for one week.’ [lit. ‘I am reading this paper for one week.’]
b. **diavazo** afto to paper.
Read.PRS.1SG this the paper
‘I am reading this paper.’

(46) Georgian
a. (me) am ts’ign-s erti k’viraa **v-k’itx-ul-ob**.
1SG this.DAT paper-DAT one week 1SG-read-PTCP-SF
‘I have been reading this paper for one week.’ [lit. ‘I am reading this paper for one week.’]
b. (me) am ts’ign-s **v-k’itx-ul-ob**.
1SG this.DAT paper-DAT 1SG-read-PTCP-SF
‘I am reading this paper.’

(47) Hindi

a. Main iss patra *ko* *(pichle)* *ek* *saptah* *se* **padh** **rah**-**i** **hun**
I this paper DAT last from one week read PROG-F.SG be.PRS.1SG
'I have been reading this paper for one week.' [lit. 'I am reading this paper for one week.']

b. Main iss patra **padh** **rah**-**i** **hun**
I this paper read PROG-F.SG be.PRS.1S
'I am reading this paper.'

(48) Turkish

a. *Bir* *haftadır* bu makaleyi **oku**-**yor**-**um**.
One week.for this paper.ACC read-IPFV-1SG
'I have been reading this paper for one week.' [lit. 'I am reading this paper for one week.']

b. Bu makaleyi **oku**-**yor**-**um**.
this paper.ACC read-IPFV-1SG
'I am reading this paper.'

Still other languages like Bulgarian have perfect morphology, (49-c) that can be used in Universal perfects but also can use simple forms, (49-a).

(49) Bulgarian

a. (az) **cheta** tazi kniga *ot* *edna* *sedmica*
I read.1SG.PRS this book from one week
'I have been reading this book for one week.' [lit. 'I am reading this book for one week']

b. (az) **cheta** tazi kniga
I read.1SG.PRS this book
'I am reading this book.'

c. (az) **sam** **chet**-**j**-**ala** tazi kniga ot edna sedmica
I be.PRS.1SG read.IMP-PRF.PTCP this book from one week
'I have been reading this book for one week.'

Sentences with Universal perfect semantics that lack perfect morphology pose a puzzle for the Principle of Compositionality (the meaning of any phrase of human language is obtained compositionally from the meaning of the morphemes that make up that phrase and the way they are put together). Given that it is the perfect morpheme that carries the core meaning of the perfect, this raises the question of how sentences without perfect morphology obtain perfect semantics. That such

languages exist across a range of different language families (Indo-European, Turkic, Kartvelian) suggests that this is a robust theoretical puzzle. Section 5.3.1 will show that one more language family needs to be added to the above list: Dravidian. The discussion will draw mainly from Malayalam, but Telugu and Tamil also seem to pose the same puzzle, as (50)–(51) show. Section 5.3.2 will begin to explore how sentences without overt perfect morphology obtain perfect semantics.

(50) Telugu

a. neenu oka vaaram nundi ii paper caduvu-t-unna-nu
I one week ADV this paper read-PROG-be-1SG
'I have been reading this paper for one week.'

b. neenu ii paper caduvu-t-unna-nu
I this paper read-PROG-be-1SG
'I am reading this paper now.' (Sreekar Raghotham, p. c.)

(51) Tamil

a. naan inthra paper-æ oru varam-aga paɖithu-koɳɖu iruk-ir-een
I this paper-ACC one week-ADV read-PROG be.PRS-1SG
'I have been reading this paper for one week.'

b. naan intha paper-æ ippoodu paɖithu-koɳɖu iruk-ir-een
I this paper-ACC now read-PROG be.PRS-1SG
'I am reading this paper now.' (Rajamathangi S. p. c.)

5.3.1 Malayalam lacks an overt perfect morpheme

This section will show that Malayalam lacks an overt perfect morpheme in the Universal perfect. This is easy to see for the verb forms in (52-a) and (52-b), as these forms are morphologically identical to the simple progressive forms discussed in chapter 4. As such, they obviously lack any overt perfect morphology. The forms in (52-c) and (52-d) have a 'mystery' morpheme *irikk-* which this section will argue is a non-perfect auxiliary in the (52-c) and (52-d) constructions.

(52) a. ɲaan oru aaʐca aayi ii paper vaayikk-unnu-∅/unʈə
I one week ADV this paper read-PLUR-PRS/be.PRS
'I have been reading this paper for one week.'

b. ɲaan oru aaʐca aayi ii paper vaayikk-uka(y) aaɳə
I one week ADV this paper read-PROG be.PRS
'I have been reading this paper for one week.'

c. ɲaan oru aaʐca aayi ii paper vaayicc-ə-koɳʈ-irikk-unnu-∅
I one week ADV this paper read-PART-LAM-???-PLUR-PRS
'I have been reading this paper for one week.'

d. ɲaan oru aaʐca aayi ii paper vaayicc-ə-koɳʈ-irikk-uka(y) aaɳə
I one week ADV this paper read-PART-LAM-???-PROG be.PRS
'I have been reading this paper for one week.'

The *irikk-* marker has a lexical life as the robustly productive verb meaning 'sit.' However, as is well known, it also has another life as a functional morpheme. Asher & Kumari (1997) gloss the morpheme, *irikk-*, as a perfect marker, used in both the Universal and Existential perfect, and Hany Babu (2008) parses the form in (53) as the conjunctive participle plus an auxiliary form (*irikk-*) plus the tense marking. Given this, at first glance, one might think that the Malayalam Universal perfects using *irikk-* parallel the English one in using a progressive participle plus the perfect participle of an auxiliary verb and then a tense auxiliary, as parsed in (53), to express a Universal perfect.

(53) ezuti-koɳʈə irikk-uka(y) aaɳə
write-PROG.PTCP have-PRF.PTCP be.PRS
cf. English 'has been writing'

However, this book argues that such a parse is incorrect for minimally the following three reasons. First, as detailed in chapter 4, *-uka* is not a perfect participle; it is a progressive viewpoint aspect marker. Secondly, as shown earlier in this chapter, *koɳʈə* is not a progressive participle marker; it is a lexical aspect modifier. Finally, this section will show that *irikk-* is not a perfect auxiliary; it is a viewpoint aspect auxiliary.

5.3.1.1 *irikk-* is not a perfect marker

This section offers three arguments that *irikk-* is not a perfect morpheme. The first is that *irikk-* being a perfect would constitute a Mirror Principle (Baker, 1985) violation. Secondly, *irikk-* need not always be present in Universal perfects. Thirdly, in the functional use under discussion here, *irikk-* is present on non-perfect verbs.

First, assuming the Mirror Principle and that the Perfect Phrase is located above the Aspect Phrase (Iatridou et al. 2002, Pancheva 2003, Bjorkman 2011, a. o.), *irikk-* is not in the right position to be the spell out of stranded features on a Perfect head. *Irikk-* occurs to the left of both the progressive viewpoint aspect morphology and the present tense auxiliary. If it were a perfect morpheme, it should come in between the progressive viewpoint aspect morphology and the present tense auxiliary.

(54) ɲaan oru aaʐca aayi ii paper ezut-i-koɳʈ-irikk-uka(y) aaɳə
I one week ADV this paper write-PART-LAM-???-PROG be.PRS
'I have been writing this paper for one week.'

Secondly, *irikk-* need not always be present in Universal perfects. As was shown above, Malayalam allows forms without *irikk-* to express Universal perfect semantics, (5-a)–(5-b). This shows that, even if *irikk-* were a perfect marker/auxiliary, it is not an obligatory one.

Thirdly, sometimes *irikk-* is present on a non-perfect verb, (55-a). This sentence just expresses that the paper writing feels like it is never ending. It is not a Universal perfect or any other type of perfect. When a durative adverb is added to the same sentence, (55-b), the sentence expresses a Universal perfect reading.

(55) a. ɲaan ii paper ezut-i-koɳʈ-irikk-uka(y) aaɳə
I this paper write-PART-LAM-???-PROG be.PRES
'I am writing and writing this paper.'
b. ɲaan oru aazca aayi ii paper ezut-i-koɳʈ-irikk-uka(y) aaɳə
I one week ADV this paper write-PART-LAM-???-PROG be.PRES
'I have been I am writing this paper for one week.'

Since *irikk-* appears both in a non-Universal perfect sentence like (55-a) and its Universal perfect counterpart, (55-b), this further argues that it is not a perfect auxiliary.

5.3.1.2 *irikk-* is a viewpoint aspect auxiliary

While *irikk-* does not match the distribution of a perfect auxiliary, it does seem to function as an auxiliary that is rescuing some stranded features. These features, though, appear to be on a head lower in the clausal spine than the Perfect head. The supporting evidence for this is that whenever *koɳʈə* appears, *irikk-* is obligatory.

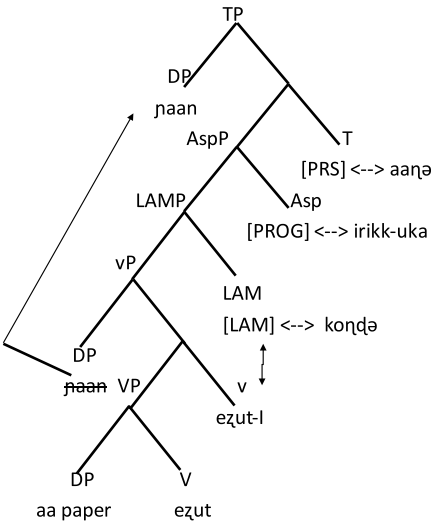
The need for *irikk-* can be seen in (56). Example (56-a) shows that *koɳʈə* marked verbs by themselves cannot serve as main verbs. Example (56-b) shows that viewpoint aspect morphology cannot directly attach to a *koɳʈə* marked verb. Instead, either an *irikk-* must be inserted between *koɳʈə* and the viewpoint aspect marker, (56-c), or *koɳʈə* can be deleted, (56-d). In the latter case, no *irikk-* is present. As such, from now on, *irikk-* will be glossed as AUX.

(56) a. *ɲaan ii paper ezut-i-koɳʈə-∅/aaɳə
I this paper write-PART-LAM-PRS/be.PRS
'I am writing and writing this paper.'
b. *ɲaan ii paper ezut-i-koɳʈ-uka(y) aaɳə
I this paper write-PART-LAM-PROG be.PRS
'I am writing and writing this paper.'
c. ɲaan ii paper ezut-i-koɳʈə irikk-uka(y) aaɳə
I this paper write-PART-LAM AUX-PROG be.PRS
'I am writing and writing this paper.'

d. ɲaan ii paper ezʮt-uka(y) aaɳə
I this paper write-PROG be.PRS
'I am writing this paper.'

In sum, *irikk-* is not obligatory in all Universal perfects, only those where *koɳʈə* appears. This is the kind of dependency that is expected if *irikk-* is an auxiliary that is inserted to rescue stranded viewpoint aspect features (a la Bjorkman 2011). This stranding occurs when *koɳʈə* intervenes between the little v head and the Aspect head, causing the little v head and the head containing *koɳʈə* to agree and stranding the features on the higher heads. This is shown in (57). When *koɳʈə* is not present, the progressive aspect feature is not stranded because the little v head and the Aspect head can directly agree, resulting in the (56-d) form where there is no auxiliary.

(57) Tree of (56-c)



In addition to this use as an auxiliary, *irikk-* has several other functional uses. These will be discussed in section 5.4.

5.3.2 The perfect Principle of Compositionality puzzle

5.3.2.1 The puzzle in Malayalam

The past section argued that, like Universal perfects in Greek, Georgian, Hindi and Turkish, all Universal perfect forms in Malayalam lack overt perfect morphology.

As mentioned above, this raises a puzzle for the Principle of Compositionality. Specifically, it is unclear what part or structure contributes the perfect semantics in these languages.

Pancheva (2003) provides the formal Perfect Time Span account entry for the perfect in (58). As discussed in chapter 1, the first function of the perfect is to set up the Perfect Time Span, a Topic Time (TT) interval, represented by the time interval variable *t"* in (58). The second function of the perfect is to locate the Topic Time (represented by the time interval variable *t'* in (58)) in a final subinterval of the Perfect Time Span, in other words, with the right boundary of the Perfect Time Span (PTS).

(58) $[\![\text{PRF}]\!] = \lambda p_{<i,t>}.\ \lambda t'_i.\ \exists t_i"[\text{PTS}(t", t') \ \&\ p(t")]$
PTS (t", t') iff t' is a final subinterval of t" (Pancheva 2003 p284: 9b)

It is clear to speakers of Malayalam that the sentences in (59)–(62) have the particular Universal perfect semantics explicated in the (b) lines. However, what is not clear, from a theoretical point of view, is what piece or structure contributes this perfect meaning, since there is no dedicated perfect morpheme in Malayalam Universal perfects.

(59) a. ɲaan oru aaẓca aayi ii paper vaayikk-unnu-Ø
I one week ADV this paper read-PLUR-PRS
≈ 'I have been reading this paper for one week.'

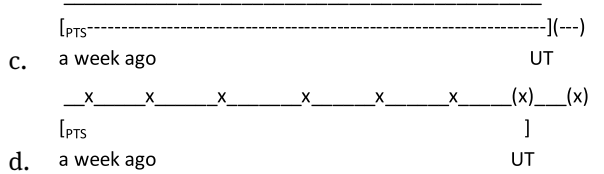
b. [∃ multiple subevents of reading the paper with hiatuses in between them & at least a some of these subevents are contained within the TT (progressive iterative pluractional, assertion), which is located in a final subinterval of the PTS (???), and the sum reading event is still going on at the UT (present tense, assertion) though at the UT the speaker could be reading or taking a tea break after which they will go back to reading (no commitment)]

__x_____x_____x_____x_____x_____x_____(x)___(x)
[PTS]
c. a week ago UT

(60) a. ɲaan oru aaẓca aayi ii paper vaayikk-uka(y) aaɳə
I one week ADV this paper read-PROG be.PRS
≈ 'I have been reading this paper for one week.'

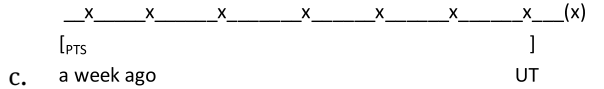
b. [∃ a continuous (i. e. without any hiatuses) event (progressive, implicature) of reading the paper at least some of which is going on throughout the TT (progressive, assertion), which is located in a fi-

nal subinterval of the PTS (???), & the reading is still on-going at the UT (present tense, assertion)]



(61) a. ɲaan oru aazɻca aayi ii paper vaayicc-ə-koɳʈə irikk-unnu-∅
I one week ADV this paper read-PART-LAM AUX-PLUR-PRS
≈ 'I have been reading this paper for one week.'

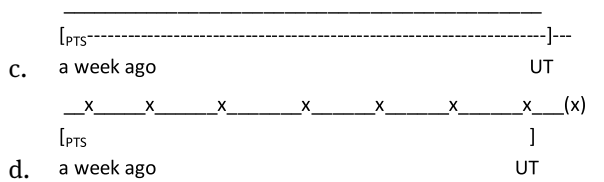
b. [∃ multiple subevents of reading the paper with hiatuses in between these subevents and at least two of these subevents are contained within the TT (aspectual pluractional, assertion), which is located in a final subinterval of the PTS (???), and the reading is still going on at the UT (present, assertion). The last subevent of reading the paper contained in the TT has not culminated at the UT (i. e. the speaker is currently reading the paper, not on a tea break) (*koɳʈə*, assertion)]



(62) a. ɲaan oru aazɻca aayi ii paper vaayicc-ə-koɳʈə irikk-uka(y)
I one week ADV this paper read-PART-LAM AUX-PROG-be.PRS
aaɳə

≈ 'I have been reading this paper for one week.'

b. [∃ a continuous (i. e. without any hiatuses) event of reading the paper at least some of which is going on throughout the TT (progressive, implicature), which is located in a final subinterval of the PTS (???), and the reading is still on going at the UT (present, assertion). The continuous (sum/whole) event of reading the paper has not culminated at the UT (i. e. the reading is going on beyond (not just at) the TT with potentially no end in sight) (*koɳʈə*, assertion)]]



5.3.2.2 Exploring solutions to the Principle of Compositionality puzzle

In essence, the problem here is another side of the 'tenseless' coin discussed in chapter 2. Different works exploring this question have defined tenseless languages in several ways. Some define tenseless languages as such due to lack of tense morphology (with some arguing that that includes even covert tense morphology (Tonhauser 2011, Mucha 2012, 2013, a. o.)). Others such as Bošković 2012, a. o. define a language as being tenseless if there is evidence the language lacks a Tense Phrase in the syntax.

