On the interaction of aspect and ability in two Hindi/Urdu constructions

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ABSTRACT

Complex predicates with the Hindi/Urdu light verb *le* ('take') show an unexpected pattern of interpretation in composition with grammatical aspect. Perfective *le* has a completive meaning (Singh 1990), but a *dispositional* (modal) interpretation arises in the imperfective (Butt 1997). This paper pursues a unified analysis of *le*: I compare *le* predicates to uses of the English implicative *manage*, and its aspectual alternation to the *actuality entailments* of the Hindi/Urdu ability modal *sak* (Bhatt 1999). The account builds on prior work (Nadathur 2023a,b) to argue that all three predicates share reference to a complex causal structure, predicting the observed patterns of interpretation in combination with the contrastive semantics of (im)perfective aspects.

1 Introduction

Butt (1997) describes an unexpected **dispositional** reading for certain complex Hindi/Urdu predicates in the imperfective aspect. While the 'simple' imperfective in (1a) indicates that Ila drives habitually, the complex alternative in (2a)—where the main verb is modified by the 'light' auxiliary *le* ('take')—indicates that Ila can (is able to) drive and regularly chooses to exercise this skill. Comparing (2a) to (1a) thus suggests that *le* introduces modal semantics, but this is at odds with its apparent role in (2b): perfectively-marked *le* predicates are typically associated with **completion** (or *culmination*; see, e.g., Singh 1998).

(1) a. Ila gaaṛii calaa-tii (hai).
Ila car drive-IMPF.F (be.PRS)
'Ila (regularly) drives a car.'

b. Ila-ne gaaṛii calaa-yii.
Ila-ERG car drive-PFV.F
'Ila drove a car.'

(2) a. Ila gaaṛii calaa le-tii (hai).
Ila car drive take-IMPF.F (be.PRS).
'Ila (can and) does drive a car.'

b. Ila-ne gaaṛii calaa l-ii.
Ila-ERG car drive take-PFV.F
'Ila drove a car.'

The contrast in (2) is reminiscent of another, more famous interaction between aspect and modality. First described by Bhatt (1999), **actuality entailments** arise when ability modals compose with overt perfectivity: as shown in (3b) for Hindi/Urdu *sak* ('can', 'be able to'), perfective ability entails its prejacent. (3b) contrasts with its imperfective alternative in (3a), which remains compatible with the prejacent's non-realization.

(3) a. Ila gaaṛii calaa sak-tii thii (lekin us-ne gaaṛii nahĩĩ calaa-yii).
Ila car drive can-IMPF.F be.PST.F (but 3SG-ERG car NEG drive-PFV.F)

'Ila could drive a car (but she did not drive a car).' (Ila had the ability to drive)

b. Ila gaaṛii calaa sak-ii (#lekin us-ne gaaṛii nahĩĩ calaa-yii).
Ila car drive can-PFV.F (#but 3SG-ERG car NEG drive-PFV.F)
'Ila managed (was able) to drive a car (#but she did not drive a car).

Although *le* and *sak* constructions differ in their relationship to an embedded predicate—*le* constructions uniformly realize this predicate, while *sak* constructions do so only in the perfective—(2)-(3) show an intriguing parallelism. In both cases, a modal meaning which can be detected under imperfective marking seems to be counteracted by the perfective aspect. This similarity argues against explaining either contrast as the result of lexical ambiguity; such an account is particularly unlikely for *sak* in view of the crosslinguistic prevalence of actuality entailments (see, e.g., Hacquard 2020).

This paper pursues a unified explanation of the effects in (2)-(3). I compare *le* and *sak* to the English **implicative** verb *manage* (Karttunen 1971), drawing on data from Butt (1997) and Bhatt (1999). I argue that the causal semantics proposed for *manage* in Nadathur (2023b) offers a path towards unifying the dispositional and completive uses of *le*, as well as an account of the ability-actuality alternation in (3) (Nadathur 2023a). I propose that *le, sak*, and *manage* share a presuppositional reference to a background structure in which the subject of the complex predication must take some action to *bring about* (causally precipitate) an event in the denotation of the embedded predicate. *Manage* and *le* assert that the causing action was realized, thus licensing inferences to the embedded predication regardless of the aspectual marking. Abilitative *sak*, on the other hand, establishes only its subject's (stative) capacity for realizing the causing action: this produces a 'pure ability' reading in the imperfective, but is systematically reinterpreted in composition with an eventive-selecting perfective operator, leading to the actualized interpretation in (3b).

The paper is organized as follows. §2 provides background on complex *le* predicates, and sketches an account of the dispositional reading. §3 examines the connection between ability and implicativity, arguing that the semantic structure of implicative verbs can also explain the behavior of *sak*. §4 spells out the result of composing implicatively-structured *le* with (im)perfective aspects and discusses some challenges for the proposal. §5 concludes.

2 The dispositional complex predicate

Hindi/Urdu has a rich system of complex predicates which combine a bare main verb with an inflected 'light' auxiliary (Hook 1974). **Light verbs** (LVs) come from a restricted set of lexical verbs (Table 1), but their semantic contribution to the complex predicate is bleached by comparison to 'heavy' uses. LVs affect the interpretation of a complex predicate in a variety of ways: some add (in)volitionality entailments (see 4), while others perform operations like passivization or permissive causativization (Butt 1993). LVs can also introduce *aspectual* content: the *paṛ* ('fall') predicate in (4a) focuses on the inception of a singing

event, but the *le* predicate in (4b) emphasizes completion (Singh 1990, 1998).[1]

Based on (di)transitives	Based on intransitives
le ('take')	*aa* ('come')
de ('give')	*jaa* ('go')
ḍaal ('put')	*paṛ* ('fall')

Table 1: A non-exhaustive list of Hindi/Urdu light verbs (Butt 1993)

(4) a. Ila gaanaa gaa paṛ-ii
Ila song sing fall-PFV.F
'Ila burst out in song.'
(spontaneously, involuntarily)

b. Ila-ne gaanaa gaa li-yaa
Ila-ERG song sing take-PFV.M
'Ila sang a song.'
(fully, deliberately)

The link between *le* and culmination is particularly clear in composition with **telic** predicates: the complex perfective in (5a) licenses a *culmination entailment* which contrasts with the weaker reading of the 'simple' perfective in (5b) (Arunachalam & Kothari 2011).

