

A PRESUPPOSITIONAL ACCOUNT OF THE  
*ACH*- COPULA IN BANGLA

Auromita Mitra

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Supervisor: Dr. Utpal Lahiri

Department of Linguistics and Contemporary English  
School of Language Sciences  
The English and Foreign Languages University,  
Hyderabad - 500007



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## Abstract

Multi-copula systems evidence intricate patterns in the distribution and inferences associated with the different copulas. This dissertation explores how such distributional tendencies functionally come about. Using data pertaining to the copula *ach-* in Bangla, I argue that at least some part of the distributional and inferential patterns is sensitive to properties of the larger discourse. Therefore, any account based on purely categorical constraints is inadequate to capture the nuances of actual use. I propose an account for the meaning of *ach-* that models the observed restrictions on its use as a generalized presuppositional meaning-component. This specifies that the proposition embedded by *ach-* is evaluated against a circumstance of evaluation that is crucially ‘anchored’ to the discourse, and characterized by a ‘bounded’ time interval. General interpretive principles govern the interaction of this presupposition with other contextual information, predicting a range of the observed patterns in the behavior of *ach-*. I suggest that a fuller treatment of an analysis along these lines could provide a uniform account for some apparently-unrelated behaviors of *ach-*, viz. the asymmetry in the tense-unmarked and past paradigms, and general unacceptability in conditional clauses. Finally, I highlight some distributional and behavioral parallels between *ach-* and the progressive and perfect morphology in Bangla and suggest that these point to a possible functional link between the categories.

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# Chapter 1

## Introduction

A copula is a verb that links the subject of a sentence to its predicate. It is often a carrier of aspectual and modal information. Masica (1991) identifies the function of the copula in Indo-Aryan languages to be “to identify, define, and locate the subject NP”. Consider the following examples from English and Hindi:

- (1) a. Sana *is* tall/in the park/my sister.
- b. sana lambi/park me/meri behen *hai*  
          Sana tall/park LOC/my sister COP  
          Sana is tall/in the park/my sister.

The italicized word in these sentences is a copula. Languages like English and Hindi, with a single copula verb, might invite an assumption that the copula serves a purely syntactic ‘linking’ role and has no semantic content. Indeed, early accounts were along these lines (e.g. Lyons, 1969; Hengeveld, 1992; Crystal, 1980). However, languages that employ multiple copulas challenge this view (e.g. Pustet, 2003; Stassen, 1994). In such languages, the copulas have a systematic distribution in the grammar. Moreover, the choice of copula often influences the interpretation of the subject and/or predicate, resulting in intricate patterns of use. This not only questions the semantic ‘emptiness’ of the copula, but also means that the copula system in multi-copula languages is one avenue for the language to express semantic contrasts. What kinds of contrasts are encoded in the distribution of copula verbs? Are these persistent across languages? Do languages differ in how they ‘divide up’ the range of possible predicate meanings? More generally, what does the division of labor among the different copular alternatives say about how meaning is encoded in language?

A related set of questions concern how such distributional patterns come about functionally: how does a copula ‘select’ which predicates it embeds? How does the meaning of the copula interact with the meaning of the predicate to give rise to the nuances of interpretation that often characterize the choice of copula in multi-copula languages? Can the range of interpretations associated with a particular copular clause be predicted from general principles governing the meanings of its constituents? In this dissertation, I approach the second set of questions through an exploration of the copula *ach-* in Bangla.

Existing work on copular clauses in Bangla that address distribution either view these constraints as syntactic, or directly stipulate the kinds of predicates that each copula can occur

with. Stipulating these distributions as a language-specific quirk misses important cross-linguistic generalizations. In his extensive work on the copulas of Odia, Mahapatra (2002) accounts for the distribution of *ach-* (and the other copulas) in terms of lexical features of the predicate it embeds. This work was valuable in showing that semantic properties have greater explanatory and predictive power for describing the distribution than traditional syntactic distinctions. Nevertheless, a feature-based approach has certain limitations: (i) the acceptability of *ach-* in certain environments is gradient, rather than categorical. Viewing the distribution in terms of atomic features cannot account for this; (ii) the acceptability of certain uses of *ach-* are sensitive to the discourse context. This cannot be accommodated by an analysis relying solely on properties of the predicate; (iii) an approach based on features predicts what kinds of combinations are possible, but doesn't say much about the kinds of inferences that non-canonical combinations might give rise to.

In this dissertation, I argue that this distribution is best understood as tendential, in terms of interaction between the lexical meaning of *ach-* and contextual information. Specifically, the distributional and interpretational outcomes of the *ach-* copula in Bangla can be modeled as resulting from a presuppositional meaning-component its interaction with properties of the discourse context, using general interpretive principles. I then suggest that such an approach can provide a uniform account for some apparently-unrelated behaviors of *ach-*, supporting an analysis along these lines.

## 1.1 Goals

This dissertation aims to:

1. Provide a detailed description of the distributional and interpretational properties of the bangla copula *ach-*
2. Argue that an adequately explanatory account for this behavior has to be (i) context-sensitive; (ii) presuppositional
3. Propose a semantic account for *ach-* that predicts this distribution and associated inferences non-stipulatively, from interaction of word meaning with the larger discourse context through general principles of inference
4. Suggest the potential for an analysis along these lines to provide a uniform account for two other apparently-unrelated properties of *ach-*: distributional asymmetries between the present and past paradigms, and the behavior in conditional clauses
5. Argue that distributional parallels between *ach-* and the progressive and perfect aspect morphology in Bangla point towards a possible functional link; a fuller treatment of these could provide insights into how the meaning of aspectual categories are built compositionally from the morphemes that express them, and how these morphemes might in turn constrain the behavior of the aspect morphology in a language

## 1.2 Main argument

On the basis of distributional data, I argue that an account for *ach-* based on purely categorical constraints, whether syntactic or semantic, fails to capture the nuances observed in actual use. Such use is often characterized by degrees of acceptability, and is sensitive to properties of the larger discourse in which a sentence is uttered. I propose that *ach-* carries a lexical presupposition that constrains the nature of the circumstances against which the embedded proposition is asserted to be true. Specifically, such a circumstance must be crucially **anchored** to the discourse, and contain a **bounded** time interval, where anchoredness and boundedness are formalized as restrictions on the values of certain parameters in the circumstance of evaluation. This is a felicity condition on the use of *ach-* that interacts with other information in the discourse context to produce the range of interpretations associated with the copula. The null copula  $\phi$  differs from *ach-* only in the absence of this presuppositional specification, i.e. *ach-* and  $\phi$  are presuppositional variants.

## 1.3 Scope

Bangla [ben, approx. 230,000,000 speakers] employs a four-copula system. This dissertation focuses on the distributional and interpretational features of one copular verb: *ach-*, in predicational clauses. I discuss the other copulas only insofar as necessary to clarify the behavior of *ach-*; their distribution is not dealt with in detail beyond that. I consider data from the variety of Bangla spoken in and around the city of Kolkata (Standard Colloquial Bangla; SCB). Odia and Assamese are two closely related Indo-Aryan languages that have four-copula systems similar to Bangla. Since there is an extensive piece of work on the semantics of copulas in Odia (Mahapatra, 2002), I will make reference to corresponding Odia facts at various points throughout this dissertation. Where necessary, I will also consider facts from Assamese (Nath, 2009) and Marathi (which employs a two-copula system; Deo, 2019), mostly for comparison. In addition to being a test case for the particular account I propose, the data presented here is a fairly detailed description of the distributional properties of *ach-* in Bangla, and poses a number of open-ended questions for future research.

## 1.4 Roadmap

In [chapter 2](#), I introduce two dimensions of semantic contrasts that many Indian languages encode in their multi-copula systems: genericity (whether the subject and predicate refer to specific individuals and eventualities, or make generalized claims), and temporariness (whether the property expressed by the predicate is understood to be temporary or permanent). [§ 2.4](#) and [§ 2.5](#) describe in detail the distribution and associated interpretations of *ach-* in Bangla clauses that vary along these two parameters. This is the main distributional data that I treat as the explicandum in the rest of the dissertation. [chapter 3](#) develops the main theoretical proposal: a presuppositional meaning-component of *ach-*. In [§ 3.2](#), I identify a set of distributional restrictions that any adequate analysis for *ach-* needs to account for. A recurring property in most of these restrictions is that they relate to the temporal properties of the predicate. Thus, in [§ 3.3](#) I draw generalizations about the kinds of time



intervals that *ach-* canonically refers to by considering the acceptability of *ach-* with different time adverbials. This data points to two general properties that characterize the time intervals denoted by *ach-*, which I define as ‘anchoredness’, and ‘boundedness’. § 3.5 presents the analysis, and § 3.6 provides a largely informal account of how this analysis applies to a range of the distributional properties identified in § 3.2. chapter 4 describes the distribution of the past-tense paradigm of *ach-* (*chil-*), highlighting the ways in which it departs from the tense-unmarked *ach-*. In § 4.4 I sketch a possible explanation for this pattern in terms of the presuppositional analysis from § 3.5. chapter 5 briefly considers an apparently unrelated behavior of *ach-*: its incompatibility in the antecedent of conditional clauses. I suggest that the property of anchoredness as proposed in § 3.5 points towards the possibility of a uniform account. In many languages, copulas in non-verbal clauses are closely tied to the auxiliary system of verbal clauses. This is especially so in Bangla, where *ach-* is a part of the regular inflectional morphology that expresses the progressive and perfect aspect. chapter 6 is largely prospective: I argue that distributional similarities point to a possible functional link between these categories, and discuss avenues for further research. Finally, chapter 7 concludes.

# Chapter 2

## ach- in the multi-copula system

### 2.1 Introduction

It is readily observable that the copulas in a multi-copula system are subject to distributional restrictions. What is the nature of these restrictions? In this chapter, I identify the dimensions of semantic contrast that are likely to be relevant for the Bangla copula system, and then present distributional data for the behavior of *ach-* along these dimensions.

This chapter is structured as follows: In § 2.2, I review some existing accounts of multi-copula systems, focusing on Indian languages, and Bangla in particular. Cross-linguistically, multi-copula systems have been observed to be sensitive to varying dimensions of semantic contrasts; I discuss two of these: temporariness, and genericity, in some detail. § 2.3 briefly describes the copula system of Bangla. The rest of this chapter presents the data: In § 2.4, I consider the oddity of *ach-* in contexts where either the subject or the predicate is understood to express a generalization over NPs or events. § 2.5 describes in detail the interpretations associated with *ach-* when it occurs with predicates at different points along the temporary—permanent continuum. § 2.6 concludes.

### 2.2 Dimensions of contrast

Early descriptive work on Indian languages interpreted distributional patterns as a syntactic restriction on the type of sentence that a copula can occur in. For example, Bai (1986) distinguished between *equative* constructions (2a), which refer to an identity or property of the subject, and *existential* constructions (2b), which refer to the existence or location of the subject.

- (2) a. Sana is Ali's sister
- b. Sana is in Hyderabad

It was proposed that in many Indian languages, a copula is restricted to either of these sentence-types. However, later analyses have questioned the usefulness of this syntactic distinction. Apart from the obvious shortcoming (as pointed out by Mahapatra, 2002) that

such a two-way distinction is inadequate for a system with a larger number of copulas, an analysis along these lines is questionable also because if a restriction is syntactic, we expect its violation to give rise to ungrammaticality. However, as the data in this chapter will suggest, this is not the case. This is not to say that certain copulas don't frequently occur in specific syntactic constructions. However, seeing this as the basis for the distribution is inadequate. Instead, I will argue that these syntactic tendencies are better understood as the *consequence* of the restrictions, which are along semantic parameters. An early semantic categorization in the generative tradition distinguished between *equative* (3a) and *predicative* (3b) uses of the copula *be*. Specifically, a structure where the copula links two definite NPs is an equative sentence; the second definite NP here behaves as an argument, not a predicate.

- (3) a. Sana is Ali's sister  
b. Sana is intelligent

However, this distinction has been problematized (e.g. Higginbotham, 1987; Rapoport, 1987; Heggie, 1989). Moreover, even if this contrast was to be lexically encoded by the choice of copula, it is inadequate for a system with more than two copulas, as noted above.

In a typological account of copular clauses in six related Eastern Indo-Aryan languages which have developed from Magadhi Prakrit, Ghosh (2019) categorizes clauses into seven types, based on the semantic categorization by Higgins (1979) and Mikkelsen (2005): predicational, equative, specificational, identificational, locative, existential, possessive, relational. These differ in how the subject relates to the predicate, what each element contributes to the meaning of the clause. She provides the canonical copula strategy used in each of these clauses. Figure 2.1 shows the final typology.

