Semantic contrasts in the four-copula system of Bangla

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1 Introduction

.[1]

Much of declarative language involves predication: attributing a property to a subject (e.g. *Snow is white*). While predicational clauses often appear superficially similar, they can express a variety of relations between the subject and the predicate. In this paper, I describe a system of morphosyntactic contrasts in the verbal system of Bangla (Bengali; Eastern Indo-Aryan), which has four expressions corresponding to the English *is*. The distribution of these copular expressions reflects several independently studied semantic distinctions in predicational clauses, including the contrast between particular and characterizing claims, permanent and temporary properties, and descriptions of the edges versus the middle of a state. While each of these distinctions has been studied in its own right, their encoding by a limited set of functional items allows us to probe how these phenomena interact.
Consider the following predicational sentences:

(1) a. Mini is busy (now).
b. Mini is busy (on Mondays).
c. Mini is tall.
d. A polar bear is white.

There are various intuitive meaning differences among these. For instance, (1a) is about a specific situation involving Mini (a 'particular' claim) whereas (1b) expresses a generalization over situations (a 'characterizing' claim). Similarly, while (1c) attributes a property to an individual, (1d) attributes a property to a kind, understood as holding of most, typical, or otherwise relevant members of that kind. These distinctions have been examined in the literature on genericity and kind predication (Krifka et al., 1995). In English, the disambiguation between these meanings is achieved through contextual information or overt modifiers such as *now* vs *on Mondays*. Formal analyses usually treat the verb in such clauses as semantically empty (*is* = λP.P), attributing the differences instead to covert operators, event-structure, and denotations of the NPs. Bangla, however, uses four different verbal expressions in these sentences, suggesting that the distinctions which are covert in English are grammatically encoded in the verbal system of Bangla:

(2) a. mini (ekhon) byasto <u>ache</u>
mini (now) busy *ach*.PRS.3
Mini is busy (now).

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[1]Glosses: 3 = third person, CLF = classifier, GEN = genitive, INF = infinitive, IPFV = imperfective, LOC = locative, PFV = perfective, PROG = progressive, PRS = present, PST = past.

b. mini (Som-bar) byasto thake
mini (Monday) busy *thak*.IPFV.PRS.3
Mini is busy (on Mondays).

c. mini lOmba $\underline{\phi}$
mini tall ϕ
Mini is tall.

d. polar-bear-ra Sada hOye
polar-bear-CLF white *hO*.IPFV.PRS.3
A polar bear is white.

Note that the adverbials in (a) and (b) above are not essential for expressing the contrast between particular and characterizing claims, and conversely, even switching the overt adverbials in the two clauses would not allow the (a) clause to express a characterizing meaning, or (b) to express a particular meaning. A second well-known distinction among predicational clauses concerns whether a predicate describes a relatively stable property of the subject, or a temporally contingent one:

(3) a. Mini is a good person.
b. Mini is well.

Intuitively, (2a) express a intrinsic and therefore relatively permanent property of Mini, whereas (2b) express a temporally contingent one. This distinction is usually analyzed in terms of the contrast between individual-level vs stage-level predication (Carlson, 1977). In English, it is primarily encoded through the lexical content of the predicate itself (*good* vs *well*). In Bangla, however, the same adjective may appear in both clauses with different copular expressions, leading to the two interpretations:

(4) a. mini bhalo $\underline{\phi}$
mini good ϕ.PRS.3
Mini is good (a good person).
b. mini bhalo ache
mini good *ach*.PRS.3
Mini is well.

Spanish provides another well-known example of a language in which similar distinctions are expressed through the copula system (Pustet, 2003; Deo et al., 2016).
A third contrast concerns different ways of locating a property relative to the structure of an eventuality. Consider the following sentence:

(5) I want the baby to be quiet.

Depending on whether or not the baby is already quiet at the time of utterance, the sentence can be paraphrased as either *I want the baby to become quiet* or *I want the baby to remain quiet*. In English, verbs such as *become* and *remain* explicitly indicate whether the eventuality under discussion is located at the boundary or in the 'interior' of a state of being quiet. By contrast, *is* by itself does not specify this. Bangla grammatically distinguishes these interpretations; the two senses of *be* involve different copular expressions, and there is no single all-purpose equivalent of *be* that leaves this unspecified:

(6) a. ami chai [baccha-ta chup hok]
I want [baby-CLF quiet *hO*.INF.3]
I want the baby to become quiet.

b. ami chai [baccha-ta chup thakuk]
I want [baby-CLF quiet *thak*.INF.3]
I want the baby to remain quiet.

The discussion above illustrates two points. First, it has long been recognized that predicational clauses can express a variety of intuitively distinct meanings, many of which have been well-studied in their own right. These include differences involving genericity, lexical aspect, and event structure. Understanding how these domains are related remains a matter of considerable interest (Carlson and Pelletier, 1995).
Second, the contrast between English and Bangla exemplifies a familiar source of cross-linguistic variation: languages draw on a common inventory of semantic distinctions but differ in how these are mapped onto lexical and functional items. In Bangla, four expressions—*hO*, *thak*, ϕ, and *ach*—collectively occupy part of the semantic space covered by English *is*, and their distribution reflects many of the contrasts in predicational meaning discussed above. This means that in the verbal system of Bangla, a small set of functional items encode a range of distinctions whose intuitive connections have been recognized, but which have been often approached independently in formal accounts. This provides a unique window into how these domains interact. As far as I know, this particular constellation of properties has not previously been described as the basis of contrast in a copula system.[2]

The goals of this paper are twofold. First, I present novel data showing the distribution of the four copulas in non-verbal predicational clauses and draw generalizations to identify the contrasts in predication encoded by the system. Second, I investigate how these arise compositionally: what meanings do the copulas contribute, and how does this interact with the rest of the verbal system to produce the observed contrasts?

I assume that the copulas combine with small-clauses consisting of a subject and non-verbal main predicate, to create a verbal predicate. The main claim is that the copulas contribute presuppositional meaning in the form of selectional restrictions on the temporal, modal, and aspectual properties of the clauses they combine with. There are two broad splits in meaning contribution: (i) ϕ and *ach* require their argument to be anchored to the here and now whereas *hO* and *thak* are neutral in this respect; (ii) (*hO* and *thak*) require their argument to be dynamic, whereas ϕ and *ach* are neutral in this respect. Due to how these requirements interact with sentential imperfective aspect, the former pair can only express particular meanings, whereas the latter can express either particular or characterizing meanings. Within the latter pair, implicature and competition generates a contrast along the lines of temporal contingence: *ach* expresses that the property denoted by the non-verbal predicate holds throughout the reference time, implicating that it does not hold beyond, whereas ϕ is neutral in this respect. Among the copulas that combine with dynamic predicates, there is a split in terms of telicity: *hO* selects for telic predicates, whereas *thak* is neutral in this

[2] Deo (2024) first identified the particular–characterizing distinction as underlying the distribution of the two-copula system of Marathi, a related language.

respect. When the main predicate in the small-clause fails to satisfy these selectional requirements, the mismatch triggers aspectual coercion, leading to the observed contrast between describing eventualities located at the edges vs interior of a state. Each of the proposed meaning contributions is independently motivated, and the overarching pictures tallies with the common treatment of copulas as carriers of tense/aspect/modality distinctions without any additional lexical semantic contribution. Attributing presuppositional meaning to the copulas is in line with existing analyses of multi-copula systems, e.g. Deo et al. (2016), and shows one way in which a multi-copula system can enable further articulation of meaning contrasts in predication.

The rest of the paper is structured as follows: after fixing some basic terminology in section 1.1 and outlining the scope of the data in section 1.2, I present the broad contrast between particular and characterizing claims encoded by the system in section 2, and argue that this arises from interaction with sentential aspect in section 2.3. Section 3 presents a contrast within particular claims, encoded by the choice between the copulas ϕ and *ach*, with respect to temporal contingence of the predicate property. Section 4 presents the third contrast, between *hO* and *thak*, in terms of referencing the boundaries vs an interior slice of a state. Towards understanding how these contrasts come about, section 4.1 examines the interaction of the copular clauses with temporal adverbials and proposes that the copular clauses differ in their aspectual properties. Specifically, I show that the specific behavior of each copula can be understood in terms of aspect-based selectional restrictions, along with a system of aspectual coercions (Dölling 2014). Section 6 outlines an outstanding puzzle about the interaction of *hO* with kind-denoting subjects, and section 5 reports the current analysis.

1.1 What is a copula?

While talking about multi-copula systems, it is useful to fix some terminology to clarify what this means. The literature on copulas is expansive, spanning a variety of traditions and fields, from ancient grammars, to language typology, (morpho)syntax, semantics, and philosophy of language, and there is no broad consensus on what counts as a 'copula'. Traditional grammars based largely on English and Romance languages often characterize copulas as carriers of verbal inflection and syntactic 'linkers' of subjects and non-verbal predicates (see Arche et al. 2019 for discussion). Typological work has broadened this conception. Drawing on a large cross-linguistic sample, Pustet (2003) defines a copula as a linguistic element that occurs with certain lexical items when they function as predicate nuclei, and that contributes no semantic content of its own. On this view, copulas are distinguished from auxiliaries and so-called 'semi-copulas' such as *become* and *remain*, which contribute 'identifiable meaning'.

