

Contact-based aspectual restructuring: A critique of the Aspect Hypothesis

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Abstract

For two decades, second language acquisition research has focused narrowly on the universal influence of lexical aspect in accounting for the use of tense and aspect morphology in language contact (Lexical Aspect Hypothesis, LAH; see Andersen & Shirai 1996). However, major semantic theories of aspect now reject such a dichotomy between lexical and grammatical aspect and argue for a uniform treatment of both phenomena in sentential predicates (de Swart 1998). This study assesses both lexical and sentential aspect hypotheses for aspectual restructuring in L2 Indian English. A multivariate analysis of overt past tense use shows sentential aspect to be a stronger conditioning factor than lexical aspect both in terms of strength and ordering, and progressive morphology is found to be robustly extended to all imperfective contexts. These findings (potentially overlooked under previous LAH methodologies) can be accounted for under an emergent perfective-imperfective opposition. We propose a revision to the LAH that permits bilinguals to be sensitive to the aspectual class of the sentential predicate, rather than narrowly to lexical aspect alone. This revision subsumes lexical effects but covers a wider range of observations and, unlike the LAH, accommodates L1 and L2 cognitive influences, both of which are shown to be active in Indian English.

Keywords: aspect, Indian English, language contact, language transfer, lexical aspect, past, progressive

Introduction

In recent decades, one theory has dominated research on tense-aspect restructuring in contact settings. This view—which we term the Lexical Aspect Hypothesis (LAH)¹—proposes that lexical aspect strongly influences early stages of a learner’s use of tense and aspect morphology in the language being learned. The hypothesis builds on the division of verbal predicates into aspectual classes (Vendler 1967) and proposes that language learners preferentially align each class with distinct morphology, regardless of the system actually instantiated in the language being learned.

In the present paper, we re-evaluate this claim by examining the aspectual meanings ascribed to English morphology by Hindi-speaking bilinguals.² We adopt the LAH as one of two working hypotheses. The second hypothesis—which we term the Sentential Aspect Hypothesis (SAH)—assumes that the aspectual class of a sentence is initially determined by the lexical aspect of its verb but may be changed by the addition of operators such as time adverbials, adverbs of quantification, and negation. In other words, lexical aspect contributes to but does not determine sentential aspect (de Swart 1998). The SAH predicts that learners, particularly those with L1s that mark (im)perfectivity such as Indo-Aryan languages, are sensitive to the *derived* aspectual class of sentences, not merely the initial lexical aspect of the VP.

The SAH and LAH therefore test whether the L2 English used by Hindi speakers retains sentence-level aspectual sensitivity from their L1 or simply reverts to the universal semantic primitives of lexical aspect. The two hypotheses agree in their predictions for sentences in which the class of the lexical verb remains transparent at the sentential level due to a lack of type-shifting operators. They differ in their predictions for sentences in which the aspectual class of the lexical verb differs from the final aspectual class of the sentence—crucial cases for understanding the true aspectual sensitivity of learners, but entirely overlooked in studies of L2 aspect.

Our analysis finds that Indian English speakers show sentential (rather than purely lexical) aspect sensitivity in their assignment of semantic functions to English morphology. In closing we account for this sensitivity through a combination of L1 and L2 factors. The SAH allows for both types of influences within a more complete characterization of the cognitive task faced by learners and bilinguals. Such effects are anticipated in situations of contact (Bickerton 1984, Comrie 1976) but entirely excluded by the LAH.

The SAH aims to redress the overwhelming focus on lexical aspect in the literature. Further applications of the proposed model to different L2 learning and bilingual situations may find instances of genuine sensitivity to lexical aspect alone, for instance when the L1 is insensitive to sentential (im)perfectivity. However, past LAH studies that have claimed lexical effects while ignoring aspectual operators above the lexical predicate may have only identified a sub-part of the aspectual sensitivity of learners, and their conclusions regarding lexical aspect may thus be premature.

The paper is organized as follows. In §1, we review details of the LAH after which we present the alternative SAH (§2) and details of data and method (§3). We then assess patterns of Indian English past tense marking (§4) and progressive marking (§5) in relation to the two hypotheses. In the concluding discussion we briefly consider the interaction of L1 (substrate transfer) and L2 (superstrate or target) influences in the emergent system.