(5) a. Maayaa-ne biskaṭ khaa li-yaa #lekin use puuraa nahĩĩ khaa-yaa.
Maya-ERG cookie eat take-PFV.M but it.ACC whole NEG eat-PFV.M
'Maya ate the cookie, #but did not finish it.'

b. Maayaa-ne biskaṭ khaa-yaa lekin use puuraa nahĩĩ khaa-yaa.
Maya-ERG cookie eat-PFV.M but it.ACC whole NEG eat-PFV.M
'Maya ate the cookie but did not finish it.'

The dispositional reading in (2a) challenges existing analyses of *le* as an essentially aspectual LV (Singh 1998; Butt 1993, a.o.). The core aspectual contrast in Hindi/Urdu is between a habitual imperfective and an episodic (terminating but non-culminating) perfective (see 1). Thus, if *le* adds the semantics of culmination, as (5a) suggests, we predict some combination of habituality and culmination from imperfective *le* claims, but there is no obvious source for the modal component of the observed dispositional reading.

Butt (1997) likens the dispositional complex predicate (DCP) to *existentially-interpreted* English generics (Lawler 1973): like (6), the DCP indicates that its subject has some property which enables realization of the embedded predicate, and moreover chooses to exercise this ability on a regular basis. Butt emphasizes that *regularity* should be understood in a conditional sense: the ability is exercised under some contextually-relevant set of circumstances (i.e., when necessary, but not necessarily at all conceivable opportunities; see 6).

[1] Intransitive-derived LVs often indicate spontaneity, while (di)transitive-derived alternatives require ergative case—here a marker of volition (Mohanan 1990, a.o.)—and indicate the subject's *conscious choice*.

(6) My pet toad will eat flies. (Lawler 1973)
∼ My pet toad can and does eat flies under the right circumstances (but not necessarily in all eating situations, and not necessarily to the exclusion of other foods).

The dispositional meaning is crucially accompanied by a non-modal entailment: (2a) cannot be coherently followed by the claim that Ila does not drive at all. This differentiates the DCP from imperfective uses of the ability modal *sak* (e.g., 3a) and renders the former especially suitable as a counter to negative expectations. Example (7), for instance, is well-suited to a context in which Ila's ability to drive is in question (perhaps because the addressee has never seen her drive; R. Bhatt, p.c.); this example also highlights the qualified (conditional) nature of the regularity associated with the DCP.

(7) climate change-kii vajah-se vo aaj-kal gaaṛii nahĩĩ calaa
climate change-GEN reason-INST 3SG.NOM today-tomorrow car NEG drive
rahii hai, lekin bilkul vo gaaṛii calaa le-tii hai.
PROG.F be.PRS, but certainly 3SG.NOM car drive take-IMPF.F be.PRS.
'Due to climate change, she's not in the habit of driving these days, but she certainly (can and) does drive.'

Finally, Butt notes that the actualization contrast between the DCP and imperfective *sak* (see 3a) affects their relative appropriateness in conditional constructions. (8a) describes what Ila *will* do if she encounters a good road, while the oddness of (8b) is due to the suggestion that it is only in these circumstances that she will develop the ability to cycle.[2]

(8) a. agar raastaa pakkaa ho, Ila saikal calaa le-gii.
if road correct be.INF, Ila cycle drive take-FUT.F
'If the road is good, Ila will (choose to) ride a bicycle.'

b. ??agar raastaa pakkaa ho, Ila saikal calaa sak-egi.
if road correct be.INF, Ila cycle drive can-FUT.F
'If the road is good, Ila will be able to ride a bicycle.'

Butt concludes that dispositional *le* warrants a modal semantic treatment. In pursuit of a satisfactory analysis, she suggests a connection to (certain uses) of the Sinhala **involitive**, which is analyzed by Inman (1993) as introducing a 'happenstantial' modality.

2.1 Happenstance: Insights from Sinhala

Sinhala verbs alternate between a default *volitive* form and a morphologically marked **involitive** form. The volitive in (9a) is typically used to describe intentional acts, and the involitive (9b) is associated with accidentality, but Inman (1993, pp.102–104) argues that the contrast between the forms cannot be about (lexically-specified) volition, since involitive claims asymmetrically entail their volitive counterparts, as shown in (9c).

[2]The reading in (8a) shows that the dispositional interpretation of *le* is not restricted to imperfective contexts, further motivating a univocal treatment of its LV uses.

(9) a. laməya kooppe binda
child.NOM cup break.PST
'The child broke the cup.'

b. laməya atiŋ kooppe (?hitəla) biňduna.
child ERG cup (?intend.PTCPL) break.INV.PST
'The child (?intentionally) broke the cup.'

c. (9b) → (9a), (9a) ↛ (9b)

In addition to accidentality, the involitive stem has a *dispositional* use, which is exemplified by (10): like the DCP, this interpretation is well-suited to counter-to-expectation contexts. Example (10) is neutral with respect to Mahatun's volitionality, but conveys the speaker's surprise that Mahatun can and does realize the embedded predication: (10) is thus well-paraphrased by the DCP in (11).

(10) Mahatuŋ atiŋ mee kæmə hoňdəṭə hædenəwa
Mahatun ERG this food well make.INV.PRS
'Mahatun makes this food well (unexpectedly).' (Sinhala; Inman 1993, p.100)

(11) Mahatuŋ ye khaanaa acchaa banaa le-taa hai.
Mahatun this food well make take-IMPF.M be.PRS
'Mahatun (can and) does make this food well.' (Hindi/Urdu)

Inman proposes to unify the accidental and dispositional uses of INV in terms of 'happenstantial' modality, which he associates with the semantics of the English implicative *happen (to)*. As (12) shows, the inferential profile of *happen (to)* parallels that of the involitive marker: *x happens to P* entails that *x* does *P*, and can be paraphrased with "can and does", taken together with some indication of countered expectation.

(12) Mahatun happens to make this dish well (#but he does not make it well).
$\sim$ *As it turns out, Mahatun can and does make this dish well.*

Happenstantial modality is formalized as *non-necessity* in (13). Inman treats INV as a propositional operator, requiring that its argument ϕ holds in the evaluation world but not across the entire relevant modal domain. To capture the contrast between accidentality and unexpectedness (in the dispositional reading), Inman suggests that INV alternates between *teleological* modality, where $\mathsf{opt}_{f,g}(w)$ comprises circumstantially-accessible worlds (cr) which are optimal with respect to the subject's intentions (tel), and an *epistemic* flavour, where the optimal worlds are maximally stereotypical (nm) with respect to the speaker's beliefs (ep). The resulting interpretations for (9b) and (10) are paraphrased in (14).