Two observations challenge this picture. The first comes from work in philosophy of language, focused largely on English, which has observed that even though there is only one verb form in English that is usually identified as a 'copula' (*be*), there seem to be systematic interpretative distinctions among the clauses in which *be* appears. The proposal to classify copular clauses as equative, predicational, identificational, and specificational (Higgins1779), has prompted debates over whether English *be* should be understood as a single lexical item or multiple semantically distinct ones (Russel1903, Seuren1985, higginbotham1987).

The second comes from multi-copula systems. A number of languages possess multiple expressions described as copulas in descriptive grammars, whose distribution is sensitive to the semantic properties of the predications they occur with (e.g. Bochnak et al. 2011 on Washo; Ramchand 1996 on Scottish Gaelic; Green 2000 on African American English; Greenberg 1998 on Hebrew). The most well-studied example is Spanish, where the choice between *ser* and *estar*, both traditionally described as copulas, is known to yield systematic differences in the meaning of the non-verbal predicate:

(7) a. Su hermano es[SER] bueno.
Your brother is a good person.
b. Su hermano está[ESTAR] bueno.
Your brother is in good health OR good-looking.

Note the parallel to the Bangla examples in (4). As Arche et al. (2019) observes, maintaining strict semantic emptiness for the copula would require positing duplicate lexical entries for such predicates— one compatible with *ser*, one with *estar*. A more natural conclusion is that the copula participates in determining the interpretation of the clause, and one way to understand this is that copulas can contribute functional meaning without adding lexical content, and/or contribute presuppositional meaning, while adding no truth-conditional content.

Traditional descriptive grammars of Bangla usually identify four expressions— *hO*, *thak*, *ach*, and a null strategy that I represent as ϕ— as copulas. Together they perform many of the functions associated with the single copula of languages such as English (*is*) and Hindi (*hai*): they participate in non-verbal predication, appear in passive constructions, and interact with tense and aspect. As in other multi-copula systems, some aspects of their distribution are governed by the type of copular clause per Higgins' (1779) classification (equative, predicational, identificational, and specificational). Crucially, however, in contexts where multiple copulas are in principle possible, such as predicational clauses, the choice among them yields systematic differences in interpretation as shown in examples 2 and 4 above.
For the purposes of this paper, I take a 'multi-copula system' to be one in which semantic work performed by a single copular expression in languages such as English (*is*) or Hindi (*hai*) is distributed across multiple expressions. Such systems provide a useful perspective on which semantic distinctions can be encoded in functional vocabulary and how those distinctions interact compositionally.

1.2 Scope of data

I consider the copulas *hO, thak, ach* and ϕ in predicational clauses (non-verbal predicates, e.g. *be tall, be on the table*)[3], with subject NPs that lack overt quantifiers (*Mini, the worker*;

[3]Many of the patterns described here also apply to NP-predicates such as *be a teacher*, but the facts are not identical, and given existing observations that nominal predicates differ in important ways from verbal, adjectival, and prepositional predicates (Ramchand, 2005), I limit my focus to adjectival and prepositional predicates here.

but not *some giraffes*), and two predicate types: typically individual-level (ILP; *tall/smart*) vs typically stage-level (SLP; *busy/sick*). Like many other languages, the copula verbs in Bangla can also appear as auxiliaries in verbal clauses. The decision to limit the current dataset to non-verbal clauses is motivated by limiting complexity– verbal predicates introduce additional factors such as transitivity which add to the already complex patterns.

2 Particular vs characterizing claims

The literature on genericity has proposed a distinction between two kinds of sentences: *characterizing* sentences "do not express specific episodes or isolated facts, but instead...report a regularity which summarizes groups of particular episodes or facts". In contrast, *particular* sentences "express statements about particular events, properties of particular objects, and the like" (Krifka et al., 1995).
When the subject denotes an individual, e.g. names (*Mini, Boston*), definite singular NPs (*the girl, the book*), and definite plural NPs (*the girls, the books*), this distinction is straightforward: characterizing sentences express habits or dispositions of the individual (8c), whereas particular sentences express a property or single episode involving that individual (8a,b):

(8) a. Mini is tall.
b. Mini is smoking.
c. Mini smokes.

When the subject is a kind-denoting NP, however, it is less obvious how to draw the line between characterizing and particular sentences. This is because there is a separate question of how the property denoted by the predicate relates to the individual objects that make up the kind. For ease of presentation, I present data from clauses with individual-denoting subjects first, and then turn to kind-denoting subjects.

2.1 Individual-denoting subjects

With individual-denoting subjects, the choice of copula encodes contrasts in what kind of information the predicate provides about the subject. Consider a predicate that expresses a property P. In simple present clauses, *hO* and *thak* express generalizations related to P, whereas ϕ and *ach* express that P holds in the actual world at utterance time (UT). This overall contrast is mirrored in the 2-copula system (*ahe* vs *asto*) of Marathi (Deo, 2024). In Bangla, the availability of four copulas enables further distinctions between the kinds of particular claims that can be expressed (elaborated in section 3), and between the kinds of generalizations that can be expressed (section 4).
Simple present *hO*-clauses with individual subjects express generalizations over 'become-P' (inchoative) episodes. In these clauses, *hO* closely patterns with the word *become* in English. The inference is uniform for both individual-level and stage-level predicates:

(9) SLP:

mini osustho hOye
mini sick *hO*.IPFV.PRS.3

Mini becomes sick (generally/regularly/often).

(10) ILP:

mini lOmba hOye
mini tall *hO*.IPFV.PRS.3

Mini becomes tall (generally/regularly/often).

The oddness of (10) follows from world knowledge which treats being tall as an enduring property and therefore not something that one can regularly become in an ordinary context. This is mirrored by the corresponding English *become*-sentence. If we consider an alternative context where Mini is a superhero who can change her appearance at will, both the sentence *Mini becomes tall (every morning/while reaching for high shelves)* and its Bangla translation-equivalent using *hO* are acceptable. Crucially, the contribution of *hO* in expressing a generalization over 'become-P' episodes persists.

Simple present *thak*-clauses with individual subjects also express generalizations related to the predicate, but of a different nature: they express a generalization over what I call 'remain P'-states. This mirrors the meaning of the English word *remain* in a sentence such as *She remains busy all day/every Monday.*), which invokes regular intervals such that at each of them, she is busy throughout the interval. Like *hO* above, the contribution persists regardless of predicate type, as the examples below show:

(11) SLP:

mini byasto thake
mini busy *thak*.IPFV.PRS.3

Mini remains busy (generally/regularly/often/on Mondays).

(12) ILP:

mini lOmba thake
mini tall *thak*.IPFV.PRS.3

Mini remains tall (generally/regularly).

Once again, the badness of (12) is due to contextual or world knowledge which treats being tall as an enduring and permanent property. Asserting that Mini regularly remains tall implicates that it is possible for her to not be tall sometimes, which is at odds with this knowledge in a neutral context.
In contrast to *hO* and *thak*, simple present ϕ and *ach* clauses do not express generalizations. Instead, their meaning contribution amounts to the property expressed by the predicate holding of the subject at reference time. The following examples demonstrate this for ϕ:

(13) SLP: single P-state in actual world at UT

mini byasto ϕ
mini busy ϕ

Mini is busy.

(14) ILP: property in actual world

mini lOmba ϕ
mini tall ϕ

Mini is tall.

Simple present *ach* clauses fare similarly in not expressing generalizations. Unlike the ϕ clauses above, however, these license an additional inference of temporariness of the predicate property, requiring contextual support when the predicate in individual level. This added inference is discussed in section 3. For present purposes, the following examples show that simple present *ach* clauses express non-characterizing claims:

(15) SLP:

mini byasto ache
mini busy *ach*.PRS.3

Mini is busy (now).

(16) ILP: Context: we are trying to get something from a high shelf. *I can't reach it, but why don't we ask Mini...*

mini lOmba ache
mini tall *ach*.PRS.3

Mini is tall.

2.2 Kind-denoting subjects

Let us now consider clauses with kind-denoting NPs. As noted earlier, these involve a separate question of how the property denoted by the predicate relates to the individual objects that make up the kind. As a result, the line between characterizing and particular sentences is less obvious. For example, the sentence below involves a habitual predicate and therefore arguably express a generalization over episodes:

(17) Lions hunt.

However, how should we classify a sentence such as the following?:

(18) Giraffes are tall.