1 The Lexical Aspect Hypothesis

Aspect is a term applied to two distinct, but related, notions. Semantically, it pertains to the type of eventuality denoted by a predicate. As a grammatical notion, it denotes particular morphology found in the verbal complex. These two phenomena have been distinguished in the literature by the terms *lexical* aspect and *grammatical* aspect. This section presents the basic theory of lexical aspect as it has been used in second language acquisition studies. We explore grammatical aspect and competing views of its relation to lexical aspect in §2.

1.1 Lexical aspect and language learning

Vendler (1967) originally proposed a schema to divide verbs of English into distinct lexical aspectual classes. His four-way classification is summarized in Table 1. Dowty (1979), developing Vendler’s and earlier work (Kenny 1963; Ryle 1949), demonstrated that the four aspectual classes pattern distinctly with respect to logical entailments, interaction with temporal adverbials, and tense/aspect morphology. (These distinctions are elaborated in §3.1.)

Table 1: Lexical aspect

	HOMOGENEITY	DURATIVITY	DYNAMCITY	TELICITY	EXAMPLE
State	+	+	–	–	<i>be, want, know</i>
Activity	+	+	+	–	<i>play, work, walk</i>
Accomplishment	–	+	+	+	<i>explain, write x</i>
Achievement	–	–	+	+	<i>realise, find</i>

At least since Verkuyl (1972), it has been noted that the arguments of a verb may determine its resulting aspectual class, so lexical aspect classes are commonly taken to reflect VP-level, not simply V level, properties. Stative and activity predicates are atelic: They denote eventualities which lack an intrinsic temporal endpoint and share the property of homogeneity, or internal consistency. By contrast, accomplishment and achievement predicates are telic: They denote eventualities bounded by an intrinsic endpoint and lacking internal homogeneity.

Lexical aspect has been widely adopted as the hypothetical cognitive basis for the mapping of morphological devices to semantic aspect among language learners. The LAH (see Andersen & Shirai 1996) proposes that in early stages of learning past and perfective morphology is restricted to telic VPs, present and imperfective morphology to stative VPs, and progressive morphology to activity VPs. There has been broad consensus on the nature of this claim since the 1980s; details are outlined in (1).³

(1) Predictions for L1 and L2 learning (quoted from Andersen & Shirai 1996: 533):

Claim 1. Children first use past marking (e.g. English) or perfective marking (Chinese, Spanish etc.) on achievement and accomplishment verbs, eventually extending its use to activity and stative verbs.

Claim 2. In languages that encode the perfective-imperfective distinction, imperfective past appears later than perfective past, and imperfective past marking begins with stative verbs and activity verbs, then extending to accomplishment and achievement verbs.

Claim 3. In languages that have progressive aspect, progressive marking begins with activity verbs, then extends to accomplishment or achievement verbs.

Claim 4. Progressive markers are not incorrectly overextended to stative verbs.

If, as with English, the target language only makes a tense (present-past) distinction morphologically and no obligatory aspectual (imperfective-perfective) distinction, the LAH predictions can be simplified further. This simplified prediction—the core of the LAH for the present discussion—is given in (2).

(2) LAH claim of mapping of L2 morphology to aspectual categories:

	VERB SEMANTICS		MORPHOLOGY
a.	States	←	Present
b.	Events	←	Past (overt)
c.	Activities	←	Progressive (overt)

The example in (3) illustrates the predicted behavior: In this past tense narrative, a second language English speaker adopts the progressive form of the ACTIVITY verb ‘to move’, but opts for the past form of the ACCOMPLISHMENT verb ‘to sit’.

(3) “When *moving* bus (ACT) [when the bus was moving], he *sat on* (ACC) fat woman’s knee.” (Bardovi-Harlig 2000: 237).

Explanations for *why* such pairings might occur have pointed to two broad theories (see Andersen & Shirai 1996 for a detailed review). Prototype Theory suggests that learners have a cognitive preference to first acquire prototypical members of a particular morphological class. The Distributional Bias Hypothesis, by contrast, proposes that statistical tendencies in the input are initially perceived by learners perceive as absolute.