This section has defined languages as 'perfect-less' if they lack overt perfect morphology or a dedicated syntactic perfect construction. Questions about what the syntax of 'perfect-less' looks like will be largely put aside. Instead, the focus below will be on how sentences with perfect semantics but no perfect morphology/dedicated syntactic perfect structure obtains perfect semantics. Drawing insight from the way this question has been answered for tenseless languages, one might propose that perfect semantics are obtained via either a covert perfect morpheme or via pragmatic mechanisms. This section will conclude with an exploration of the strengths and weaknesses of these two options but will ultimately not take a side.

The first option would be to have a null [PRF] feature (cf. Matthewson's (2006) [TENSE] feature in morphologically tenseless languages) in a 'perfect-less' language. Just as in a language with an overt perfect morpheme, the interpretive component of the grammar will use this feature to assign the sentence a perfect meaning, (63). In a 'perfect-less' language this feature would not have a phonetic exponent, while in a 'perfect-ed' language it would.

(63) $[\![\text{PRF}]\!] = \lambda p_{<i,t>}.\ \lambda t'_i.\ \exists t_i"[\text{PTS}(t", t') \ \&\ p(t")]$
PTS (t", t') iff t' is a final subinterval of t" (Pancheva 2003 p284: 9b)

The major strength of this option is that it provides a straightforward and consistent way to obtain perfect semantics in both languages with overt perfect morphemes and languages without overt perfect morphemes.

The major weakness of this option has to do with learnability. Specifically, it is unclear how children learning a language without overt perfect morphology would know when to use the null perfect morpheme. Matthewson (2006) argues that St'át'imcets makes use of a null [TENSE] morpheme to express past and present tenses but requires that *kelh* 'WOLL' be added for future interpretations. A child learning St'át'imcets would know to use the null [TENSE] morpheme with matrix predicates whenever the *kelh* morpheme was absent. In the perfect, however, it is not clear what the contrasting feature or morpheme would be.

In addressing these learnability questions, one might propose that the use of a durative adverb with a homogenous predicate cues the learner to use the null perfect morpheme. However, it seems just as plausible to say that the adverb overrides a default interpretation, which will be detailed below. Moreover, while some languages, such as Greek, (65), and Georgian, (66), have perfect morphology/dedicated perfect constructions in the Existential perfect, other languages like Turkish, lack dedicated perfect morphology/perfect structures in all Existential as well as Universal perfects, (64). In the Existential perfect, no durative adverb appears. As such, durative adverbs could not provide the cue to the learner to use the null perfect morpheme.

(64) Turkish

a. Bu makaleyi *daha.önce* **oku-du-m**
this paper.ACC before read-PST-1SG
'I have read this paper before.'

b. Bu makaleyi **oku-du-m**
this paper.ACC read-PST-1SG
'I read this paper.'

(65) Greek

a. afto to arthro to **eho diavasi** *paliotera*
this the article it.CL have.1SG read.PART in.the.past
'I have read this paper before.'

b. afto to arthro to **diavasa** *htes*
this the article it.CL read.PAST.1SG yesterday
'I read this paper yesterday.'

(66) Georgian

a. (me) es ts'igni **ts'a-k'itx-ul-i m-a-kv-s**
1SG this.NOM paper.NOM PRV-read-PTCP-NOM 1SG-VER-have-3SG
'I have read this paper before.'

b. (me) es ts'igni **ts'a-v-i-k'itx-e**
1SG. this.NOM paper.NOM PRV-1SG-VER-read-AOR.1SG
'I read this paper.'

One could propose that Georgian and Greek have an overt perfect construction built on a perfective stem, which prevents it from being used in Universal perfects (following Iatridou et al. 2001), and a null perfect morpheme which is only present when a durative adverb is used with a homogenous predicate.

The second possibility would be that languages without an overt perfect morpheme do not have either an overt or covert morpheme and instead use other

mechanisms, such as lexical/viewpoint aspect, adverbs and context, to yield perfect interpretations (cf. Mucha 2012, 2013; Bohnemeyer 2009; a. o. for a similar proposal for tenseless languages). An account like Mucha's proposes that progressive marked verbs in Hausa receive a default present interpretation, while perfective marked verbs receive a default past interpretation. However, these defaults can be overridden when the context provides another Topic Time that has a different relationship with the Utterance Time than that of the default Topic Time. While Hausa does not allow adverbs alone to override the default contexts, other tenseless languages using default mechanisms, such as Mandarin (following Lin 2006) do.

To extend this type of account to the perfect, one might try to say the following. Perhaps for Universal perfects, the presence of a durative adverb with a progressive or imperfective overrides the default present tense and shifts the interpretation to a default present perfect. This type of override would involve a default from a viewpoint aspect simultaneously to both tense and the third category perfect. This would make it more complicated than the overrides previously proposed. Similarly, one might say that for an Existential perfect, a perfective marked verb would override the default past interpretation to give a present Existential perfect in those contexts where an Existential perfect is favorable.

Two major weaknesses of this type of an account are the following. First, though uncommon, it is possible to have progressive Existential perfects, (67). Secondly, working out how the default account would capture the full range of aspect, tense and perfect interactions is not clear. Much more careful empirical and theoretical work needs to be done in this area before a conclusion favoring one option over the other can be reached.

(67) Have you ever been watching TV when the tube exploded?
Existential: progressive viewpoint aspect (Comrie 1976)

As these options continue to be explored, the role and behavior of durative adverbs in Universal perfects cross-linguistically will need to be carefully scrutinized. These durative adverbs are important because, as Iatridou et al. (2002) show, it is not possible to have a Universal perfect in the absence of a durative, perfect-level adverb. This section will conclude with a short comparison of the behavior of durative adverbs in Malayalam and in English.

The main difference between Malayalam and English seems to be in the type of durative adverbs that can go with simple forms (i. e. forms where no perfect marker is present). English and Malayalam speakers generally find sentences like (68) and (69), respectively, very odd.

(68) #Mary is getting up daily at six o'clock

(69) #usha ennum aaɽə-maɳikkə eẓunneelkk-unnu-Ø
Usha daily 6-o'clock get.up-PLUR-PRS
'Usha has been/is getting up daily at six o'clock.' (Hany Babu 2006 p11: 12)

Malayalam speakers comment that this is because (69) suggests that Usha has been getting up at 6am since the beginning of time. The English translation of (69) does not suggest this. It is odd for some other reason. However, in both English and Malayalam the respective sentences become perfect if an adverb like 'now' or 'nowadays' is added and/or a context like the following is given:
Context: You are coming back to college after summer break. Your friend Mary has a reputation for sleeping late but someone wants to tell you that now she has changed.

(70) Now(adays) Mary is getting up at six o'clock.

(71) ippum usha ennum aaɽə-maɳikkə eẓunneelkk-unnu-Ø
now Usha daily six-o'clock get.up-PLUR-PRS
'Now(adays) Usha is getting up daily at six o'clock.'

Out of the blue, some English speakers consulted accept (68) and then comment that they have thought of a context like the one given. Likewise, some Malayalam speakers do not find (69) or the sentences in (72) odd. I suspect this is because these speakers simply accommodate a more restricted timespan.

(72) a. usha ennum paẓam kaẓikk-unnu-Ø
Usha daily banana take-PLUR-PRS
'Usha daily eats bananas.'
b. usha ennum ampala-til pook-unnu-Ø
Usha daily temple-LOC go-PLUR-PRS
'Usha daily goes to the temple.'

What is different about Malayalam is that 'for', (73), and 'since', (74), adverbials can also be used to improve (69). This option is not present in English, as (75-a) and (75-c) show. Instead these adverbs must occur with perfect marked verbs, (75-b) and (75-d).

(73) oru aaẓca(y)-aayi usha ennum aaɽə-maɳikkə eẓunneelkk-unnu-Ø
one week-ADV Usha daily six-o'clock get.up-PLUR-PRS
'For the last one week, Usha has been getting up daily at six o'clock.' (Hany Babu 2006 p11: 13)

(74) vinu raɳʈaayirati pantraɳʈə mutal kozukkaʈʈa kaʐicc-ə-koɳʈə
Vinu two.thousand twelve since sweet.dumpling eat-PART-LAM
irikk-unnu-∅
AUX-PLUR-PRS
≈ 'Vinu has been eating kozhukkatta since 2012.' [Context: before he didn't like them, but in 2012 he gave them another chance and found them tasty and has been eating them ever since and is presently eating one]

(75) a. *For (the last) one week Mary is getting up daily at six o'clock.
b. For (the last) one week Mary has been getting up daily at six o'clock.
c. *Since 2012 Liz is eating meat.
d. Since 2012 Liz has been eating meat.

5.3.2.3 Extending the discussion to the Existential perfect in Malayalam

This section will discuss whether or not there is perfect morphology in the Malayalam Existential perfect. In other words, while this chapter has argued that Malayalam has the Principle of Compositionality puzzle in Universal perfects, it is not yet clear whether Existential perfects in Malayalam also pose this puzzle. The typological data about which languages have the Principle of Compositionality puzzle in which readings is given in 5.3 below.

Table 5.3: Perfects & the Principle of Compositionality.

language –	language has perf morph	obligatory morph in U perfs	obligatory morph in E perfs	has PoC puzzle
English	yes	yes	yes	no
Bulgarian	yes	no (multiple options)	yes	yes
Modern Greek	yes	no (cannot be used)	yes	yes
Georgian	yes	no (cannot be used)	yes	yes
Hindi	yes	no (cannot be used)	yes	yes
Malayalam	???	no (either n/a	???	yes
–	–	or cannot be used)	–	–
Turkish	no	n/a	n/a	yes

In order to determine whether Malayalam is like Turkish (has no perfect morphology at all) or like Greek/Georgian/Hindi (has perfect morphology only in Universal perfects) a closer examination of the structure in (76) must be conducted. The fact that Malayalam uses a participle plus the copula used in existential constructions to express the Existential perfect is unsurprising. This leaves the remaining morpheme *iʈʈə* unexplained.

(76) a. raadha sinima-kkə pooy-iiṯṯə uɳṯə
Radha cinema-DAT go.PART-iṯṯə be.PRS
'Radha has gone to the cinema.'
b. Conjunctive participle (PART) + *iṯṯə* + tense forms of the existential auxiliary *uɳṯə*

Gaining an understanding of the contribution of the morpheme *iṯṯə* is the crucial task here. At first glance, *iṯṯə* seems to function as perfect morphology in Existential perfects. The sentence in (77-b) is not a felicitous answer to the question in (77-a); instead (77-c) must be used in this context. These facts strongly suggest that *iṯṯə* is a perfect participle.

(77) a. zoo-il pooy-iṯṯ-uɳṯ-oo?
zoo-LOC go.PART-iṯṯə-be.PRS-Q
'Have you (ever) gone to the zoo (before)?'
b. #zoo-il pooy-i
zoo-LOC go-PST
'I went to the zoo.'
c. zoo-il pooy-iṯṯ-uɳṯə
zoo-LOC go.PART-iṯṯə-be.PRS
'I have gone to the zoo (before).'

Furthermore, past intuitions have been that, beyond its lexical use, it has a functional use as a perfective marker (Asher & Kumari 1997, Jayaseelan 2003). If this is so, then Malayalam looks exactly like Greek, which has a perfective participle built off of the perfective. As a result, this perfect form cannot be used in Universal perfects. However, there are some reasons to doubt that *iṯṯə* is a perfective viewpoint aspect marker.

First, *iṯṯə* is not required to obtain perfective viewpoint aspect semantics on main verbs in Malayalam. Chapter 2 argued that Malayalam lacks a [PFV] feature in the syntax based on evidence from the distribution of auxiliaries. It instead proposed that finite verbs with perfective semantics obtain these semantics via a default mechanism. If *iṯṯə* were the spell out of a [PFV] viewpoint aspect feature, then one would expect it to regularly occur when verbs express perfective viewpoint aspect. However, this is not the case, as the most common way to express finite perfective aspect in Malayalam is just by using the simple past tense form (i. e. *avan paẓam kaẓicc-u* 'He ate a banana.').

Secondly, *iṯṯə* has non-perfective functions. For example, when *iṯṯə* is the 'final' morpheme in a finite verb, it seems to function as a light verb (in the sense of Butt 2010), which emphasizes completion. Example (78-b) could be used in a context where a mother feels stressed because she has too many things to do and the

compound is a complete mess. She feels at the end of her rope and is wondering what to do. Then when she comes home from work, she finds that her daughter has cleaned the compound until it sparkles. She feels so happy that she tells her friend (78-b) to express how thoroughly her daughter's cleaning job was.

(78) a. avaḷ muttam tuutt-u
she compound sweep-PST
'She swept the compound.'
b. avaḷ muttam tuutt-iṯṯ-u
she compound sweep.PART-LV-PST
'She swept the compound.' [completely] (Gopalakrishnan 1985 p180: 93)

That this light verb use should exist is not surprising, since *iṯṯə* has a lexical counterpart (*id-* 'put, drop (down)'), as is typical of light verbs. The corresponding verb in Kannada and Telugu, two other Dravidian languages, also has a light verb use indicating completion.[7] Also in support of a light verb account is the fact that *iṯṯə* can co-occur with what will be argued in section 5.4 to be light verb uses of *irikk-* to indicate how completely well the speaker is, (79-a). Stacking is another well known property of light verbs.

(79) a. avaṟ sukam aay-iṯṯ-irikk-unnu-Ø
they well be.PART-LV$_1$-LV$_2$-PLUR-PRES
'They are well.' [completely] [contrary to your doubt/worry] [emphasizes 'wellness']
b. ɲaan ii paper eẓut-i-kkoɳṯ-irikk-unnu-Ø
I this paper write-PART-LAM-AUX-PLUR-PRES
'I am writing and writing this paper.'

The existence of a light verb usage of *iṯṯə* does not necessarily mean that it does not have a perfective meaning which forms a part of the perfect morphology. However, it does signal the need for a more thorough investigation of the semantics of *iṯṯə* across its range of uses.

Thirdly, another intuition present in the literature is that *iṯṯə* is the mirror opposite of the *koɳṯə* morpheme discussed earlier in this chapter. If this is the case, then it should not be a viewpoint aspect morpheme. Instead, based on the account for *koɳṯə* argued for in this chapter, it might be suspected to be a piece of morphology that modified the lexical aspect of a verb in some way. One piece of evidence

7 Rahul Balusu, Madhu V., Sindhu Herur and Suma Kodandaram, (p. c.)

in favor of this parallel is that the two morphemes sometimes target a similar morphological position, i. e. between the Conjunctive Participle and below either the light verb or low viewpoint aspect auxiliary use of *irikk-*, (79).

The use of *koɳʈə* and *iʈʈə* in Conjunctive Participle Constructions also suggests that this 'mirror opposites' intuition is on the right track. In a Conjunctive Participle Construction where the Conjunctive Participle is unmarked, (80-a), and both predicates are non-instantaneous events, all three readings (simultaneous, sequential or proper containment) are possible, as discussed in chapter 3.

(80) a. avan paaʈʈu keeʈʈ-ə paper ezɻut-i.
he song hear-PART paper write-PST
'He listened to music and wrote a paper.'[simultaneous, sequential or proper containment]

b. avan paaʈʈu keeʈʈ-ə-koɳʈə paper ezɻut-i.
he song hear-PART-LAM paper write-PST
'He listened to music while he wrote a paper.'[simultaneous reading only]

c. avan paaʈʈu keeʈʈ-iʈʈə paper ezɻut-i.
he song hear.PART-iʈʈə paper write-PST
'He listened to music then wrote a paper.' [sequential reading only]

However, when *iʈʈə* is added, only a sequential reading is allowed, (80-c). When *koɳʈə* is added, as in (80-b), only a simultaneous reading is possible. This chapter proposed that *koɳʈə* is a lexical aspect modifier that selects for an accomplishment predicate and then asserts that this predicate has not reached its telos. In (80) the Conjunctive Participle is an activity predicate. This predicts that the same kind of prolonged feeling that *koɳʈə* creates with other activity predicates, due to coercing the activity predicate into an accomplishment predicate and then asserting that its telos is unreached, should be present in (80-b). Perhaps this is part of why the addition of *koɳʈə* indicates a simultaneous reading. However, it cannot be the whole answer because it should, in principle, be possible to have a prolonged event proceeded/followed by another event (sequential reading) or a prolonged event contained inside another longer event/a shorter event contained inside the prolonged event (proper containment reading). In other words, all three readings should still be possible in (80-b) given what has been said so far.

However, this parallelism does not always hold: *iʈʈə* can appear in higher positions in the clausal spine than *koɳʈə*, (81). Here it occurs after both *koɳʈə* and the viewpoint aspect auxiliary use of *irikk-*.

(81) innale raathɾi avan vaɭare neeram
yesterday night he much time
vaayicc-ə-koɳʈ-irunn-iʈʈ-unʈaayirunnu
read-PART-LAM-AUX.PART-itt-be.PST
'Last night he had been reading for a long time.' (Asher & Kumari 1997, p304: 1524)

Seeing as there are potential multiple uses of *iʈʈə*, determining its semantic contribution in Existential perfects will be left to further research. Even if *iʈʈə* turns out to be a perfect morpheme, the Universal perfect in Malayalam still presents a puzzle for the Principle of Compositionality.