It is clear that these distinctions do not correspond straightforwardly to the choice of copula in any of the languages: each copula is used with multiple clause types, and most types are associated with more than one copula. Thus, such a distinction is unlikely to be the basis for the distribution, and moreover does not explain why certain copulas are associated with certain clauses.

Nath (2009) gives a descriptive account of the four copulas in Assamese by listing the range of uses for each, encompassing both meaning and syntactic structures.

Paul (2009) presents informal descriptions of various contexts where each copula is used in Bangla, to arrive at a set of transfer rules for machine translation of copular clauses from Hindi to Bangla. She uses Bai's (1986) distinction between equational and existential clauses, and augments this with other syntactic and semantic features of the clause. Since the goal is to identify machine-recognizable cues for translation, she does not dwell on the cause of the distribution itself, or the nuances of interpretation. However, it is interesting to note that her observations include morphological tense marking, the definiteness of the NP subject, and generality of the claim as relevant parameters: the data in this dissertation suggests that some of these factors are indeed likely bases for the distribution.

Sableski (1965) analyzes the difference between equational and existential clauses in SCB. One diagnostic feature is the acceptability of *ach-*. If a SUBJECT + COMPLEMENT structure is acceptable with *ach-*, is existential; it is equational otherwise.

As noted earlier, most of the literature discussed is based on syntactic categorization. One of the only exhaustive semantic treatments of the multi-copula system of an Indian language is

Clause -Type- > Langu age	Predication al	Equati ve	Specificati onal	Identifi ca- tional	Locative	Existenti al/ Possessi ve	Relatio nal
Bangla	Ó, thak- , ach-	Ó, ho-	ho-	Ó, ho-	ach-	Ach-	Ó, ho-
Oriya	Ó, OT-, rOh-	he-	Ó	Ó, he-	Och-	Och-	OT-
Asami ya	Ó	Ó	ho-	Ó	as-	As-	Ó
Maithil i	Chə-, {hə, rah} with aich	bhel, chə-	Ó, thik	Chə-	aich, chə-	aich, chə-	hə-/lag
Magah i	Hə, rah hə	Hə	Hə	Hə	Hə	Hə	Ləg hə
Bhojpu ri	hə baT (dialectal)	hə, baT	hə, baT	hə, baT	baT	baT	baT

Figure 2.1: Typology of copular clauses, Ghosh (2019)

found in Mahapatra (2002), who showed that the four copulas of Odia pattern with respect to the temporal and aspectual properties of the predicate.

Given that the choice of copula is sensitive to the meaning of the predicate, it is reasonable to think that the distribution of copulas in a language could encode some semantic contrast in predicate-types. However, it is not necessary that all possible functional contrasts are expressed lexically. Languages vary in which semantic contrasts they choose to lexicalize. Other contrasts may be expressed through other devices such as adverbs, or simply disambiguated from context. Similarly, predicates can be categorized in different ways (along different parameters), and a language with a multi-copula system may choose to encode one or more of these parameters in the distribution of its copulas. What are the possible dimensions along which predicates can be categorized?

**Temporariness** Carlson (1977) posits a hierarchical ontological distinction between *stages*, *objects*, and *kinds*. An ‘object’ has invariant reference across space and time (e.g. Sana). A ‘kind’ refers to a collection of objects (e.g. human being, tree). An ‘individual’ is a cover term for any permanent entity not specific to a particular time or place (e.g. Sana, tree), i.e. it encompasses both objects and kinds. In contrast, a ‘stage’ denotes a temporary state of an individual at a particular place and time, as opposed to its entirety. Both subjects and predicates are specified for these features. Accordingly, Carlson categorizes predicates as *individual-level* (ILP; refer to the individual as a whole; 4a), *stage-level* (SLP; refer to a stage of an individual; 4b), and *kind-level* (refer to a kind; 4c) predicates:

- (4) a. Sana is tall  
 b. Sana is hungry  
 c. Giraffes are tall

Carlson posits that most NP predicates are individual-level (e.g. a teacher, my brother), and most PP predicates refer to stages (e.g. in Hyderabad, on the table). Adjective predicates form three classes– ILPs (tall, intelligent), SLPs (hungry, excited), kind-level predicates (extinct, rare, widespread). Intuitively, ILPs express properties that are understood to be unchanging in time, i.e. permanent, whereas SLPs refer to temporary properties. Thus, this distinction can be seen as one along the dimension of temporariness. Carlson views this as a side-effect of what he considers an ontological distinction between stages, individuals and kinds, and thus does not attach much significance to the temporal interpretation of the predicate. However, Diesing (1992) formalizes this observation by considering the temporary-permanent interpretation as the basis for the distinction between ILPs and SLPs. Following the latter, in this dissertation I treat the distinction as primarily temporal, and use the terms *ILP* vs *SLP* interchangeably with *permanent* vs *temporary* predicates. The distribution of the copulas *uṅḍə* and *a.ṅə* in Malayalam (a two-copula system) encodes this distinction.

**Genericity** Apart from a referring function, predicates also contain aspectual information. Intuitively, sentences in natural language are understood to express either specific, or generic, claims. Consider the following pairs of sentences:

- (5) a. The trees are tall.  
 b. Trees are tall.  
 (6) a. John is smoking.  
 b. John smokes.

In both cases, the (b) sentences are understood to express generalizations: while 5a describes the property of a specific set of trees, 5b makes a claim about trees in general. Similarly, 6a refers to a specific event of smoking, whereas 6b generalizes over multiple smoking events to express a property of the subject. The (b) sentences thus have a ‘generic’ reading. In 5, genericity is conditioned by the subject: the NP in (a) is definite, whereas the NP in (b) is ‘kind-referring’. On the other hand, the subjects in 6 are identical, and genericity is conditioned by the predicate: the predicate in (a) is ‘episodic’, whereas that in (b) is ‘characterizing’.

The distinction between *episodic* and *characterizing* predicates was first made by Krifka et al. (1995). Episodic sentences refer to a specific event (are *eventive*), whereas characterizing sentences refer to a property of the subject referent. These are also called *statives*. Characterizing predicates are further classified into ‘lexical-stative’ and ‘habitual generic’ predicates:

Episodic: Sana is smoking.

Characterizing

Habitual generic: Sana smokes.

Lexical-stative: Sana knows Khasi.

While habitual generic predicates can have an episodic counterpart, lexical-stative predicates cannot (\*Sana is knowing Khasi). Note that these terms are applicable to both the predicates and the sentences formed by them, so that in 2.2, for example, the ‘episodic’ predicate *is smoking* combines with the NP *Sana* to form an episodic sentence *Sana is smoking*.

Broadly, episodic predicates correspond to Carlson’s (1977) SLPs, whereas lexical-stative predicates correspond to ILPs. The case of habitual-generic predicates is less straightforward, but this correspondence is not relevant to the discussion here. The distinction between episodic and characterizing predicates is encoded in the distribution of the two-copula system of Marathi.

The next section introduces the four-copula system of Bangla. The rest of this chapter describes the distribution of *ach-* in Bengali clauses along the two parameters discussed above: genericity, and temporariness.

## 2.3 Copula system of Bangla

Bangla has three overt copular verbs: *ach-*, *thak-*, and *hO-*. In addition, it allows a zero-copula strategy in non-verbal predicational clauses. I am treating this as a fourth, non-overt, copular element, and denoting it as  $\phi$ . Thus, the copula system of Bangla consists of four elements: *ach-*, *thak-*, *hO-*, and  $\phi$ . In this dissertation, I focus on the distributional and interpretational features of *ach-* in predicational clauses. As mentioned in § 1.3, I will refer to facts from Odia (Mahapatra, 2002), Assamese (Nath, 2009), and Marathi (Deo, 2019) at various points in this dissertation. Both Odia and Assamese have a copular verb that corresponds to the *ach-* copula in Bangla. For ease of exposition, I will represent these uniformly as *ach-*, although the precise phonological realization of the verb differs across languages. Thus, when I talk about ‘*ach-* in Odia’ and ‘*ach-* in Assamese’, I am referring to the copular verbs realized as *Och-* and *as-* in Odia and Assamese respectively. Although these verbs have originated from a common source in related languages, and are a part of similar copula systems, they do not behave identically. Thus, I am using these comparisons to guide the general direction of inquiry, without assuming that the treatment of these verbs carries over straightforwardly across languages.

## 2.4 Data: Genericity

In this section, I describe the distribution of *ach-* in Bangla along a dimension of semantic contrast that is encoded by multi-copula systems in many Indian languages: whether the sentence is understood to make a specific, or generalized, claim. The present tense paradigm is morphologically null in Bengali. *ach-* occurs both in this tense-unmarked form, and with past-tense marking. These two forms differ in their behavior with respect to genericity. In this section I consider the distribution of the tense-unmarked *ach-*. The past-marked form *chil-* is discussed in chapter 4.

### 2.4.1 Genericity of subject

This section details the distribution of *ach-* with respect to genericity of the subject. I consider three kinds of subjects: definite referential NPs, kind-referring NPs, and non-referential NPs. I limit the examples to NP subjects in the nominative case, leaving aside the discussion of Dative and Genitive case-marked subjects. Bangla uses classifiers to mark definiteness on the NP. *ach-* is acceptable with nominal NPs, and both singular and plural definite NPs:

- (7) a. mini byasto ach-e/ $\phi$   
 Mini busy ach-3/ $\phi$   
 Mini is busy.
- b. beRal-ta gach-er opor-e ach-e/ $\phi$   
 cat-CLF tree-GEN up-LOC ach-3/ $\phi$   
 The cat is on the tree.
- c. am-gulo tOk ach-e/ $\phi$   
 mango-CLF sour ach-3/ $\phi$   
 The mangoes are sour.

Indefinite NPs in Bangla have a kind-reference. *ach-* is not acceptable with such kind-referring subjects (some of these examples are adapted from [Mahapatra, 2002](#)):

- (8) a. mach jOl-e \*ach-e/thak-e  
 fish water-LOC \*ach-3/thak-3  
 Fish live in water.
- b. mach-gulo jOl-e ach-e/thak-e  
 fish-CLF water-LOC ach-3/thak-3  
 The fish are in the water/live in water.

With the definite NP subject, the choice of copula affects the interpretation of the predicate (single episode vs generalization over stages)

- c. am tOk \*ach-e/hO-e  
 mango sour \*ach-3/hO-3  
 Mangoes are sour.
- d. am-ta tOk ache/ $\phi$   
 mango-CLF sour ach-3/ $\phi$   
 The mango is sour.
- e. manush sarthopOr \*ach-e/ $\phi$ /hO-e  
 human being selfish \*ach-3/ $\phi$ /hO-3  
 Human beings are selfish.

*ach-* is also unacceptable when the subject, though not kind-referring, does not have a definite referent (is a non-referential NP):

- (9) a. je kono kaj shohoj # ach-e/  $\phi$   
 any work easy # ach-3/  $\phi$   
 Any work is simple (if you try).

- b. kaj-ta shohoj ach-e/ $\phi$   
 work-CLF easy ach-3/ $\phi$   
 The work is simple.

The use of *ach-* in b. is not immediately acceptable to many speakers (and leads to a pragmatic inference that is discussed later)<sup>1</sup>. However, it is clearly more acceptable than its use in a.

The distribution discussed here is summarized in Table 2.1. In environments where *ach-* is not acceptable, the preferred copula is indicated in square brackets. In case of multiple alternatives the canonical choice of copula depends on the nature of the predicate.

Table 2.1: Distribution of tense-unmarked *ach-* with respect to genericity of subject

	Subject		
	definite	non-referential	kind
ach (pres)	✓, $\phi$	✗[thak-, $\phi$ ]	✗[thak-, hO-, $\phi$ ]

This distribution of *ach-* with respect to the subject NP is identical to that in Odia as described in Mahapatra (2002). The two-copula system of Marathi also encodes this distinction along the dimension of genericity. However, the *ah-* copula of Marathi differs from *ach-* in being acceptable with kind-referring NP subjects.

## 2.4.2 Genericity of predicate

This section describes the distribution of *ach-* with respect to the genericity of the predicate it embeds. Following the categorization in Krifka et al. (1995), I consider episodic and characterizing predicates, the latter being subdivided into lexical-stative and habitual generic predicates. Since we have noted that *ach-* is generally unacceptable with non-definite subjects, I only consider examples with nominal and definite NP subjects here.