On one hand, it expresses something not about a particular giraffe, but rather a generalization over individuals who are giraffes. On the other hand, the property it expresses is similar to (8a); it does not obviously express a habitual or recurring property. Krifka et al. (1995) note that there is an intuitive similarity between 8a and the sentence above: while one expresses a generalization over episodes, the other appears to express a generalization over individuals. However, the authors propose to treat these as separate phenomena. The Bangla copula system shows us that this is justified: both sets of copulas can appear in sentences with kind-referring subjects, but there is still a contrast in meaning, in terms of what sort of claim the sentence makes about the kind: Suppose the subject involves a kind K, and the predicate expresses property P. Whereas *hO* and *thak* can express a *lawlike* claim: to be a member of K is to have property P, ϕ and *ach* express *accidental* claims: all current members of K happen to have property P.

This meaning contrast is also available in English, as well as a number of Romance languages, in kind-predication clauses with a plural NP subject (Guerrini, 2025). To guide intuitions, consider the pair below. In clauses that make a lawlike claim about the kind (19a), the bare plural subject can be replaced with a singular indefinite, without any obvious change in meaning. On the other hand, clauses that make accidental claims about the kind (19b) cannot have a singular indefinite subject:

(19) a. Law-like: *Giraffes are tall.* (Paraphrasable as *A giraffe is tall.*)
b. Accidental: *LLMs are popular.* (Not paraphrasable as *An LLM is popular.*)

This shows that in English, kind predication clauses with bare plural subjects are ambiguous between accidental and lawlike claims, whereas kind predication clauses with singular indefinite subjects can only express lawlike claims. In Bangla, the contrast is expressed by the copula system rather than the NP– in kind-predication clauses, *hO/thak* only license lawlike inferences like (19a), whereas ϕ/*ach* only license accidental inferences like (19b). I present the data below.

When the predicate is individual-level, the choice is between *hO* and ϕ. With *hO*, the inference is that P is a non-accidental property of any individuals who are members of K:

(20) giraffe-ra lOmba hOye
giraffes tall *hO*.IPFV.PRS.3
1. Giraffes are tall.
2. Giraffes (regularly) become tall [4]

With predicates that are not understood as an essential property of the kind, the use of *hO* appears to express a stronger claim than is warranted, and is judged false:

(21) # giraffe-ra jonopriyo hOye
giraffes popular *hO*.IPFV.PRS.3
Intended: giraffes are popular.

[4] **A note on *hO* with kind subjects and ILPs:** Recall that in all environments discussed so far, *hO* expresses something akin to 'x becomes P' (an inchoative meaning). However, in one specific environment– imperfective clauses with kind subjects and individual-level predicates– the inchoative reading is optional, and the most salient reading is the translation in 1. This behavior of *hO* is discussed further in section 6. For present purposes, the relevant fact is that on this non-inchoative interpretation, *hO* contrasts with ϕ in expressing that talless is a non-accidental, rather than accidental, property of giraffes.

In contrast, the ϕ clause claims that P holds of the individuals who are members of K in the evaluation world (w0) and reference time. This is a contingent claim, regardless of whether P is usually understood to be accidental or non-accidental:

(22) ILP: property of members of the kind in the actual world at UT

giraffe-ra lOmba ϕ
giraffes tall ϕ

Giraffes are tall.

(23) ILP: property of members of the kind in the actual world at UT

giraffe-ra jonopriyo ϕ
giraffes popular ϕ

Giraffes are popular.

When the predicate is stage-level, *hO/thak* express generalizations akin to become-P and remain-P involving members of the kind, whereas ϕ/*ach* express that the property holds of the current members of the kind in the actual world. Crucially, only the former expresses that the predicate is a non-accidental property of the kind.

(24) SLP + *thak*: generalization over remain-P episodes involving kind-instances

worker-ra byasto thake
workers busy *thak*.IPFV.PRS.3

Workers (generally) remain busy.

(25) SLP + *hO*: generalization over become-P episodes involving kind-instances

red panda-ra osustho hOye
red pandas sick *hO*.IPFV.PRS.3

Red pandas (usually) fall sick.

(26) SLP + ϕ/*ach*: single episode involving members of the kind in the actual world at UT[5]

worker-ra osontushto ϕ
workers dissatisfied ϕ

Workers are dissatisfied.

[5]The acceptability of *ach* with kind-denoting subjects is limited.

These show that in the simple present, *hO* and *thak* express a lawlike claim about the members of a kind, but ϕ expresses a contingent claim about the current members of the kind at w0. In Krifka et al. (1995)'s terms, the former can be understood as a characterizing claim that reports a regularity, and the latter as a particular claim about the current members of the kind. Returning to the question that opened this section, how does the predicate in such a particular sentence relate to the individuals that make up the kind subject? I will argue following a recent independent proposal that this happens through distributive predication over members of the kind in the actual world, and does not involve genericity (Guerrini, 2025).

2.3 Interaction with sentential aspect

Where does sentence-level genericity come from? Early work based largely on English often attributes characterizing readings to a covert generic operator GEN. Subsequent work has noted that in languages with richer aspectual morphology, characterizing readings often co-occur with imperfective aspect, suggesting that genericity might be either licensed by imperfective aspect (i.e. IMPF licenses GEN), or arise directly from it (IMPF provides the semantics attributed to GEN) (Deo, 2009).

In Bangla too, characterizing readings are available only in clauses with imperfective aspect. As we saw above, simple-present *hO* and *thak* clauses can receive characterizing interpretations, whereas ϕ and *ach* clauses cannot. I argue that the copulas encode this contrast not directly through their lexical contribution, but rather indirectly via their interaction with grammatical aspect: *hO* and *thak* can combine with the imperfective operator IMPF, allowing them to express characterizing meanings, but *ach* and ϕ cannot, precluding expressing characterizing meanings.

Since the simple present in Bangla is morphologically null, the next two sections support this analysis by examining the past-tense paradigm. For simplicity, the discussion focuses on individual-denoting subjects, but the same pattern persists with kind-denoting subjects.

2.3.1 Characterizing meanings with *hO* and *thak* are contributed by imperfective aspect

Bangla has an inflectional system of tense-aspect markers, and the copula verbs (like any other verb) can be inflected with these. The data in section 2 focused on simple present clauses, which have habitual-generic interpretations (parallel to English: *John smokes.*). Following standard practice in the literature, I assume that this involves imperfective aspect under present tense (Deo, 2009; Ferreira, 2016).

Turning to the past paradigm, the language has two separate past-tense markers: perfective past (*-l-*), and imperfective past (*-t-*). With imperfective-past marking, *hO/thak*-clauses have generalizing meanings (parallel to simple present clauses):

(27) a. *hO* + imperfective-past: generalization over become-P episodes in the past

mini osustho ho-t-o
mini sick *hO*-IPFV.PST-3

Mini used to fall sick (generally/regularly).

b. *thak* + imperfective past: generalization over remain-P episodes in the past

mini byasto thak-t-o
mini busy *thak*-IPFV.PST-3

Mini used to remain busy (generally/regularly/when she worked as a teacher).

With perfective-past marking, however, *hO/thak*-clauses do not retain generalizing meanings:

(28) a. *hO* + perfective-past: single become-P (inchoative) episode in the past

mini osustho ho-l-o
mini sick *hO*-PFV.PST-3

Mini fell sick.

b. *thak* + perfective-past: single remain-P episode in the past

mini byasto thak-l-o
mini busy *thak*-PFV.PST-3

Mini remained busy (all of last week).

Crucially, *hO*-clauses retain their 'become' meaning, and *thak*-clauses their 'remain' meaning regardless of sentential aspect. This confirms that characterizing meanings are available only when sentential aspect is imperfective.

2.3.2 *phi* and *ach* cannot combine with IMPF

If characterizing meanings emerge by virtue of imperfective aspect, and the simple present in Bangla is imperfective, why do ϕ and *ach*-clauses lack characterizing readings? I propose that this is because these cannot combine with the IMPF operator. The evidence is again found in the past paradigm: *ach*-clauses can be inflected with the perfective-past *-l-* (29), but not with the imperfective-past *-t-* (30). (The null strategy is not retained in the past).[6]

(29) ach + perfective past

mini byasto chil-o
mini busy *ach*.PFV.PST-3

Mini was busy (yesterday).

(30) ach + imperfective past

?? mini byasto ach-t-o
?? mini busy *ach*-IPFV.PST-3

Intended: Mini used to be busy (when she worked as a teacher).

[6]This aligns with cross linguistic data showing that null-copula strategies are often restricted to the present tense (Pustet, 2003).

I propose that ϕ and *ach*-clauses cannot combine with IMPF because their semantic properties are incompatible with the truth conditions of the imperfective. This is developed in section 5. To anticipate the analysis, the proposed LFs for the relevant simple present clauses differ as follows:

- *mini busy hO*: PRES(IMPF(hO(*mini busy*))); *mini busy thak*: PRES(IMPF(thak(*mini busy*)))
- *mini busy* ϕ: PRES(OP(ϕ (*mini busy*))); *mini busy ach*: PRES(OP(ach(*mini busy*))); OP is a semantically empty operator.