5.4 Conclusion

This chapter began with the following questions.

(82) a. What types of cross-linguistic variation exist in terms of the perfect?
b. How can this variation be theoretically accounted for?
c. What can this variation teach the field about Universal Grammar?

It limited the first question to cross-linguistic variation in the morphological makeup of the Universal perfect. The first half of the chapter focused on the different ways in which the aspectual resources of a language influence the meaning or availability of a Universal perfect reading. It began by showing data from English, Greek, Bulgarian, Saisiyat and Georgian to summarize the role that the type of aspectual morphology a language has and uses to create the perfect form plays in licensing Universal perfects, following Iatridou et al. (2002) and Pancheva (2003, 2013), a. o. It then examined the different aspectual morphemes present in Malayalam Universal perfects and argued that the morpheme *koɳʈə* asserts that accomplishment predicates (what *koɳʈə* selects for) have not reached their telos. It then showed how this morpheme interacted with the viewpoint aspect markers in the language to give the full range of progressive forms.

The second half of the chapter examined languages that do not have any dedicated perfect morphology in at least one of their perfect forms. It began by showing that a number of genetically distinct languages, such as Greek, Bulgarian, Georgian, Hindi, Turkish, Telugu and Tamil form their Universal perfects via the addition of a durative adverb to an imperfective or progressive marked verb. It then argued that all of the four progressive forms used with the addition of a durative adverb to express a Universal perfect in Malayalam lack perfect marking. This involved analyzing the morpheme *irikk-* as a viewpoint aspect auxiliary in its

progressive uses. It then turned to the question of how sentences without perfect morphology but with perfect semantics obtain those semantics. It considered two potential options: the possibility of a null perfect morpheme and the possibility of pragmatic defaults. Finally, it explored whether or not Malayalam has a perfect morpheme that it uses in the Existential perfect. Both of the last two points were left unsolved.

Turning to the question of Universal Grammar, this chapter has several lessons. First, it confirms and provides further evidence for the claim in Iatridou et al. (2002) and Pancheva (2003, 2013), a. o. that the type of lexical and viewpoint aspect resources a language has at its disposal will influence the types of perfects it can compose. Past work focused on explaining why some languages do not use perfect morphology in Universal perfects. This chapter showed that when a language has a rich set of aspectual morphology, this morphology interacts with the other aspectual morphology to produce a set of more semantically nuanced Universal perfects than English has the morphology to express. That such a language might exist was predicted though by Iatridou et al. and Pancheva's account. Iatridou et al. notes that, in English, it is possible to say the sentences in (83) either in the context of active digging or while sitting and sipping a cup of coffee during a break from the digging.

(83) a. I am (busy) digging in the yard. [non-perfect]
b. I have been digging in the yard for two hours. [Universal perfect] (Iatridou et al. 2002 p159)

English, though, does not have aspectual morphology to differentiate the two meanings brought out by the different contexts. Malayalam, however, does and so it has a distinct 'coffee' break progressive and Universal perfect.

Secondly, the question of whether sentences without perfect morphology but which have perfect semantics use a null perfect morpheme or use a pragmatic mechanism to obtain their semantics raises large questions about what functional categories are universal. As has been pointed out by the proponents of pragmatic accounts for how tenseless languages obtain their tense semantics, functional categories in the morphosyntax are not necessary for communication of the core semantic meaning. Understanding which functional categories are universal informs discussions about how much syntactic structure is projected in each sentence and language. This will allow the field to determine if every clause simply projects an Inflectional Phrase and a Complementizer Phrase or if the functional projections are as expanded as work in the cartographic tradition suggests.

Thirdly, the possibility of using the simple tenses to express the Universal perfect in a wide range of languages raises the question of why other languages like

English cannot use simple tenses in the Universal perfect, (84). The locus of this difference might be in the semantics of the perfect or in the semantics of tense.

(84) a. *I am playing basketball since my childhood.
b. *I am writing this paper for one week.
c. *I am loving John since 2000.

Fourthly, the examination of the *iṯṯə* and *irikk-* morphemes in this section raise a number of questions about the different hats functional morphemes can wear cross-linguistically and how linguists should best go about identifying the different functions these types of morphemes have in a particular construction.

For example, in light of the potential parallelism between *iṯṯə* and *koɳṯə* and *iṯṯə*'s light verb uses, one might wonder if *koɳṯə* could also have light verb uses. An additional reason for thinking that is that *koll-* 'take', the lexical meaning of the form that *koɳṯə* is etymologically related to, is a common light verb across languages (Hook & Pardeshi 2006). However, Butt and Tantos (2004) argue that light verbs always have a main verb counterpart, which *koɳṯə* does not in contemporary Malayalam. Hook and Pardeshi (2006) counter that languages can have light verb 'orphans' and use Tamil *kol-* 'hold, contain' as an example. Butt & Lahiri (2013) respond that a more careful investigation of these 'orphan' light verbs is required to make sure that they are really light verbs in the sense that Butt and coauthors use the term 'light verb.' As such, it is unclear whether or not *koɳṯə* may have a light verb use in the sense meant by Butt and coauthors. The rest of this section will examine additional uses that *irikk-* has as a way to further explore and highlight questions about functional categories that this book has raised.

5.4.1 Open Issue: Additional functional uses of *irikk-*

In addition to the low auxiliary use of *irikk-* that occurs with *koɳṯə*, *irikk-* has at least two other functional uses. What follows will suggest that the first use might be explained via a light verb (in the sense of Butt (2010)) account. This will be addressed in the first subsection. The second functional usage of *irikk-*, which will be addressed in the second subsection, might be an instance of 'do' support. The third subsection raises a theoretical open question regarding the difference between 'do' support, light verbs and auxiliaries.

5.4.1.1 Light Verb use of *irikk-*

The first non-lexical, non-low auxiliary use of *irikk-* is found in what have been translated as Existential perfects by Asher & Kumari (1997). Specifically, the claim

has been that there are two morphological ways to express an Existential perfect in Malayalam, as shown in (85).

(85) a. Conjunctive participle (PART) + *iṭṭə* + tense forms of the *unṭə* copula
b. Conjunctive participle (PART) + *irikk-* + PLUR/PROG + tense/tense AUX & tense morphology

However, this section will show that form in (85-b) is not an Existential perfect form and suggest that, instead, it might be a light verb construction. There are a number of reasons, a priori, to think that this reanalysis might be a possibility. First, 'sit', the lexical meaning of *irikk-*, commonly functions as a light verb across languages (Hook & Pardeshi 2006). Secondly, light verbs in Indo-Aryan languages attach to the Conjunctive Participle form (Butt and Lahiri, 2013). The examples above show that this is also the case for Malayalam, as what has been glossed as PART in this book is the Conjunctive Participle. Thirdly, *irikk-* has a lexical use ('sit') in addition to its light verb use and the light verb use also inflects just like the lexical use.[8] Fourthly, light verb uses of *irikk-* occur below tense and aspect which is the expected place for light verbs (Butt 2010, Butt & Lahiri 2013). Lastly, as can be seen below, light verb uses of *irikk-* indicate surprise, and/or unexpectedness (cf. Bangla *bosh* 'sit' (Basu & Wilbur 2010)).

The final property of indicating surprise or unexpectedness provides a strong argument against *irikk-* being a perfect morpheme in the Existential perfect. The argument begins with the following observation: most speakers do not accept the form in (85-b) with *irikk-* in Existential perfects. Instead, they require the Existential perfect form, given in (85-a), which seems to be the genuine Existential perfect construction. These facts are shown in (86).

(86) avaḷ raṇṭ-aayiratti pantraṇṭə mutal oru sankeertanam pole anɲə
she two-thousand twelve since Oru Sankeerthanam Pole five
praavaʃyam vaayicc-iṭṭ-unṭə/vaayicc-irikk-unnu-∅
times read.PART-itt-be.PRS/read.PART-LV-PLUR-PRS
'She has read *Oru Sankeerthanam Pole* five times since 2012.'

However, the same speakers who find (86) with the (85-b) form unacceptable find (87) to be completely natural with this form. If the (85-b) form is really an existential perfect morphology, this is very surprising, as nothing in past accounts of the perfect in the semantics literature predicts that an Existential perfect should be licensed when an 'instead of' phrase is present but not licensed otherwise.

8 See Hook & Pardeshi (2006) for potential issues with this test for light verbs.

(87) [randamooẓam vaayikk-unn-ø-at-inə pakaram] avaɭ raɳṯ-aayiratti
Randamoozham read-PLUR-PRS-NMLZ-DAT instead she two-thousand
pantraɳṯə mutal oru sankeertanam pole anɲə praavaʃyam
twelve since Oru Sankeerthanam Pole five times
vaayicch-irikk-unnu-ø/vaayicc-iṯṯ-uɳṯə
read.PART-LV-PLUR-PRS/read.PART-itt-be.PRS
'She has read *Oru Sankeerthanam Pole* five times since 2012 instead of reading *Randamoozham*.'

Insight into this puzzle comes from a persistent comment speakers have made. Every time speakers have accepted the sentence in (86) using the (85-b) form, they have commented that this sentence conveys a negative/sassy attitude. Speakers also make this comment about (87).[9] Again this comment about attitude is puzzling if *irikk-* in (86) and (87) is a perfect morphology, since past accounts for the perfect do not make any link between the use of the perfect and the attitude the speaker is conveying. Empirically, while speakers' first intuition is that the use of the (85-b) forms in (86) and (87) conveys a negative attitude, it is possible for such sentences to convey a positive attitude (for example, when the sentence is used in a context where a teacher is praising one student for going above and beyond what was expected) or for them to convey a neutral attitude (for example, when two equally good options for a reading project were given and someone chose a book different than the one someone else expected them to choose). This shows that the attitude the speakers convey varies with the context.

Looking more carefully at the different contexts where the (85-b) forms are licensed shows that the use of these forms is not directly linked to either 'instead of' phrases or a particular attitude on the part of the speaker but rather to the indication of surprise or unexpectedness. Speakers more readily accept (87) than (86) due to the presence of the 'instead of' phrase because this phrase helps facilitate a context supporting surprise or unexpectedness. With just (86), speakers must infer this context themselves.

Malayalam is not the only language with these types of facts. In Bangla, *bosh* 'sit' has both a main verb and a light verb use that expresses 'the sudden, unex-

9 Thanks to Hany Babu for sending me his handouts, which is where I first came across this puzzling set of data. Hany Babu (2008) provides similar sentences to (86) and (87), though those sentences do not have the adverbial modifications added here and use different titles. He claims that the (85-b) form is a perfect form but cannot be used for Existential perfect readings. However, he then provides a sentence like (87), though again without the adverbial modifications, and says that this sentence is totally acceptable and conveys that the speaker has a negative attitude. However, (86) and (87) should equally be Existential perfects, thereby presenting the puzzle.

pected initiation of an event' (p7) (Basu and Wilbur 2010). As with Malayalam, it is more difficult to use *bosh* as a light verb in the Bangla equivalent of (86) than it is in (87) (p. c. Ishani Guha). This further suggests that this use of *irikk-* in Malayalam may be on the right track. Several additional data points that support this analysis are presented below.

The first data point was presented in section 5.2. It is repeated here as (88-a). Context: You come to your friend Radha's house to meet her, expecting to find her there. When you get there she is not there. Her father tells you....

(88) a. raadha sinima-kkə pooy-irikk-uka(y) aaɳə
Radha cinema-DAT go.PART-irikk-PROG be.PRS
'Radha has gone to the cinema.' [en route to the theater or sitting in the theater, we don't know]
b. #raadha sinima-kkə pooy-iiṯṯə uɳṯə
Radha cinema-DAT go.PART-iṯṯə be.PRS
'Radha has gone to the cinema.'

In this context, only the (85-b) form, the one using *irikk-*, is felicitous. The genuine Existential perfect form, (85-a), is infelicitous in this context.[10] Instead, the sentence in (88-b) is the answer to the question 'Has Radha ever gone to the cinema?'. The sentence in (88-a) expresses that, contrary to your expectations and as a result of going to the cinema, Radha is not at home; instead, she is at or on the way to the cinema.

The second additional example in support of the light verb use of *irikk-* comes from a subtle variation in the way that the standard greeting can be answered. A usual way to start a conversation with a Malayali who you have met before is to start by asking the question in (89).

(89) sukam aaɳ-oo?
well be.PRS-Q
'Are you well?'

It can be answered in at least three ways, given in (90). The most common one is (90-a). After this, the next question will probably be *kaẓicc-oo* 'Did you eat?' After answering that question, a possible next question is the one in (91). This question can be answered using any of the forms in (90). Speakers comment that the forms in (90-b)–(90-c) are more polite than (90-a) when speaking about other people. This is because they assume that the person asking the question has a genuine worry or concern (a type of mild expectation) that the speaker's parents might

10 The meaning of *iṯṯə* will be discussed in the next section.

not be well, which is why the person asking the question has made the inquiry. It is a way of saying 'Everything is really well.' It shows happiness on the part of the speaker that the person who asked her the question is taking care for the speaker's family members. If (90-a) is used to answer (91), there is an assumption that the person asking does not actually care about the speaker's parents, which is why it is viewed as less polite.

(90) a. sukam aaŋə
well be.PRS
'I/they am/are well.'

b. sukam aay-irikk-unnu-Ø
well be.PART-LV-PLUR-PRS
'I/they am/are well.' [contrary to your doubt/worry]

c. sukam aay-iʈʈ-irikk-unnu-Ø
well be.PART-LV_1-LV_2-PLUR-PRS
'I/they am/are well.' [completely][contrary to your doubt/worry]

(91) acan-um amma-kk-um sukam aaŋ-oo?
father.DAT-CONJ mother-DAT-CONJ well be.PRS-Q
'Are your parents well?'

Oftentimes speakers will say that (90-b)–(90-c) are not felicitous responses when answering a question about themselves. However, this is not, in fact, true. The response in (90-c) is completely acceptable in a context where the speaker sees someone (say at a function) whom he/she really likes and did not expect to see. When that person asks the speaker (89), (90-c) is a perfectly natural response. Also, if a close friend or family member asks (89), a speaker might also respond with (90-b) or (90-c) in cases where (s)he wants to convey that (s)he is very happy that the friend or family member is taking care/worrying about her.

Answering (89) with (90-a) does not have the same impolite overtones as it would as an answer to (91) probably because it is more accepted that even people who do not genuinely care have a social obligation to ask (89), while asking (91) shows at least some attempt at showing care, even if it is not totally genuine. Example (90-a) is probably the most preferred answer to (89) precisely because asking (89) is a social obligation: the person asking may really care or not, but either way they are socially obliged to ask.

Two examples in the same vein are given below. First, the sentence in (92) conveys that the speaker understands that her grandmother has a genuine worry or concern about when she will see her grandchild. For this reason, this type of reply conveys affection because it reassures the grandmother that, contrary to her fear, the grandchild will soon visit her.

Context: I am in my house. My grandmother, who I have a very close relationship with, calls from her house. She asks me, 'Sweetheart, when are you coming to see me? I miss you!'

(92) naaḷe raavile ett-irikk-um
tomorrow morning reach-LV-MOD
'I will come tomorrow morning.'

Another similar example comes from (93). Example (93-a) would be said in a context where your astrologer suspects you might have some small doubts about his skills/do not fully trust him and wants to reassure you that, contrary to your doubtful expectations, he is 100 % certain about the information he is telling you. Using (93-b) does not convey that the astrologer suspects that the hearer has doubts about the information he is telling him/her. It is just a simple statement. When *koɳṭə* is added, as in (93-c), no doubt of the astrologer is conveyed, only that the coming of the money be endless. This follows if *irikk-* functions as a semantically vacuous auxiliary when *koɳṭə* intervenes between the verb stem and higher functional morphemes.

(93) Context: An astrologer after checking your stars

a. paisa vann-irikk-um
money come.PART-LV-MOD
'Money will come to you.'

b. paisa var-um
money come-MOD
'Money will come.' [certain but just a usual statement; money is coming and going coming and going]

c. paisa vann-u-koɳṭ-irikk-um
money come-PART-LAM-AUX-MOD
'Money will be continuously coming to you.' [i. e. you're set for life, money will be coming in from all directions]

One concern raised by a reviewer is that light verbs seem to be able to be separated by particles like *onnum* 'anyone' as (94) shows. However, *irikk-* does not seem to allow this type of separation, (95). I leave exploring this concern to further research.