*ach-* occurs with episodic predicates:

(10) Episodic predicate

- mini ekhon byasto ach-e/ $\phi$   
 Mini now busy ach-3/ $\phi$   
 Mini is busy right now.

*ach-* can occur with certain lexical statives. Specifically: with adjective predicates that express a gradable property.<sup>1 2</sup>

<sup>1</sup>This use of *ach-* with a gradable lexical stative predicate is subject to contextual felicity conditions and gives rise to a pragmatic inference that the property described by the predicate is relevant to some other salient information in the discourse. This is discussed in 2.5 as the **relevance reading** of *ach-*.

<sup>2</sup>Note that this relevance reading is unavailable with the NP predicate in b., where the use of *ach-* is infelicitous. This is elaborated in 2.5.



- (11) Lexical-stative predicate
- a. lok-ta    bete  $\phi$ /ach-e  
 man-CLF short  $\phi$ /ach-3  
 The man is short.
- b. ali sana-r    bhai    # ach-e/ $\phi$   
 Ali Sana-GEN brother # ach-3/ $\phi$   
 Ali is Sana's brother

ach- cannot be used to express a habitual-generic reading of a predicate:

- (12) Habitual generic predicate
- a. mini bikel-e    byasto thak-e/# ach-e  
 Mini evening-LOC busy thak-3/# ach-3  
 Mini is (generally) busy in the evenings.

Table 2.2 summarizes the distribution of *ach-* with respect to the genericity of the predicate. As before, in environments where *ach-* is not acceptable, the preferred copula is indicated in square brackets. In case of multiple alternatives the canonical choice of copula depends on the nature of the subject. 'rr' stands for 'relevance reading'.

Table 2.2: Distribution of tense-unmarked *ach-* with respect to genericity of predicate

	Predicate		
	episodic	lexical-stative	habitual generic
ach (pres)	✓, $\phi$	✓(rr) $\phi$ , hO-	✗[thak-]

This inability of *ach-* to express a habitual generic reading is shared by *ach-* in Odia and ah- in Marathi.

### 2.4.3 Summary

The distribution discussed above is summarized in table 2.3. As before, in environments where *ach-* is not acceptable, the preferred copula is indicated in square brackets. In case of multiple alternatives the canonical choice of copula depends on the nature of the subject. 'rr' stands for 'relevance reading'.

Table 2.3: Distribution of tense-unmarked *ach-* with respect to genericity of subject and predicate

	Subject			Predicate		
	definite	non-referential	kind	episodic	lexical-stative	habitual generic
ach (pres)	✓, $\phi$	✗[thak-, $\phi$ ]	✗[thak-, hO-, $\phi$ ]	✓, $\phi$	✓(rr), $\phi$ , hO-	✗[thak-]

To summarize further, tense-unmarked *ach-* is unattested in the following environments:

- (i) with kind-referring subjects
- (ii) with non-referential subjects
- (iii) with habitual-generic predicates

Two features of this distribution are immediately apparent: (i) the subject of a proposition embedded by *ach-* must refer to a particular entity salient in the discourse during the time of utterance; it cannot generalize over individuals to refer to the kind (kind-referring NP), or denote a non-salient subject (non-referential NP). (ii) the predicate embedded by *ach-* cannot refer to an iteration over multiple episodes (habitual generic predicate). Taken together, (i) and (ii) suggest that *ach-* is incompatible with environments that express generalized meanings.

## 2.5 Data: Temporariness

In this section, I describe the distribution of *ach-* along second dimension of contrast encoded by multi-copula systems in many Indian languages: whether the property expressed by the predicate is understood to be temporary or permanent. As noted in § 2.2, I am using the terms ‘permanent’ and ‘temporary’ interchangeably with the terms ‘individual-level predicate’ (ILP) and ‘stage-level predicate’ (SLP) here. Mahapatra (2002) notes that *ach-* in Odia occurs with predicates that express temporary properties i.e. pertaining to stages rather than individuals, and calls it a ‘stage-level copula’.

### 2.5.1 General pattern

I first outline the canonical distribution of *ach-* with respect to the temporariness of the predicate. Since 2.4 already noted that *ach-* is incompatible with non-referential and kind-referring subjects, I limit the examples to definite NP subjects here. In the present tense,  $\phi$  occurs with individual-level predicates (ILP), whereas *ach-* occurs with stage-level predicates (SLP):

- (13) Individual-level predicates
- a. mini lOmba  $\phi$   
Mini tall  $\phi$   
Mini is tall.
  - b. jama-ta sundor  $\phi$   
dress-CLF beautiful  $\phi$   
The dress is beautiful.
  - c. mini daktar  $\phi$   
Mini doctor  $\phi$   
Mini is a doctor.
  - d. Shillong Meghalaya-te  $\phi$   
Shillong Meghalaya-LOC  $\phi$   
Shillong is in Meghalaya.

- (14) Stage-level predicates
- a. mini (ekhon) byasto ach-e/ $\phi$   
 Mini (now) busy ach-3/ $\phi$   
 Mini is busy (right now).
  - b. kapoR-gulo (ekhon) bheja ach-e/ $\phi$   
 clothes-CLF (now) wet ach-3/ $\phi$   
 The clothes are wet (right now).

Note that the SLP sentences are also felicitous with  $\phi$ , without any change in interpretation. While the use of *ach-* is the canonical choice, it is not essential.

In the past tense, *chil-*, an allomorph of *ach-* with past-marking (-l-) is used with both ILPs and SLPs:

- (15) chele-ta lOmba chil-o  
 boy-CLF tall ach.PST-3  
 (of someone I met yesterday) The boy was tall. <sup>3</sup>
- (16) mini (kal) byasto chil-o  
 Mini (yesterday) busy ach.PST-3  
 Mini was busy (yesterday).

*ach-* never occurs with future-tense morphology. In general, *hO-* with future tense marking is used with ILPs, and *thak-* with future tense marking is used with SLPs:

- (17) chele-ta lOmba hO-b-e  
 boy-CLF tall hO-FUT-3  
 (of someone I am about to meet) The boy will be tall. <sup>4</sup>
- (18) mini (kal) byasto thak-b-e  
 Mini (tomorrow) busy thak-FUT-3  
 Mini will be busy (tomorrow).

Thus, *ach-* occurs with both ILPs and SLPs in the past tense, and does not occur at all with the future tense. It is only in the present tense that *ach-* is sensitive to the temporary-permanent distinction. While the distribution outlined above is canonical, it is not a syntactic requirement, and is tendential rather than categorical. It is possible for *ach-* to occur with ILPs to produce grammatical sentences. These are subject to contextual felicity conditions, and lead to certain pragmatic inferences. In the following sections, I discuss the behavior of tense-unmarked *ach-* with permanent, temporary, and temporally ambiguous predicates:

---

<sup>3</sup>This sentence licenses an alternative reading that the subject NP has ceased to exist, i.e. the boy in question is no more.

<sup>4</sup>In addition to the futuristic reading, this sentence also has an epistemic necessity reading: (in light of the available evidence) The boy must be tall. This is not pursued further here.

## 2.5.2 Individual-level predicates

In the present tense, it is possible to use *ach-* with individual-level predicates, but not in a neutral context to give information about the subject:

- (19) (By way of introducing Mini/ pointing out Mini to someone)

e-ta Mini. o lomba # ach-e/  $\phi$   
 this-CLF Mini. she tall # ach-3/  $\phi$   
 This is Mini. She is tall.

However, *ach-* can be used felicitously in a situation like this:

- (20) (We are trying to reach some object on a tall shelf, and say:)

e-ta Mini parbe, o lomba ach-e  
 this-CLF Mini can.FUT.3, she tall ach-3  
 Mini can do it, she is tall.

Similarly, with an individual-level property like size, using *ach-* in a sentence to (neutrally) describe, for example, the size of a cupboard, gives rise to oddity:

- (21) almari-ta boRo # ach-e/  $\phi$

cupboard-CLF big # ach-3/  $\phi$   
 The cupboard is spacious.

However, in a context where we have a large package and are looking for a place to store it, one can felicitously say:

- (22) amar almari-ta boRo ache, okhan-e rakhte paro

my cupboard-CLF big ach-3, there-LOC keep can.2  
 My cupboard is spacious, you can keep it there.

Informally, the use of *ach-* in these examples seems felicitous when the property denoted by the preajcent either follows from or leads on to something in the immediately surrounding discourse. In other words, *ach-* licenses the interpretation that the preajcent is *relevant* to some other salient information in the discourse. Let us call this a **relevance reading** of *ach-* with ILPs. This reading is most readily available when the predicate denotes a gradable property.<sup>5</sup>

## 2.5.3 Stage-level predicates

Predicates that are most naturally understood to express temporary states are felicitous with *ach-*. As noted above,  $\phi$  is also allowed in these environments without any change in interpretation. However, *ach-* is the canonical choice.

- (23) mini baRi-te ach-e/  $\phi$

Mini home-LOC ach-3/  $\phi$   
 Mini is at home.

---

<sup>5</sup>As far as I am aware, this interpretation has not been acknowledged in the literature so far.

- (24) boi-ta table-er opor-e ach-e/ $\phi$   
 book-CLF table-GEN up-LOC ach-3/ $\phi$   
 The book is on the table.

#### 2.5.4 ‘Changeable’ (temporally ambiguous) predicates

With predicates that can plausibly be understood as expressing either permanent or temporary properties, both  $\phi$  and *ach-* are allowed. Here, *ach-* reinforces an interpretation that the property holds temporarily. E.g. with locatives where the subject referent is a self-propelled entity:

- (25) amar chhele Delhi-te ach-e/ $\phi$   
 my son Delhi-LOC ach-3/ $\phi$   
 My son is in Delhi.

The use of *ach-* licenses an interpretation that the son is in Delhi for the time being (e.g. has a transfer job and is currently posted in Delhi). The alternative reading, that he is settled permanently in Delhi, is most naturally expressed using  $\phi$ . Note that *ach-* is not obligatory for expressing temporariness— this can be reinforced using a time-adverbial like ‘now’ even in the absence of *ach-*:

- (26) amar chhele ekhon Delhi-te  $\phi$   
 my son now Delhi-LOC  $\phi$   
 My son is in Delhi right now.

As noted above, the use of *ach-* is infelicitous with locative predicates when the location of the subject is understood to be fixed, for example when the subject is not a self-propelled entity:

- (27) Shillong Meghalaya-te  $\phi$  (# ach-e)  
 Shillong Meghalaya-LOC  $\phi$  (# ach-3)  
 Shillong is in Meghalaya.

Other ‘changeable’ properties:

- (28) a. (Describing the road that leads to the outhouse)  
 rasta-ta slippery  $\phi$   
 road-CLF slippery  $\phi$   
 The road is slippery.
- b. (It rained yesterday, so...)  
 (ajke) rasta-ta slippery ache  
 (today) road-CLF slippery ach-3  
 The road is slippery (today/right now).
- (29) a. bacca-ta durbOl  $\phi$   
 child-CLF weak  $\phi$   
 The child is weak (in general)

- b. (Since s/he is ill,)
   
bacca-ta (Ekhon) durbOl ach-e
   
child-CLF (now) weak ach-3
   
The child is weak (right now)

With lexically ambiguous words where one meaning is a temporary property and the other is a permanent one, *ach-* reinforces the former:

- (30) a. khawar-ta bhalo  $\phi$ ?
   
food-CLF good  $\phi$ ?
   
Is the food good?
   
b. khawar-ta bhalo ach-e?
   
food-CLF good ach-3?
   
Is the food fresh (as opposed to gone bad)?
- (31) a. mini bhalo  $\phi$ 
  
Mini good  $\phi$ 
  
Mini is nice (a nice person).
   
b. mini bhalo ach-e
   
Mini good ach-3
   
Mini is doing well.

Informally, the use of *ach-* in these examples licenses an interpretation that the property denoted by the prejacet is temporary. That is, the predicate holds at some definite temporal interval, *and not beyond that*. Let us call this the **temporariness reading** of *ach-* with temporally ambiguous predicates.

With these ‘changeable’ predicates too, the relevance reading is available in appropriate contexts, particularly when the property is gradable:

- (32) (sabdhane haNto,) rasta-ta slippery ache
   
(carefully walk.2.IMP), road-CLF slippery ach-3
   
(Walk carefully,) the road is slippery.