(13) $[\![\text{INV}]\!]^{w,f,g} := \lambda\phi_{st}.\phi(w) \,\&\, \neg\forall w' \in \mathsf{opt}_{f,g}(w)[\phi(w')]$

(14) a. Accidental: $\mathsf{opt}_{f,g}(w) = \mathsf{opt}_{\mathsf{cr},\mathsf{tel}}(w)$
(9b) $\sim$ *The child broke the cup and there is some world compatible with her intentions and circumstances in which she did not do so.*

b. Dispositional: $\mathsf{opt}_{f,g}(w) = \mathsf{opt}_{\mathsf{ep},\mathsf{nm}}(w)$
(10) $\sim$ *Mahatun makes this dish well and there is some world compatible with the speaker's beliefs and expectations in which he does not do so.*

2.2 Happenstance and the DCP

Inman's analysis of the dispositional involitive offers a promising first pass at the semantics of the DCP. As spelled out in (15), this proposal captures the entailment from the DCP to its simple alternative, while appropriateness in counter-to-expectation contexts follows (as in 14b) from the second entailment to non-necessity.

(15) $[\![\text{le}]\!]^w := \lambda\phi.\phi(w) \,\&\, \neg\forall w' \in \mathsf{opt}_{\mathsf{ep},\mathsf{nm}}(w)[\phi(w')]$

Nevertheless, (15) falls short on Butt's (1997) desiderata. For one, if *le* is analyzed as a propositional operator, it will not have access to the sentential subject and thus cannot impose any volitionality constraints, meaning that (15) does not capture the sense of *conscious choice* that invariably attaches to *le* predicates—for the DCP, this amounts to the inference that $\phi(w)$ results from the subject's deliberate decision to exercise their ability. (15) also fails to capture the *conditional* nature of the DCP: Butt's own suggestion is that *le* should be analyzed as conditional necessity, with a modal domain containing "the speaker's expectations and the conditions under which the subject [...] will perform the given action" (p.10), but it is not immediately clear how to implement this idea, nor how it should be integrated with the non-necessity that derives counter-to-expectation effects for Inman.

I propose that the happenstantial semantics in (15) can be reconciled with both volitionality and conditionality requirements of the DCP by making a few key modifications. First, a satisfactory account should distinguish the embedded proposition (the dispositional *target*) from a second proposition, corresponding to the subject's *choice* to exercise their ability. Second, I propose to condition the dispositional target on the relevant choice. By treating this choice as contextually *determinative* (necessary and sufficient) for the dispositional target, we can accommodate both Inman's non-necessity and Butt's conditional necessity: the embedded proposition will go unrealized in any accessible world in which the subject does not choose to exercise ability, but is guaranteed whenever a positive choice is made. As long as the modal domain for a complex *le* claim includes worlds in which the subject chooses positively as well as worlds in which the choice is negative, we capture the inference that realizing the dispositional target is a matter of volition.

Finally, motivated by Inman's comparison of INV to *happen (to)*, I suggest that the modal component of the DCP should be treated as projective (*not at-issue*) content. The natural interpretation of a negated *happen (to)* claim is one on which negation targets the non-modal entailment: (16) conveys that the cup was not broken and preserves the intuition that both breaking and non-breaking were possible in context. If *happen (to)* in fact entails non-necessity, we should also expect (16) to have a reading on which the child broke the cup and this outcome was (teleologically or epistemically) necessary. In the absence of clear prosodic focus on *happen*—a device which is independently known to introduce metalinguistic effects (e.g., Beaver & Clark 2008)—this reading does not seem to be available.

(16) The child did not happen to break the cup. → *The child did not break the cup.*

Inman does not discuss the interpretation of negated involitives, so I cannot compare INV with *happen (to)* in this regard. The DCP itself cannot be negated (see §4.2). The

hypothesis that its modality is presupposed thus remains provisional; taking a broader view, however, this move would bring its at-issue contribution closer to that of completive *le* perfectives (such as 2b, 4b, 5a), thereby holding out hope for a univocal analysis.

Example (17) sketches a revised treatment of the DCP. Unlike (15), (17) does not take LV *le* to directly assert the realization of an embedded proposition; this entailment follows instead from the joint effect of a modal presupposition (17a) and the at-issue resolution of the determinative choice in (17b).

(17) Given a one-place predicate P and an agent x, $le(P)(x)$:
   a. *presupposes* that a **(prior) choice** $A(x)$ is **necessary** and **sufficient** for $P(x)$
   b. *asserts* the truth of $A(x)$ (that x realized A)

As we will see, (17) is structurally similar to Nadathur's (2023b) analysis of English *manage*, which—like *happen (to)*—is semantically **implicative** (Karttunen 1971). The similarity is particularly notable given the parallels between LV *le* and abilitative *sak* (see §1), since Bhatt (1999) independently likens the actualized interpretation of *sak* to that of past-tense *manage*. The emerging picture, then, is suggestive of an underlying uniformity in the semantics of implicativity, ability, and the DCP. The next section explores the ability-implicativity link in more detail.

3 From implicativity to ability

Explaining the behaviour of *sak* in (3) requires an account of the crosslinguistic phenomenon of *actuality entailments* (AEs), exemplified in (3b).

(3) a. Ila gaaṛii calaa sak-tii thii (lekin us-ne gaaṛii nahĩĩ calaa-yii).
   Ila car drive can-IMPF.F be.PST.F (but 3SG-ERG car NEG drive-PFV.F)
   'Ila could drive a car (but she did not drive a car).' (Ila had the ability to drive)
   b. Ila gaaṛii calaa sak-ii (#lekin us-ne gaaṛii nahĩĩ calaa-yii).
   Ila car drive can-PFV.F (#but 3SG-ERG car NEG drive-PFV.F)
   'Ila managed (was able) to drive a car (#but she did not drive a car).

AEs resist explanation on standard treatments of aspect and modality. Grammatical aspects are usually treated as providing a particular perspective on a situation by constraining its temporal relationship to a reference time supplied by tense (Kratzer 1998): on this approach, episodic perfectives include the runtime of the target situation in the reference time, as in (18). Within the linguistic literature, ability modals are most frequently analyzed as *circumstantial* possibilities (but see §3.2): in composition with (18), (19) predicts an 'opportunity' reading for (3b), on which the possibility of driving is bounded by the reference time t^*. Nothing requires that Ila acted on her opportunity, so (20) falls short of an AE.