(94) a. ceytə tar-um
do.PART LV(give)-MOD
'will do (for the benefit of someone)'

b. ceyt-onnum tar-illa
do.PART-anything LV(give)-NEG
'will not do anything (for the benefit of someone)'

(95) a. pooy-irikk-um
go.PART-LV(sit)-MOD
'Will go (contrary to your expectations)'
b. *pooy-onnum irikk-illa
go.PART-anyone LV(sit)-NEG

In sum, what Asher & Kumari (1997) translate as Existential perfect uses of *irikk-* are not really perfect uses at all. Instead, they seem to have semantics more akin to a light verb that express 'surprise/unexpectedness' in these contexts. If this is correct, the use of *irikk-* as a light verb, in addition to its lexical and auxiliary uses would be unsurprising, since these types of verbs in other South Asian languages, such as Urdu and Bangla, can function as light verbs, auxiliaries and lexical verbs (Butt & Lahiri 2013). One could formalize these facts by proposing that light verb *irikk-* spells out an Initiator head in a first phase syntax (Ramchand, 2008), as Basu & Wilbur (2010) have argued for light verb uses of Bangla *bosh* 'sit'.

5.4.1.2 *irikk-* as 'do'-support

The second non-lexical, non-low auxiliary, functional use of *irikk-* occurs with what might be called the vP-level negation *–aa-*. When this negation is used, as in (96), *irikk-* must appear, even though the positive sentences do not have an *irikk-*, (97). The *irikk-* in (96-a) is functioning as the main, 'finite' verb in the sentence. Unlike with the potential light verb use of *irikk-*, these sentences carry no meaning of surprise or unexpectedness. Light verbs are also generally not obligatory, which is not the case with *irikk-* when *–aa-* negation is present, as can be seen in (98). One might propose that, in these cases, *irikk-* is functioning as a type of 'do' support.

(96) a. rajan paẓam kaẓikk-aatt-irunn-u
Rajan banana eat-NEG-DO-PST
'Rajan did not eat a banana.'
b. kuṭṭi [PRO ooṭ-aatte irikk-uvaan] ʃramicc-u
child run-NEG DO-INF try-PST
'The child tried not to run.' (Amritavalli 2014: 26b)

(97) a. rajan paẓam kaẓicc-u
Rajan banana eat-PST
'Rajan ate a banana.'

b. kuṭṭi [PRO ooṭ-uvaan] ʃramicc-u
child run-INF try-PST
'The child tried to run.'

(98) a. *rajan paẓam kaẓikk-aatt-u
Rajan banana eat-NEG-PST
'Rajan did not eat a banana.'
b. *kuṭṭi [PRO ooṭ-aatt-uvaan] ʃramicc-u
child PRO run-NEG-INF try-PAST
'The child tried not to run.'

One might object to a 'do' support analysis for the use of *irikk-* in (96) for the following two reasons. First, one might wonder why *irikk-* is needed with infinitives, (96-b), since this environment is not a place where 'do' support occurs in English. Work by Bjorkman (2011) may provide some insight here. Bjorkman argues that 'do' support in English, Breton, Monese Italian and the mainland Scandinavian languages occurs when the little verb head is pronounced separately from the big Verb head. This happens as a result of the locality requirement on agreement with the Tense head, (99), conflicting with another language specific requirement.

(99) The Tense head must be immediately local to any inflectional head X with which it has an Agree relationship. (Bjorkman 2011 p196: 20)

One of Bjorkman's main points is that 'do' support can look quite different from language to language and need not occur as a last resort type operation (contra Chomsky 1957; Chomsky 1991; Lasnik 1990; Pollock 1989; Bobaljik 1995; Embick & Noyer 2001, a. o.). This suggests that a more in-depth study of 'do' support in Malayalam is required before a 'do' support analysis is rejected.[11]

Secondly, another fact which also indicates that further studies of 'do' support in Malayalam would be insightful, is that Malayalam has a verb that means 'do' *ceyy-* which also has some 'do' support like uses (Asher & Kumari 1997, Paul 2013). A use of *cheyy-* 'do' as 'do' support can be seen by examining the examples in (100). Finite sentences cannot be coordinated in Malayalam, (100-a). Instead, the progressive, *–uka*, forms of the finite verbs are used. The conjunction marker *–um* is added to them, and the verb *ceyy-* 'do' is used as the main 'finite' verb, i. e. as 'do'

11 One might try to say that irikk- in (96) is functioning as some type of auxiliary. However, it is not clear how saying *irikk-* here is an auxiliary would fare any better with the infinitive problem, since there should not be any stranded tense features with an infinitive. Maybe, though, Malayalam infinitives do have tense features (cf. Menon 2011) and this is playing a role. The main issue though with this analysis is that the presence of negation does not cause auxiliaries (as defined by Bjorkman 2011, under review) to appear.

support, (100-b).[12] Just as with English 'do' support, no *cheyy-* is inserted when an auxiliary is already present in the positive form, (101), (cf. *John did not study history* vs *John was not studying history*).

(100) a. *vinu history paṯicc-u-yum anu veliyil kaḷicc-u-yum.
Vinu history study-PST-CONJ Anu outside play-PST-CONJ
'Vinu studied history and Anu played outside.'
b. vinu history paṯikk-uka-yum anu veliyil kaḷikk-uka-yum ceyt-u.
Vinu history study-PROG-CONJ Anu outside play-PROG-CONJ do-PST
'Vinu studied history and Anu played outside.'

(101) vinu history paṯikk-uka-yum anu veliyil kaḷikk-uka-yum aayirunnu.
Vinu history study-PROG-CONJ Anu outside play-PROG-CONJ be.PST
'Vinu was studying history and Anu was playing outside.'

The different environments where 'do' support is found in Malayalam are linked with a particular 'do' support verb: *irikk-* cannot be substituted for *ceyy-* in (100-b), nor can *ceyy-* be substituted for *irikk-* in the examples in (96). These facts raise a number of interesting questions that suggest that further studies of the different types of 'do' support in Malayalam would be productive.

5.4.1.3 How to differentiate between auxiliaries, light verbs & 'do' support

The many non-lexical uses of *irikk-* highlight an important open question in the field, how do light verbs, auxiliaries, and 'do' support differ? Work by Butt (Butt (1995), et seq.) and Bjorkman (2011, under review) has shed light on what labels such as 'light verb,' 'auxiliary,' and "do' support' actually mean and how morphemes should be assigned to one of these categories. However, there is still much work to do. Further study of the following two puzzles from Malayalam can potentially further contribute to this investigation.

The first puzzle has to do with why *irikk-*, as opposed to one of the 'being' verbs (*aanu* or *undu*, which are used as auxiliaries in the progressive forms), is chosen as the aspect auxiliary in the Universal perfect. One idea might be that

12 *ceyy-* 'do' also has a light verb use, (i-b), as well as a main verb use, (i-a).

(i) a. kuṯṯi-kaḷ innale entə ceyt-u?
kid-PL yesterday what do-PST
'What did the kids do yesterday?'
b. sudha ayaaḷ-e googil ceyt-appooḷ aaṇ-ee...
Sudha that-man-ACC Google do.PST-at.that.time be.PRS-EMPH
'It was (only) when Sudha googled that guy, that..' (Paul 2013)

Bjorkman (under review, 2011) is right that auxiliaries are present only to rescue stranded features and therefore copulas may have no real semantics of their own. Instead, they originate higher in the structure, simply as the spell out of stranded tense features. This is in line with what chapter 6 will argue for *aaŋə*. *Undu*, on the other hand, will be argued to have some additional content, in addition to spelling out stranded tense features. It could be that this additional content makes it less than ideal for use as a 'low' auxiliary. *Irikk-*, though, has a fully lexical verb usage, which suggests it is built at a lower point in the clausal structure, such as in the first phase (Ramchand 2008). Perhaps this is why it is selected as the auxiliary for lower stranded aspect features. Much, of course, still needs to be worked out here.

A second puzzle is what governs the use of *ceyy-* 'do' versus *irikk-* 'sit' as 'do' support? A possible intuition to probe here comes from Aboh (2016). He argues that serial verb constructions in Kwa languages (West Africa), which involve a number of different verbs, are created via auxiliation, (102).

(102) Auxiliation: 'verbal form is combined with another verb form in order to express TAM, quantification or introduce an additional argument…[express] cause, manner, instrument associated with V2, the main predicate' (slide 26, 40)

He further argues that there are different locations of Auxiliation cross-linguistically: main verbs in serial verb constructions in Kwa languages occur to the RIGHT of the Voice Projection while main verbs in serial verb constructions in Romance languages occur to the LEFT of the Voice Projection. Some Creole languages combine these two strategies (Mufwene 2001, Mufwene 2008, Aboh 2009, Aboh 2015, Aboh 2016). For example, since Haitian Creole has both the French LEFT and the Kwa RIGHT strategy, it can use both at the same time. His claim is 'all languages seem to display some form of auxiliation that is very much like serialization.' (slide 74). Jayaseelan (2004) points out that what he calls serial verb constructions in Malayalam (which includes *irikk-* in Universal perfect constructions using *kondu*) often have aspectual and modal functions. In sum, more careful work is needed to investigate the nature of perfects, auxiliaries, light verbs, serial verb constructions, 'do' support and their implications for the clausal spine and the Principle of Compositionality.

6 The Syntax and Semantics of Copulas in Malayalam

6.1 The questions & main claims

The focus of this chapter is the copula or 'being' verb, and the broad questions it explores are given in (1).

(1) a. What types of cross-linguistic variation exist with respect to copulas?
b. How can this variation be theoretically accounted for?
c. What can this variation teach the field about Universal Grammar?

This chapter begins by providing a sketch of cross-linguistic variation with respect to the number of copulas a given language has. The first type of language is one where there is only one copula. Hindi (Indo-Aryan, India) and English are two examples of this type of language. In all of the English sentences in (2) a single 'being' verb is used.

(2) a. Mary **is** John's sister.
b. John **is** in Boston.
c. John **is** pleasant.
d. (Presently) Roberta **is** his body guard.
e. The dress **is** wet.
f. The evening star **is** Venus.

The second type of language is one which has two copulas. Two examples of this type of language are Bhojpuri (Indo-Aryan, India) (Das, 2006) and Spanish. In the Spanish examples below, the copula varies between *ser* vs. *estar* depending on the sentence. Sometimes only one copula can be used in a given sentence, as in (3). Other times, as in (4), either copula can be used with a subtle meaning difference.

(3) Spanish
a. Maria **es/*esta** la hermana de Juan.
Maria SER/ESTAR the sister of Juan
'Maria is Juan's sister.'
b. Juan **esta/*es** en Madrid
Juan ESTAR/SER in Madrid
'Juan is in Madrid.'

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(4) Alejandro **es/esta** agradable.
Alejandro SER/ESTAR pleasant
With *ser*: 'Alejandro is pleasant (in general).'
With *estar*: 'Alejandro is being pleasant (today).' (Camacho 2012 p1: 1)

The third type of language is one in which more than two copulas exist. Oriya (Indo-Aryan, India), (5), exemplifies this option.

(5) Oriya

a. siitaa raamaa-ra strii **aʈe**
Sita Rama-of wife be
'Sita is Rama's wife.'

b. raamaa taa-ra deha rakkhi **ach**-i
Rama he-of body guard be-AGR
'(Presently) Rama is his body guard.'

c. saaaɖhi-aʈaa odaa-**th**-il-aa
sari-CL wet-be-PST-AGR
'The sari is wet.'

d. sandhyaa taaraa **he**-l-aa sukra-taaraa
evening star be-PST-AGR venus
'The evening star is Venus.' (Menon 2016 p91: 159)

This typological variation, especially the second and third types of language, leads to the main theoretical question this chapter will focus on: when a language has multiple copulas, what governs their usage?

Malayalam can serve as a testing ground for this question because it, like Spanish and Bhojpuri, has two different copulas: *uɳʈə* and *aaɳə*. As (6) shows, some sentences require one copula over the other, but, in other cases, either copula can be used with a change in meaning, (7).

(6) a. asha raman-te ceeci **aaɳə/*uɳʈə**
Asha Raman-GEN older.sister be.PRS
'Asha is Raman's older sister.'

b. aʈukkaḷa-yil paampə uɳʈə/*aaɳə
kitchen-LOC snake be.PRS
'There is a snake in the kitchen.'

(7) ɲaan delhi-yil **aaɳə/uɳʈə**.
I Delhi-LOC be.PRS
With *aaɳə*: 'I am in Delhi.' [general statement]
With *uɳʈə*: 'I am in Delhi.' [has some immediate effect]

The focus of this chapter will be, first, to provide a more detailed overview of the Malayalam copula data than that found in the existing literature, and, second, to provide a sketch of what an account for the two copulas in Malayalam might look like. Section 6.2 will provide an overview of the copula facts in Malayalam. Section 6.3 will suggest that an enriched version of a Freeze (1992)-style account can explain the copula facts. Section 6.4 will explore a pragmatic competition that occurs in cases like (7) where either copula can be used. It will compare and contrast the Malayalam data with Spanish data and suggest that a modified version of Deo et al.'s (2016) pragmatic account for Spanish copulas might be able to be merged with the Freeze-style syntactic account proposed in section 6.3 to explain the full range of the Malayalam copula data. Section 6.4 will consider implications of the account developed here for uses of the copulas as auxiliaries.

6.2 An overview of Malayalam copulas

In the Malayalam literature, it is common to see *unʈə* referred to as the 'existential' copula and *aaɳə* referred to as the 'equative' copula (Mohanan and Mohanan 1999, Menon 2008, 2016 a. o.). These names come from uses where the copulas are in complementary distribution. The so-called 'equative' copula *aaɳə* gets its common name from examples like (8-a), where it equates two referring individuals. It is also used in predicative constructions where it is used for both states, (8-c), and events, (8-b). The other place that only *aaɳə* is used is in clefts, (9).

(8) a. asha raman-te ceeci aaɳə/*unʈə
Asha Raman-GEN older.sister be.PRS
'Asha is Raman's older sister.'
b. malsaram aarə maɳi-kkə aaɳə/*unʈə
match six time-DAT be.PRS
'The match is at 6 o'clock.'
c. avan sundar-an aaɳə/*unʈə
he beauty-M be.PRS
'He is beautiful.'(Menon 2008 p19: 13–14)

(9) vinu aaɳə/*unʈə deepa-yuʈe sahoodari-ye sneehikk-unn-∅-atə
Vinu be.PRS Deepa-GEN sister-ACC love-PLUR-PRS-NMLZ
'It is Vinu who loves Deepa's sister.'

The second copula, *unʈə*, gets its name from its use in existential constructions. Example (10) provides instances of both permanent, (10-a), and temporary, (10-b)–(10-c), existential uses of *unʈə*. Note that *aaɳə* is not allowed in any type of existential constructions.

(10) a. daivam unʈə/*aaɳə
God be.PRS
'God exists.' (Mohanan & Mohanan 1999: 19)
b. meeʃa meel pustakam unʈə/*aaɳə
table on book be.PRS
'There is a book on the table.' (Asher & Kumari 1997 p100: 479)
c. aʈukkaʟa-yil paampə unʈə/*aaɳə
kitchen-LOC snake be.PRS
'There is a snake in the kitchen.'

Another area where only *unʈə* is used is in possessive constructions. Example (11) shows that the same construction is used for both inalienable, (11-a), and alienable possession, (11-b) and that only an ownership reading is allowed.[1]

(11) a. enikkə ceeci unʈə/*aaɳə
I.DAT older.sister be.PRS
'I have an older sister.'
b. anita-kkə kaarə unʈə/*aaɳə
Anita.DAT car be.PRS
'Anita has a car.' [ok Ownership, X Custodial] (Menon 2016 p88: 152)

Turning to cases where the complementary distribution breaks down, Malayalam can use either *unʈə* or *aaɳə* in locative contexts, with a subtle meaning shift.

(12) ɲaan delhi-yil **aaɳə/unʈə**.
I Delhi-LOC be.PRS
With *aaɳə*: 'I am in Delhi.' [general statement]
With *unʈə*: 'I am in Delhi.' [has some immediate effect]

1 Menon (2016) claims that *aaɳə* is possible in (11-b). However, speakers I have presented this sentence to responded by asking me what I was trying to say. They said it was an ungrammatical sentence and corrected it to *enikkə kaaru unʈə*. When asked if it was possibly a dialect variant/if they had ever heard anyone else say that sentence, they then came up with the context given in (i) in which *aaɳə* could be used.

(i) a. tan-ikkə scooter unʈ-oo?
you-DAT scooter be.PRS-Q
'Do you have a scooter?'
b. alla, enikkə caaru aaɳə
be.NEG I.DAT car be.PRS
'No, I have A CAR.' [lit. No, it is a car that I have.]

In other words, this structure can only be used in a cleft construction contrasting that it is a *car* as opposed to something else that is possessed.

In addition to canonical locative contexts, this pattern is also found with psychological predicates, (13), medical predicates, (14), and in a pseudo-possessive that allows a custodial reading, (15). This chapter will argue that these uses are, in fact, all locative uses. This type of analysis seems intuitive for psychological and medical predicates as they express that a certain emotion, feeling or condition is located in a particular person.