2.4 Section summary

hO/*thak* on one hand, and ϕ/*ach* on the other, encode a contrast between particular vs characterizing claims (Krifka et al., 1995) by virtue of their interaction with imperfective aspect. In clauses with individual-denoting subjects, ϕ/*ach* express that the property P holds of the individual subject at the evaluation world and time, whereas *hO*/*thak*-clauses express 'become-P' and 'remain-P' episodes respectively.
In simple present clauses with kind-denoting subjects, ϕ/*ach* express that the property P holds contingently of the current members of the kind at the evaluation world, whereas *hO*/*thak*-clauses express that P holds non-accidentally of members of the kind in an lawlike way.

3 Contrasts within particular claims: permanent vs temporary property

While both ϕ and *ach* clauses express a particular claim that the property denoted by the predicate holds of the subject, the choice between them encodes a contrast relating to the temporal contingence of the predicate. This applies to clauses with any type of subject; I demonstrate with individual-denoting subjects here. Consider a clause with subject x and predicate expressing a property P. In the simple present, *ach* produces an inference that P is a temporary property of x, whereas ϕ is neutral in this respect.[7] This is clearest with locative predicates, which intuitively express either a permanent or a temporary property depending on the nature of the NP whose location they express. *ach* is acceptable in constructions where the location is understood as temporary:

(31) boi-ta table-er opore ache
book-CLF table-GEN on *ach*.PRS.3
The book is on the table.

However, the use of *ach* is odd with a predicate that cannot be construed as temporary in a neutral context:

[7] Recall that the null strategy is not retained in the past; the contrast in temporal contingence is limited to the present paradigm.

(32) # ghOr-ta pahaR-er opore ache
house-CLF hill-GEN on *ach*.PRS.3
Intended: The house is on the hill.

ϕ, however, is equally acceptable in both constructions.
While the contrast is especially clear with locative predicates, it persists in other stage-level predicates too. The *ach*-clauses below suggest temporariness, whereas their counterparts with ϕ are neutral in this respect:

(33) mini byasto ache
mini busy *ach*.PRS.3
Mini is busy (now).

(34) gate-ta bondho ache
gate-CLF closed *ach*.PRS.3
The gate is closed (now).

Predicates that are ambiguous between properties contrasting primarily in temporariness can be disambiguated through the choice of *ach* vs ϕ. The example below demonstrates this for the adjective *bhalo* 'good'. While describing perishable items like food *bhalo* in a ϕ-clause most naturally targets the intrinsic qualities of the food, whereas the same adjective in an *ach*-clause is interpreted as targeting its current state vis-a-vis freshness:

(35) a. khawar-ta bhalo ϕ
food-CLF good ϕ.PRS.3
The food is good (delicious, healthy).
b. khawar-ta bhalo ache
food-CLF good *ach*.PRS.3
The food is fresh (not spoiled yet).

A parallel contrast obtains when *bhalo* modifies a human subject: while a $\phi-$clause is interpreted as an assessment of the person's intrinsic qualities (*She is a good person*), the corresponding *ach*-clause is most naturally interpreted as an assessment of her current state *She is well*. Such pairs have most prominently been discussed in relation to the copulas *ser* vs *estar* in Spanish.
Turning to individual-level predicates, which express unambiguously permanent properties, *ach* is odd in such clauses in neutral contexts:

(36) Context: I am describing my friend Mini, who you have never met:

mini lOmba ache
mini tall *ach*.PRS.3

Intended: Mini is tall.

ach acceptable with ILPs only if the context provides a salient way in which the property is relevant to the immediate discourse context. The examples below show two such contexts:

(37) Context: we are trying to get something from a high shelf. *I can't reach it, but why don't we ask Mini..*

mini lOmba ache
mini tall *ach*.PRS.3

Mini is tall.

(38) Context: The truck is huge– can we drive it through the front gate? *It should be okay...*

gate-ta bORo ache
gate-CLF big *ach*.PRS.3

The gate is large.

Not all *ach*-clauses are equally amenable to such 'relevance' inferences. As far as I can tell, these are most naturally accessed when the predicate is a gradable adjective (*tall, large, slippery*, etc).

3.1 Temporariness of *ach* is an implicature

While *ach*-clauses express temporariness, this meaning-component is implicated, rather than asserted. It is cancelable (as in 39) and can be reinforced without redundancy (40):

(39) mini ekhon byasto ache...(in fact, sara din byasto thakbe)
mini busy *ach*.PRS.3
Mini is busy (now)...(in fact, she will be busy the whole day).

(40) mini ekhon byasto ache...(kintu ektu pOre byasto thakbe na)
mini busy *ach*.PRS.3
Mini is busy (now)...(but she won't be busy after some time).

Once again, ϕ is acceptable in both clauses. In the analysis developed in section 5, I propose that *ach*-clauses assert that the property P holds of the subject x throughout the reference interval. Given the competing alternative ϕ which is neutral in this respect, this implicates that it does not hold beyond the reference interval, generating an inference of temporariness.

4 Boundaries vs interiors of eventualities

We have established that *hO* and *thak* can both express characterizing claims when sentential aspect is imperfective, and express particular claims otherwise. However, they display a contrast in what kind of eventuality the resulting clause denotes. In previous sections, I have translated these as 'become-P' (for *hO*) and 'remain-P' (for *thak*) respectively. Intuitively, the predicate defined by *hO* makes reference to an edge or boundary of a state involving the subject holding the predicate-property, whereas the predicate defined by *thak* makes reference to an interior slice of such a state.

Beyond the intuitive parallel to the expressions *become* and *remain*, what does this contrast amount to, and how does it come about? I propose that the copulas impose selectional restrictions on the clauses they combine with. The contrasts come about as follows: *hO* and *thak* select for dynamic (non-stative) clauses. When the predicate in the small-clause is stative, e.g. an adjective or prepositional phrase, this triggers coercion into a dynamic predicate associated with the state (De Swart, 1998; Dölling, 2014). Within dynamic clauses, *hO* and *thak* show a further split along the lines of telicity: *hO* selects for telic predicates, so that the resulting *hO*-clause denotes a telic event whose result is the state expressed by the main predicate. *thak* selects for atelic predicates, so that the resulting *thak*-clause denotes an atelic eventuality that realizes or demonstrates the state expressed by the main predicate. These properties are reflected in how the copular clauses interact with temporal adverbials. The following section demonstrates this.

4.1 Interaction of copular clauses with temporal adverbials

Certain temporal adverbials are selective for the aspectual properties of the clauses that they modify. To understand the aspectual makeup of a given clause, Vendler (1957) proposes a test suite of adverbials whose selectional properties are well-studied. I use these to examine the properties of the copular clauses in Bangla. Following De Swart (1998) (who builds on the distinctions introduced by Vendler 1957), I assume a distinction between stative and dynamic clauses, and an orthogonal distinction between telic and atelic clauses, such that all stative clauses are atelic, while dynamic clauses can be telic or atelic, corresponding to Vendler (1957)'s accomplishments and activities respectively. There have been debates about whether some or all of these should be understood as properties of the eventualities themselves (e.g. by assuming that the ontological category of eventualities is sorted), or properties of the predicates (e.g. in terms of mereological properties of sets). Putting this question aside for now, the adverbial-types along with their typically assumed selectional restrictions, are listed below:

1. Timespan adverbials (e.g. *in 3 hours*): select for dynamic and telic clauses
2. Durative adverbials (*for 3 hours*): select for atelic clauses
3. Timepoint adverbials (*at 3pm*): selects for points telic eventualities
4. Progressive: selects for dynamic clauses

A note on the progressive: Dölling (2014) treats the progressive as a linguistic device that triggers coercion. Specifically, the progressive selects for dynamic clauses and returns a stative clause. The progressive in Bangla is an inflectional marker that attaches to the verb and had diachronically developed from the copula *ach*. An *ach*-clause cannot be inflected with the progressive marker. Below, I only consider the interpretations that result from progressive-inflected *hO* and *thak* clauses.

I assume that the copulas combine with a small-clause that comprises a subject and a non-verbal predicate P to form a VP:

(41) $.[_{\text{VP}}\ COP[_{\text{SC}}\ x \quad P]]$

Since the main predicate in the small-clause is non-verbal (specifically, an adjective or prepositional phrase), I assume that the small-clause denotes a stative predicate (Ramchand, 2005):

(42) $.[_{\text{SC}}\ x\ busy] \rightsquigarrow\ \lambda x \lambda e.busy(e) \wedge HD(e) = x$, where HD is a thematic relation relating a state to an individual who holds the state

Below, I describe what readings are available when we combine each copular clause (with individual-denoting subjects and non-predicates) with each kind of adverbial. I consider perfective past sentences to ensure that these are all particular rather than characterizing sentences. Since there is no separate null strategy in the past paradigm, I treat ϕ/ach as one.