(18) $[\![\text{PFV}]\!] := \lambda w \lambda t \lambda P_{vt}.\exists e[\tau(e) \subseteq t \,\&\, P(e)(w)]$

(19) $[\![\text{can}_{\text{ability}}]\!] := \lambda w \lambda P_{vt} \lambda e.\exists w' \in \mathsf{opt}_{\mathsf{cr},\emptyset}(w)[P(e)(w')]$ (cf. Hacquard 2009)

(20) $[\![\text{Ila gaaṛii calaa sakii}]\!]^{w^*,t^*} = [\![\text{PST}(\text{PFV}(\text{can}_{\text{ability}}(\text{Ila drive a car})))]\!]^{w^*,t^*} = 1$
iff $\exists e[\tau(e) \subseteq t\{\prec t^*\} \,\&\, \exists w \in \text{opt}_{\text{cr},\emptyset}(w^*)[\text{drive-car}(\text{I})(e)(w)]]$

Bhatt (1999) offers an important insight into the nature of the actualizing effect. While much of the subsequent literature treats AEs as cases of modal erasure (with the perfective undoing the modal's contribution), Bhatt points out that actualized ability is better paraphrased by English *manage* than by a simple (non-modal) assertion of the modal's prejacent. Alongside complement entailments (shown for *manage* in 21), actualized ability and *manage* also share a projective inference: (22a)-(22b) both suggest that riding a bicycle was difficult or somehow non-trivial for Ila, regardless of matrix polarity.

(21) Ila managed to drive a car (#but she did not drive a car). (compare to 3b)

(22) a. Ila managed / did not manage to ride a bicycle.

b. Ila saikal (nahĩĩ) calaa sak-ii
Ila cycle (NEG) drive can-PFV.F
'Ila was (not) able to ride a bike.'

(22a), (22b) → *Cycling was effortful/difficult/non-trivial for Ila.*

On the strength of this comparison, Bhatt argues that ability modals share the lexical semantics of *manage*. Unfortunately, however, this approach cannot explain why *sak* and *manage* diverge in non-episodic contexts, with *manage* lacking the non-entailing reading of imperfective *sak* (compare 23 to 3a). This difference cannot simply be attributed to the lack of overt grammatical aspect in English: as (24) shows, the complement entailments of French implicative *réussir* ('manage', 'succeed') are likewise insensitive to aspect.[3]

(23) Ila manages to drive, #but she does not drive.

(24) Ila { réussissait / a réussi } à conduire, #mais elle n'a pas conduit.
Ila { managed-IMPF / -PFV } to drive, #but she NEG-has NEG drive.PP
'Ila managed to drive, #but she did not drive.'

The above data argue against the lexical equivalence of *sak* and *manage*, but do not undermine a weaker version of Bhatt's hypothesis, on which the equivalence between actualized ability and *manage* is analytically derived. Pursuing this idea requires identifying the key semantic components of lexical implicativity, and then determining how these elements may be (re)assembled in the composition of perfective aspect and abilitative modality.

3.1 Causal semantics for *manage*

Implicative verbs are characterized by complement entailments which reverse with matrix negation (so that negating 21 entails that Ila did not drive), paired with a projective inference that blocks full equivalence between the implicative and its complement (Karttunen

[3]Bhatt explains the 'pure ability' reading in (3a) by assuming that IMPF optionally introduces a generic operator which shifts the lexically-specified prejacent entailment to a set of "ideal" worlds (see also Hacquard 2009). Under lexical equivalence, the same derivation should be available for *manage* and *réussir*.

1971). Despite agreement on these points, it has proven difficult to pin down what *manage* projects: *difficulty* or *unexpectedness* are plausible in many cases, but the felicity of naturally-occurring data like (25a)-(25b) shows that these inferences cannot be lexically encoded (Coleman 1975; Baglini & Francez 2016; Nadathur 2023b).

(25) a. By 1998, [...] gun manufacturers had easily managed to bypass the laws [...]
b. The Sozialdemokratiet managed to strengthen their position [...] as expected.

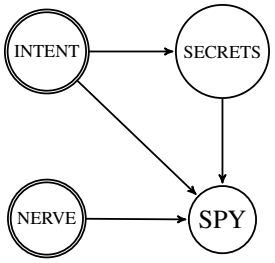
The picture becomes clearer when we consider an implicative like *dare*, which is more specific than *manage* in its projective content. As (26) shows, both positive and negative *dare* indicate that acting bravely (*being daring*) is required in order for the sentential subject to realize the complement; however, whether or not this prerequisite is realized depends on matrix polarity. The polarity of prerequisite inferences therefore aligns with that of *dare*'s complement inferences, with the result that (26a)-(26b) are well-paraphrased by claims which establish a causal relationship between Ria's bravery and Ria's opening of the door.

(26) a. Ria dared to open the door. → *Ria acted bravely*
∼ *Ria opened the door because she acted bravely.*
b. Ria did not dare to open the door. → *Ria did not act bravely*
∼ *Ria did not open the door because she did not act bravely.*
(26a), (26b) → *Opening the door required Ria to act bravely.*

The pattern in (26) is shared by a wide range of implicatives, motivating a templatic account on which these verbs presuppose that some prerequisite action is both **causally necessary** and **sufficient** for their complements (Nadathur 2023b). The prerequisite's realization is settled as at-issue content, deriving the desired pattern of complement entailment when presupposition and assertion are combined. Implicatives differ in what and how much they specify about the causal prerequisite: *manage*, like *dare*, establishes the existence of this prerequisite, but leaves its nature underspecified. As a result, *manage* complements are understood to be non-trivial because they cannot be realized without first satisfying some prerequisite, but whether this results in difficulty, unlikeliness, or something else will depend on what is known about salient causal relationships in the utterance context.

I formalize the causal components of the proposal using **structural equation models** (Pearl SEMs; 2000), treated here as discourse parameters which track contextually-relevant causal information. An SEM corresponds to a *directed acyclic graph* (Figure 1a) whose nodes are (unvalued) propositional variables and whose edges represent an atomic notion of *causal relevance*; the graph is paired with a set of *structural equations* (Figure 1b) that specify how the truth values of 'downstream' (dependent) variables are determined by the values of their immediate causal ancestors. Figure 1 models the toy context in (27).

(27) *Context:* In the infamous Dreyfus affair (1894–1906), Captain Dreyfus was wrongfully accused of sharing French military secrets with the Germans. Assume that:
a. SPYing requires three things: (a) harboring treasonous INTENT, (b) collecting military SECRETS, and (c) taking risks to transmit these secrets (NERVE)



(a)

SPY := INTENT & SECRETS & NERVE

SECRETS := INTENT

(b)

Figure 1: SEM for the Dreyfus context in (27)

b. SECRET collection depends entirely on the presence of treasonous INTENT

Given a situation s (a partial assignment of truth values to variables), we can use an SEM to work out a set of causal consequences (cf. Schulz 2011). For instance, in a hypothetical situation which establishes that Dreyfus has treasonous intent and acts daringly, we infer that he will collect secrets and ultimately spy: Figure 2 illustrates the stepwise causal reasoning which takes us from starting situation 2a to its *maximal causal development* 2c.