(13) enikkə (paṯṯi-kaḷ) peeṯi aaṇə/unṯə
I.DAT dog-PL fear be.PRS
With *aaṇə*: 'I am afraid (of dogs).' [general statement]
With *unṯə*: 'I am afraid (of dogs).' [has some immediate relevance]

(14) unṇi-kkə pani aaṇə/*unṯə*
Unni-DAT fever be.PRS
With *aaṇə*: 'Unni has a fever.' [general statement]
With *unṯə*: 'Unni has a fever.' [has some immediate relevance]

(15) anita-yuṭe kayy-il/aṭuttə/pakkal kaarə unṯə/aaṇə
Anita-GEN hand-LOC/near car be.PRS
'Anita has a car.' [lit. In Anita's hand/near Anita is a car.] [ok Ownership, ok Custodial] (adapted from Menon 2016 p88: 151)

One might be tempted to try to explain the choice of copula in the different constructions based on the case of the subject. However, this is not possible. Existentials and possessives only allow the *unṯə* copula, but the subjects of existentials take a variety of cases while the subjects of possessives always have the dative. Likewise, locatives, pseudo-possessives and psychological and medical predicates all can occur with either copula. However, locatives require nominative subjects, pseudo-possessives genitive subjects and psychological and medical predicates dative subjects.

Having ruled out a case-based analysis, section 6.3 will propose that a syntactic account along the lines of Freeze (1992) can account for the set of copula facts in Malayalam. Section 6.4 will suggest that the subtle meaning shifts that arise in the locative constructions based on the copula choices are the result of a pragmatic competition between the two copulas in these contexts.

6.3 A Freeze (1992)-style account for the copulas

This section will focus on the syntax of the copula constructions. It will argue, following Freeze (1992), that existential, possessive and locative constructions are all derived from a Preposition Phrase small clause embedded under a Tense Phrase.

Section 6.3.1 will give an overview of Freeze's account, and section 6.3.2 will extend and adapt Freeze's work to account for the Malayalam facts.

6.3.1 Overview of Freeze (1992)

The starting point of Freeze's (1992) paper is a series of cross-linguistic parallels in word order and copula alternations in existential, possessive and locative structures. First, he noted that, when the underlying word order of the language is taken into account, the order of the constituents in these three constructions is remarkably predictable across a wide range of unrelated languages. Specifically, the order of the phrase that receives the theme theta role (T) and the phrase that receives the location theta role (L) in locative constructions is the reverse of the order of the two constituents in the existential and possessive constructions, as shown in the table below.

Table 6.1: Word order in Existential, Possessive and Locative constructions (adapted from p578 of Freeze (1992)).

Order	Example	Existential	Possessive	Locative
SVO	Russian	L COP T	L COP T	T COP L
SVO	Shanghainese	L COP T	L COP T	T COP L
SVO	Finnish	L COP T	L COP T	T COP L
SOV	Hindi	L T COP	L T COP	T L COP
SOV	Malayalam	L T COP	L T COP	T L COP
VSO	Tagalog	COP T L	COP T L	COP L T

Furthermore, Freeze noticed that in languages with more than one copula, existential and possessive structures frequently use the same copula, while locative structures often use a different copula, as the following examples show.

(16) Tagalog (Malayo-Polynesian, Philippines)

a. **may** gera sa ewropa [Existential]
be war in Europe
'There is a war in Europe.'

b. **may** relos aŋ naanai [Possessive]
be watch ART mom
'Mom has a watch.'

c. **na** sa baabaʔi aŋ saŋgol [Locative]
be at woman ART baby
'The baby is with the woman.' (Freeze 1992 p556: 5, p585: 71)

(17) Russian (Slavic, Russia)

a. na stole **est'** kniga [Existential]
on table.LOC be book.NOM.F
'There is a book on the table.'

b. u menja **est'** sestra [Possessive]
at 1SG.GEN be sister.NOM
'I have a sister.'

c. kniga Ø na stole [Locative]
book.NOM.F be on table.LOC
'The book is on the table.' (Freeze 1992 p582: 61)

(18) Shanghainese (Sinitic, China)

a. (lʌlʌ) vɔŋts lidʌw **yu** i-tsʌ mɔ [Existential]
in building inside be one-CL cat
'There is a cat in the building.'

b. ŋow **yu** i-tsʌ mɔ [Possessive]
I be one-CL cat
'I have a cat.'

c. na Ø lʌlʌ vɔŋts lidʌw [Locative]
Anna be in building inside
'Anna is in the building.'(Freeze 1992 p585: 72)

In order to account for this cross-linguistic pattern, Freeze proposes that all three constructions can be derived from a single underlying structure, namely a Prepositional Phrase small clause embedded under a Tense Phrase.

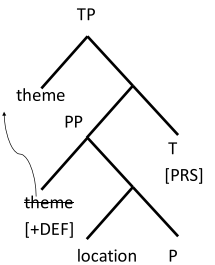
Freeze derives the different copula facts through the following two steps. First, following a fairly common intuition, Freeze proposes that the copula present in locative structures originates in the Tense head as the spell out of the stranded tense features there (here merging his account with that of Bjorkman's (2011, under review)). Secondly, he argues that the copula present in the existential and possessive structures is a spell out of the Preposition head incorporated into the Tense head and combined with the stranded features on the Tense head. In a locative construction no incorporation occurs, and so, the copula is just a spell out of the stranded features on the Tense head. In some languages, this results in there being a distinct existential/possessive copula and a distinct locative copula.

He derives the word order facts based on differences in what moves to the Specifier of the Tense Phrase. He begins, following Safir (1982) and Reuland and Ter Meulen (1987), by noting that it is not possible for the theme in an existential construction to be definite, (19).

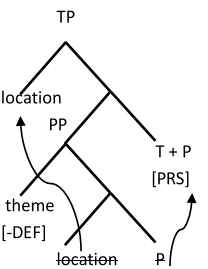
(19) *There is the book on the bench.

Based on this, he proposes that [+DEFINITE] themes, but not [-DEFINITE] themes can move to the Specifier of the Tense Phrase. If the theme is [-DEFINITE], the locative argument can move to the Specifier of the Tense Phrase. This correctly predicts the locative and existential word orders, as shown in (20).

(20) a. SOV Locative structure (T L COP)

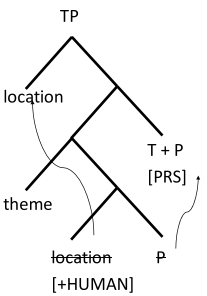


b. SOV Existential structure (L T COP)



Like existentials, possessive structures have the Locative Theme Copula word order. What distinguishes the possessive structure from the existential structure is that the locative argument of the possessive structure is [+HUMAN]. This feature is responsible for triggering the movement of the locative argument to the Specifier of the Tense Phrase, yielding the same word order that is found in the existential construction, (21).

(21) SOV Possessive structure (L T COP)



This feature also causes distinct prepositions to be used in possessive and existential constructions in many languages. For example, in Russian, (17), the [-HUMAN] locative argument of the existential is assigned locative case by the preposition *na* 'on' and the [+HUMAN] locative argument of the possessive is assigned genitive case by the preposition *u* 'at.' This concludes the overview of Freeze's paper.

6.3.2 Extending & adapting Freeze (1992) to Malayalam

The goal of this section will be to develop a modified version of Freeze's account for the Malayalam copula data. The basic intuition of this proposal is that *unʈə* carries some extra content while *aaɳə* is a semantically vacuous 'be.' The key facts that must be accounted for in Malayalam are summarized in 6.2 below.

Table 6.2: Key copula facts in Malayalam to account for.

Fact	∃	**Poss**	**Loc**	**Psych**	**Med**	**Pseudo-Poss**
Word Order	L T COP	L T COP	T L COP	L T COP	L T COP	L T COP
copula(s)	*unʈə*	*unʈə*	*unʈə*/*aaɳə*	*unʈə*/*aaɳə*	*unʈə*/*aaɳə*	*unʈə*/*aaɳə*
case of subj	OBL/LOC	DAT	NOM	DAT	DAT	GEN

This section will begin with an overview of the intuition for the modified account and then provide concrete examples of how the proposal can account for the data. Beginning with the overview of the account, the first step in modifying Freeze's account to capture the Malayalam data is to offer an explanation for why the different copulas arise. The first step here is to stipulate that some prepositions can enter the derivation with a feature which must be checked via an Agreement relationship with the Tense head. When nothing intervenes between the Preposition and the Tense head, Agreement takes place. However, unlike a verbal head, the Preposition head cannot host the [TENSE] feature present at the Tense head.[2] The inability of the preposition to host the [TENSE] feature effectively strands the [TENSE] feature on the Tense head, forcing the insertion of a copula. However, given the 'extra' content on the Tense head due to its Agreement relationship with the prepositional head, the copula inserted to rescue the stranded features is *unʈə*. When the preposition head does not carry this feature and so does not trigger

2 As far as I know, there are no languages with tensed prepositions.

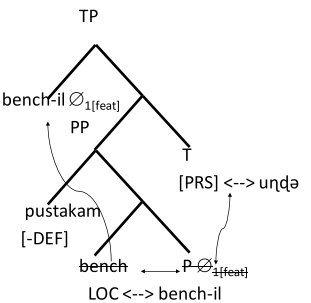
Agreement between the preposition and Tense head, the regular copula *aaŋə* is inserted to rescue the stranded tense features on the Tense head.

The second step is then to explain the distribution of the copulas. The crucial factor here will be which prepositions enter the derivation with the feature.[3] Minimally, the overt prepositions *aʈuttə* 'near', *pakkal* 'near', which assign genitive case to their argument, and the covert prepositions $\emptyset_1$, which assigns locative case to its argument, and $\emptyset_2$, which assigns dative case to its argument, can appear with this feature because these prepositions are used in cases where *uɳʈə* appears. To explain the distribution, it is necessary to stipulate that this feature must appear on the appropriate preposition head in existential and possessive structures, where only *uɳʈə* can be used, while it can optionally appear on the preposition head occurring in location predicates (of which it will be argued psychological, medical and pseudo-possessives are subtypes).

Turning to concrete examples, the structures for the existential and possessive constructions are given in (22-b) and (23-b). The Locative Theme Copula order arises in the existential construction because the locative argument is able to raise over the [-DEFINITE] theme, just as in Freeze (1992). The locative argument gets its locative case from the null preposition $\emptyset_1$. The obligatory presence of the feature and the resulting agreement relationship between the Preposition head and the Tense head results in the spell out of *uɳʈə*.

(22) a. benc-il pustakam uɳʈə/*aaŋə
bench-LOC book be.PRS/be.PRS
'There is a book on the bench.'

b. Malayalam existential structure

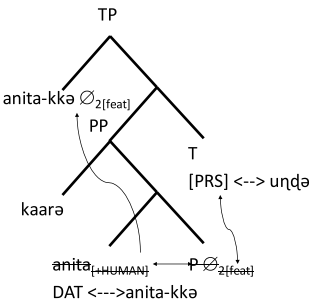


3 Perhaps this could be reformulated by saying that the feature appears on certain types of little p(reposition) heads (cf. Levinson (2011) for little p heads) and what type of little p head a construction has depends on different properties it has, perhaps analogous to different 'flavors' (unaccusative, transitive, etc.) of little v heads. I leave working the details of this out to future work.

The [+HUMAN] feature on the locative argument in the possessive structure causes the locative argument to move into the Specifier of the Tense Phrase, resulting in the Locative Theme Copula word order. The $\emptyset_2$ preposition assigns dative case to the locative argument. The feature on the Preposition head Agrees with the Tense head and spells out as *unʈə*.

(23) a. anita-kkə kaarə unʈə
Anita-DAT car be.PRS
'Anita has a car.' [ok Ownership, X Custodial] (Menon 2016 p88: 152)

b. Malayalam possessive structure



Turning now to the locative structures, these facts can be accounted for as follows. For the canonical locative structure in (24-a), the structure will be that in (24-b) when *aaɳə* is used and (24-c) when *unʈə* is used. In both structures, the theme argument moves to the Specifier of the Tense Phrase due to the [+DEFINITE] feature (or, in this case, the [+HUMAN] feature would also trigger movement). This gives the Theme Locative Copula word order. This theme argument could receive nominative case either from the Tense head or it could simply be the default nominative case.[4]

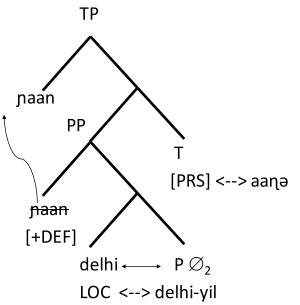
The difference in copula arises based on whether or not the feature is present on the preposition. If it is not, no Agreement relation will be established between the Preposition head and the Tense head and *aaɳə* will be inserted to rescue the stranded features. If the feature is there, Agreement between the two heads will occur and *unʈə* will be inserted.

4 Nominative is the default case in Malayalam as (i) shows.

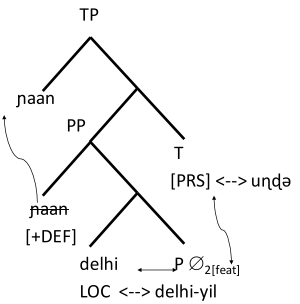
(i) ɲaan viruupay-oo?
I ugly-Q
'Me ugly!?'

(24) a. ɲaan delhi-yil **aaɳə/unʈə**.
I Delhi-LOC be.PRS
With *aaɳə*: 'I am in Delhi.' [general statement]
With *unʈə*: 'I am in Delhi.' [has some immediate effect]

b. Malayalam locative structure with *aaɳə*



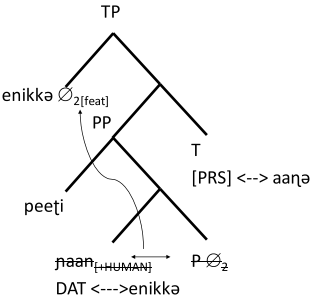
c. Malayalam locative structure with *unʈə*



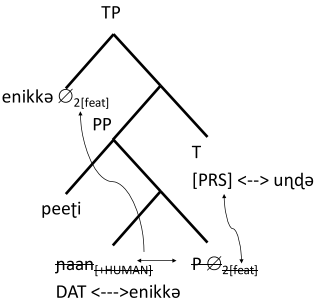
As (25) and (26) show, the psychological and medical predicates can be dealt with in the same matter as the other locatives. The key difference here is that the locative argument is [+HUMAN]. Due to this, the locative argument moves to the Specifier of the Tense Phrase, resulting in the Locative Theme Copula word order not the classic Theme Locative Copula word order found in the canonical locative construction. The locative argument, which becomes the subject in psychological and medical predicates, gets dative case from the null preposition $\emptyset_2$. Just as with other locative constructions, the choice of *aaɳə* versus *unʈə* as the copula will vary based on the presence or absence of the feature on the Preposition head triggering Agreement with the Tense head.

(25) a. enikkə (paʈʈi-kaḷ) peeʈi aaɳə/unʈə
I.DAT dog-PL fear be.PRS
With *aaɳə*: 'I am afraid (of dogs).' [general statement]
With *unʈə*: 'I am afraid (of dogs).' [has some immediate relevance]

b. Malayalam psychological predicate with *aaɳə*

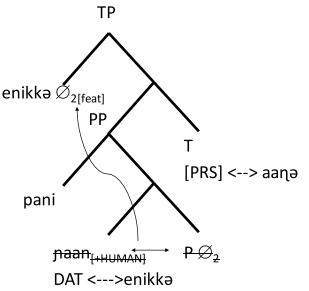


c. Malayalam psychological predicate with *uɳṯə*

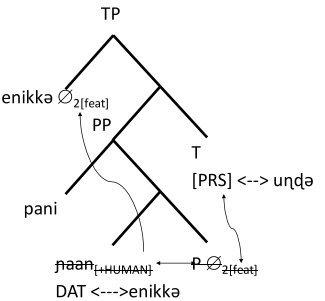


(26) a. uɳɳi-kkə pani aaɳə/uɳṯə
Unni-DAT fever be.PRS
With *aaɳə*: 'Unni has a fever.' [general statement]
With *uɳṯə*: 'Unni has a fever.' [has some immediate relevance]

b. Malayalam medical predicate with *aaɳə*



c. Malayalam medical predicate with *unʈə*



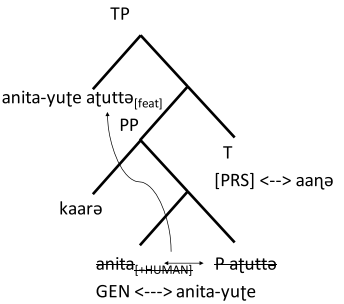
It is worth noting that, in addition to psychological and medical predicates, $\emptyset_2$ is also used with the locative argument of possessives. All these locative arguments share the property of being human. In contrast, the null preposition, $\emptyset_1$, used in existential and canonical locative constructions, is used with [-HUMAN] locative arguments. Freeze (1992) notes that languages often use certain prepositions with [+HUMAN] marked arguments and others with [-HUMAN] arguments.