With predicates that are not temporally ambiguous (unambiguous ILPs), the **relevance reading** is the most salient when *ach-* is used.

**A note on professions across languages** The use of *ach-* with ‘temporary’ predicates has been discussed by Mahapatra (2002) for Odia. In his discussion, he also notes that when the predicate denotes a profession, *ach-* reinforces a reading that the subject referent is temporarily employed in that capacity, whereas the use of aT- or  $\phi$  expresses that it is a permanent/identifying property of the subject. This has also been noted for the Spanish ser-estar alternation (e.g. Deo et al. (2016)). This contrast does not seem to be available in Bangla:

- (33) sana (ekhon) headmistress  $\phi$ /#ach-e
   
sana (now) headmistress  $\phi$ /#ach-3
   
Sana is the headmistress (right now)

### 2.5.5 Summary

The distribution of tense-unmarked *ach-* with respect to the temporariness of the predicate described in this section is summarized in Table 2.4. In environments where *ach-* is not the canonical choice, the alternative copula is indicated in square brackets. As noted earlier, I only consider sentences with definite NP subjects, and do not describe the distribution of the non-ach copulas in detail. ‘tr’ stands for ‘temporariness reading’, and ‘rr’ for ‘relevance reading’.

Table 2.4: Distribution of tense-unmarked *ach-* with respect to temporariness of predicate

	SLP	Ambiguous	ILP
ach (pres)	✓, $\phi$	$[\phi]$ , ✓(tr, rr)	$[\phi]$ , ✓(rr)

This distribution highlights the following features of *ach-*: (i) *ach-* has a general tendency to express temporary meanings, canonically occurring with predicates that express temporary properties (SLPs), and reinforcing a temporary reading of temporally ambiguous predicates (**temporariness reading**); (ii) its behavior with individual-level predicates is sensitive to contextual information and generates a so-called **relevance reading**. An adequate account of *ach-* should be able to predict these behaviors.

## 2.6 Conclusion

This chapter noted that existing work on the copula systems of Indian languages, particularly Bangla, are largely concerned with syntactic categories as the dimension of distribution. However, data from Odia suggests that the semantic properties of the predicate might be a relevant dimension of contrast. I described the behavior of tense-unmarked *ach-* in sentences that vary along the dimensions of genericity and temporariness. *ach-* shows a general incompatibility with generic meanings, and a preference for expressing temporary properties. Its use in certain environments also generates pragmatic inferences that are sensitive to the discourse context. The next chapter presents an analysis of *ach-* that accounts for this distributional pattern.

# Chapter 3

## Proposal

### 3.1 Introduction

In this chapter, I propose a semantics for *ach-* that accounts for the distributional pattern and inferences described in [chapter 2](#). The chapter is structured as follows: [§ 3.2](#) summarizes the distributional issues to be addressed. Towards identifying function-based commonalities in these issues, I examine the behavior of *ach-* with different time adverbials in [§ 3.3](#) and identify two properties that characterize the temporal intervals that *ach-* canonically refers to. [§ 3.4](#) discusses two non-temporal aspects of the distribution, and possible ways to account for them. I outline the analysis in [§ 3.5](#), and discuss its application to the issues identified earlier, in [§ 3.6](#). [§ 3.7](#) discusses outstanding questions and concludes.

### 3.2 Summary of distribution and issues

The distribution of tense-unmarked *ach-* with respect to the subject and predicate as described in the previous chapter is repeated here (in environments where *ach-* is not acceptable, the preferred copula is indicated in square brackets; ‘rr’ stands for ‘relevance reading’<sup>1</sup> and ‘tr’ for ‘temporariness reading’<sup>2</sup>):

Table 3.1: Distribution of *ach-* with respect to genericity of subject and predicate (repeated from page 12)

	Subject			Predicate		
	definite	non-referential	kind	episodic	lexical-stative	habitual generic
ach (pres)	✓, $\phi$	✗[thak-, $\phi$ ]	✗[thak-, hO-, $\phi$ ]	✓, $\phi$	✓(rr), $\phi$ , hO-	✗[thak-]

It is immediately evident that all the environments where *ach-* occurs are also compatible with at least one other copula, namely  $\phi$ . That is, there is no environment where

<sup>1</sup>Defined in Chapter 2; an inference that the property described by the predicate is relevant to some other salient information in the discourse

<sup>2</sup>Defined in Chapter 2; an inference that the property described by the predicate holds of the subject for a salient period of time, *and not beyond that*



Table 3.2: Distribution of tense-unmarked *ach-* with respect to temporariness of predicate (repeated from page 18)

	SLP	Ambiguous	ILP
ach (pres)	✓, $\phi$	$[\phi]$ , ✓(tr, rr)	$[\phi]$ , ✓(rr)

tense-marked *ach-* is exclusively used.  $\phi$  additionally occurs in environments where *ach-* is canonically unattested (e.g. with non-referential subjects). In environments where both copulas are attested, the use of *ach-* invites additional context-sensitive inferences that are absent with  $\phi$  (e.g. with lexical-statives, ILPs and temporally ambiguous predicates). Thus, the distribution of *ach-* is better understood in terms of the environments it *cannot* occur in, and the inferences it generates. This includes the following observations:

- (i) incompatibility with kind-referring subjects
- (ii) incompatibility with non-referential subjects
- (iii) incompatibility with non-episodic predicates (relevance reading with gradable lexical statives as a special case)
- (iv) relevance reading with ILPs and temporally ambiguous predicates
- (v) temporariness reading with temporally ambiguous predicates

Towards the goal of arriving at an account that predicts this distribution (at least in part) from the meaning of *ach-*, I want to think about what properties are common to the environments that allow/disallow *ach-*, and model these as a generalized meaning-component of *ach-*. It is clear that the distribution of *ach-* is sensitive to the durational (temporariness) and aspectual (genericity) properties of the predicate it embeds. This means that the distribution should be predicted at least in part by restrictions on the type of temporal intervals *ach-* refers to.

A time adverbial specifies the temporal interval at which the proposition is asserted to be true. Thus, the acceptability of a copula with different time adverbials provides a window into what kinds of temporal intervals are canonically expressed by it. The next section describes the behavior of *ach-* with time adverbials to try and articulate what effect *ach-* has on the temporal interpretation of the predicate.

### 3.3 Time-adverbials: what kinds of intervals does *ach-* refer to?

A time adverbial specifies the temporal interval at which the proposition is asserted to be true. A deictic time adverbial denotes an interval that stands in a certain relation to the utterance time (UT), i.e. is crucially ‘anchored’ to the UT. Mahapatra (2002) observes that

*ach-* in Odia is compatible with the deictic adverbial *bOrtOmanO* ‘now’, but incompatible with adverbials that are not deictic on the time of utterance, such as ‘morning’ and ‘evening’. The copula *tha:-* is used with these.

This pattern is borne out in Bangla: *ach-* is compatible with deictic adverbials, but not with non-deictic adverbials, with which *thak-* is the canonical choice.

- (34) ami ekhon/ajke byasto ach-i  
 I now/today busy ach1  
 I am busy now/today.
- (35) ami bikel-e byasto thak-i  
 I evening-LOC busy thak1  
 I am busy in the evenings.
- (36) ami bikel-e byasto ach-i  
 I evening-LOC busy ach1  
 I am busy this evening.

The last two examples show that *ach-* is not categorically disallowed with the adverbial ‘evening’. Since adverbials in Bangla do not carry plural marking, *bikel-e* is ambiguous between a deictic (this evening) and a non-deictic (evenings in general) meaning. The use of *ach-* is compatible with the former, but not the latter.

*ach-* can be used to make assertions that are removed from the present:

- (37) ami she-din byasto chi-l-am  
 I that-day busy ach-PST1  
 I was busy that day
- (38) ami agami kal byasto ach-i/thak-b-o  
 I tomorrow busy ach1/thak-FUT1  
 I am/ will be busy tomorrow

While expressing a proposition in the past, *ach-* can occur with the past-marker *-l-* in Bangla. While expressing a proposition in the future, however, it is obligatorily unmarked for tense; it cannot take the future-tense marker *-b-*. The tense-marked forms are discussed in greater detail in [chapter 4](#). Focusing on the behavior of *ach-* when it is unmarked for tense first:

We observed that *ach-* is compatible only with the deictic reading of the time-adverbials it occurs with. A time adverbial specifies the time interval at which the proposition is asserted to be true. On a deictic reading, the adverbial refers to a time interval that stands in a certain relation to the utterance time (UT). Let us call such a time interval **anchored** (this definition is tentative, and will be revised later):

- (39) ANCHOREDNESS (preliminary): a time interval is **anchored** if it is deictic on the utterance time. By extension, a proposition that is asserted to be true at an anchored interval is an ‘anchored proposition’.

*ach-* is not compatible with an adverbial that lacks this property. This suggests that the time interval at which a proposition embedded by *ach-* is asserted to be true must be anchored. However, note the contrasts between the following pairs of time adverbials, all of which are deictic on the UT. (While all of these might be slightly strange because a more typical choice is to use *thak-*, there is still a clear difference between the relative acceptability of a. vs b.):

- (40) a. *ami kal ar porshu byasto ach-i/ thak-b-o*  
 I tomorrow and day after tomorrow busy *ach1/ thak-FUT1*  
 I will be busy tomorrow and day after tomorrow.
- b. *ami kalke-r por byasto ??ach-i/ thak-b-o*  
 I tomorrow-GEN/ after busy ??*ach1/ thak-b-o*  
 Intended: I will be busy after tomorrow.
- (41) a. *ami agami tin din byasto ach-i/ thak-b-o*  
 I following three days busy *ach1/ thak-FUT1*  
 I will be busy for the next three days.
- b. *ami Ekhon theke byasto ??ach-i/ thak-b-o*  
 I now from busy ??*ach1/ thak-FUT1*  
 Intended: I will be busy from now on.

What is the source of this asymmetry in the acceptability of *ach-*? Looking at the nature of the time intervals denoted by the adverbials, a common factor in the a. examples is that they refer to definite time intervals. All these intervals are anchored to the UT at one end because of being deictic. Thus, they have a left boundary. However, the adverbials in a. also impose a boundary on the other end of the interval, while the adverbials in b. allow the interval to stretch indefinitely from the UT. This is schematized in the following diagram, where the horizontal axis represents time, the dotted line represents the interval denoted by the adverbial, | represents an endpoint of the interval, and **UT** is the utterance time:

- (42) a. For the next three days: **UT** .....DAY 1.....DAY 2.....DAY 3|  
 b. From now on: **UT**.....

Let us call this quality of the a. adverbials **boundedness**:

- (43) **BOUNDEDNESS**: a time interval is **bounded** if it has two salient endpoints. By extension, a proposition that is asserted to be true in a bounded interval is a ‘bounded proposition’.

The greater acceptability of *ach-* with the time adverbials in a. indicates that *ach-* is more compatible with propositions that are asserted to be true in bounded intervals.

Conversely, this tendency is reflected in how the presence of *ach-* influences the interpretation of an ambiguous time adverbial: The word *kal* in Bangla is ambiguous between ‘yesterday’ and ‘tomorrow’. Thus, the adverbial phrase *kal theke* can mean both ‘since yesterday’ and ‘tomorrow onward’. In the following example, *kal* is glossed as ‘not-today’, and *theke* as ‘from’. Consider:

- (44) a. mini kal            khub byasto ach-e  
 Mini not-today very busy ach-3  
 Mini is/will be very busy tomorrow.
- b. mini kal            theke khub byasto ach-e  
 Mini not-today since very busy ach-3  
 Mini has been very busy since yesterday.

*kal* in a. is most naturally interpreted as ‘tomorrow’. This is not surprising: a distinct morphological form of *ach-* with past-marking (*chil-*) is available to express past reference, whereas a form of *ach-* with future marking is unavailable. Thus, it seems natural that *ach-* without tense marking and in combination with a non-today adverbial is interpreted as referring to the future. However, in b. we find that the past reading of *kal* is more salient than the future reading. Why should this be, given that *chil-* is equally available to mark past-reference here? Looking at the time-intervals expressed by each of these adverbials, we see that a ‘since yesterday’ reading gives an interval with two end points, whereas a ‘tomorrow onward’ interval is unbounded at the right:

- (45)        Since yesterday: |YESTERDAY ..... **UT**  
               Tomorrow onward: **UT**—TOMORROW .....