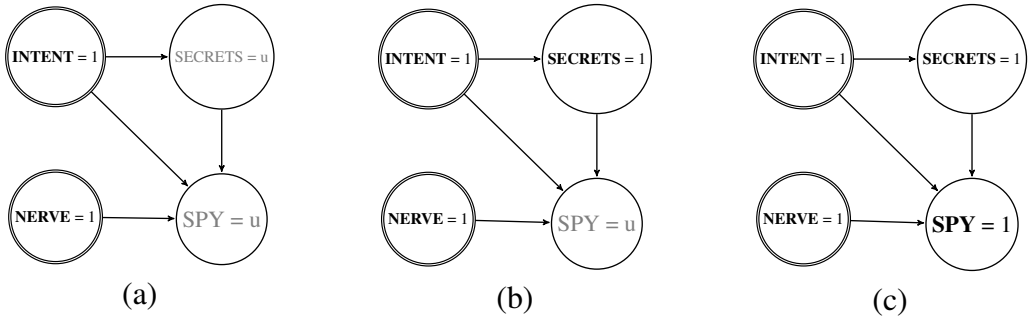


Figure 2: Reasoning with causal models

In this framework, *causal necessity* and *causal sufficiency* are structural relationships that may obtain between a valued variable and a valuation for one of its descendants, relative to a specific situation. The variable-value pair $\langle C, c\rangle$ ($c \in \{0,1\}$) is *causally necessary* for $\langle E, e\rangle$ (where $e \in \{0,1\}$ and E is downstream of C) in any situation s such that all causally-consistent extensions of s which assign value e to E also assign value c to C. $\langle C, c\rangle$ is *causally sufficient* for $\langle E, e\rangle$ in s just in case the situation $s[C \mapsto c]$ (which is identical to s except perhaps at C) assigns value e to E in its maximal causal development.

To illustrate, Figure 3a depicts a situation in which being daring is both causally necessary and sufficient for Dreyfus to spy: the only consistent way to expand this situation into one which makes SPY true requires verifying NERVE, and (since INTENT $= 1$ guarantees that SECRETS $= 1$), adding NERVE $= 1$ causally ensures that SPY $= 1$. This is exactly the right sort of context for implicative *dare*. Which of (28a)-(28b) is accurate depends on how

Dreyfus actually behaves: (28a) asserts that he acted with daring, causally entailing that he spied, while (28b) derives his failure to spy from an asserted lack of daring.

(a) (b)

Figure 3: Two contexts for the Dreyfus scenario

(28) a. Dreyfus dared to spy for the Germans.
b. Dreyfus did not dare to spy for the Germans.

(29) a. Dreyfus managed to spy for the Germans.
b. Dreyfus did not manage to spy for the Germans.

The reality of the affair is better represented by Figure 3b, which establishes Dreyfus's lack of treasonous intent. In this scenario, the causal semantics rightly predict that neither (28a) nor (28b) will be appropriate: *dare* presupposes that acting daringly is causally determinative for spying, but there is no consistent way to extend 3b to a situation which makes SPY true, regardless of the value of NERVE. The lack of a consistent causal pathway from 3b to $\text{SPY} = 1$ also rules out (29a)-(29b): while *manage* does not require the necessity/sufficiency of $\text{NERVE} = 1$ in particular, it does require the existence of some causally determinative condition for $\text{SPY} = 1$, and no such condition exists. Crucially, (29b) is infelicitous despite the contextual truth of its complement entailment—that Dreyfus did not spy. This provides clear support for the proposed causal background: use of an implicative does not simply inform the listener about complement truth, but requires a context in which this complement is both non-trivial and causally realizable, under conditions which may (or may not) be descriptively constrained by the matrix verb.

As spelled out below, the implicative profile of *manage* relies on two things: the presupposition of a causal prerequisite for the complement and an assertion which settles whether or not this prerequisite occurred. Following Kaufmann (2013) (see also Nadathur 2023a, Ch.5), the causal laws encoded in an SEM can be mapped to a causal ordering source (cs), which (when paired with a circumstantial modal base) allows (30) to be expressed in the more standard terms in (31) (where $\text{in}(t,w,\beta_{vt}) \equiv \exists e.\tau(e) \subseteq t \,\&\, \beta(e)(w)$; Nadathur 2023c).

(30) Given a one-place predicate P and an agent x, *manage*$(P)(x)$:
a. *presupposes* that some action $A(x)$ is *causally necessary and sufficient* for $P(x)$
b. *asserts* $A(x)$

(31) $[\![\text{manage}(P)(x)]\!] :=$
$\lambda w \lambda t \lambda e.(\iota A_{evt}.\forall w' \in \mathsf{opt}_{\mathsf{cr},\ \mathsf{cs}}(w,t)[\mathsf{in}(t,w',A(x)) \leftrightarrow \mathsf{in}(t,w',P(x))])(e)(w)$

Modulo the use of causal modality, (30) parallels the modified happenstantial semantics for *le* in (17). I revisit this similarity in §4, after discussing how implicative structure is involved in the interpretation of abilitative *sak*.

3.2 Ability and actuality entailments

Our working hypothesis is that AEs are instances of implicativity, derived via the compositional (re)assembly of the semantic components in (30). If this is correct, then *sak* must be given an analysis which produces the structure in (30)/(31) in combination with the perfective—but not the imperfective—aspect. Such an analysis is given below.

(32) Given a one-place predicate P and an agent x, *sak*$(P)(x)$:
   a. *presupposes* that some action $A(x)$ is causally necessary and sufficient for $P(x)$
   b. *asserts* that $A(x)$ is in x's *choice set* (x can do A)

(33) $[\![\text{sak}(P)(x)]\!] :=$
$\lambda w \lambda t.(\iota A.\forall w' \in \mathsf{opt}_{\mathsf{cr},\mathsf{cs}}[\mathsf{in}(t,w',A(x)) \leftrightarrow \mathsf{in}(t,w',P(x))])(x) \in \mathsf{CH}(x,w,t)$

Like *manage*, *sak* requires a context where some prior action is causally determinative for the embedded proposition. The predicates diverge in assertion: *manage* realizes the complement-causing action, but *sak* establishes only that this action is *available* to x. I capture availability by using the notion of a *choice set* ($\mathsf{CH}(x,w,t)$) comprising possible actions for agent x at world w and time t: including $Q(x)$ in $\mathsf{CH}(x,w,t)$ expresses the possibility that x *chooses* the modal alternative which verifies $Q(x)$ at t ($\forall w,t,x,Q_{evt}[Q(x) \in \mathsf{CH}(x,w,t) \rightarrow \exists w' \in \mathsf{hist}(w)[\mathsf{in}(t,w',Q(x))]]$; (Belnap & Perloff 1988, Nadathur 2023a).