(43) ϕ/***ach***[**x P**]
   a. Timespan (in 3 hours): unacceptable; no available reading
   b. Durative (for 3 hours): 3 hours is the duration of a state of x holding P
   c. Timepoint (at 3 pm): the state of x holding P holds at 3 pm
   d. Progressive: - (cannot combine with progressive marker)

(44) ***hO***[**x P**]
   a. Timespan (in 3 hours): 3 hours is the duration of an event which results in a state of x holding P
   b. Durative (for 3 hours): 3 hours is the duration of a process whose intended/expected result is a state of x holding P
   c. Timepoint (at 3 pm): 3 pm marks the beginning of a state of x holding P (or, the culmination of an event whose result is a state of x holding P)
   d. Progressive: (i) 'ongoing' reading: what is ongoing is an eventuality whose expected result in a state of x holding P; (ii) contingent generalization over episodes, where each episode involves an event which results in a state of x holding P

(45) ***thak***[**x P**]
   a. Timespan (in 3 hours): unacceptable; no available reading
   b. Durative (for 3 hours): 3 hours is the duration of a process that realizes or demonstrates the state of x holding P
   c. Timepoint (at 3 pm): unacceptable; no available reading
   d. Progressive: (i) 'ongoing' reading difficult to access; (ii) contingent generalization over episodes, where each episode realizes or demonstrates a state of x holding P

The rest of this section provides data exemplifying these patterns.

4.1.1 ϕ/***ach***

With timespan adverbials, which select for events (telic and dynamic eventualities), there is no available reading for ϕ/ach. With durative adverbials, the sentence expresses that the state denoted by the non-verbal predicate holds of the subject during the interval specified by the adverbial:

(46) mini (tin ghonta) byasto chhilo
mini (three hours) busy *ach*.PFV.PST.3
Mini was busy for three hours.

When timepoint adverbials modify a ϕ/ach-clause, the sentence expresses that the state denoted by the non-verbal predicate holds of the subject at the time specified by the adverbial:

(47) mini (tinTe-r somoye) byasto chhilo
mini (at three) busy *ach*.PFV.PST.3
Mini was busy at 3 pm.

(48) $\exists e\ [HD(mini, e) \wedge busy(e) \wedge At(3pm, e)]$

4.1.2 *hO*

Timespan adverbials in *hO*-clauses modify the duration of an event which results in a state of x holding P. This is most acceptable with stative predicates that are naturally understood as result-states of recognizable events, e.g. *be ready, be done*, and requires more contextual support for stative predicates that are not easily construed this way, e.g. *be busy, be sick*.

(49) mini (tin ghontae) ready holo
mini (in three hours) ready *hO*.PFV.PST.3
Mini became ready in three hours.

Durative adverbials with *hO*-clauses express the duration of an event whose intended result is the subject holding the state expressed by the non-verbal predicate:

(50) a. mini (tin ghonta dhore) ready holo
mini (for three hours) ready *hO*.PFV.PST.3
Mini got ready for three hours.

With *hO*-clauses, a timepoint adverbial specifies the time which marks the start of a state of the subject holding the property denoted by the predicate. With states that are naturally understood as the result state of recognizable events, the clause can be interpreted as expressing the existence of such a telic event, with the adverbial specifying the time of its culmination:

(51) mini (tinTe-r somoye) ready holo
mini (at three) ready *hO*.PFV.PST.3
Mini became ready at 3 pm.

(52) $\exists e[AG/TH(mini, e) \wedge \exists e' : END(e, e')[\exists e'' : RES(e'', e')[busy(e'') \wedge HD(mini, e'')]] \wedge At(3pm, e)]$

Crucially, unlike the *ach*-clause in (47), the adverbial cannot be understood as simply specifying a time at which the ready-state holds; it also conveys that the state did not hold prior to that time.

The progressive in Bangla can license either an event-in-progress reading (*Ali is biking to work (right now).*), or a contingent generalization over episodes (*Ali is biking to work (these*

days)). A progressive-marked *hO*-clause can express an ongoing eventuality whose expected result is a state of the subject holding the property denoted by the non-verbal predicate. With predicates like *ready* which are naturally associated with telic eventualities as their result state, the most salient interpretation is the existence of an ongoing eventuality of this kind:

(53) mini ready hocche
mini ready *hO*.PROG.PRS.3
Mini is becoming (getting) ready.

These show that when a *hO*-clause is an argument of the progressive, the progressive targets an eventuality that results in or builds towards a state of the subject holding the property. Finally, progressive-marked *hO*-clauses can also express contingent generalizations over episodes that involve the coming-about of a state of the subject holding the property expressed by the non-verbal predicate:

(54) mini aj-kal khub osustho hocche
mini today-tomorrow much sick *hO*.PROG.PRS.3
Mini is falling sick a lot these days.

4.1.3 *thak*

With timespan adverbials, which select for dynamic and telic clauses, there is no available reading for *thak*-clauses. A durative adverbial specifies the duration of an eventuality that realizes or in some way demonstrates a state of the subject holding the predicate-property.

(55) mini (tin ghonta) byasto thaklo
mini (three hours) busy *thak*.PFV.PST.3
Mini stayed/remained busy for three hours.

Intuitively, the interpretation differs from the *ach*-clause above in invoking a specific occurrence that realizes the state in question. This accords with the observation that unlike its *ach*-counterpart, the *thak*-clause is not compatible with timepoint adverbials, which select for (non-dynamic) stative clauses. With timepoint adverbials, which select for either points (non-durative eventualities) or states (durative, non-dynamic eventualities), there is no available reading for *thak*-clauses.
In progressive-marked *thak*-clauses, the most salient interpretation is of a contingent generalization over episodes:

(56) mini (aj-kal) byasto thakche
mini (today-tomorrow) busy *hO*.PROG.PRS.3
Mini is staying/remaining busy (these days).

This expresses that there are repeated episodes that realize or demonstrate Mini's busy-ness.

Interpreting a progressive-marked *thak* clause as expressing a single ongoing eventuality is not impossible, but odd in most contexts. These produce a strong inference that the state is being held through deliberate and continuous effort from the subject:

(57) mini (onek koshte) daRiye thakche
mini (much difficulty.LOC) standing *thak*.PROG.PRS.3
Mini is staying/remaining upright (with much difficulty).

Here, the progressive-marked *thak* copula can be replaced with a simple present *ach* to have a parallel meaning (*Mini is upright.*) without the added inference of continuous effort.
Such constructions are odd with non-agentive subjects or predicates expressing states that are not usually thought to be held with deliberate effort:

(58) # gate-ta bondho thakchhe
gate-CLF closed *thak*.PROG.PRS.3
Intended: There is an ongoing eventuality that realizes the state of the gate being closed.
Available: # The gate is (deliberately) remaining closed.

(59) # mini (ei muhurte) byasto thakche
mini (right now) busy *thak*.PROG.PRS.3
Intended: There is an ongoing eventuality that realizes the state of Mini being busy.
Available: # Mini is (deliberately) being/remaining busy.

Note that the oddness of the construction on its available meaning is very similar to the oddness of the English translation-equivalent using *remain/stay*:

(60) a. # Mini is being/remaining busy right now.
b. # The gate is staying/remaining closed right now.

4.1.4 Discussion

We see that ϕ/*ach*-clauses can combine with both durative and timepoint adverbials, and in these, there is no obvious shift in the interpretation of the stative main predicate. This suggests that ϕ and *ach* are compatible with stative clauses, and simply express that the predicate of the small clause applies to the subject. Moreover, there is no available reading with timespan adverbials, which select for dynamic eventualities, suggesting that there is no way to coerce a ϕ/*ach*-clause into a dynamic predicate.
hO-clauses can combine with all four types of adverbials, and in each of these, makes reference to some event whose result is the state denoted by the main predicate. The fact that a *hO*-clause with a stative main predicate still makes reference to an event even when combining with durative and timepoint adverbials (which are themselves compatible with stative predicates), suggests that the copula affects the stativity of the predicate: combining the small-clause with *hO* induces coercion to make the predicate dynamic. Further, the fact that this *hO*-clause is compatible with timepoint adverbials shows that the predicate is telic. Finally, *thak*-clauses are incompatible with timepoint adverbials, suggesting that the predicate is neither stative, nor amenable to being coerced into one. However, since the clause is compatible with durative adverbials without any obvious change in meaning of the main predicate, this suggests that the clause denotes a dynamic but atelic predicate. Finally, its incompatibility with timespan adverbials suggests that it cannot be coerced into a telic predicate. This reinforces the fact that *thak* creates a predicate whose event description does

not include an endpoint, i.e. the predicate is atelic.