The salience of the ‘since yesterday’ reading with *ach-* again indicates a tendential constraint on the type of interval that *ach-* can assert a predicate to be true in: the interval should have two salient endpoints.

The behavior of *ach-* with adverbials suggests that a time interval canonically picked out by *ach-* has two properties:

- i. it is **anchored** to the time of utterance
- ii. it is **bounded**: has two salient endpoints

Given that (i) the sentence pairs above differ only in the degree of acceptability/salience; (ii) the b. sentences are not ungrammatical; (iii) the intended meaning of the b. sentences can be retrieved even in the presence of *ach-* given the appropriate context, this preference is better understood as tendential, rather than a categorical requirement.

### 3.4 Constraints along non-temporal dimensions

We started by noting that the distribution of *ach-* appears to be sensitive to the temporal properties of the predicate, and therefore at least some part of it can be explained by a meaning-component that constrains *ach-* along the temporal dimension.

The previous section ascribed two properties to *ach-*: (i) it expresses that the embedded proposition is anchored to the UT; (ii) it expresses that the embedded proposition is bounded. These are constraints on the temporal interpretation of the proposition. I deliberately use

the word ‘expresses’ here because whether the anchoredness and boundedness of the embedded proposition is asserted, or presupposed, by *ach-* is yet to be established. Ignoring the exact nature of these constraints for the time being, it is apparent that these properties provide promising ingredients for an analysis of *ach-* that can account for some of its distributional tendencies. Specifically, anchoredness intuitively corresponds to an incompatibility with generalization across time intervals, and boundedness to the tendency for temporary reference. However, there are at least two elements of the distribution that do not seem to be straightforwardly related to temporal features: the incompatibility with non-definite (kind-referring and non-referential) subjects, and the relevance reading with ILPs. Assuming that the anchoredness and boundedness are indeed relevant properties, there are three possible ways to approach this:

- (i) Check whether these can be subsumed under a temporal restriction, i.e. if these distributional tendencies follow from any of the other ‘temporal’ ones
- (ii) Propose separate constraints relevant to these distributional facts
- (iii) Generalize the existing constraints to include non-temporal parameters

Impressionistically, the distribution of *ach-* with respect to subject and predicate properties seem to be analogous: *ach-* is incompatible with generalized readings of both. Can the former be subsumed under the latter? Entertaining this possibility, let us consider an existing temporal account of the distribution of *ach-* with respect to genericity:

Mahapatra (2002) proposes an explanation for the inability of *ach-* in Odia to express habitual generic readings of predicates. Recall from § 2.2 that an episodic predicate expresses a claim about a particular stage of an individual, whereas a characterizing predicate asserts a property to hold of the individual as a whole. A habitual generic predicate takes a base episodic predicate and expresses an iteration over multiple instantiations, i.e. over multiple episodes. Mahapatra, observing the behavior of *ach-* in Odia with time adverbials, notes that it is incompatible with time-adverbials other than *bOrtOmanO* ‘now’. From this, he infers that *ach-* is inherently specified for a particular time-reference: the immediate present. Since it is specified for present reference, this entails that “the ‘stage’ it refers to is synchronous with the moment of utterance”. Thus, it cannot express an iteration over multiple stages, or multiple episodes.

Unlike Odia, *ach-* in Bangla also occurs in a non-present morphological paradigm (past tense). Moreover, the examples in § 3.3 showed that *ach-* (both with and without overt tense-marking) can convey non-present claims. This makes it unlikely to be lexically specified for immediate present reference.

The property of **anchoredness** that we have attributed to *ach-* allows for an alternative explanation for its incompatibility with habitual generic predicates: Since the episode that the predicate refers to has to be instantiated in a temporal interval that is anchored to the UT, *ach-* cannot generalize over episodes, and thus cannot express a habitual generic reading.

One could argue that since natural language sentences involving non-definite subjects usually co-occur with generalized predicates, *ach-* is not canonically observed with kind-referring and non-referential subjects *because* it cannot occur with generalized predicates (as predicted by these accounts). In other words, the restriction against generalization is actually on the predicate, and the distribution with respect to the subject is incidental. However, consider the following examples, adapted from Deo (2019), all of which contain a non-definite NP subject:

- (46) a. Kind-referring NP with ILP (lexical-stative):  
 sromik buddhiman  $\phi/\#$  ach-e  
 worker intelligent  $\phi/\#$  ach-3  
 workers (in general) are intelligent
- b. Kind-referring NP with habitual generic predicate:  
 sromik sObsomoy OsOntusto thak-e/\*ach-e  
 worker always dissatisfied thak-3/\*ach-3  
 workers (in general) are always dissatisfied
- c. Kind-referring NP with SLP (episodic):  
 sromik ekhon OsOntusto  $\phi/\#$  ach-e  
 worker now dissatisfied  $\phi/\#$  ach-3  
 workers (in general) are dissatisfied (right now)

The example c. is telling: even when the predicate is episodic and specified for the immediate present using the adverbial *ekhon* ‘now’, the sentence is still unacceptable. *ach-* cannot be used to denote an episode involving the kind in the utterance time and world, a reading that is available with the *ah-* copula in Marathi. Similarly, our distribution in Table 3.1 predicts that sentence a. should be acceptable, giving a relevance reading. But the sentence is unacceptable with *ach-*, and fails to convey a property of the kind. The unacceptability of a. and c. is felt less strongly than b. (where the predicate is also generalized), but still exists. This suggests that the genericity of the subject influences the acceptability of *ach-* independently of the predicate. Thus, the constraint on generalization cannot be limited to the temporal dimension of the predicate. It is unlikely that this can be subsumed under a temporal account. Additionally, note that the sentences here evidence degrees of acceptability depending on whether the subject, the predicate, or both, are generalized. An adequate account should be able to account for this gradience.

Thus, the analysis in the next section continues to treat subject and predicate genericity of *ach-* as separate distributional properties, and generalizes **anchoredness** to include non-temporal parameters in order to account for the context-sensitive relevance readings of *ach-*.

## 3.5 Analysis

### 3.5.1 Assertion or presupposition?

From the distributional data it is clear that in the majority of cases, the use of the non-canonical predicate does not make the proposition false, but rather induces oddity. The

distribution is also sensitive to the context of utterance, suggesting that (i) at least some of the restrictions guiding this distribution concern properties of the context; (ii) the observed oddity might result from pragmatic inferences.

The previous section posited two properties of propositions canonically embedded by *ach-*: anchoredness, and boundedness. We want to model these as a meaning-component of *ach-*. Should this meaning-component be truth-conditional, or presuppositional? In other words, does *ach-* assert or presuppose the anchoredness and boundedness of its embedded proposition?

Recall that all the environments where *ach-* occurs are also compatible with the copula  $\phi$ . This suggests that a part of the meaning of *ach-* is shared by  $\phi$ . We noted that  $\phi$  has a wider distribution, and that in environments where both copulas are attested, the use of *ach-* invites additional context-sensitive inferences that are absent with  $\phi$ . Thus, where *ach-* deviates from  $\phi$  in distribution, the difference is restrictive in nature: *ach-* occurs in a more restricted set of environments, and leads to more specific inferences. This difference can be attributed to an additional meaning-component of *ach-* that restricts its use. If this component is truth-conditional, then it should be possible to negate it. That is, given a construction with *ach-*, there should be some possible context where negating the sentence cancels the ‘additional’ meaning, giving the reading canonically associated with  $\phi$ . However, this is not attested. Consider the following example:

- (47) a. mini Hyderabad-e  $\phi$   
 Mini Hyderabad-LOC  $\phi$   
 Mini is in Hyderabad.
- b. mini Hyderabad-e *ach-e*  
 Mini Hyderabad-LOC *ach-3*  
 Mini is in Hyderabad (right now).
- c. mini Hyderabad-e *nei*  
 Mini Hyderabad-LOC *ach.neg*  
 Mini is not in Hyderabad.
- d. mini ki Hyderabad e *ach-e*?  
 Mini Q Hyderabad-LOC *ach-3*?  
 Is Mini in Hyderabad (right now)?

a. asserts that Mini is in Hyderabad, and is neutral with regard to the permanence of the situation. In b., the use of *ach-* reinforces the interpretation that the assertion is about her immediate location (temporariness reading). *nei* is the negative verb corresponding to *ach-*. It is not possible to construe any context where the sentence c. cancels the temporariness reading of a. while retaining the assertion about Mini’s location. In other words, it cannot be used to convey the sense that Mini’s being in Hyderabad is *not temporary*, i.e. that Mini is permanently settled in Hyderabad. Similarly, the interrogative in c. inherently carries the implication that the question is about Mini’s current location, but cannot be used to question the temporariness itself. That is, it cannot be used to inquire whether Mini’s being

in Hyderabad is temporary (as opposed to permanent). These examples suggest that the temporariness reading introduced by *ach-* is presupposed in these sentences.

Taken together, the discussion above suggests that the additional restrictions on the behavior of *ach-* are better understood as presuppositional in nature. As noted earlier, *ach-* occurs in a subset of the environments where  $\phi$  occurs. This suggests that the two copulas are presuppositional variants,  $\phi$  being the presuppositionally weaker alternative. The canonical preference for *ach-* over  $\phi$  in certain environments (e.g. with purely stage-level predicates) could be seen as an implication that arises from the clear availability of the alternative, *ach-*, in such contexts. In the following sections, I model the properties pertaining to **anchoredness** and **boundedness** as a part of the presuppositional meaning-component of *ach-*.

### 3.5.2 Semantic setup

The meaning of a sentence is partly determined by its context of use. Contextual information is used in two ways: (i) to determine the content of the expression, e.g. the values of indexicals; (ii) to determine the circumstances against which the truth of the sentence to be evaluated, e.g. the value of temporal adverbials, gradable predicates etc (MacFarlane, 2014). A circumstance of evaluation  $i$  is a tuple that consists of parameters that are relevant for determining propositional truth: here, these parameters include the set of possible worlds, time intervals, spatial regions, agents, and a delimitation function ( $d_c$ ) that provides the contextually salient reference values for gradable properties. Different sets of values for each of these parameters give us alternative circumstances of evaluation. Let  $I$  be the set of all possible circumstances of evaluation. The context  $c$  in which a sentence is uttered gives a set of relevant circumstances of evaluation  $I' \subseteq I$ . The content of a sentence is a proposition, whose truth is evaluated against a circumstance of evaluation  $i \in I'$ . That is, a proposition is a function from circumstances of evaluation to truth values ( $P(x) : I' \rightarrow T$ ).

I am assuming that a copula verb embeds an uninflected sentence radical (the prejacent), which is a proposition of the form  $P(x)$ . *ach-* asserts that the property  $P$  holds of the subject  $x$  at the circumstance of evaluation  $i$ . This is the truth-conditional part of its meaning and is shared by all the copulas.

### 3.5.3 Presuppositional content of *ach-*

§ 3.3 informally described two properties of temporal intervals: **boundedness**, and **anchoredness**. I noted that *ach-* is canonically compatible with propositions that are asserted to be true at bounded and anchored temporal intervals. Since we are evaluating propositions against circumstances (subsection 3.5.2), I now redefine these properties as characterizing circumstances of evaluation:

- (48) **BOUNDEDNESS**: A circumstance of evaluation  $i$  is temporally **bounded** if the time parameter  $t$  is characterized by two endpoints.
- (49) **ANCHOREDNESS** (version 2): A circumstance of evaluation  $i$  is **anchored** if the time parameter  $t$  is deictic on the utterance time (UT).



The discussion in § 3.4 concluded that constraints on *ach-* along the temporal dimension alone fail to address (i) its behavior with respect to the subject of the embedded proposition, and (ii) the relevance reading with ILPs, both of which appear to enlist information that is not temporal in nature.

Once **boundedness** and **anchoredness** are defined as properties of the circumstance of evaluation, it is clear that ANCHOREDNESS essentially posits that a certain parameter in  $i$  (here, the time interval  $t$ ) depends on the discourse context (here, the utterance time or UT) for its value. But  $i$  also contains other parameters relevant to evaluating the truth of the proposition: the evaluation world, spatial region, agent, delimitation function. Thus, it is possible to reformulate **anchoredness** as a general requirement for discourse-dependency along some parameter in  $i$ :

- (50) ANCHOREDNESS (final): A circumstance of evaluation  $i$  is **anchored** to a discourse if at least one parameter in  $i$  is crucially computed in relation to the discourse context.