A complex structure for ability can be motivated by comparing the conditions under which abilities, as opposed to circumstantial possibilities, may be attested. For instance, a single (potentially fluky) witness for a proposition $P(x)$ entails the corresponding circumstantial claim, but is not enough to justify ability: the latter seems to require additional evidence that the performance of $P(x)$ can be reliably repeated (Kenny 1976, a.o.).

(34) *Context:* Rookie golfer Tara makes a hole in one on her first game (Maier 2018)
   a. It is possible for Tara to make a hole in one.
   b. ??Taaraa hole-in-one kar sak-tii hai.
      ??Tara hole-in-one do can-IMPF.F be.PRS
      '??Tara has the ability to make a hole in one.' (Hindi/Urdu)

Proposal (32)/(33) explains the effect in (34). Ability modals are structured here as doubly modal, expressing *hypothetical guarantees* (Mandelkern et al. 2017) in which a potential action $A(x)$ acts as a prejacent-ensuring strategy (i.e., a means by which $P(x)$ can reliably be realized). While this basic structure is shared by several existing analyses of ability (including Mandelkern et al.; see also Brown 1988; Louie 2015; Maier 2018, a.o.), (32)/(33)

adds two novel components, enforcing a *causal* link between $A(x)$ and $P(x)$ and strengthening this relationship to one of necessity as well as sufficiency. These modifications capture the sense of non-triviality which typically attaches to claims of ability and bring ability modals into alignment with implicative *manage*, as anticipated by Bhatt (1999).

With (32)/(33) in hand, *manage* and *sak* differ only in their treatment of the causing action $A(x)$: if we are to derive AEs as implicative entailments, perfective marking must convert the assertion in (32b) into the one in (30b), forcing the subject of an ability claim to act on the prejacent-causing choice. As it turns out, there is a good deal of evidence to suggest that this is precisely what the addition of an episodic perfective does.

Manage and *sak* differ in aspectual class: prerequisite-realizing *manage* claims are eventive, but *sak* is at-base stative, assigning a static property to its subject.[4] Ability modals belong, moreover, to a special class of *dynamic capacity* statives, describing properties that hold of individuals in virtue of their propensity for certain kinds of action: the class includes behavioral predicates such as *be fast* and *be loud*. As the French data in (35) show, dynamic capacity statives have a distinctive pattern of aspectual interpretation. Imperfective (35a) describes the potential for speed-characterized action, but perfective (35b) is understood as a claim about action, describing an event in which Juno actually manifested her speed.

(35) a. Juno était rapide.
Juno was-IMPF fast
'Juno was capable of speed.'

b. Juno a été rapide.
Juno was-PFV fast
'Juno did something quickly.'

The pattern in (35) extends to a set of *enough* predicates which bridge the gap between lexical implicativity and ability: (36) attributes a dynamic capacity, and can be paraphrased in abilitative terms, as causally conditioning Juno's ability to win the race on her propensity for speed (Nadathur 2023a,c).[5] In aspect-marking languages like French, these constructions license complement entailments in the pattern of ability modals (Hacquard 2005). Taking the effect in (35b) into account, (37b) appears essentially implicative: where (37a) establishes Juno's capacity for the race-winning speed, perfective in (37b) triggers a performance reading, asserting that Juno ran at the required speed and thereby licensing the observed entailment.

(36) Juno is fast enough to win the race.
$\sim$ *Juno is able to win the race, in view of her (capacity for) speed.*

(37) a. Juno était assez rapide pour gagner la course.
Juno was-IMPF enough fast for win the race.
'Juno was fast enough to win the race.' (acceptable if she did not win)

b. Juno a été assez rapide pour gagner la course.
Juno was-PFV enough fast for win the race.

[4]Homer (2021) provides a number of good empirical arguments for the stativity of ability modals.

[5]Causal *enough* constructions thus bear the same relationship to (standard) ability as prerequisite-specifying implicatives like *dare* bear to (underspecified) *manage*.

'Juno was fast enough to win the race.' (contradictory/false if she did not win)
$\sim$ *Juno ran at the race-winning speed and consequently won the race*

The effects in (35b) and (37b) are instances of a more general pattern of eventivizing **aspectual coercion**, a much-observed effect in which stative predicates are reinterpreted when they occur in episodic (event-selecting) contexts, such as the scope of a perfective operator (de Swart 1998; Bary 2009; Homer 2021; Nadathur 2023a, a.o.). A particularly well-known instance of coercion involves the use of knowledge predicates (e.g., French *savoir*, *connaître*) to describe 'coming to know' (*learning, meeting*) events in the perfective: the effect can be formally derived by inserting an *inchoative* coercion operator (mapping statives to predicates of state-initiating events) between the underlying predicate and the perfective operator. The 'performance' effect in (35b) involves the application of a different form of coercion, variously termed *dynamic* (de Swart 1998), *evidential* (Fernald 1999; Nadathur 2023c), *actualistic* (Homer 2021), or *instantiative* (Nadathur 2023a): whatever it is called, this operation ultimately replaces a dynamic capacity stative with a predicates of actions that manifest (provide evidence for) the underlying capacity.

On the causal analysis in (32)/(33), *sak* attributes a dynamic capacity to its subject: specifically, the capacity for action of a type which will bring about the embedded proposition. In the scope of an episodic perfective, then, *sak* is a candidate for the same performance-inducing form of aspectual coercion which applies in (35b) and (37b). The result, as sketched in (38), is that a claim like (3b) makes the same assertion as the corresponding *manage* claim, indicating here that Ila performed the proximate cause of the ability complement, with the causal consequence in (38d): i.e., the desired actuality entailment.