5 Analysis (July 2026)

5.1 VPs, small-clauses, and copulas

Verbal clauses in Bangla have the following sequence of morphemes: [verb-aspect-tense-agreement], e.g. *kor-ch-il-am*: do-prog-past.pfv-1 'I was doing'. As mentioned previously, the copula in predicational clauses (just like any other verb) can be inflected with tense-aspect markers. I assume that copulas combine with a small clause to give a VP. Small clauses have a subject x and non-verbal predicate P (adjective, noun phrase, prepositional phrase, etc): *is*[$_{\text{SC}}$ *john tall*], *thak*[$_{\text{SC}}$ *mini busy*], *is*[$_{\text{SC}}$ *the-books on-the-table*]. Verb phrases (VPs) include copular clauses as well as other verbal clauses. The following are examples of VPs: [$_{\text{VP}}$ *is*[$_{\text{SC}}$ *john tall*]], [$_{\text{VP}}$ *john smoke*], [$_{\text{VP}}$ *thak*[$_{\text{SC}}$ *mini busy*]]. Aspect operators combine with VPs. Tense operators combine with VPs, optionally modified by aspect. I assume the following basic types: ⟨s⟩ for worlds, ⟨i⟩ for times, ⟨v⟩ for eventualities, and ⟨t⟩ for truth values. The LF of copular clause like *Mini is tall* is as follows:

(61) . [$_{TP<s,t>}$ TENSE$_{<i>}$ [$_{AspP<i,st>}$ ASP$_{<<s,vt>,<i,st>>}$ [$_{VP<s,vt>}$ COP[$_{\text{SC}}$*mini tall*]]]]

I take the small-clause to denote a predicate of eventualities, and the copula to act as a filter on its aspectual and modal properties. This assumes that it is not the copula which introduces an event variable, which is in line with previous research (Gee, 1977).
I label the node with the copula and its small-clause argument as the 'VP', but this is not essential. Some syntactic work on English copular clauses has proposed that these involve a null predicate head with *be* occurring higher in the clause (e.g. Heycock and Kroch 1999). For my purposes, what matters is that the copula occurs below grammatical aspect and can be modified by it.
Since the predicates in the small-clauses are non-verbal (specifically, I consider adjectives and prepositional phrases), I take them to be predicates of eventualities. In particular, I assume that these are stative predicates, an idea that has been suggested before (Ramchand, 2005).

5.2 Lexical aspect: stativity and telicity

While there is widespread recognition of a distinction between stative and dynamic clauses, and within the latter, at least telic vs atelic clauses (e.g. Vendler 1957), it is not obvious how to characterize these. The former has often been seen as an ontological distinction between states and events (e.g. De Swart 1998; Dölling 2014, e.o.), but not necessarily (see, e.g. Maienborn 2005 and Ramchand 2005). Conceptually, stative predicates describe states-of-affairs that involve no change, whereas dynamic predicates involve change (or 'force'; Copley and Harley 2015). The linguistic manifestation of this difference is that the former, but not the latter, is taken to have a strict subinterval property— if a stative predicate holds for a given interval, it holds during every part of the interval. This renders them acceptable with timepoint adverbials like *at 3 pm*.

I assume, following Krifka (1998) and others, that telicity is a property of predicates of eventualities. Sidestepping for now the question of whether the distinction between stative vs dynamic clauses is best understood as an ontological distinction between eventuality-types or as a property of predicates, as well as the open question of how exactly to characterize the notion of (a)telicity, I use the shorthands STATIVE(P), DYNAMIC(P), TELIC(P), and ATELIC(P), treating them uniformly as properties of predicates of eventualities, with the following meaning postulates to capture the intuitive relations between them:

(62) For any predicate of eventualities P,
   a. $STATIVE(P) \Leftrightarrow \neg DYNAMIC(P)$
   b. $TELIC(P) \Leftrightarrow \neg ATELIC(P)$
   c. $STATIVE(P) \Longrightarrow ATELIC(P)$
   d. $DYNAMIC(P) \Longrightarrow TELIC(P) \vee ATELIC(P)$

I propose that the copulas impose selectional restrictions on the clauses they combine with, which can invoke these properties. This constitutes a presuppositional meaning contribution, and the copulas add no truth-conditional meaning. A preliminary schematic denotation for a copula is as follows:

(63) $COP_{<<s,vt>,<s,vt>>} \rightsquigarrow$
$\lambda V_{<s,vt>} \lambda w_{<s>} \lambda e_{<v>} : STATIVE/DYNAMIC/TELIC/ATELIC(V).V(w)(e)$

5.3 Time intervals

VPs are predicates of eventualities. An eventuality is a constituent of a particular world, located in space and time (Carlson, 1998). For any eventuality e, its runtime is given by $\tau(e)$. Time intervals are related by inclusion and overlap:

(64) Inclusion: An interval t is included ($\subseteq$) in an interval t' iff the left boundary of t' precedes the left boundary of t and the right boundary of t precedes the right boundary of t':

—[t1——[–t2–]—]–→ $t_2 \subseteq t_1$

(65) Overlap: Two intervals t and t' overlap (t $\circ$ t') iff they have some part in common:
—[t1——[—-]—t2–]–→ $t_1 \circ t_2$
—[t1——[–t2–]—]–→ $t_1 \circ t_2$

5.4 Tense and aspect

I assume that tense is pronominal (Partee, 1973) and supplies a time that is presupposed to be identical to the utterance time UT (for PRES), or precede the utterance time (for PAST). I assume an analysis for the imperfective operator IMPF based on Deo (2009, 2015). IMPF(P) expresses universal quantification over a domain of time intervals, and asserts that in a relevant set of modal alternatives, each of these intervals overlaps with the runtime of a P-eventuality. Specifically, the domain is taken to be a regular partition of an interval that includes the reference time. The partition measure (the length of each member of the regular partition) is a free variable with a contextually determined value:

(66) R_i^c is a regular partition of i if R_i^c is a set of intervals $\{j, k, ...n\}$ such that
   a. $\bigcup\{j, k, ...n\} = i$
   b. $\forall j,\ k \in R_i \rightarrow j \cap k = \emptyset$ if $j \neq k$
   c. $\forall j, k \in R_i : \mu(j) = \mu(k)$, where $\mu(x)$ is the Lebesgue measure of x, and its value is called the 'partition measure', determined by the context c.

IMPF combines with a predicate of eventualities P and the reference interval t_r, and returns the proposition that there is some interval t' which continues t_r such that at all relevant modal alternatives of the evaluation world at t_r, every cell t" of a "small-enough" regular partition of t', $R_{t'}^c$, overlaps with a P-eventuality:

(67) $[\![IMPF(P)]\!]^c = \lambda t_r.\lambda w.\ \exists t'$ s.t. $t_r \subseteq_{ini} t'$ & $\forall w' \in Inr(t_r, w) : \forall t''[t'' \in R_{t'}^c \rightarrow \exists e$ s.t. $P(e)(w')$& $\tau(e) \circ t''$, where $\subseteq_{ini}$ gives an initial subinterval.

$Inr(t_{ref}, w)$ gives the relevant set of worlds where the embedded predicate must be instantiated, expressing the modal meaning-component of the imperfective. Building on the work of Dowty (1979), Deo (2009) takes this to be the set of 'inertial' alternatives of the evaluation world w0 at the reference time t_r, which are indistinguishable from w0 up until t_r, but can diverge after that, developing in ways that reflect the idealized, uninterrupted (inertial) course of events in w0[8].
Finally, I assume the following semantics for perfective aspect:

(68) $[\![PFV(P)]\!]^c = \lambda t_r.\lambda w.\ \exists e$ s.t. $\tau(e) \subseteq t_r$ and P(w)(e)

5.5 NPs, VPs, and thematic roles

As mentioned earlier, I take verbs, adjectives, and prepositional phrases to be predicates of eventualities. While verbs can be stative or dynamic, the latter two are always stative predicates.
Nominals in Bangla can be bare, or attach with classifiers *-ta, -gulo, -ra*. I take names and *N-ta/N-gulo* nominals to denote definite singular/plural individuals, and follow Saha (2023) in assuming that bare nominals in Bangla denote functions from worlds to singular kind entities ('groups'; Landman 1989), with *N-ra* giving access to the individual members of the groups. However, instead of taking the extension of N-*ra* at a world to be a property— the set of (singular and plural) entities that instantiate the kind in that world, I take it to denote a plural individual— the maximal sum comprising of members of the kind in that world. This is formalized using the $\downarrow$ operator, which derives the sum corresponding to a group (Landman, 1989):

[8] Deo (2015) assumes an ontological distinction between events and states, and her entry for IMPF diverges from her 2009 account in containing a separate clause for predicates of states, requiring the state to simply hold throughout the reference time in the evaluation world ($\exists e[P(e)(w_0)\&\tau(e) = t_r)$. This reflects the observation that imperfective-marked stative clauses differ from eventive clauses in not expressing any obvious modal or iterative meaning. However, it is not obvious that this justifies attributing a disjunctive denotation to the imperfective operator— as argued by Ferreira (2016), it is possible to account for this interpretative difference via independent differences between stative and eventive clauses; in particular, the fact that the latter has a strict subinterval property. I therefore follow Deo (2009) in assuming a uniform denotation for IMPF regardless of the stativity of the embedded clause, in terms of quantification over the cells of a regular partition at all inertial alternatives of w_0.