Finally, turning to the pseudo-possessives, (27), it will now be argued that these constructions are also locative structures, not Theme-subject possessives found in some languages. The first reason for this is that these pseudo-possessive constructions allow either copula to be used, like the other locative structures and unlike the possessive structure. Secondly, like the psychological and medical predicates, they have a [+HUMAN] locative argument that raises to the Specifier of the Tense Phrase. This accounts for their possessive-looking word order (Locative Theme Copula) not the usual locative order (Theme Locative Copula).

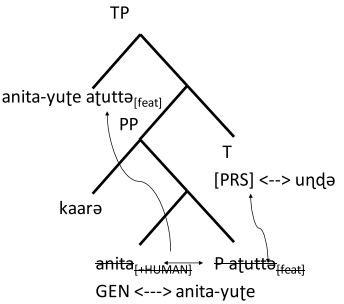
Thirdly, they express possession indirectly. They are not the most natural way to say that someone owns something. Rather, they most literally mean that something is near someone or that something is in someone's hand. This is why they allow custody readings, in addition to ownership readings, whereas the possessive does not allow custody readings. From the basic custody reading of pseudo-possessives, depending on the context, the thing in the person's custody can be determined his/her possession or to simply be something they have but do not own.

(27) a. anita-yuʈe kayy-il/aʈuttə/pakkal kaarə unʈə/*aanə*
Anita-GEN hand-LOC/near car be.PRS
'Anita has a car.' [lit. In Anita's hand is a car.] [ok Ownership, ok Custodial] (modified from Menon 2016 p88: 151)

b. Malayalam pseudo-possessive with *aaŋə*



c. Malayalam pseudo-possessive with *uɳʈə*



The locative argument here receives genitive case from the overt preposition *aṭuttə* 'near' or *pakkal* 'near' or as the result of being an argument of another noun. This construction shows that following Freeze (1992) in assuming that the preposition moves to the Specifier of the Tense Phrase along with the locative argument is on the right track, as we see the overt movement in this structure.

In sum, this section has argued that existential, possessive, locative, psychological, medical and pseudo-possessive constructions all are constructed from a Preposition Phrase small clause embedded under a Tense Phrase, following Freeze (1992). The different word orders have been explained due to the presence or absence of [+/-DEFINITE] and [+/- HUMAN] features which trigger movement of certain arguments to the Specifier of the Tense Phrase. The case facts have been accounted for based on the preposition which assigns case to the locative argument.

The distribution of the copulas has been explained by stipulating a feature which must occur on the prepositions used in the existential and possessive constructions and can optionally occur on the different types of locative constructions (canonical locatives, psychological and medical predicates and pseudo-possessives). Nothing has been said in this section about the content of this feature or about how the subtle meaning differences arise based on which

copula is used in the different locative constructions. The next section will explore possible directions one could pursue with respect to the latter open question.

6.4 Meaning shifts & the distribution of the copulas

This section will focus on the meaning shifts that occur in canonical locative, medical and psychological constructions depending on which copula is used. The key idea of this section is that when the feature responsible for triggering the insertion of *unʈə* is optional, a pragmatic competition occurs between the two candidate structures. Since *aaɳə* is the semantically weaker/vacuous 'being' verb, when *unʈə* occurs in these contexts this suggests that something other than a general statement is being made. When this feature is obligatory, as in existential and possessive constructions, none of these effects arise because no pragmatic competition occurs.

The exact nature of the stronger statement made when *unʈə* is used in these contexts will be discussed in section 6.4.2. However, before more closely examining the meaning differences that arise in section 6.4.1, two potential explanations from previous literature will be flagged. The first is Mohanan & Mohanan (1999), which argues that in Malayalam sentences allowing either copula, the use of *aaɳə* signals that the sentence is a reduced cleft. Section 6.4.1 will show that this account cannot capture the full range of facts, as while there almost always is a reduced cleft interpretation of sentences with *aaɳə*, there is also another general non-clefted meaning with *aaɳə*. A second potential explanation comes from the Spanish literature, where the *estar* copula is frequently seen as lexicalizing the stage-level (transient) and the *ser* copula as lexicalizing the individual-level (permanent) distinction (Carlson 1977, Fernández Leborans 1995, Gumiel Molina 2008, Escandell Vidal and Leonetti 2002, Roby 2009, a. o.). The medical predicates especially will show that the *unʈə*/*aaɳə* distinction in Malayalam is not a temporary versus permanent distinction.

6.4.1 The new meaning shifts data

Using twelve case studies, this section presents a more detailed overview of the subtle meaning shifts that occur depending on the copula used in the different types of location predicates. Each case study will present a context where the *unʈə* form is more natural and a context where the *aaɳə* form is most natural. Beginning first with medical predicates and then moving onward to classical location constructions and psychological predicates, it will be shown that *aaɳə* is used for

general or background statements, while the use of *unʈə* suggests that some immediate action is necessary or that the theme argument is foregrounded. The data in this section further suggests that *aaɳə* is a vacuous 'being' verb, while *unʈə* has an additional component.

6.4.1.1 Medical predicates

The first case study deals with someone having a fever. If your friend Unni has been sick for a few days and you call his mother to get the latest update about his current condition, his mother would respond with (28-b) if Unni still has a fever.[5] To inquire about Unni's general condition, (28-a) should be used, i. e. this is a good answer to questions such as 'How is Unni/is Unni well?' and 'Why isn't Unni in the office today?'.

(28) a. uɳɳi-kkə pani aaɳə
Unni-DAT fever be.PRS
'Unni has a fever.'
b. uɳɳi-kkə pani unʈə
Unni-DAT fever be.PRS
'Unni has a fever.'

In the case of diabetics, the second case study, (29-b) might be said in response to the question 'What happened to you? You look weak now.' It might also be an answer on a form one fills out when they go to enroll in a new school or job, i. e. in answer to a question such as 'What facts should the school/job know about you?' In both cases, this information requires immediate action (say, helping someone get to the doctor or putting a flag in the file to alert the proper teachers of the condition so the child can be monitored). Example (29-a), with *aaɳə*, would be limited to contexts such as a general educational pamphlet about diabetics, say one of the type that might be distributed to both diabetic and non-diabetic people in schools to raise general awareness.

(29) a. enikkə prameeham aaɳə
I.DAT diabetes be.PRS
'I am a diabetic.'

5 It can also be the response in a scenario where there is some doubt about whether our companymate Unni is really sick or if he has simply called in sick in order to go to the beach with his friends. In this scenario, (28-b) should be used to confirm that Unni really is sick, i. e. it provides verum focus. Menon (2016) also notes this use of *undu* with location predicates. She comments '*unʈə* is used to ask whether the entity is where it is expect to be' p102.

b. enikkə prameeham unʈə
I.DAT diabetes be.PRS
'I am a diabetic.'

The temporariness or permanence of the condition does not matter here. If someone asked the question 'What happened to you? You look weak now.' or 'Is there anything we should know about you?' (say in the context of joining a new job), (29-b) would be the correct response, irrespective of whether the speaker is a type 2 diabetic who has to take daily insulin shots and very carefully manage her diet or if she has developed a mild, temporary case of diabetes due to a pregnancy. Rather, what is relevant here is whether information about the general situation or information about its relevance to a specific situation currently at hand is being given.

The third case study involves expressing that one is an asthma patient. Using (30-b) is natural if someone is suffering from asthma and the speaker wants to give the person suffering some advice about what kind of medicine would best help their asthma improve. However, the person suffering from asthma rejects the advice. At this point, the advice-giver could say (30-b) as a way to try to persuade the person suffering to try the medicine. The use of *unʈə* seems to foreground the relevance of the speaker's asthma as being immediately relevant to the argument they are currently making. The intended force here is that the advice-giver has asthma themselves so they can understand the situation and the suffering the person they are giving advice to feels due to their personal experience with being an asthma patient. They need not be suffering from an asthma attack/have out of control asthma themselves at the moment.

It is appropriate to use (30-a) in the following case: the speaker goes to the hospital and sees a doctor (s)he has never seen before. (S)he introduces him/herself to the doctor by telling him that (s)he is an asthma patient and that it has been a bad year and describes two prior asthma-related sicknesses the speaker had earlier in the year. Then the speaker shifts to giving him details about his/her current breathing-related sickness. Here the use of *aaɳə* serves to provide background information to set the scene for the immediately relevant information.

(30) a. enikkə asma aaɳə
I.DAT asthma be.PRS
'I am an asthma patient.'

b. enikkə asma unʈə
I.DAT asthma be.PRS
'I am an asthma patient.'

In both the (30-a) and (30-b) cases, the speaker presumably has asthma as a long-term or permanent condition, once again suggesting that the temporary or permanent nature is not what is relevant.

The fourth and final medical predicate case study comes from describing the physical characteristic of being fat. If someone wants to make a comment about another person's weight after a first meeting, they will say (31-b). The use of (31-a) would be limited to a context where someone is trying to give a description of Unni to try to jog someone else's memory of who Unni is: 'You remember Unni. We met him last week at the temple. He is short, fat, teaches chemistry…'.

(31) a. uɳɲi-kkə taʈi aaɳə
Unni-DAT fatness be.PRS
'Unni is fat.'
b. uɳɲi-kkə taʈi uɳʈə
Unni-DAT fatness be.PRS
'Unni is fat.'

Once again it seems that the use of *aaɳə* provides a backdrop fact for another discussion. If this were about temporariness versus permanence, one might expect *uɳʈə* to be able to be used to express that the speaker has known Unni before and is therefore aware of the fact that his weight has changed. However, as (32) shows, neither copula is appropriate to express this. Instead a different verb *veccu* 'put' is needed.

(32) uɳɲi taʈi vecc-u/#aaɳə/#uɳʈə
Unni fatness put.PST
'Unni is fat.'

6.4.1.2 Location predicates

Turning now to classical location predicates, the fifth case study focuses on expressing that one is in Delhi in the context of calling a friend one has not talked to in some time. This conversation might begin with a greeting and then the caller asking the question in (33).

(33) ent-okke uɳʈə viʃeʂam?
what-all be.PRS matter
'What's new?'

Either sentence in (34) could be used as an answer to (33), though with different effects. Based on other variables in the context, answering this question with (34-b) might cause the person calling to say something like 'oh, sorry for catching you at

a bad time. I'll call back later.' because using (34-b) in this context is like saying 'I am in Delhi, so I am busy now.' This is particularly true if the caller knows that their friend goes to Delhi on tightly scheduled work trips. However, if the friend doing the calling lives in Delhi and the friend being called does not, using (34-b) in response to the caller's question will get a response like 'Really?! I'll start cooking now! Come over for lunch! I can't wait to see you!'.

If, however, the speaker uses (34-a) to answer (33), this simply is a statement that conveys that the friend being called is in Delhi. The person calling will continue with some follow-up questions about what that person is doing in Delhi and the conversation will go on because using (34-a) in this context is simply a neutral statement about location. It is possible to use (34-a) to express something like 'I'm in Delhi, so I'm helpless;' however this is a clefted use. For example, if someone calls me and asks me to do something for him, thinking I am in my office in Kochi, I can say (34-a) to express that I am in Delhi not Kochi and so am unable to help that person. Clefted readings are freely available with *aaɳə* but these are not the readings being focused on in this section because they involve a different syntactic structure than the basic one being focused on here. Also, Malayalam needs some way to neutrally express locations without either the cleft semantics or the extra shades of meaning that arise with *unʈə*. The non-clefted use of *aaɳə* fills this function.

(34) a. ɲaan delhi-yil aaɳə
I Delhi-LOC be.PRS
'I am in Delhi.'

b. ɲaan delhi-yil unʈə
I Delhi-LOC be.PRS
'I am in Delhi.'

The sixth case study involves expressing that someone is in the lab. It is natural to use (35-b) in a context like the following: People in the department like to eat lunch together. Today the lab technician, Unni, is not present at the lunch. However, his friend Nithin is there. Usually, Nithin only comes to lunch when Unni comes. A third person comes in and, seeing Nithin but not Unni, asks with surprise, 'Where is Unni?'. Here (35-b) is the most natural response because it conveys that right now, Unni is in lab (i. e. has a lot more work than usual) and that is why he is not at lunch, despite the fact that Nithin is there.

If (35-a) is used, it conveys that Unni is in the lab because that is normally where he works; it is a statement about the general situation, not the current situation. As such, it does not answer the question being asked in this context. If said, it would leave the hearer with a 'and so....?' feeling, i. e. more information

would need to be added. A cleft reading is also possible in (35-a), as in most cases where *aaŋə* is present. What is interesting to note is that there is an additional, non-clefted, reading possible in (35-a) as well.

(35) a. unni lab-il aaŋə
Unni lab-LOC be.PRS
'Unni is in the lab.'
b. unni lab-il unɬə
Unni lab-LOC be.PRS
'Unni is in the lab.'

The seventh case study involves questioning and replying about someone's whereabouts. In asking the question the two options in (36) are possible. Example (36-b) is not a good general question. Instead it needs a context like the following to be licensed: Unni is known to be somewhat of a character and the speaker wants to ask something like 'Where is that guy? What is he up to now?/What kind of trouble is he getting into now?' Example (36-a) is what would be used to simply ask a general question about Unni's whereabouts.

(36) a. unni eviɮe aaŋə?
Unni where be.PRS
'Where is Unni?'
b. unni eviɮe unɬə?
Unni where be.PRS
'Where is Unni?' ('Where is that guy? What is he up to now?/What kind of trouble is he getting into now?')

Speakers comment that it is only acceptable to answer such a question with (37-b) if Unni can be seen by the person answering the question, say because he is in the room with this person. If he cannot be seen, say because he is upstairs, then (37-a) would be the correct way to answer the question. Both sentences use the proximate *iviɮe* 'here'. When *unɬə* is used, it seems that the 'here' refers to locations that are spatially immediate to the speaker, i. e. those which can be seen: 'right here beside me/in this room'. However, when *aaŋə* is used the proximity can be more removed: 'here in the house/building.'

(37) a. unni iviɮe aaŋə
Unni here be.PRS
'Unni is here.'
b. unni iviɮe unɬə
Unni here be.PRS
'Unni is here.'

In wrapping up the classic location case studies, note that one necessary condition for the use of *unʈə* with a classic locative is that the theme must be mobile. It is possible to use *unʈə* with a person, (38-a), or a mobile object such as a book, (38-b), but it is not possible to use *unʈə* with the location of an immobile object like a city, (38-c). Saying (38-c) sounds comical because this sentence makes it sound like Kochi, a city, has just arrived in Kerala and so that event requires some immediate action on the hearer's part. In other words, it is a funny sentence because it suggests that Kochi is traveling. That Kochi is in Kerala is a fact about the way things generally are and so only the *aaɳə* copula is allowed to express the location of non-mobile things like cities.[6]

(38) a. unɳi kocci-yil unʈə
Unni Kochi-LOC be.PRS
'Unni is in Kochi.'
b. aa pustakam laibrari-yil unʈə
that book library-LOC be.PRS
'That book is in the library.'
c. #kocci keraɭa-til unʈə
Kochi Kerala-LOC be.PRS
'Kochi is in Kerala.'

Example (38-b) would be used as an answer by a librarian to a student wanting to check out the book, who inquired if it was in the library or not. If *aaɳə* is used here, then the sentence simply states the normal location of the particular book, i. e. that since it is a reference book, all normal circumstances holding, it will be in the library. Since feelings/psychological states and medical conditions frequently change, they inherently conform to the mobility requirement.

6.4.1.3 Psychological predicates

Before beginning the last five case studies, which all focus on psychological predicates, a note about dialect difference is in order. Menon (2008, 2016) claims that

6 At first glance, one apparent counterexample might seem to be the sentences in (i). However, they are the answers to different questions. Example (i-a) is an answer to the question 'Where is the bathroom?' while (i-b) is the answer to the question 'Do you have a bathroom?.'

(i) a. bathroom aviʈe aaɳə
bathroom there be.PRS
'The bathroom is there.'
b. bathroom aviʈe unʈə
bathroom there be.PRS
'We have a bathroom there.'

with most psychological predicates only the *unʈə* copula can be used. However, speakers that I consulted also accepted *aaɳə* in all cases but noted that its use is often dispreferred in most daily contexts because it can feel overly expressive or emotive. Some additional discussion of this point will occur at the end of this section.

Turning to the eighth case study and first one with a psychological predicate, the expression in focus here is fear. Example (39) is appropriate in the following context: normally, I love dogs and am not afraid of them at all. However, one night I am walking home and two angry-looking dogs starts coming my way. Example (39-b) is the right thing to say in this context because it communicates that in the immediate situation, the speaker is afraid of those dogs and wants the person hearing him/her to help in some way.