When a circumstance is anchored along the time parameter, it is in effect identical to the previous formulation. However, this formulation also allows for anchoring along other, non-temporal, parameters. With this definition, a circumstance can be anchored to different degrees, depending on how many of the parameters in  $i$  are discourse-dependent. Thus, it is possible for a circumstance to be ‘more’ or ‘less’ anchored than another.

We have identified that the meaning component of *ach-* which leads to its observed distributional and interpretational properties should be (i) sensitive to the discourse context; (ii) presuppositional.

I am proposing that *ach-* constrains the properties of the circumstance against which the truth of the embedded proposition is evaluated. This means that out of the set of all relevant circumstances  $I'$  given by the context  $c$ , the presence of *ach-* favors a specific subset of circumstances, say  $I'' \subseteq I'$ , that have certain properties. The presuppositional meaning-component of *ach-* concerns the properties of  $I''$ . Specifically, *ach-* presupposes that the circumstance  $i \in I'$  against which the embedded proposition is evaluated has two properties:

- i. it is **anchored** to the discourse context
- ii. it is temporally **bounded**

This presupposition is a felicity condition on the use of *ach-*. In a discourse, it interacts systematically with other contextual information. This interaction predicts a range of the interpretational and distributional tendencies that are observed in the use of *ach-*. I discuss these in the next section.

## 3.6 Application

### 3.6.1 Incompatibility with habitual generic predicates

*ach-* presupposes that the circumstance of evaluation of the proposition is anchored to the discourse. When the anchoring is along the time parameter, the proposition is evaluated

at a time interval that is deictic on the UT. Thus, the predicate cannot be understood to generalize over episodes, and thus cannot express a habitual generic reading.

### 3.6.2 Tential preference for SLPs

With predicates that are most naturally understood as being temporary (SLPs), the contextually expected circumstances of evaluation are those where the time parameter is characterized by endpoints. The presupposition carried by *ach-*, that *i* is bounded, coincides with these expectations, and thus *ach-* does not contribute anything more to the inference with SLPs. Its use is felicitous in such cases.

With predicates expressing properties which are understood as unalterable (characterizing, or individual-level predicates), the contextually expected time intervals for evaluation are those that are not bounded. The presupposition introduced by *ach-* deviates from this expectation and thus its use leads to oddity. Alternatively, we could say that *ach-* coerces the evaluation of the predicate at a bounded circumstance (say *t* is some contextually salient bounded interval containing the UT), and thus by extension implicates that it is not true beyond that. But since the property is understood to hold indefinitely, this violates Gricean maxims of quantity and is thus infelicitous *unless the context allows for some alternative interpretation*. Thus, with a word such as *bhalo* ‘good’ for which the lexicon provides an alternative meaning ‘fresh’ which is a non-permanent property, the use of *ach-* most naturally accesses the latter.

### 3.6.3 Temporariness reading with ambiguous predicates

With ‘changeable’ predicates that can plausibly be understood as expressing either permanent or temporary properties, the contextually expected circumstances include both those in which the time parameter is a bounded interval, and those where it is unbounded. The presupposition introduced by *ach-* picks out the former, reinforcing a ‘temporariness’ reading.

### 3.6.4 Relevance reading with gradable lexical-statives and ILPs

With individual-level gradable predicates, *ach-* introduces an inference that we have informally called ‘relevance’– that the property described by the predicate is either leads on to, or follows from something else in the surrounding discourse. In the case of gradable predicates, a relevant circumstantial parameter for evaluating the truth of the proposition is the contextually salient reference value of the property, assigned by the delienation function ( $d_c$ ). In the absence of any other factor, this value is expected to be some kind norm for the property, determined by the nature of the subject. However, *ach-* introduces the presupposition that this reference value given by  $d_c$  is computed directly from the discourse context. This would be possible only if there is some salient measure of the property that is already present in the surrounding discourse (and thus part of the common ground). Thus, in the example of a property like size, repeated below:

- (51) (We have a large package and are looking for a place to store it)

amar almari-ta      boRo ache, okhane      rakhte paro  
 my    cupboard-CLF big    ach-3, there-LOC keep    can.3

My cupboard is spacious, you can keep it there.

the package is a contextually salient entity whose size is known. This provides an alternative value for the property ‘size’ that is salient in the discourse. The presence of *ach-* favors circumstances of evaluation where  $d_c$  fixes this as the reference value for ‘big’. The cupboard is thus asserted to be big with respect to the package, leading to an inference that the information is relevant to the situation at hand (the cupboard is big enough to hold the package). In the absence of such contextual information, the reference value is set to some standard norm for furniture size. In this case, using *ach-* asserts that the cupboard is big in relation to some reference value salient in the discourse. Since no such value is available in the common ground, the use is infelicitous. Similarly, with a predicate like ‘slippery’:

- (52) (sabdhane haNto,)      rasta-ta slippery ache  
 (carefully walk.2.IMP), road-CLF slippery ach-3  
 (Walk carefully,) the road is slippery.

the use of *ach-* is felicitous in a discourse situation which locally ‘sets up’ a standard for the property through an (explicit or implicit) clause like “walk carefully”, so that the standard for ‘slippery’ here can be understood as ‘slippery enough to potentially cause someone to slip and fall while walking, given the circumstances’. *ach-* is infelicitous in the absence of such a cue. Thus, the ‘relevance’ readings with gradable ILPs can be understood as pragmatic inferences arising from a presuppositional requirement of *ach-*: that the relevant contextual parameter (here, the output of  $d_c$ ) is anchored to the discourse.

### 3.7 Conclusion

This chapter noted that *ach-* is canonically compatible with propositions that are asserted to be true in anchored and bounded circumstances. I proposed that *ach-* carries a lexical presupposition that constrains the nature of the circumstances against which the embedded proposition is asserted to be true. This felicity condition interacts with other information in the discourse context to produce the range of interpretations associated with the copula. The null copula  $\phi$  differs from *ach-* only in the absence of this presuppositional specification, i.e. *ach-* and  $\phi$  are presuppositional variants. A question that requires further attention is how the incompatibility with the genericity of the subject can be accounted for in such an analysis. While there is an intuitive parallel between the inability of *ach-* to produce generic readings in both the subject and the predicate, its formalization in a circumstance-based analysis needs to be addressed.

# Chapter 4

## ach- and tense marking

### 4.1 Introduction

The previous chapters were concerned with distributional patterns and inferences associated with *ach-* when it is unmarked for tense. (Alternatively, since the present tense is not morphologically marked in Bangla, we could argue that these are morphological ‘present tense’ forms of *ach-*). Mahapatra (2002) observes that *ach-* in Odia cannot occur with past or future-tense morphology; it is supplanted by *tha-* in these paradigms. Thus, he claims that *ach-* is lexically specified for a particular time reference: the immediate present.

In Bangla, as in Odia, *ach-* cannot take the morphological marker for future tense (-b-). It is supplanted by *thak-* in this paradigm. However, the discussion of time-adverbials in § 3.3 showed that *ach-* without overt tense-marking can be used to express future eventualities, making it unlikely to be lexically specified for present reference. In addition, unlike Odia, *ach-* in Bangla evidences a past-tense paradigm. Bangla has two morphological devices for past reference: -t-, which is specified for imperfective aspect, and -l-, whose status as an (aspect-neutral) past marker vs a perfective aspect marker is debatable. *ach-* can occur with -l- (realized as *chil-*), but never with -t-. The presence of a past paradigm, but no future paradigm, for *ach-* is a pattern that is also found in Assamese (Nath, 2009; Biswas, 1998). The behavior of past-marked *ach-* (*chil-*) are not identical to its tense-unmarked form. In this chapter I describe this distributional difference, and suggest that treating *ach-* and  $\phi$  as presuppositional variants might account for the observed patterns. In the examples that follow, I present the sentence with tense-unmarked *ach-*, followed by the corresponding past-marked sentence, for ease of comparison.

This chapter is structured as follows: § 4.2 describes the distribution of *chil-* with respect to the genericity of the subject and predicate, and § 4.3 with respect to the temporariness of the predicate. In § 4.4 I discuss how this data supports the presuppositional account proposed in § 3.5, and additional questions it raises. § 4.5 concludes.

## 4.2 Data: genericity

The following pairs of sentences show the behavior of *chil-* with definite, kind-referring, and non-referential NP subjects.

Like tense-unmarked *ach-*, *chil-* is acceptable with definite NP subjects:

- (53) Definite subject
- a. beRal-ta gach-er opor-e ach-e/ $\phi$   
 cat-CLF tree-GEN up-LOC ach-3/ $\phi$   
 The cat is on the tree.
  - b. beRal-ta gach-er opor-e chil-o  
 cat-CLF tree-GEN up-LOC ach.PST-3  
 The cat was on the tree.

Unlike tense-unmarked *ach-*, *chil-* is acceptable with kind-referring subjects:

- (54) Kind-referring subject with ILP
- a. manush sarthopOr \*ach-e/ $\phi$   
 human being selfish \*ach-3/ $\phi$   
 Human beings are selfish.
  - b. (age-kar din-e) manush sarthopOr chil-o  
 (olden day-LOC) human being selfish ach.PST-3  
 (In olden days) human beings were selfish.

- (55) Kind-referring subject with SLP
- a. sromik ekhon OsOntusto  $\phi$ / $\#$ ach-e  
 worker now dissatisfied  $\phi$ / $\#$ ach-3  
 Workers (in general) are dissatisfied (at present)
  - b. gOto bOchor sromik OsOntusto chil-o  
 previous year worker dissatisfied ach.PST-3  
 Workers (in general) were dissatisfied last year.

Unlike tense-unmarked *ach-*, *chil-* is acceptable with non-referential subjects:

- (56) Non-referential subject
- a. je kono kaj shohoj \*ach-e/ $\phi$   
 any work easy \*ach-3/ $\phi$   
 Any work is simple (if you try)
  - b. (age-kar din-e) je kono kaj shohoj chil-o  
 (olden day-LOC) any work easy ach.PST-3  
 Any work was simple (in olden days).

These examples show that with past morphology, *ach-* is not sensitive to the genericity of the subject: *chil-* occurs with both definite and non-definite (non-referential and kind-referring) subjects.

Looking at predicate-types (I am using definite subjects in all the examples here):

- (57) Episodic predicate
- a. mini ekhon byasto ach-e/ $\phi$   
Mini now busy ach-3/ $\phi$   
Mini is busy right now.
  - b. mini gOto kal byasto chil-o  
Mini yesterday busy ach.PST-3  
Mini was busy yesterday.

- (58) Lexical stative
- a. lok-ta bete  $\phi$ /ach-e  
man-CLF short  $\phi$ /ach-3  
The man is short.
  - b. lok-ta bete chil-o  
man-CLF short ach.PST-3  
(of someone I met yesterday) The man was short. <sup>1</sup>

chil-, like ach-, is acceptable with episodic predicates. The presence of tense-unmarked *ach-* with the lexical stative in a. gives rise to a pragmatic inference that the property described by the predicate is relevant to some other salient information in the discourse. The use of *ach-* is infelicitous in the absence of such a discourse context. This is discussed in [subsection 2.5.2](#) as the **relevance reading** of *ach-*. The past-marked counterpart in b. is neutral with respect to the reading of relevance, and the use of *chil-* is not subject to this felicity condition.

With habitual generic predicates, *ach-* is generally unavailable in both the present and past paradigms, with *thak-* being the canonical choice of copula:

- (59) Habitual generic predicate
- a. mini bikel-e byasto thak-e/# ach-e  
Mini evening-LOC busy thak-3/# ach-3  
Mini is (generally) busy in the evenings.
  - b. (gOto bochor) mini bikel-e byasto thak-t-o/ ?? chil-o  
(past year) Mini evening-LOC busy thak-3/ ?? ach.PST-3  
Last year Mini was (generally) busy in the evenings.

While a generic reading of the predicate is unavailable with *ach-* in both a. and b., using *ach-* in a. gives a futuristic reading (‘Mini will be busy this evening’). The use in b. is not acceptable.

The patterning of *ach-* with respect to the genericity of the predicate in the past paradigm is similar to tense-unmarked *ach-*, differing in one respect: its use with lexical statives is canonical and does not give rise to the relevance reading.

Adding these observations to the earlier distribution, the final distribution of *ach-* with respect to genericity is summarized in [table 4.1](#). As before, in environments where *ach-* is not

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<sup>1</sup>This has an alternative interpretation, namely that the subject has ceased to exist, i.e. the man is question is no more.

the canonical choice, the alternative copula is indicated in square brackets. In case of multiple alternatives, the canonical choice of copula depends on the nature of the other parameter (subject/predicate). ‘rr’ stands for ‘relevance reading’, discussed in [subsection 2.5.2](#).