(69) giraffe $\rightsquigarrow$ $\lambda w.GIR_w$

(70) giraffe-*ra* $\rightsquigarrow$ $\lambda w. \downarrow GIR_w$

(71) giraffe-*ta* $\rightsquigarrow$ $\iota x.[x \leq \downarrow GIR_{w_0} \wedge Atom(x)]$, where Atom(x) iff x has no proper parts, i.e. $\neg\exists y[y < x]$, and $\leq$ is the mereological part-of relation.

(72) giraffe-*gulo* $\rightsquigarrow$ $\iota x.[x \leq \downarrow GIR_{w_0} \wedge \neg Atom(x)]$

The world argument of kind-referring NPs can either be bound locally by a generic operator (GEN), or be saturated by the world argument of the matrix clause. I don't consider indefinite and quantified NPs here.

Thematic roles are functions of type $< v, e >$ that relate eventualities to their participants. Following common practice, I take the relevant thematic role for eventualities in the denotation of stative predicates to be the 'Holder' (HD), which intuitively introduces the individual who 'holds' the state described by the predicate. Since thematic roles (type $< v, e >$) cannot combine with predicates of eventualities (type $< s, vt >$) through function application, I assume following Champollion (2017) that whenever the daughters of a node are a thematic role and a predicate of eventualities respectively, the following type-shifter applies:

(73) $\alpha \rightsquigarrow \lambda\theta_{<v,e>}\lambda V_{<s,vt>}\lambda x_{<e>}\lambda w_{<s>}\lambda e_{<v>}.V(w)(e) \wedge \theta(e) = x$

5.6 Compositional implementation

We are now ready to sketch a schematic compositional analysis of a copular clause. Setting aside the specific selectional restriction of the copula, consider the sentence *mini byasto chhilo* 'Mini was[ach] busy':

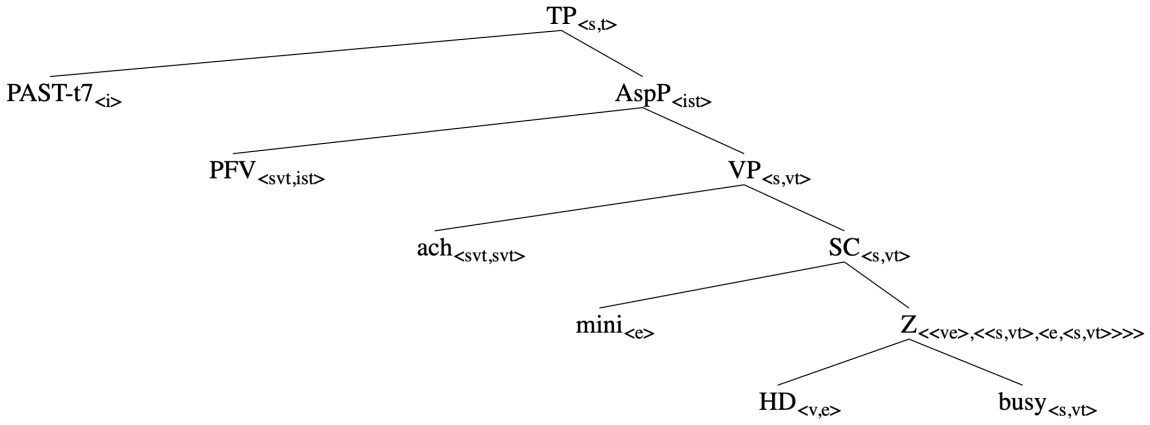

Figure 1: Compositional implementation

(74) a. busy $\rightsquigarrow \lambda w\lambda e.busy(w)(e)$

b. HD $\rightsquigarrow \lambda e.HD(e)$

c. Z $\rightsquigarrow \lambda x\lambda w\lambda e.busy(w)(e) \wedge HD(e) = x$

d. mini $\rightsquigarrow$ *mini*
e. SC $\rightsquigarrow \lambda w \lambda e.busy(w)(e) \wedge HD(e) = mini$
f. ach $\rightsquigarrow \lambda V \lambda w \lambda e : [...].V(w)(e)$
g. VP $\rightsquigarrow \lambda w \lambda e : [...].busy(w)(e) \wedge HD(e) = mini$
h. PFV $\rightsquigarrow \lambda P.\lambda t_r.\lambda w.\ \exists e[\tau(e) \subseteq t_r \wedge P(w)(e)]$
i. AspP $\rightsquigarrow \lambda t_r.\lambda w.\ \exists e : [...][\tau(e) \subseteq t_r \wedge busy(w)(e) \wedge HD(e) = mini]$
j. $\text{PAST}_{t7} \rightsquigarrow t7$
k. TP $\rightsquigarrow \lambda w.\exists e : [...][\tau(e) \subseteq t7 \wedge busy(w)(e) \wedge HD(e) = mini]$

5.7 Selectional restrictions: anchoring to 'here and now'

Given descriptive literature where *ach* has been described as a 'tensed' copula, the fact that diachronically *ach* has developed from a Middle Indo Aryan verb that served to anchor a claim to the utterance time and world (Deo, 2024), and that *ach* and ϕ collapse into one expression in the past paradigm, I take the main semantic contribution of ϕ and *ach* to be the following: these express that the predicational clause is anchored to the 'here and now'. Specifically, they require that all the events in the denotation of the predicate are events in the evaluation world w_0, with runtimes that overlap the reference time t_r. This is implemented by assuming that ϕ and *ach* rigidly instantiate their argument in the evaluation world, regardless of the local world argument in the clause, and presuppose that the runtimes of the events in the denotation overlap the reference time:

(75) $\phi \rightsquigarrow \lambda V_{s,vt} \lambda w.\lambda e : \underline{\tau(e) \circ t_r}\ .\ V(\underline{w_0})(e)$
(76) *ach* (preliminary) $\rightsquigarrow \lambda V_{s,vt} \lambda w.\lambda e : \underline{\tau(e) \circ t_r}\ .\ V(\underline{w_0})(e)$

This does not change the lexical meaning of the embedded small-clause, but alters modal and temporal information.

5.7.1 Deriving the particular-characterizing contrast

I proposed in section 2.3 that the broad difference between *hO/thak* on one hand, and ϕ/*ach* on the other, with respect to the ability to express characterizing meanings is explained by the incompatibility of the latter with sentential imperfective aspect. This was supported by the empirical fact that these clauses cannot be inflected with the imperfective marker. We are now in a position to explain this incompatibility with the semantics of IMPF. My proposal is that the anchoring to evaluation world makes the clause incompatible with the modal meaning of IMPF.
Given the denotation above, consider the truth conditions of a structure where a ϕ-clause is modified by IMPF:

(77) a. LF: [$_{TP}$ PRES_{t0} [$_{AspP}$ IMPF [$_{VP}$ ϕ[$_{\text{SC}}$*mini busy*]]]]
b. $[\![PRES_{\text{t0}}(IMPF(\phi[\text{m busy}]))(w_0)\ ]\!]^c = 1$ iff
c. $\exists t'$ s.t. $t0 \subseteq_{ini} t'$ & $\forall w' \in Inr(t0, w0), \forall t''[t'' \in R^c_{t'} \rightarrow \exists e : \tau(e) \circ t0\ [busy(w0)(e) \wedge HD(e) = mini]$

This requires (for all inertial worlds w') the existence of an event that is an event of Mini being busy in w_0. The modal quantification is vacuous, not due to accidental facts about the world, but rather due to the nature of the event description itself. I propose that this leads to the unacceptability of the expression. No parallel problem arises with aspectual operators that do not invoke modal meaning, requiring their prejacent to be evaluated only in w0, such as the perfective. This is supported by the fact that *ach*-clauses are perfectly acceptable with perfective past marking. The proposal about the semantics of ϕ/ach here predicts these copulas to be unacceptable in other modal environments too. This is borne out— ϕ and *ach* are unacceptable in a wide range of modal environments, including the prejacent of *want* and *wish*, an the antecedent of conditionals.
I assume that simple present ϕ/ach clauses simply lack an IMPF operator, and have the following LF:

(78) . $[_{TP}$ PRES_{t0} $[_{AspP}$ OP $[_{VP}$ $\phi[_{\text{SC}} m$ *busy*]]]]

where OP is a last-resort operator that is inserted at Asp to provide existential closure over the event variable, and makes no other contribution to the meaning of the clause. The truth conditions for the clause are as below, asserting the existence of an eventuality of Mini being busy in the evaluation world at the utterance time UT:

(79) $[\![PRES_{\text{t0}}(OP((\phi[\text{m busy}]))(\text{w})\ ]\!]^c = 1$ iff $\exists e : \tau(e) \circ t0\ [busy(w_0)(e) \wedge HD(e) = mini]$

This captures the 'particular' interpretation in ϕ/ach clauses with individual-denoting subjects, and correctly rules out characterizing interpretations such as *Mini is usually/often busy.*

5.7.2 Particular-characterizing contrast in clauses with kind-denoting subjects

5.7.3 Deriving the permanent-temporary contrast

In the present paradigm, ϕ and *ach* have near-identical denotations, differing in only one respect: *ach* imposes a stronger condition on anchoring its argument to the reference time: rather than simply overlapping with the reference time, it requires all the eventualities in its denotation to have a runtime that is equal to the reference time. This of course entails that they overlap:

(80) *ach* (final) $\rightsquigarrow \lambda V_{s,vt} \lambda w. \lambda e : \underline{\tau(e) = t_r}\ .\ V(\underline{w_0})(e)$

Note that $ach[x\ Q]$ asserts that x has property Q throughout the reference time, whereas $\phi[x\ Q]$ is neutral in this respect. I propose that in simple present clauses, $ach[x\ Q]$ competes with the corresponding ϕ-clause: asserting $ach[x\ Q]$ instead of $\phi[x\ Q]$ implicates that the claim is limited to the reference time, i.e. that the speaker does not commit to x does not hold the property Q beyond t0. This leads to an implicature of temporariness. However, the truth conditions of $ach[x\ Q]$ do not force this, since for stative predicates, $\tau(e) = t_r$ is compatible with Q holding beyond t_r. This derives the inference patterns of ϕ and *ach*-clauses which are discussed in section 3.