In this context, (39-a) is not an acceptable thing to say since the speaker generally is not afraid of dogs. People find (39-a) inappropriate in the situation given, as it does not convey enough fear in the situation. Several speakers commented that it would be like turning to one's friend and making a general statement such as, 'I like to eat ice cream' in the face of an imminent calamity, in this case a bite by a wild dog. Example (39-a) can be correctly used in the scenario given above if it has a clefted meaning. Here there is an assumption that the dropped object refers to wild dogs as opposed to pet dogs, a common pragmatic leap given that there is a large wild dog population in Kerala. Example (39-a) would be an appropriate way to express that one's normal state is one in which the speaker is afraid of dogs.

(39) a. enikkə (paʈʈi-kaɭ) peeʈi aaɳə
I.DAT dog-PL fear be.PRS
'I am afraid (of dogs).'
b. enikkə (paʈʈi-kaɭ) peeʈi unʈə
I.DAT dog-PL fear be.PRS
'I am afraid (of dogs).'

The ninth case study deals with expressing tiredness. If someone asks how you are and you simply want to express that now you are feeling tired but otherwise fine and are planning on pushing through despite your tiredness, (40-b) should be used. If (40-a) is used, the hearer will tell you to go lie down and take rest since your general state is one of exhaustion.

(40) a. enikkə kʂiiɳam aaɳə
I.DAT tiredness be.PRS
'I am tired.'

b. enikkə kṣiiṇam unṭə
I.DAT tiredness be.PRS
'I am tired.'

When expressing anger, the focus of the tenth case study, using (41-b) means that Unni is angry due to a particular situation currently at hand. Example (41-a), on the other hand, would be said to express that generally, Unni has a strong anger towards something, say bureaucratic hassle.

(41) a. unṇi-kkə dveeṣyam aaṇə
Unni-DAT anger be.PRS
'Unni is angry (at some person/situation)'
b. unṇi-kkə dveeṣyam unṭə
Unni-DAT anger be.PRS
'Unni is angry (at some person/situation).'

The eleventh case study examines how love is expressed. With a predicate like *sneeham* 'love', *aaṇə* once again expresses permanency and fullness of feelings. To use *aaṇə* is to make a very strong statement. One exception is when expressing love towards one's mother. If Unni wants to say he loves his mother, (42-a) would be the most natural way to express this because, generally, one is in a state of loving one's mother and it is generally positive to make such strong statements about one's feelings towards one's mother.

Using *unṭə*, (42-b), is more common because, generally, people do not love each other so fully and permanently. The implication is that, since some particular circumstance has resulted in Unni loving that person, that will lead to some type of 'special' behavior/strengthened appreciation towards that person in the immediate context. Using *unṭə* does not convey that the speaker does not genuinely love the person under discussion, just that he is making a comment that is limited to the immediate situation; he is making no comment about who he generally loves.

(42) a. unṇi-kkə sneeham aaṇə
Unni-DAT love be.PRS
'Unni loves (someone).'
b. unṇi-kkə sneeham unṭə
Unni-DAT love be.PRS
'Unni loves (someone).'

The twelfth and final case study deals with expressing happiness. *Unṭə* is also more frequently used with *santooṣam* 'happiness' because usually people are not in a general state of deep happiness. However, if a child who is living abroad calls

her father suddenly to say she is planning a trip home soon the child's father can say (43-a) to convey his great happiness, i. e. how that phone call put him into a general state of happiness, not merely happiness with the situation at hand.

(43) a. enikkə santooʂam aaɳə
I.DAT happiness be.PRS
'I am happy (with someone/some situation).'
b. enikkə santooʂam unʈə
I.DAT happiness be.PRS
'I am happy (with someone/some situation).'

Returning to the speaker variation mentioned above with respect to the acceptability of *aaɳə* with certain psychological predicates, it seems that this variation is the result of sociolinguistic factors interacting with the speaker's personality and beliefs. Regarding sociolinguistic factors, speakers have commented that the use of *aaɳə* is somewhat determined by one's community and socioeconomic status, in particular, the use of *aaɳə* in psychological predicates is associated with a more emotive discourse style often more typical of villages than cities. The effects of personality and beliefs can be seen with a predicate like *nirabandham* 'obligation'. Some speakers reject the use of *aaɳə* with this predicate due to the fact that they feel they have no general obligations in life that are so strong (towards family members, God, etc.), though in particular circumstances they do have such obligations, in which cases they would use *unʈə*. On the other hand, if a devout Muslim is asked, they will affirm that it is extremely odd to use *unʈə* when talking about the obligation to pray five times a day. In this context, only (44) would be used.

(44) aɲcə neeram niskaaram nirabandham aaɳə/# unʈə
five time prayer obligation be.PRS
'I am obligated to pray five times a day.'

6.4.2 What a pragmatic account might look like

Now having a better understanding of the differences that arise based on the copula used in the different locative constructions, it is time to return to the question of how these different meanings might arise. Remember that a basic intuition of this chapter is that *unʈə* is composed of 'be' plus some additional content, while *aaɳə* is simply 'be.' This chapter has stipulated that this extra content comes in the form of a feature on certain Preposition heads that requires an Agreement relationship with the Tense head. This Agreement relationship results in a spell out of *unʈə*. This feature was further stipulated to have to occur on prepositions in existentials and possessives but be optional on the different locative constructions.

The main idea of this section is that when the feature responsible for triggering the insertion of *unʈə* is optional, a pragmatic competition occurs between the two candidate structures. Since *aaɳə* is the weaker/semantically vacuous 'being' verb, when *unʈə* occurs in these contexts this suggests that something other than a general statement is being made. When this feature is obligatory, none of these effects arise because no pragmatic competition occurs. This section will sketch how this might be done using a presuppositional account along the lines of Deo et al. (2016), ultimately leaving the details to further work.

The first step in explaining the pragmatic competition is to have a more explicit idea about what the meaning difference in the section 6.4.1 cases is. A rough generalization of the data from the case studies in section 6.4.1 is that *aaɳə* is used to make general statements or statements about backgrounded information. On the other hand, the use of *unʈə* in these contexts tends to suggest that the medical condition, location or psychological state has some effect on the immediate situation.

Swenson (2017b) argued that immediacy is something the grammar can be sensitive to based on Patel-Grosz (2016) which points out that East Austrian German, Norwegian, Kutchi Gujarati and English often encode immediacy in the context of negative prohibitions. For example, in East Austrian German, imperatives occurring with preverbal negation are only possible in immediate contexts, such as when someone in a bar is lighting a cigarette in front of the speaker, (45-a). Post verbal negation in East Austrian German functions as sentential negation and allows both immediate and non-immediate interpretations, (45-b). Preverbal negation is also ruled out in 'life advice scenarios' in East Austrian German, (46), where it is not possible for the situation to be immediate.

(45) East Austrian German

a. Net raoch!
Not smoke.IMP
'Don't you smoke! (Put out that cigarette!)' #'don't smoke (in general)!'

b. Raoch net!
Smoke.IMP not
'Don't you smoke! (Put out that cigarette!)'
'Don't smoke (in general)!' (Patel-Grosz 2016 p8: 33)

(46) East Austrian German

a. Wennst oid wern wust, muast gsund bleibn.
If.2SG old become want.2SG must.2SG healthy stay
'If you want to become old, you have to stay healthy...

(i) #Net raoch! #Net trink!
Not smoke.IMP not drink.IMP
'Don't smoke!' 'Don't drink!'
(ii) Roach net! Trink net!
Smoke.IMP not drink.IMP not
'Don't smoke!' 'Don't drink' (Patel-Grosz 2016 p8: 34)

This characterization of *unʈə* as giving rise to immediacy effects in section 6.4.1 contexts while *aaɳə* simply signals general/background statements seems potentially similar to Deo et al.'s (2016) characterization of the Spanish *estar*/*ser* distinction. Deo et al. propose that the use of *estar* in Spanish presupposes that the embedded predicate is boundedly true at the circumstance of evaluation, while *ser*, as the neutral, presuppositionaly weaker member of the pair, does not signal any restricted commitments. Their account rests on an enriched notion of circumstances of evaluation that includes the following parameters: <e (individuals), *ι* (times), s (worlds), r (spatial locations), d (degrees)>. For them, a bounded context is defined as in (47). They provide the respective entries in (48) for the Spanish copulas.

(47) For Boundedness to hold the following two conditions must be met:
a. no-weaker alternative circumstances exist that are accessible in the discourse context at which the embedded predicate is false.
b. the circumstance of evaluation is a maximal verifying circumstance for the embedded predicate in the discourse context. (Deo et al. 2016 p5)

(48) a. $[\![estar]\!] = \lambda P_{<s,<e,t>>}\ \lambda x_{<s,e>}\ \lambda i_s$: **Bound(P(x), c_0, i)**. $i \in Circ(c_0) \wedge P(x)(i) = 1$
b. $[\![ser]\!] = \lambda P_{<s,<e,t>>}\ \lambda x_{<s,e>}\ \lambda i_s$. $i \in Circ(c_0) \wedge P(x)(i) = 1$ (Deo et al. 2016 p27: 51–52)

For Malayalam one might propose that the immediacy requirement is better understood in terms of a boundedness presupposition. The Malayalam equivalent of *estar* would be *unʈə* and *aaɳə* would be the equivalent of *ser*. This seems to fit the general pattern observed in the variety of Malayalam locative constructions.

Adapting Deo et al.'s account to Malayalam though is not straightforward due to a number of differences between the languages. First and foremost is the fact that the majority of the data Deo et al. (2016) discuss for Spanish has to do with meaning shifts when the different copulas occur with adjectives. It is not possible to replicate these tests in Malayalam, however, because Malayalam only allows *aaɳə* in predicative constructions, as (49) shows. In (49-b), *sundar-i* 'beautiful' has

been changed to the noun *saundaryam* 'beauty' which is made into an adjective via the addition of the relative participial form of *uɳʈə*. The copula used here for the predicative construction is still *aaɳə*.

(49) a. peɳ-kuʈʈi sundar-i aaɳə/*uɳʈə
female-child beautiful-F be.PRS
'The girl is a beauty/is beautiful.'
b. peɳ-kuʈʈi saundaryam uḷḷ-a-vaḷ aaɳə
female-child beauty be-REL-F be.PRS
'The girl is a beauty/is beautiful.' (adapted from Asher & Kumari 1997 p99: 473, 475)

In Spanish, however, either copula can be used, (50). When *ser* is used, the sentence makes a statement about Alejandro's general character. When *estar* is used, it makes a comment about Alejandro's current behavior.

(50) Alejandro es/esta agradable.
Alejandro SER/ESTAR pleasant
With SER: 'Alejandro is pleasant (in general).'
With ESTAR: 'Alejandro is being pleasant (today).' (Camacho 2012 p1: 1)

Secondly, the meanings that occur with the two copulas in medical predicates in Spanish are different than those found in Malayalam. Example (51-a) shows that Spanish, unlike Malayalam, is sensitive to the permanence or temporariness of the type of diabetes. Likewise, the sentence in (51-b) with *ser*, unlike sentences with *aaɳə* in Malayalam, has a fixed meaning of a general trait of the person. It cannot be used, as *aaɳə* can be, to express that Juan did not come to the office because he is sick today. Thirdly, the sentence in (51-c) shows that it is not possible to use *ser* with psychological predicates, while it is possible to use *aaɳə* with them in Malayalam.

(51) Spanish
a. Maria esta/es diabetico.
Maria ESTAR/SER diabetic
With ESTAR: 'Maria is a type 1 diabetic/has temporarily become diabetic due to pregnancy, etc.'
With SER: 'Maria is a type 2 diabetic.' (most normal usage)
b. Juan esta/es enfermo.
Juan ESTAR/SER sick
With ESTAR: Juan is sick and will hopefully recover soonish
With SER: Juan is crazy.

c. Juan esta/*es enojado/enamorado/content con Maria.
Juan ESTAR/SER angry/in.love/happy with Maria
'Juan is angry/in love/happy with Maria.'

Fourthly, the examples in (52) show that unlike in Malayalam, where both copulas can be used with subtle shifts in meaning, only *estar* is possible in the Spanish equivalents of the canonical location predicates from section 6.4.1.[7]

(52) a. Juan esta/*es en Madrid
Juan ESTAR/SER in Madrid
'Juan is in Madrid.'
b. El libro esta/*es en la bibliotheca
the book ESTAR/SER in the library
'The book is in the library.'
c. Juan esta/*es en el labritorio
Juan ESTAR/SER in the lab
'Juan is in the lab.'

Finally, Spanish further differs from Malayalam by allowing both copulas to be used with non-mobile objects, (53)–(54). Deo et al. comment that the reason *ser* is possible in (54) is that a fact that needs to be remembered not the location of a specific entity is being discussed.

(53) Madrid es/esta en Espana
Madrid SER/ESTAR in Spain.
'Madrid is in Spain.'

(54) a. Context: Today, we have an exam on Spanish architecture.
b. Tengo que recordar que la Casa Batllo es/esta en
have.PRS.1SG that remember that the house Batllo SER/ESTAR in
Barcelona.
Barcelona
'I need to remember that the Batllo House is in Barcelona.' (Deo et al. 2016 p7: 6)

It will be left to future work to determine if extending Deo et al.'s proposal to Malayalam is correct and, if so, how these differences between Spanish and Malayalam could be accounted for.

7 *Ser*, though not allowed in (52-c) in Spanish, is, however, allowed in Catalan (Mar Bassa Vanrell, p.c.).

6.5 Implications for the copulas when used as auxiliaries

Before concluding this chapter, the implications of the account for the couplas given in this chapter for the use of copulas in aspectual forms will be explored. Recall from chapters 2 and 4 that Malayalam has a progressive, (55), and an iterative pluractional progressive, (56), and that while both of these aspectual forms are expressed with a morpheme that attaches to the verb stem, they both use (or can use) an auxiliary to express tense, 6.3.

(55) $[\![\textit{-uka}]\!] = \lambda w.\lambda t.\lambda P_{<s,<v,t>>}.\forall w'[w\ \text{INERT}_t\ w' \rightarrow \exists t'[t \text{ is a non-final part of } t' \ \&\ \exists e[\tau(e) \subseteq t' \ \&\ P(w')(e)]]]$

(56) Where τ is a temporal trace that is a sum homomorphism and ϵ is a function from a comparison class (for example, 3 hours, if the adverbial *for three hours* is used) to a predicate of intervals that are very short relative to the the members of the comparison class (in this case, very short with respect to three hours, $\lambda t[\text{hour}(t) \leq 0.5]$)(Champollion, 2010)

$$[\![\textit{-unnu}]\!]: \lambda V_{<v,t>}.\lambda t'_i.\lambda e_v[V(e) \wedge \exists P[\text{Part}(P, \tau(e)) \wedge \forall t \in P \exists e'[\ \begin{array}{l}\text{i. } \tau(e') = t \wedge \\ \text{ii. } e' \leq e \wedge \\ \text{iii. atom}(e') \\ \text{iv. } \epsilon(\tau(e))(t)\end{array}\ ]] \wedge$$

$$t' \subseteq \tau(e)]$$

Table 6.3: Tense/aspect paradigm for *var-* 'come'.

–	Iterative Pluractional Progressive	Progressive	Perfective
Present	var-**unnu**-∅/*uɳɬə*	var-uka(y) *aaɳə*	—
Past	var-**unnu** *uɳɬaayirunnu*	var-uka(y) *aayirunnu*	vann-u
Future	var-**unnu** *uɳɬaayirikkum/uɳɬaakum*	var-uka(y) *aayirikkum*	var-um

The point of interest for this section is the type of auxiliary each progressive aspectual form uses. As (57)–(58) show, the auxiliary that can be used with each aspectual form is restricted. The iterative pluractional progressive marker *-unnu* can appear with the *uɳɬə* marker in verum focus cases. As pointed out by Hany Babu (2006), in present tense sentences when *uɳɬə* is present, the event-in-progress reading, but not the pseudo-generic reading can occur. Otherwise *-unnu* occurs with the null present tense marker and can have either an event-in-progress reading or the pseudo-generic reading. The progressive marker *-uka* can only occur with *aaɳə*. It cannot occur with either the null present tense or the *uɳɬə* copula.

(57) a. ɲaan kaʒikk-unnu-∅
I take-PLUR-PRS
'I am eating/I eat.'
b. ɲaan kaʒikk-unnu unʧə
'I take-PLUR be.PRS
'I AM eating.' #'I eat.'
c. *ɲaan kaʒikk-unnu aaɳə
I take-PLUR be.PRS
'I am eating.'

(58) a. *ɲaan kaʒikk-uka-∅
I take-PROG-PRS
'I am eating/I eat.'
b. *ɲaan kaʒikk-uka unʧə
'I take-PROG be.PRS
'I AM eating.' #'I eat.'
c. ɲaan kaʒikk-uka aaɳə
I take-PROG be.PRS
'I am eating.'