Table 4.1: Distribution of *ach-* with respect to genericity of subject and predicate

	Subject			Predicate		
	definite	non-referential	kind	episodic	lexical-stative	habitual generic
ach (pres)	✓, $\phi$	✗[ thak-, $\phi$ ]	✗[ thak-, hO-, $\phi$ ]	✓	✓(rr), $\phi$ , hO-	✗[ thak-]
ach (past)	✓	✓	✓	✓	✓	✗[thak-]

### 4.3 Data: temporariness

*chil-* is compatible with individual-level (permanent) predicates:

- (60) Individual-level predicates (ILP)
- a. mini lOmba  $\phi$ /ach-e  
Mini tall  $\phi$ /ach-3  
Mini is tall.
  - b. chele-ta lOmba *chil-o*  
boy-CLF tall ach.PST-3  
(of someone I met yesterday) The boy was tall. <sup>2</sup>

The use of *ach-* with the gradable ILP *lOmba* ‘tall’ in a. licenses a ‘relevance reading’ as discussed above (c.f. [subsection 2.5.2](#)), and is infelicitous in a discourse context that does not license such a reading. However, the use of *chil-* in b. is neutral with respect to this reading and not subject to the same felicity condition.

*chil-*, like *ach-*, is compatible with stage-level (temporary):

- (61) Stage-level predicates (SLP)
- a. mini (ekhon) byasto ach-e  
Mini (now) busy ach-3  
Mini is busy (right now).
  - b. mini (kal) byasto *chil-o*  
Mini (yesterday) busy ach.PST-3  
Mini was busy (yesterday).

*chil-* is compatible with temporally ambiguous (‘changeable’) predicates:

- (62) Changeable predicates

<sup>2</sup>This sentence licenses an alternative reading that the subject NP no longer exists, i.e. the boy in question is no more.

- a. amar chhele Delhi-te ach-e/ $\phi$   
 my son Delhi-LOC ach-3/ $\phi$   
 My son is in Delhi.
- b. amar chhele Delhi-te chil-o  
 my son Delhi-LOC ach.PST-3  
 My son was in Delhi.

While the choice of *ach-* over  $\phi$  in a. reinforces an interpretation that the property of being in Delhi is temporary (‘temporariness reading’, c.f. subsection 2.5.4), the use of *chil-* only serves to locate the topic time in the past and is neutral with respect to the temporariness of the property.

The distribution is summarized in Table 4.2:

Table 4.2: Distribution of *ach-* with respect to temporariness of predicate

	SLP	Ambiguous	ILP
ach (pres)	✓, $\phi$	✓( $\phi$ ), ✓(tr, rr)	✓( $\phi$ ), ✓(rr)
ach (past)	✓	✓	✓

This distribution suggests that unlike tense-unmarked *ach-*, *chil-* is not sensitive to the temporariness of the predicate: it is the canonical choice with both ILPs and SLPs, unrestricted by the specific contextual felicity conditions that constrain the use of *ach-* with ILPs, and is neutral with respect to the corresponding inferences that *ach-* produces. The analysis in § 3.5 attributes the sensitivity to temporariness in *ach-* to a presuppositional specification for **boundedness** (c.f. 27). In light of this, consider the contrast in acceptability of *ach-* and *chil-* with a time adverbial that is unbounded at one end:

- (63) Time-adverbial denoting unbounded interval
- a. ??ami kalke-r por byasto ach-i  
 I tomorrow-GEN after busy ach1  
 Intended: I will be busy after tomorrow
- b. ami kalke-r age byasto chil-am  
 I yesterday-GEN before busy ach.PST1  
 I was busy before yesterday

This shows that the preference for a bounded time interval is less strong in *chil-*, suggesting that the presupposition of boundedness in *ach-* either does not exist, or is eclipsed by some other factor, in the past paradigm.

## 4.4 A presuppositional account

From the distributional facts above, it is evident that *ach-* in the past paradigm (*chil-*) is less restricted in distribution, and less specific in inference, than its tense-unmarked counterpart.



chil- is canonical in most environments that are unavailable to ach-. The only exception to this is the habitual generic predicate: neither *ach-* nor chil- can produce a habitual generic reading of the embedded predicate.

Note that all the environments where the behavior of chil- deviates from *ach-* in distribution or inference are also those where, in the present paradigm,  $\phi$  is a canonical choice. The only environment where *ach-* and chil- are both unavailable (with habitual generic predicates) is also the only environment which is not compatible with  $\phi$  in the present paradigm. These patterns suggest a parallel between the behavior of the past-marked *ach-* and  $\phi$ . I believe this pattern might be explained along the following lines: In Bangla, past tense is obligatorily marked on the verb. Being phonologically null,  $\phi$  cannot carry past morphology, and therefore does not have a past paradigm. In § 3.5, I proposed that *ach-* and  $\phi$  are presuppositional variants having identical truth-conditional content. In a paradigm where the presuppositionally weaker alternative  $\phi$  is unavailable, the copulas effectively collapse into one: *ach-* loses its ‘additional’ presuppositional specification, and behaves as  $\phi$  does in the present paradigm. Under any analysis that treats the constraints on tense-unmarked *ach-* as either syntactic or truth-conditional, this pattern in the past paradigm would be difficult to explain. This lends additional support to the claim that at least part of the distributional and interpretational properties are better understood as presuppositional.

However, this account invites additional questions: Table 4.1 suggests that some meaning component common to both *ach-* and  $\phi$ , not shared by thak-, must be responsible for the unacceptability with habitual generic readings. Should this be a truth-conditional component, or a (shared) presuppositional one? In § 3.5 I treated this unacceptability with habitual generics in *ach-* as one reflex of a more general property of **anchoredness**. But if the behavior in question is also characteristic of other morphemes that are not expected to share the anchoredness presupposition (chil- and  $\phi$ ), then is it better modeled as resulting from some other, more specific constraint? A more exhaustive study of the distributional properties of the other copulas is likely to offer insights into these questions.

## 4.5 Conclusion

This chapter discussed the behavior of *ach-* with tense morphology: *ach-* is incompatible with the imperfective-marked past morpheme -t-, but has a past paradigm based on the perfective-marked -l-, in the form of the allomorph chil-. chil- is less restricted than that of tense-unmarked *ach-*, and mirrors the distribution of  $\phi$  in the present tense. Following from the proposal that *ach-* and  $\phi$  are presuppositional variants in the present paradigm, I proposed that this pattern follows naturally from the unavailability of  $\phi$  in the past paradigm. I argued that this provides additional support for a presuppositional, rather than truth-conditional, analysis of tense-unmarked *ach-*.

# Chapter 5

## Conditionals

### 5.1 Introduction

Very simply put, conditionals are sentences that express a certain (real or imaginary) situation, and what else would be the case if the said scenario were to be true. Canonically, if-conditionals have the form *if p, then q*, where p is called the ‘antecedent clause’, and q the ‘consequent clause’. Broadly, sentences expressing conditional meaning can be classified into *indicatives* and *counterfactuals* (CF). While the former are neutral with respect to the truth or falsity of the antecedent, the latter imply that the antecedent is not true:

- (64) Indicative:  
If I am well, I will come.
- (65) Counterfactual (CF):  
If I was well, I would have come.

While there is a vast literature on the semantics of conditionals, the most common treatment of conditionals is in terms of possible world semantics, first proposed by [C. I. Lewis \(1918\)](#). A popular implementation of this is the so-called ‘restrictor-analysis’ ([D. Lewis & Keenan, 1975](#); [Kratzer, 2008](#)): the clause in the antecedent restricts the domain of an (overt or covert) embedded operator, which embeds the consequent. One distributional restriction on *ach-* that is not shared by the other overt copula verbs of Bangla is that it is not acceptable in the antecedent of an if-conditional clause. In this chapter, I discuss the behavior of *ach-* in conditional clauses, and briefly sketch a possible line of explanation offered by the presuppositional account proposed in § 3.5.

§ 5.2 describes the behavior of *ach-* in the antecedent of indicative and CF conditional clauses. In § 5.3, I present a sketch of a possible account for this behavior in terms of the **anchoredness** constraint on *ach-* as proposed in § 3.5.

### 5.2 Data: *ach-* in conditionals

- (66) Counterfactual conditional

- a. mini jodi (ekhon) byasto \*ach-t-o/thak-t-o, tahole  
 mini if (now) busy \*ach-PST.IMPF-3/thak-PST.IMPF-3, then  
 bol-t-o  
 say-PST.IMPF-3  
 If Mini was busy (right now), she would have said so

These examples show that *ach-* is supplanted by *thak-* in the antecedent of a counterfactual conditional, whereas both *thak-* and *hO-* can occur in such a position. Counterfactual conditionals in Bangla obligatorily use the imperfective past morphology in both the antecedent and the consequent clauses (for a discussion of the cross-linguistic prevalence of this phenomenon, see Iatridou (2000)). Thus, one way to approach the unavailability of *ach-* in CFs is to treat it as a reflex of a morphological restriction: we noted in chapter 4 that *ach-* is incompatible with the imperfective past marker *-t-*. However, this misses a more persistent pattern: Iatridou (2000) argues that the role of the imperfective aspect in the CFs, in languages where it is obligatory, is *not* to give the semantics of an ‘ongoing eventuality’ as such. Rather, IMP morphology is obligatory in CFs because it is the morphology associated with habitual generic predicates in Bangla. That is, there is a commonality between the semantics of the CF and the generic, and this *explains* the appearance of IMP on CFs. This means that the incompatibility of *ach-* in such an environment ultimately reduces to an incompatibility with environments expressing genericity. This recalls the property of **anchoredness** that was proposed in § 3.5: that *ach-* carries a lexical specification that the embedded proposition is evaluated against a circumstance (specifically here, a temporal interval) that is crucially tied to the discourse context, and thus cannot express generalized meanings.

It is clear that any account of *ach-* in CFs must take this aspectual angle into account, and this merits detailed inquiry. However, we also find that *ach-* is incompatible in indicative conditionals, where imperfective morphology is not obligatory:

- (67) Indicative conditional
- a. mini jodi (ekhon) byasto \*ach-e/thak-e, tahole ashbe na  
 mini if (now) busy \*ach-3/thak-3, then come.FUT.3.NEG  
 If Mini is busy (right now), she won’t come

### 5.3 A presuppositional account

Focusing now on the indicative conditional, where the antecedent as a stand alone clause would most naturally occur with *ach-* (mini byasto ache). Assuming a restrictor analysis for conditionals, the clause in the antecedent restricts the domain of a (here covert) embedded operator. Thus in example, the proposition ‘she won’t come’ is embedded under a covert epistemic necessity modal, whose domain is the set of possible worlds compatible with what the speaker knows in the evaluation world intersected with the set of worlds where Mini is busy.

The account sketched in § 3.5 attributes the property of anchoredness as a presuppositional meaning component to *ach-*:

- (68) ANCHOREDNESS: A circumstance of evaluation  $i$  is **anchored** to a discourse if at least one parameter in  $i$  is crucially computed in relation to the discourse context.

When access to alternative worlds is given, as in the case of conditionals, this property predicts that *ach-* will pick out circumstances of evaluation where the world parameter is anchored to the discourse, i.e. is the real world. On the other hand, the function of a proposition as a restrictor crucially relies on evaluation against worlds that are removed from the real world. Informally, this is incompatible with the expectation generated by the presupposition, and the use is thus unfelicitous.

Mirroring the distributional patterns in [chapter 4](#), the distribution of *ach-* in this environment is less restricted in the past-marked form ‘chil-’. Specifically, the unacceptability in the antecedent of a conditional clause is felt less strongly when *ach-* is marked for past tense:

- (69) ? mini jodi (tokhon) byasto chil-o,      tahole bolte    par-t-o  
       Mini if    (then)    busy ach.PST-3, then    say.INF can-PST.IMP-3  
       If Mini was busy (at that time), she could have said so

## 5.4 Conclusion and questions

This chapter considered the incompatibility of tense-unmarked *ach-* in the antecedent of both indicative and CF conditional clauses. I suggested that the property of **anchoredness** provides promising ingredients for an analysis of this behavior. Moreover, the incompatibility with CF conditionals points yet again to a general incompatibility with environments expressing generic meanings. This prompts a closer look at the commonalities between generic predicates, CF conditionals, and the imperfective aspect in how they constrain the behavior of *ach-*, and opens up questions about whether it is possible to reduce any of these restrictions as being a reflex of the other.