First, the use of *ach* reinforces the temporariness of the property for stage-level predicates like *busy* whereas the use of ϕ is interpreted as neutral with respect to this. Second, for predicates that admit distinct interpretations varying along a dimension of temporariness (e.g. *be good* vs *be well*), *ach* reinforces the latter. Third, the use of *ach* in clauses that unambiguously describe a permanent, unchangeable property of the subject is unacceptable in neutral contexts (e.g. the house being on the hill, Mini being tall). Finally, certain clauses with ILPs, most prominently involving gradable adjectives, can trigger what I called a 'relevance' interpretation with *ach*: the use of *ach* is acceptable in contexts where the property described by the adjective is relevant in some way to the immediate discourse context. This was exemplified by the contrast between (36) and (37), repeated below as (81a) and (81b):

(81) a. Context: I am describing my friend Mini, who you have never met:

mini lOmba ache
mini tall *ach*.PRS.3

Intended: Mini is tall.

b. Context: we are trying to get something from a high shelf. *I can't reach it, but why don't we ask Mini..*

mini lOmba ache
mini tall *ach*.PRS.3

Mini is tall.

Under the present account, this is explained as follows: using *ach* implicates that the speaker is restricting their claim about x holding Q to the reference time. With an unambiguously individual-level predicate, it is difficult to construe this choice as stemming from the speaker's unwillingness to commit to Q holding beyond reference time, since tall-ness is usually understood as an enduring property. Thus the weaker claim appears to violate a Gricean quantity implicature. To reconcile this choice with the assumption that the speaker is being cooperative, the addressee infers that the speaker is making a restricted claim because x holding Q *at reference time* is relevant in some salient way to fulfilling the current goals of the discourse, whereas x's holding Q beyond that is not equally relevant. This is justified in contexts where the answer to the current QUD rests on the immediacy of the property in question (e.g. *How do we reach the top shelf?*), but not in contexts where the immediacy of the property is crucial for answering the QUD (e.g. *What does Mini look like?*).

5.8 Selectional restrictions: stativity and aspectual coercion

Sections 2 showed that *hO* and *thak* can express generalizations over episodes related to the property described by the non-verbal predicate in the small-clause, and 4 proposed that the specific interpretations can be understood in terms of lexical aspect– stativity and telicity. I propose that *thak* and *hO* differ from ϕ/*ach* in requiring the predicate they combine with to be dynamic. *hO* further requires the predicate to be telic. This is specified as a selectional requirement on the argument:

(82) $thak \rightsquigarrow \lambda V_{s,vt} \lambda w.\lambda e : \underline{DYNAMIC(V)} \; . \; V(\underline{w})(e)$

(83) $hO \rightsquigarrow \lambda V_{s,vt} \lambda w.\lambda e : \underline{DYNAMIC(V) \wedge TELIC(V)} \; . \; V(\underline{w})(e)$

We have been primarily concerned with predicational clauses with a non-verbal main predicate (adjectives, prepositional phrase), and I proposed that the small-clause denotes a stative predicate. When such a predicate is the argument of *hO* or *thak*, it triggers a mismatch with the selectional restrictions of the copula. I propose that this triggers a system of aspectual coercion, leading the specific interpretations of *hO* and *thak* clauses that we have seen. The following coercion operators are available[9]:

(84) $\text{COERCE}^{\text{st}\rightarrow\text{dy-a}}{}_{<s,vt>,<s,vt>}$: combines with a stative predicate, returns a dynamic, atelic predicate. Informally, this is a predicate of eventualities that realize or demonstrate the state described by the input predicate.

(85) $\text{COERCE}^{\text{st}\rightarrow\text{dy-t}}{}_{<s,vt>,<s,vt>}$: combines with a stative predicate, returns a dynamic, telic predicate. Informally, this is a predicate of eventualities that culminate in the state described by the input predicate.

I follow the common assumption (e.g. De Swart 1998) that these coercion operations alter the aspectual properties of the predicate with minimal changes to the lexical meaning. Moreover, they involve forms of coercion that are familiar from the literature and independently motivated. For the purposes of copular clauses, I take them to be semantic operators that are inserted at LF and limited to appear only within the VP, rather than, e.g. available at various levels of the structure through pragmatics, as in Dölling (2014). This accounts for the fact when the copular clause is incompatible with the selectional restrictions of temporal adverbials (section 4.1) or sentential aspect (2.3), similar coercion operations appear to be unavailable to rescue the structure. For example, a (stative) *ach*-clause is simply unacceptable with timespan adverbials, suggesting that it cannot employ an operation like (85)while combining with the adverbial. Finally, I assume the following, as a species of a general economy principle:

(86) Economy in coercion: The coercion operation is chosen so as to make minimal changes to the aspectual properties (stativity and telicity) of the predicate.

This derives the fact that *thak*-clauses never produce telic predicates– although *thak* requires dynamicity, it specifies no requirements for telicity. Therefore, the atelicity of the input stative predicate is preserved.

5.8.1 Deriving reference to boundaries vs interior slices of state

With these assumptions in place, let us consider the truth conditions of an imperfective-marked *hO*-clause with an individual-denoting subject:

(87) a. Initial LF: $[_{TP}$ PRES_{t0} $[_{AspP}$ IMPF $[_{VP}$ $\phi[_{\text{SC}}$ Mini $[_{\alpha}$ HD busy]]]]]

b. LF after coercion: $[_{TP}$ PRES_{t0} $[_{AspP}$ IMPF $[_{VP}$ $\phi[$ $\text{COERCE}^{\text{st}\rightarrow\text{dy-t}}$ $[_{\text{SC}}$ Mini $[_{\alpha}$ HD busy]]]]]]

c. $[\![PRES_{\text{t0}}(IMPF(\phi \text{ (COERCE}^{\text{st}\rightarrow\text{dy-t}} \text{ [m busy]}))(w_0)]\!]^c =$

[9]Since stativity and telicity are not reduced to more well-known set-theoretic or quantificational properties in the present account, I provide only an informal description of what the coercion operation involves.

d. $\exists t'$ s.t. $t0 \subseteq_{ini} t'$ & $\forall w' \in Inr(t0, w0), \forall t''[t'' \in R^c_{t'} \rightarrow \exists es.t.\tau(e) \circ t'' \wedge [\exists e's.t.RES(e')(e) \wedge busy(w')(e') \wedge HD(e') = mini]$, where RES(e')(e) := e' is the result of e.

e. At all inertial alternatives of the evaluation world at UT, every cell of a contextually determined partition of a larger interval that continues the UT, overlaps with an event that results in a state of Mini being busy in that world.

This gives the desired interpretation of regularly occurring eventualities of Mini becoming busy (i.e. a generalization over inchoative episodes). Similarly, it can be shown that an imperfective-marked *thak*-clause expresses regularly occurring episodes of Mini demonstrating a state of busy-ness. In this way, the selectional restrictions on stativity and telicity of the prejacent allows *hO* and *thak* to systematically make reference to the boundaries vs an interior slice of the state described by the non-verbal main predicate.

6 A puzzle: *hO* with kind subjects

Generalization so far: *hO* and *thak* select for dynamic predicates of specific kinds: *hO* for telic predicates, and *thak* for either telic or atelic ones. When they combine with a small clause whose main predicate is stative, it is coerced into a dynamic predicate related to the state.

Problem: *hO* appears to somehow obviate this selectional restriction in one specific environment: in characterizing sentences where the basic predicate is individual-level (e.g. *tall*) and the subject is kind-denoting. Here, the *hO*-clause can have an interpretation where the predicate is not obviously telic (*Giraffes are tall*). This means that either the selectional restriction of *hO* needs to be revised, or there is some sense in which the small clause satisfies the requirement for telicity when the subject is kind, the predicate is individual-level, and the sentence is characterizing.

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