1.2 Previous findings

LAH claims have been supported in studies of L1 learning (e.g. Bloom et al. 1980), L2 speech (e.g. Bardovi-Harlig 2000), and creoles (e.g. Bickerton 1981, Singler 1990). Some corroborating adult L2 studies include: Andersen 1991, Robison 1995, Shirai 1995, Rohde 1996, Bayley 1994, Housen 1994, Bardovi-Harlig & Reynolds 1995, Bardovi-Harlig 1998, Giacalone Ramat 1995, 1997, and Sugaya and Shirai 2007. Leaving aside important differences in terms of instructed, untutored, or bilingual contexts, and elicited or naturally occurring speech (see Anderson & Shirai 1996, Bardovi-Harlig 2000 for detailed discussion), broadly speaking these studies have tended to find quantitative skewing in the data that appear to support the LAH. Claim 1 has been noted as the most robustly supported of the LAH claims (Bardovi-Harlig 2000: 228). Possibly the least supported in the literature is Claim 4 (Li and Shirai 2000: 50).

Several L2 studies have failed to confirm one or more of these claims. Examples of partially conflicting claims in relation to Claims 1 and 2 include: Kumpf 1984, Nixon 1986, Dietrich et al. 1995, Bergström 1995, Salaberry 1999, Finger 2000, and Slabakova 2002. Aspects of Claims 3 and 4 have been disputed or complicated in: Robison 1990, Rohde 1996, Bardovi-Harling 1998, Finger 2000, Housen 2002, Rocca 2002, van Rooy 2006, and Sugaya and Shirai 2007. Some of these studies find contrary patterns (e.g. *-ing* with stative verbs in L2 English, Robison 1990) or an absence of the strong predicted patterning (e.g. no strong correlation of *-ing* with activity verbs, Rohde 1996), while others furnish evidence of additional factors at play (e.g. discourse effects, Bardovi-Harlig 1998). Several of these studies discuss ways in which the L1 may play a part in L2 marking of perfectivity as well as in L2 scope of the progressive. These and other language contact studies suggest that L1 factors are clearly a strong potential influence; nevertheless, the LAH precludes such influences in the domain of aspect.

A few studies relate particularly closely to our study in moving away from testing the LAH in order to explore alternative sensitivity to aspect above the lexical level, often in

relation to the L1. Gabriele and Martohardjono (2005) take into account L1-L2 differences in the semantic effects of applying operators such as PAST and PROGRESSIVE among Japanese learners of English, and employ de Swart's (1988) framework. In a review article, Slabakova (2002) also suggests exploring de Swart's approach to the pragmatics of aspect, specifically to examine the impact of type-shifting aspectual operations of the kind we examine in this study. Laleko (2008) has recently demonstrated an effect on the choice of morphological form of both lexical and further sentential aspect markers among Heritage Russian speakers.

1.3 Critiques

This paper aims to refine rather than repudiate the LAH. In this section, we present three critiques of the methodological and theoretical positions taken in the LAH approach, all of which relate to the exclusive focus on lexical aspect.

Unmotivated separation of lexical and grammatical aspect:

The increasing focus on lexical aspect has meant that it is frequently the only aspectual information considered. Housen (2002: 174), for instance, explains that for his study “verb predicates—the unmarked lexical verb with its major arguments—were coded for inherent lexical aspect rather than for real-world [viewpoint] aspect”. This exclusive focus is reflected in the common methodological focus on (i) across-category analysis (‘what is the distribution of X form across lexical aspect classes?’), and (ii) within-category analysis (‘what is the use of forms within X lexical aspect class?’), an approach that presupposes lexical aspect to be the *only* relevant aspectual component determining morphological marking and that precludes the identification of other aspectual effects.

By contrast, the semantics literature on aspect recognizes that the aspectual properties of simplex eventualities (VP-level predicates) are systematically modified by other operators and may consequently differ at VP-level and sentential level.⁴ Frequently, the derived sentential aspect remains identical to the initial lexical aspect, with no intervening operators. In a minority of cases, mismatches arise — e.g. habitual (atelic) predicates derived from telic verbs (*I'm putting the kids to bed early these days.*) or perfective (telic) predicates derived from atelic verbs (*I was in Boston in two hours.*). We will argue that these mismatches, ignored by LAH methodologies, in fact clarify which aspectual distinctions learners are sensitive to.