# Chapter 6

## Aspect

### 6.1 Introduction

Like many other languages, the overt copula verbs in Bangla are identical to auxiliaries in verbal clauses. However, *ach-* differs from the other copulas in being a part of the regular inflectional morphology for the progressive and perfect aspect. This chapter is largely prospective: [subsection 6.2.1](#) discusses the development of aspect morphology in Bangla. In [subsection 6.2.2](#), I present some morphological and distributional data that points to a semantic link between *ach-* and the progressive and perfect aspects in Bangla. [§ 6.4](#) deliberates on the implications of such a link, and points towards questions it raises.

### 6.2 Linking the aspect morphology and *ach-*

#### 6.2.1 Development of aspect morphology

Literature on Bangla verb morphology has analyzed the progressive and perfect morphology as a composite made up of the verb root, some other optional morpheme, and the copula verb *ach-* in its ‘atonic’ or clipped form *ch-* ([Biswas, 1998](#)). Bangla has a closed class of auxiliaries (including *ach-*) that can grammatically express the situation type aspect of a predicate. However, only *ach-* is used as a grammatical marker of viewpoint aspect. It can combine as a suffix with a verb+auxiliary construction (e.g. *kortethak – ch – e*), and so can be taken as part of the regular (inflectional) aspect morphology paradigm. [Chatterji \(1926\)](#) provides a historical account of the development of these forms. Some facts relevant to the discussion here are summarized here.

The progressive structure used Standard Colloquial Bangla (SCB) derives from a Middle Bangla (MB) form of *verb + -i – +ach-* (kor-i-ch-e). In MB, this was mostly limited to the present tense, rare in past, never attested in future, and used in both progressive and perfect senses. This ambiguity between progressive and perfect readings is still found in North Bengali dialects and Assamese, where it is disambiguated by context. In SCB, the *-i-* has been dropped and the resulting form has an exclusively progressive use in the present and past (supplemented by *thak-* in the future). It is exclusively used for the perfect in some

East Bengal dialects (progressive expressed by *verb* + *-ite* – *+ach-*) and Odia (only in the present, suppleted by the root *tha-* in the past and future). A dedicated progressive morphology using *ach-* developed fairly late in Bangla (consistent only around the 17th century), before which (in early Middle Bangla) the ‘simple present’ (imperfective) was used to denote a progressive sense. The use of *thak-* to mark future progressive is an even later development. The SCB perfect is derived from a Middle Bangla form *verb* + *-iya* + *ach-*, *-iya* eventually being shortened to *-e*. This denotes perfect aspect in the present and past, but is suppleted by *thak-* in the future.

This historical development supports the idea that the meaning of the ‘progressive’ or ‘perfect’ in Bangla can be built compositionally from its morphological components, one of which is the copula *ach-*. Since from a multi-copula system it is only *ach-* that was incorporated into this regular paradigm, it seems reasonable to think that some semantic properties of *ach-* (not shared by the other copula verbs) makes it suitable to contribute to some part of the meaning expressed by the progressive and perfect. Moreover, the fact that dialectal variation in the forms that express these aspects involve other parts of the structure, but *ach-* is constant in all these forms, points towards a meaning contribution that is common to the progressive and the perfect. Henceforth, I am abbreviating the progressive and perfect aspectual categories as PROG and PERF, and the corresponding morphological forms as *prog* and *perf*.

This hypothesis of a functional link is supported by a striking distributional parallel between the tense-unmarked *ach-*, *prog* and *perf* in Bangla. Some examples of this are presented in the next section.

## 6.2.2 Distribution

The copula *ach-*, *prog*, and *perf* in Bangla show some similarities in morphological/syntactic distribution.

(70) Copula *ach-*, *prog*, *perf* are all incompatible with future-tense morphology:

- a. *mini* (aj)      *byasto ach-e*  
    *Mini* (today) *busy ach-3*  
    *Mini* is busy (today).
- b. *mini* (kal)      *byasto \*ach-b-e*  
    *Mini* (tomorrow) *busy ach-FUT-3*  
    *Mini* will be busy (tomorrow).
- c. *mini boi-Ta*    *poRe-ch-e*  
    *Mini book-CLF read-PRF-3*  
    *Mini* has read the book.
- d. (kalke-r          modhhe) *mini boi-Ta*    *\*poRe-ch-b-e*  
    (tomorrow-GEN within) *Mini book-CLF read-PRF-FUT-3*  
    *Mini* will have read the book (by tomorrow).

(71) parallel to *ach-*, *prog* can license a futuric reading:

- a. ami kal byasto ach-i  
I tomorrow busy ach-1  
I will be busy tomorrow.
- b. ami kal bero-ch-i  
I tomorrow leave-PRF-1  
I will leave tomorrow.

For the unacceptable constructions above, the meaning in the translation is most naturally expressed by replacing the *ach-* element with *thak-*. Thus, the constructions not only show a distributional similarity, but also similar suppletion patterns.

### 6.3 prog and perf in conditionals

This section describes the behavior of prog and perf in conditional clauses. This shows a strong parallel to that of the copula *ach-*. They are not acceptable in the antecedent of an if- conditional clause:

(72) Indicative conditionals

- a. ?? mini jodi Ekhon kaj kor-ch-e, tahole ashbe na  
mini if now work do-PROG-3, then come.FUT.3 NEG  
Intended: If Mini is working right now, she won't come
- b. ?? mini jodi gan-ta practice kore-ch-e, tahole niSchoi gaito parbe  
mini if song-CLF practice do-PRF-3, then certainly sing-INF can.FUT.3  
Intended: If Mini has practiced the song, she can certainly sing it
- c. mini jodi gan-ta practice kore thak-e, tahole niSchoi gaito  
mini if song-CLF practice do-INF thak-3, then certainly sing-INF  
parbe  
can.FUT.3  
If Mini has practiced the song, she can certainly sing it

(72) c. shows the familiar suppletion strategy as seen with the copula *ach-*, i.e. the use of *thak-*, to express the perfect. However, a similar strategy is not available with the progressive in a. In fact, there doesn't seem to be any obvious way of getting the intended progressive reading using this structure.

Note: Though the sentence in (72)b. cannot express the meaning intended in the translation, the construction itself is not unacceptable. For many speakers, the presence of the perfect morphology is acceptable when the consequent is future-marked. In these cases the antecedent clause has a futuric reading, rather than a perfect one. Consider these examples:

- (73) a. tumi jodi e-ta kore-ch-o, ami khub dukkho pabo  
you if this-CLF do-PRF-3, I much hurt get.FUT.1  
Available: If you do this, I will be very upset  
Unavailable: If you have done this, I will be very upset

- b. jodi emon-ta hoye je [tumi e-ta kore-ch-o], ami khub  
 if like-this-CLF happen.IMPF that [you this-CLF do-PRF-3], I much  
 dukkho pabo  
 hurt get.FUT.1  
 Available: If it so happens that you have done this, I will be very upset  
 Unavailable: If it so happens that you do this, I will be very upset

In sentence b., the perfect-marked clause is not directly embedded under ‘if’. In this case, the futuristic reading disappears, and only the perfect reading is available.

(74) Counterfactual conditionals

- a. ?? mini jodi ekhon practice kor-ch-t-o/kor-ch-e hoto, ami  
 mini if now practice do-PROG-IMP3/do-PROG-3 hO.IMP3, I  
 o-ke Daktam na  
 her-DAT call.IMP1 NEG  
 Intended: If Mini was practicing right now, I would not have called her
- b. ?? mini jodi practice kore-ch-t-o/kore-ch-e hoto, e-Ta korte  
 mini if practice do-PRF-IMP3/do-PRF-3 hO.IMP3, this-CLF do-INF  
 parto  
 can.IMP3  
 Intended: If Mini had practiced, she would have been able to do this
- c. mini jodi practice kore thak-t-o, e-Ta korte parto  
 mini if practice do-INF thak-IMP3, this-CLF do-INF can.IMP3  
 If Mini had practiced, she would have been able to do this

We see a similar pattern with counterfactuals: prog and perf are both unacceptable in the antecedent of the conditional, the perfect reading can be expressed through suppletion by *thak-*, and there is no obvious way to get the progressive reading from this structure. As noted in § 5.3, the obligatory requirement for imperfect morphology in the CF conditional raises additional questions about the nature of these restrictions. Note that this unavailability of progressive morphology in a CF conditional is not a cross-linguistically common phenomenon. In light of this, the we are left with the question of whether it is in fact the presence of *ach-*, rather than the progressive morphology as such, that leads to the observed unacceptability.

Another parallel pattern to the copula *ach-* is the asymmetry with respect to tense-marking: the unacceptability is less strongly felt when the antecedent is marked for past tense.

(75) Progressive

- a. ?? mini jodi Ekhon kaj kor-ch-e, tahole ashbe na  
 mini if now work do-PROG-3, then come.FUT.3 NEG  
 Intended: If Mini is working right now, she won’t come
- b. ? mini jodi kaj kor-chil-o, tahole bolte parto  
 mini if work do-PROG.PST-3, then say-INF can.IMP3  
 If Mini was working, she could have said so



(76) Perfect

- a. ?? mini jodi gan-ta    practice kore-ch-e, tahole niSchoi    gaita    parbe  
     mini if    song-CLF practice do-PRF-3, then    certainly sing-INF can.FUT.3  
     Intended: If Mini has practiced the song, she can certainly sing it
- b. ? mini jodi gan-ta    practice kore-chil-o,    tahole gaita    parto  
     mini if    song-CLF practice do-PRF.PST-3, then    sing-INF can.IMPF.3  
     If Mini had practiced the song, she could have sung it

Note that the antecedent in b. can only refer to a past event— the sentence cannot have a counterfactual reading. This can be attributed to the absence of imperfective morphology. The consequent clause must be interpreted as a wish of the speaker (the speaker wishes that Mini had sung the song, if she had already practiced it). *par-* here cannot be interpreted as an ability modal.

## 6.4 Discussion and Questions

The data in this chapter suggests that morphological patterning and distribution at the very least point to a link between the copula *ach-* and the aspect morphology that is deeper than an accidental morphological choice, and justifies thinking about a semantic/functional commonality. A fuller treatment of these could eventually lead towards a compositional analysis for these aspectual categories in Bangla. This points to the merits of a semantic analysis of distributional restrictions on *ach-*: such an analysis allows us to think about possible functional links, which ultimately point towards the question of why, historically, a certain morpheme (*ach-*) was incorporated into the regular aspect morphology when the language had multiple options of copula verbs.

These patterns are also interesting due to the possibility of the converse: the progressive and perfect aspects are not categorically disallowed with future marking, or in the antecedent of a conditional clause cross-linguistically, suggesting that it is not a feature of the (semantic) aspectual categories themselves. In light of this, the fact that these patterns so closely parallel those of the copula *ach-*, which in Bangla is documented to have been historically incorporated into the aspect morphology, suggests that independent distributional restrictions of the morphemes that are used to express an aspectual category could affect the range of functions available to the aspect morphology in a language. This could be one possible source of variation in the behavior of aspectual morphology across languages. While the discussion in this chapter barely scratches the surface of the open questions that these patterns raise, a fuller treatment of these could point towards how aspectual meaning is built in language.

# Chapter 7

## Conclusion

This dissertation explored the distributional and interpretational patterns of one of the four copula verbs in Bangla: *ach-*. I described the behavior of *ach-* with respect to two dimensions of semantic contrasts: genericity of the subject and predicate, and temporariness of the predicate. The patterns of acceptability suggested that an adequate account of this distribution has to be (i) context-sensitive; (ii) presuppositional. In [chapter 3](#), I proposed such a presuppositional account and considered its effectiveness in predicting part of the distributional constraints and inferences associated with *ach-* without stipulating categorical constraints. The asymmetry between the tense-unmarked and past paradigms of *ach-* lends support to such a presuppositional account, which treats the copulas *ach-* and  $\phi$  as presuppositional variants. In [chapter 5](#), I considered how the proposed property of ‘anchoredness’ in *ach-* might lend itself to an account of the unacceptability of *ach-* in conditional clauses. Finally, [chapter 6](#) pointed to a set of morphological and distributional parallels that point towards a semantic link between the copula *ach-* and the progressive and perfect morphology in Bangla. These patterns raise many more questions than they answer, which is always an exciting prospect.

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