(38) $[\![\text{Ila gaaṛii calaa sakii}]\!]^{w^*,t^*} = [\![\text{PST}(\text{PFV}(\text{sak}(\text{Ila drive a car})))]\!]^{w^*,t^*}$

a. *Presupposition:* $\exists A : \forall w \in \mathsf{opt}_{\mathsf{cr,cs}}(w^*)[\mathsf{in}(t^*, w, A(\mathsf{I}) \leftrightarrow \mathsf{in}(t^*, w, \mathsf{drive\text{-}car}(\mathsf{I}))]$
Some action for Ila is the determinative (proximate) cause of driving

b. *Base assertion (stative):* $A(\mathsf{I}) \in \mathsf{CH}(\mathsf{I}, w^*, t^*)$
The proximate cause of driving is an immediate option for Ila

c. *After coercion (eventive):* $\mathsf{in}(t^*, w^*, A(\mathsf{I}))$
Ila acted on her capacity for the proximate cause of driving

d. *Causal consequence:* $\mathsf{in}(t^*, w^*, \mathsf{drive\text{-}car}(\mathsf{I}))$
Ila drove a car

4 Dispositions revisited

Proposal (17) for (dispositional) *le* is nearly identical to the *manage* semantics in (30), and the gap can be further narrowed if we take the modality of (17) to be causal in flavour. To the extent that Inman's (1993) 'happenstantial' modality draws on a stereotypical ordering source, this is a natural move: intuitions about what is normal in any situation are plausibly structured by knowledge about the causal relationships between salient events.

Assigning *le* the full implicative semantics would result in the lexical entry in (39), expressing that the subject of the complex construction takes some action which is contextually causally determinative for the embedded predication:

(39) $[\![\mathsf{le}(P)(x)]\!] := \lambda w \lambda t \lambda e.(\iota A_{evt}.\forall w' \in \mathsf{opt}_{\mathsf{cr},\ \mathsf{cs}}[\mathsf{in}(t,w',A(x)) \leftrightarrow \mathsf{in}(t,w',P(x))])(w)(e)$

This cannot be quite right, since it obscures an important difference between *manage* and *le*: namely, that *manage* complements can be unintended, while *le* requires the embedded predication to be deliberately realized.[6] The initial characterization of $A(x)$ as a target-directed *prior choice* was intended to capture the latter restriction, but this conceptualization is lost in (39), which allows $A(x)$ to be any action with the right relationship to $P(x)$.

Constraining $A(x)$ to be in x's choice set at the relevant world-time indices—even assuming that $\mathsf{CH}(x,w,t)$ contains only options of which x is aware—is still not quite enough: the subject of a *le* predication must choose to realize the embedded predicate itself. One solution might be to treat $A(x)$ as a choice in a very literal sense—i.e., as the act of choosing (from some set of alternative paths) the unique course of action that leads to $P(x)$. I leave the appropriate formalization of this restriction as a topic for future investigation.

These limitations notwithstanding, Proposal (39) represents important progress towards a unified analysis of LV *le*. As I argue below, the proposed implicative semantic structure turns out to be compatible with both the dispositional and 'aspectual' uses of *le*, once the contrastive semantics of Hindi/Urdu (im)perfectives are taken into account.

4.1 Habitual and episodic readings for implicative *le*

Eventive predicates (whether telic or atelic) receive habitual readings in the Hindi/Urdu imperfective (see 1a). We can capture this effect by assuming that IMPF selects for statives (treated here as predicates of times (Nadathur 2023c)), triggering insertion of a stativizing coercion operator when it composes with eventives. (40) offers a preliminary proposal for Habitual coercion, taking Hab to map eventive predicates P to predicates of times during which P is instantiated at all intervals satisfying some characterization R of contextual relevance. Building on Schubert & Pelletier's (1989) analysis of the generic operator, I assume that R minimally picks up any presuppositions of the input predicate P. Using Hab, we derive the interpretation in (41) for imperfective *le* predicates (using the implicative structure in 39, and taking IMPF to contain the reference time within the target situation).

(40) $[\![\mathsf{Hab}]\!] := \lambda w \lambda t \lambda R_{it} \lambda P_{vt}.\forall t'[t' \subset t \,\&\, R(t')][\mathsf{in}(t',w,P)]$

[6] A situation in which Ila intentionally presses a button without being aware that it will open a door is perfectly well described by (1a) but cannot be described by (1b): the *le* construction requires Ila's intention to target the embedded predication.

(1) a. Ila managed to open a door.

b. Ila-ne darvaazaa khol li-yaa.
Ila-ERG door open take-PFV.M
'Ila chose to open the door.'

(41) $[\![\textsc{impf}(\mathsf{Hab}(\mathrm{le}(P)(x)))]\!] = \lambda w \lambda t.\exists t'[t' \supset t \,\&\, \forall t''[t'' \subset t' \,\&\, \mathsf{rel}(t'') \,\&$
$\exists! A.\forall w' \in \mathsf{opt}_{\mathsf{cr},\ \mathsf{cs}}(w)[\mathsf{in}(t,w',A(x)) \leftrightarrow \mathsf{in}(t,w',P(x))]][\mathsf{in}(t'',w,A(x))]]$

The resulting truth conditions express that the reference interval is contained within a period during which all relevant situations where x has a causally determinative choice for $P(x)$ are situations in which x acts on this choice. *Modulo* the question of how choice should best be represented, this seems to capture the right interpretation for the DCP, with the contextual-relevance restriction building in the desired notion of conditionality (see §2).

Since *le*, like *manage*, is eventive, it can compose directly with the episodic Hindi/Urdu perfective. This produces the interpretation in (42):

(42) $[\![\textsc{pfv}(\mathrm{le}(P)(x))]\!] =$
$\lambda w \lambda t.\exists e[\tau(e) \subseteq t \,\&\, (\iota A.\forall w' \in \mathsf{opt}_{\mathsf{cr},\ \mathsf{cs}}[\mathsf{in}(t,w',A(x)) \leftrightarrow \mathsf{in}(t,w',P(x))])(w)(e)$

(42) requires a context in which x has a causally determinative choice for outcome $P(x)$, and establishes that the agent acts on this choice, thus capturing both the actualization and volitionality requirements of the complex *le* perfective (again, *modulo* a suitable characterization for the relationship between $A(x)$ and the embedded predicate). Coupled with the interpretation in (41), this result provides strong evidence that an implicative-structured semantics is on the right track towards a univocal account of LV *le*.

4.2 Further complications

Even setting aside the question of choice, several challenges remain for the implicative approach to *le*. In the remainder of this section, I briefly discuss the two problems which seem to me to be the most immediate, and conclude by sketching a potential way forward.

Negation. As noted in §2.2, complex *le* predicates, like other aspectual complex predicates, are known to be incompatible with negation (Bhatia 1973; Hook 1974, a.o.):

(43) a. *us-ne gaanaa nahĩĩ gaa li-yaa
*3SG-ERG song NEG sing take-PFV.M
Intended: 'He didn't (choose to) sing a song.'

b. *vo gaanaa nahĩĩ gaa le-taa
*3SG song NEG sing take-IMPF.M
Intended: 'He doesn't/won't (choose to) sing songs.'