The obvious question at this point is why these restrictions occur. One possibility may be that, underlying, the two progressive structures are actually locative structures, like the Buli imperfective, (59-b). If this is on the right track, one would expect variation with respect to the copula used, as locatives generally allow this. However, the fact that the copula is combining with a more complex argument here may restrict the copula choice.[8]

(59) Buli (Gur, Ghana)
a. Asouk kpi: kpa:m ɲo-ro
Asouk pour oil put-LOC
'Asouk poured oil into something.'
b. Asouk bo-*(ro) a de ŋandi:ta
Asouk COP-LOC IPFV eat food
'Asouk is eating food.' (Sulemana 2017 p8: 19b, 20)

The compatibility of *-unnu* with *unʧə* in verum focus contexts emphasizing the 'event-in-progress' reading may be that *unʧə* here introduces a requirement that the action occur immediate to the utterance time/presupposes that it is bound-

8 Unlike Buli, Malayalam does not use the locative morpheme in the progressive, which may argue against such an account.

edly true at the circumstance of evaluation. Since *-unnu* already targets subevents, the use of a verum focus operator with it does not create any compositional problems.

Support for *aaɳə* being the elsewhere copula comes from (60). In light of the data presented so far, the example in (60-b) below is surprising. Earlier sections showed that *aaɳə* is required in copular sentences with non-mobile objects such as cities. Using *unʈə* in these copular constructions resulted in the odd meaning that the city was moving from place to place and that the current location was only the city's present location. In (60-b), however, the use of the progressive, which contains the *aaɳə* copula results in the odd, present location reading. This is not an effect that is expected with *aaɳə*.

(60) a. kocci periyaarinte azimkha-tə sthiti ceyy-unnu-∅/#unʈə
Kochi Periyar-GEN mouth-DAT position do-PLUR-PRS
'Kochi lies at the mouth of the Periyar (river).'
b. #kocci periyaar-inte azimkha-tə sthiti ceyy-uka(y)-aaɳə
Kochi Periyar-GEN mouth-DAT position do-PROG-be.PRS
'Kochi is lying at the mouth of the Periyar (river).' [makes it sound like Kochi can move and this is just its present location]

Following the intuition in Dowty (1979), this effect probably is a result of the progressive marker combining with a predicate with a non-mobile subject, as this problem does not appear with a mobile subject, (61). In other words, it is not really about the copula.

(61) a. sari kiʈakka-yuʈe kiize kiʈakk-unnu-∅/undu
sari bed-GEN under lie-IMPFV-PRS/be.PRS
'The sari is lying under the bed.'
b. sari kiʈakka-yuʈe kiize kiʈakk-uka(y)-aanu
sari bed-GEN under lie-PROG-be.PRS
'The sari is lying under the bed.'

However, this example shows that *aaɳə* probably does not have a semantics that encodes any information about the general location or state of a person's feelings or health. If it did, such a meaning would need to be bleached each time it was used in the progressive. While this is not impossible, the simplest move seems to be to say that it is an elsewhere copula.

6.6 Conclusion

This chapter began with the following broad questions:

(62) a. What types of cross-linguistic variation exist with respect to copulas?
b. How can this variation be theoretically accounted for?
c. What can this variation teach the field about Universal Grammar?

This chapter has shown that languages can vary with respect to the number of copulas they have. It proposed an account for the two Malayalam copulas based on a modified version of Freeze (1992). Specifically, it proposed that existential, possessive and the variety of locative structures are all derived from the same underlying Preposition Phrase small clause embedded under a Tense Phrase. [+/-DEFINITE] and [+/-HUMAN] features derived the different word order patterns, while the different prepositions explained the different cases.

The distribution of the copulas was explained by stipulating a feature which must occur on the prepositions used in the existential and possessive constructions and can optionally occur on the different types of locative constructions. This feature requires that the Prepositional head enter into an Agreement relationship with the Tense head. The spell out of this relationship is *unʈə*. When this feature is optional, a pragmatic competition occurs between the two candidate structures. Since *aaɳə* is the weaker 'being' verb, when *unʈə* occurs in these contexts this suggests that something other than a general statement is being made. This competition might be able to be modeled formally as a presupposition a la Deo et al.'s (2016) account for the Spanish copulas. When this feature is obligatory, none of these effects arise because no pragmatic competition occurs. Section 6.4 suggested that an account where *aaɳə* is an elsewhere coupla while *unʈə* carries additional content may also explain the distribution of the copulas in their function as auxiliaries.

The discussion in this chapter helps improve the field's understanding of Universal Grammar by first showing how, via manipulating features already proposed in Freeze's (1992) account and drawing on other commonly assumed mechanisms such as Agreement, a common syntactic account can be given for a wide range of genetically unrelated languages. It furthermore shows that just because a language has the same number of copulas, as Spanish and Malayalam do, this does not mean that these copulas will have exactly the same distribution. However, it has suggested that, due to many similarities despite the differences, a unified account for these copulas may still be possible.

7 Conclusion

This book opened with two questions: What types of cross-linguistic variation occur and why do languages differ from one another in these particular ways? This chapter will summarize and further reflect on these questions. The exploration of cross-linguistic variation in this book focused on the investigation of five parts of the verbal domain: tense on finite verbs, tense on non-finite verbs, viewpoint aspect, perfect and copulas. The main types of variation and findings about Malayalam for each of these points will be summarized in turn in this section.

Table 7.1: Cross-linguistic variation in tense morphology.

no tense morphemes	Hausa (West Chadic, Nigeria), Paraguayan Guaraní (Tupi, Paraguay), Kalaallisut (Inuit, Greenland), Yucatec Maya (Mayan, Mexico/Belize), a. o.
past & present morphemes	English, Malayalam (Dravidian, India)
three plus tense morphemes	South Baffin Inuktitut (Inuit, Canada), Gĩkũyũ (Bantu, Kenya), Luganda (Bantu, Uganda), Medumba (Grassfields Bantu, Cameroon), a. o.

Chapter 2 began the inquiry with an investigation of tense on finite verbs. This chapter focused on morphological and syntactic variation in the domain of tense. On the morphological side it examined how many morphemes a given language has to express tense. Table 7.1 summarizes the different types of morphological languages found with respect to tense morphology. The chapter begin by noting a controversy about whether or not Malayalam has tense morphology or not. After examining the tests in the literature on tenseless languages, it applied those tests to Malayalam and found that the tense system of Malayalam, just like English, has past and present morphemes.[1] On the syntactic side, it showed that there is evidence from the distribution of auxiliaries and copulas that Malayalam, like English, also has a Tense Phrase.

1 This book has abstracted away from the issue of whether or not the future is a tense and simply followed John (1987) and Hany Babu (1997) in assuming that the Malayalam future marker *-um* is a modal.

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Chapter 3 examined two non-finite verb forms, their properties and the implications these forms have for the debate about tense in Malayalam. It argued that the Malayalam Conjunctive Participle Construction is a structurally smaller (vP-sized) version of a Stump (1985)-style English absolutive construction. It also showed that this construction is underspecified for tense and aspect semantics. This makes Conjunctive Participle Constructions unlike their counterparts in other South Asian languages, which require some type of aspect marking.

The second non-finite form, the *-atə* 'gerund', was argued to involve tense morphology and nominalization above the Tense Phrase, potentially at the Complementizer Phrase-level. While English lacks this high-level negation, Borsley and Kornfilt (2000) and Baker (2011) provide evidence from Turkish (Turkic, Turkey), Tabasaran (Northeast Caucasian, Republic of Dagestan), Basque (Isolate, Spain), Polish (Slavic, Poland), Greek (Hellenic, Greece), Georgian (Kartvelian, Georgia), Kabardian (Northwest Caucasian, Kabardino-Balkaria/Karachay-Cherkessia Republics), Spanish (Italic), and Sakha (Turkic, Sakha Republic) that Malayalam is not alone in having nominalization that occurs above the Tense Phrase. The accounts presented in chapter 3 for both the Conjunctive Participle Construction and the *-atə* nominalization were shown to be compatible with the tensed analysis of Malayalam presented in chapter 2 (contra Amritavalli & Jayaseelan 2005).

Table 7.2: Cross-linguistic variation in viewpoint aspect morphemes.

one aspect morpheme	English
two aspect morphemes	Malayalam
three plus aspect morphemes	Kinande (Bantu, Democratic Republic of the Congo)

Chapter 4 focused on variation in the domain of viewpoint aspect. It began by examining morphological variation with respect to how many viewpoint aspect markers languages can have. This is summarized in Table 7.2. It showed, in terms of viewpoint aspect, that Malayalam is morphologically richer than English. In doing this, chapter 4 took as its starting point the claims in chapter 2 that Malayalam does not have a perfective viewpoint aspect marker and that the morpheme *-unnu* is not a present tense morpheme in Malayalam. It then argued that *-unnu* combined both progressive viewpoint aspect and iterative pluractionality. In addition, it argued that Malayalam has another morpheme, *-uka*, that encodes only progressive viewpoint aspect. It then showed that the presence of two progressive viewpoint aspect morphemes with subtle differences gave rise to a pragmatic competition.

Table 7.3: Cross-linguistic variation in pluractional morphemes.

no pluractional morphemes	English, Basque (Isolate, Spain)
one pluractional morpheme	Malayalam, Georgian
two plus pluractional morphemes	ǂHoan (Kx'a, Botswana), Luvale (Bantu, Angola & Zambia) Kalaallisut (Inuit, Greenland) Yurok (Algic, United States) Kaqchikel (Mayan, Guatemala), a. o.

As Table 7.3 shows, morphologically encoding pluractionality is another domain in which languages can differ. Malayalam, once again, is morphologically richer in this domain than English. What is unique about Malayalam is that it has a morpheme that bundles both iterative pluractionality and progressive viewpoint aspect. The position of Malayalam may only be 'unique' due to lack of research. In her typological survey, Wood (2007) lists Amele (Madang, Papua New Guinea), Evenki (Tungusic, China/Russia), Kannada (Dravidian, India) and Kobon (Madang, Papua New Guinea) has having 'iterative aspect.' Her study relied on data from grammars for these languages. Further work on these languages with native speakers needs to be done to determine if they also bundle viewpoint aspect and iterative pluractionality in the sense in which the terms are meant here.

Chapter 5 explored cross-linguistic variation in the perfect. The first half of the chapter focused on the different ways in which the aspectual resources of a language influence the meaning or availability of a Universal perfect reading. Using evidence from Greek (Hellenic, Greece), Bulgarian (Slavic, Bulgaria), Saisiyat (Northwest Formosan, Taiwan), and Georgian, it showed, following Iatridou et al. Iatridou et al. (2002) and Pancheva (2003, 2013), how lexical and viewpoint aspect interact to determine the different types of perfect readings a sentence can have. It also showed that the type of aspectual morphology a language has and uses to create the perfect form plays a large role in determining which perfect reading(s) a form can have. It then examined the lexical and viewpoint aspect resources Malayalam has at its disposal and showed how the Lexical Aspect Modifier morpheme *koɳʈə* interacts with the two viewpoint aspect morphemes to yield a set of morphologically finer graded distinctions in progressives and Universal perfects than what is found in English.

The second half of the chapter examined languages that, unlike English, do not have any dedicated overt perfect morphology in at least one of their perfect forms. It began by showing that a number of genetically distinct languages, such

as Greek, Bulgarian, Georgian, Hindi (Indo-Aryan, India), Turkish, Telugu (Dravidian, India) and Tamil (Dravidian, India) form their Universal perfects via the addition of a durative adverb to an imperfective or progressive marked verb. It then argued that all of the forms of the Malayalam Universal perfect lack dedicated overt perfect morphology. In this regard, English is morphologically richer than Malayalam. It then considered the Existential perfect in Malayalam and suggested that, while it appears to have perfect morphology, there are some reasons to be concerned that this morphology may not, in fact, be perfect morphology and more research should be done. The typology of the perfect that emerges is given in Table 7.4.

Table 7.4: Cross-linguistic variation in the perfect.

language	language has perf morph	obligatory morph in U perfs	obligatory morph in E perfs
English	yes	yes	yes
Bulgarian	yes	no (multiple options)	yes
Modern Greek	yes	no (cannot be used)	yes
Georgian	yes	no (cannot be used)	yes
Hindi	yes	no (cannot be used)	yes
Malayalam	???	no (either n/a or cannot be used)	???
Turkish	no	n/a	n/a

Chapter 6 investigated variation in the number of copulas a language has. A summary of the cross-linguistic data is given in Table 7.5. The chapter proposed a unified structural account for locative, possessive, and existential copular constructions based on a modified version of Freeze (1992). It also explored the subtle meaning shifts that arise in locative predicates due to the choice of copula and suggested that when either copula can be used, a pragmatic competition occurs between the two candidate structures. It also compared the Spanish facts to the Malayalam ones and showed that, while a language may have the same number of copulas, this does not necessarily mean that those copulas will have the same distribution. This concludes the discussion of the first broad question.

The second broad question this book began with concerned why languages differ from one another in the ways described above. The generative answer offered in chapter 1 was Universal Grammar. This led to the questions regarding what type of information Universal Grammar contains. One major component of Universal Grammar is morphosyntactic features. The grammar uses these features

Table 7.5: Cross-linguistic variation in the number of copulas.

One copula	English Hindi
Two copulas	Spanish, Bhojpuri (Indo-Aryan, India), Malayalam
Three plus copulas	Oriya (Indo-Aryan, India)

to build the syntax, the interpretative component uses them to assign meanings, and the phonological component uses them to produce the proper phonological realizations. While all languages have features, the type of features can vary from language to language. These features can also be overtly or covertly realized. The Malayalam functional morphemes discussed in this book have been argued to correspond to the features given in (1). It has also been argued that Malayalam has three types of auxiliaries introduced to rescue stranded features (following Bjorkman (2011, under revision)). The conditions under which these auxiliaries appear are given in (2).

(1) Vocabulary Insertion Rules for Malayalam (Final Version)

a. -∅ ↔ [PRS]
b. *-um* ↔ [FUT/MOD]
c. *–u/i* ↔ [PST]
d. *-unnu* ↔[PLUR-PROG] or [PLUR] [PROG]
e. *–uka* ↔ [PROG]
f. *koɳʈə* ↔ [LAM]

(2) Malayalam Auxiliaries

a. *unʈə* : P[FEATURE] Agrees with T[PRS]
b. *aaɳə* : rescue stranded T[PRS]
c. *irikk-*: rescue stranded Asp features

Looking at (1-d), one sees two potential options: either Malayalam has a feature specification, [PLUR-PROG], that languages like English do not or it projects a level of syntactic structure (a Number Phrase) in the clausal spine that English does not. This Number Phrase would then contain the [PLUR] feature. The head carrying this feature would then Agree with and/or move to the Aspect head to yield a spell out of the iterative pluractional progressive viewpoint aspect morpheme, *-unnu*. This book has remained neutral on which option is the correct one. This question, though, points to a larger question about how uniform the syntax is cross-linguistically and even from construction to construction in a given language.

In setting up the syntax there are potentially three options. The first option is that a language only projects those syntactic projections which are strictly needed in that language. Under this type of theory, if the language does not have any [TENSE] feature, for example, it will also never project a Tense Phrase. Languages would then differ not only in what features they have but also in what types of syntactic structures they project. The other extreme (second option), is to assume that all languages project all the same projections. On this view, every language would project, for example, the Perspective Phrase (Sundaresan, 2012) or Speech Act Phrase (Speas and Tenny, 2003) even if there was no evidence in that language for projecting the phrase. The projection would occur for the sake of linguistic uniformity. A, third, middle option would be to assume that languages project a uniform set of projections and then can add to this as needed. Defining what this set of uniform projections should be is not trivial, as the discussion in chapter 2 showed. It is left to future work to tease apart the different options.

In sum, this book has shown that Malayalam is in some ways exactly like English and in other ways quite different from English. The ways, though, in which Malayalam differs from English are principled and have correlates in other languages. The key fact, however, is that, no matter how different languages are, all languages still have a way to communicate the different semantic concepts, even if they lack dedicated morphology. Evidence of this has been provided each time a Malayalam sentence with morphemes English lacks has been translated into English. Sometimes a paragraph of English is necessary to translate a single Malayalam morpheme, but, in the end, they can all be translated, despite English's morphological 'deficiencies'. The reverse is true whenever an English sentence with morphemes that Malayalam does not have has been translated into Malayalam.

This book has also served to highlight the importance of drawing on understudied languages if one wants to understand what type of cross-linguistic variation exists and how that variation should inform the field's understanding of Universal Grammar. Looking back to Table 7.5, notice that for there is a large amount of variation amongst how Indian languages, especially Indo-Aryan ones, regarding the number of copulas they use. The high number of Indian languages which lack perfect morphology in the Universal perfect is also striking. Careful investigation and comparison of the syntax and semantics of the copulas and perfect in these arealy and/or genetically related languages may provide further insights into the underpinnings of these constructions. Most of the languages listed in the tables in this chapter are historically understudied. Future research on these and other understudied languages will surely lead to many further exciting discoveries and theoretical insights about the functional structure and morphosemantics of the verbal domain.

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