These data are not readily explained on the implicative approach. Lexical implicatives are compatible with negation, licensing entailments to the non-realization of their complements (as a consequence of the subject's failure to act on a necessary prerequisite; see 26b).[7] By the same token, assigning a ("choosy") implicative semantics to *le* should result in the intended interpretations in (43), but these sentences are uniformly rejected.

[7] Negating *sak* is also perfectly acceptable, and—under coercion-triggering perfective marking—gives rise to an interpretation more or less parallel to that of negated *manage*.

The only available explanation of the facts in (43) is due to Singh (1990). The account relies on a characterization of *le* as aspectual in nature: Singh proposes that it *le* emphasizes or focuses on the natural completion point of some eventuality in the denotation of the modified predicate.[8] The idea, roughly speaking, is that this effect becomes incoherent in the presence of negation, since it would require emphasizing the culmination of an event which must be either nonexistent or at best incomplete. The explanation seems reasonable enough (if tricky to formalize), but it is not obvious how it may be integrated with an implicative account of *le*, which does not make clear reference to culmination.

Culmination. Recall from §2 that a link between *le* and culmination can be motivated by its effect on telic predicates. As shown in (5), modifying a telic predicate with perfective *le* licenses a culmination entailment which is not present in the simple perfective alternative:

(5) a. Maayaa-ne biskaṭ khaa li-yaa #lekin use puuraa nahĩĩ khaa-yaa.
Maya-ERG cookie eat take-PFV.M but it.ACC whole NEG eat-PFV.M
'Maya ate the cookie, #but did not finish it.'

b. Maayaa-ne biskaṭ khaa-yaa lekin use puuraa nahĩĩ khaa-yaa.
Maya-ERG cookie eat-PFV.M but it.ACC whole NEG eat-PFV.M
'Maya ate the cookie but did not finish it.'

However the terminating but crucially non-culminating interpretation in (5b) is explained, this contrast poses a challenge for the implicative approach to *le*. On the current proposal, *le* adds information about the conditions under which the embedded predicate *P* is undertaken. This should not alter the structure of *P* itself, nor the semantics of the perfective with which the complex predicate combines. Thus, while the *le* perfective will ensure that $P(x)$ was intentionally initiated (i.e., *chosen*), it should remain compatible with a non-culminated instantiation of $P(x)$. (5a) shows that this prediction is not upheld.

Towards a resolution. I have so far ignored a very important point: unlike *manage*, *le* is not a clause-embedding predicate. Instead—like other aspectual LVs—it combines with a lexical verb to form a single predicate structure which behaves syntactically like a simple verb (Butt 1993). This motivates a parallel semantic analysis on which the meaning of a complex *le* predicate involves a kind of lexical merger: the LV contributes aspectual structure and (in)volitionality entailments to the complex predicate, which otherwise inherits its content from the main verb (Butt et al. 1990; Butt 1993; Butt & Ramchand 2005, a.o.). Putting this idea together with recent work from Nadathur & Filip (2021) offers a path towards reconciling the culmination facts in (5) (and potentially also the negation facts in 43, if Singh (1990) is on the right track) with the implicative approach to *le*.

On standard theories of aspectual class, telic predicates are taken to denote exclusively culminated eventualities; (selectively) intensionalized aspectual operators must then be made responsible for instances of telic non-culmination. Nadathur & Filip suggest an alternative approach, proposing that telic event types correspond to *causal models* in which

[8] Other aspectual LVs, such as *paṛ* (see 4a) are instead proposed to focus points of event inception.

the lexically-specified culmination condition of the underlying predicate *P* occurs as a dependent variable: this induces a rich mereological structure which crucially permits both culminated and non-culminated events to validly instantiate *P*. The analysis permits a straightforward, uniformly *partitive* account of grammatical aspects (see also Altshuler (2014)) on which the difference between terminating and culminating perfectives lies in whether the events they instantiate are required to be 'locally' maximal (i.e., corresponding to the maximal instantiation of *P* within the reference time) or maximal with respect to the denotation of *P* itself. On this view, the availability of readings like (5b) is entirely dependent on the inclusion of non-culminated events in the uninflected predicate: if such candidates are excluded, even a 'weak' (terminating) perfective will license culmination entailments.

The hypothesis I wish to entertain is this: if merged with the lexical representation of a telic predicate *P* (structured *à la* Nadathur & Filip), an implicative semantics for *le* will have the effect of 'pruning' the denotation of the input predicate of any non-maximal eventualities. Implicative *le* provides a causal template on which the volitional initiation of a particular type of event is fully determinative of its complete realization in the reference context. Thus, when merged with a telic predicate *P*, the result should be to ensure that volitional initiation of a *P*-event is both causally necessary and—crucially—causally sufficient for the realization of *P*'s lexically specified culmination condition. If this suggestion can be suitably formalized, the resulting denotation for the complex telic predicate is one on which initiation uniformly guarantees culmination. This should produce the interpretation in (5a) even in combination with a weak (non-culminating) Hindi/Urdu perfective: the only eventualities available for instantiation by PFV are, by construction, culminated.

5 Conclusion

I began by pointing out a parallel in the aspectually-driven interpretation of two Hindi/Urdu constructions. For both complex *le* predicates and abilitative *sak* claims, perfective marking appears to eliminate a modal meaning which is detectable in other contexts. Building on Butt (1997) and Bhatt (1999) as well as on prior work on implicative semantic structure in the lexical representation of ability (Nadathur 2023a,b), I proposed a unified account of both phenomena: specifically, that *le* and *sak* share reference to a causal background in which some choice or action for *x* is causally determinative for the realization of the embedded predicate. Dispositional *le* and abilitative *sak* differ in what they establish about the presupposed causing condition: this difference corresponds to a contrast in aspectual class, with consequences for the predicates' respective (re)interpretations under grammatical aspects. If this analysis is on the right track, the perfective's 'de-modalizing' effect turns out to be largely illusory, and the interpretations of both *le* and *sak* claims are compositionally predicted, once the selectional restrictions of (im)perfective aspects are taken into account.

While an implicative semantic structure promises to unify the dispositional and completive uses of LV *le*, a number of analytical problems remain. If the suggestions at the end of §4 should prove fruitful—as I hope they will—the behavior of *le* supports a richer

semantic view of aspectual LVs than anticipated in previous work, and may ultimately lend support to an emerging view of even lexically simple eventuality predicates as invoking *causal models*—richly structured representations of causal information (cf. Nadathur & Filip 2021)—thereby paving the way for a new aspect calculus and a new way of accounting for the distinguishing features of distinct aspectual classes.

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