Lack of typological support:

There is no typological support for VP-level aspect as an exclusive parameter. In languages with grammatical aspect morphology, such morphology reflects the aspectual class of sentences, not lexical verbs or VPs. To our knowledge, there is no language that organizes its verbal inflectional system solely on the basis of the situation type expressed by the base predicate. We would expect to see such systems if lexical aspect were such a universal and distinctive factor in all types of learner language. Instead, aspect-marking systems cross-linguistically are sensitive to clausal aspectual class, factoring in the effects of aspectual operators above the level of the VP.

Artificial restriction of the cognitive abilities of adult L2 speakers:

The earliest publications on sensitivity to lexical aspect in learning were in L1 acquisition (e.g. Antinucci & Miller 1976; Bloom et al. 1980). Later studies sought evidence of parallel effects among L2 learners (Li and Shirai 2000: 47, Bardovi-Harlig 2000: 192). While it is reasonable to suggest that child learners acquire aspectual concepts incrementally, initially focusing on verb aspect, any extension to L2 situations must be made with care. Adult L2 learners or bilinguals, who are cognitively mature and who manipulate aspectual morphology to construct and interpret complex aspectual

derivations in their L1, need not fail entirely to attend to such meanings and markers when they learn a second language. This assumption is particularly unjustified when the L1 of mature speakers is an (im)perfectivity marking system, as such speakers are specifically attuned to marking derived sentential aspect morphologically.

This has, nevertheless, become an implicit assumption in the L2 literature. For instance, Kihlstedt (2002: 332) states: “Grammatical aspect is what native speakers have at their disposal... During the acquisition process, however, the inherent semantic aspect of the verb seems to guide the learner’s use of verb forms.” Here, grammatical aspect (both semantic and morphological) is assumed to be unavailable to adult non-native speakers, even if they have one or more L1s with active devices of this type.

A confounding factor in the tendency to view L2 learners as being sensitive only to lexical aspect is the reliance on elicitation tasks, which are extremely useful in allowing fine manipulations of lexical verb classes but which do not always furnish evidence of particularly complex aspectual reference such as habituals or type-shifting operations.

In making these critiques, we do not mean to reject the possibility that in some settings morphological marking will correlate with the aspectual class of the lexical predicate, e.g. in child L1 acquisition, or in situations that lack L1 sentential aspect sensitivity. Nor do we deny that aspect, in a general sense, may be more ‘primary’ than tense, as argued for pidgins and creoles (Bickerton 1981), child language (Bloom et al. 1980), even historical change (Kurylowicz 1964). We argue simply that the isolation of lexical aspect from other aspectual determinants in learner data is not semantically well-motivated and potentially misrepresents the full range of aspectual sensitivity at least for some bilinguals.

In the next section, we introduce the alternative model (the SAH), review the L1 and L2 aspectual systems in question, and summarize the competing predictions of the two hypotheses.

2 The Sentential Aspect Hypothesis

The previous section argued that research on aspect in acquisition has predominantly been restricted to lexical verbs, without adequate examination of the role of sentential aspectual operators. The first step in developing a revised model of aspectual dynamics in contact settings is to contextualize lexical aspect within a more complete picture of aspectual classification.

2.1 A uniform treatment of lexical and grammatical aspect

As noted in §1, grammatical aspect is commonly treated as distinct from lexical aspect. Smith (1991), for instance, treats lexical (situation) aspect as making reference to an ontology of situations in the real world, and grammatical (viewpoint) aspect as temporal perspectives the speaker may take on those situations, evoking a particular reference time that is either included within the time of the situation (imperfective, unbounded) or that contains the situation (perfective, bounded). Thus, in a sentence such as *Nina was building a shed*, the situation aspect is ACCOMPLISHMENT and the viewpoint aspect is IMPERFECTIVE. A characteristic feature of these approaches is their view that categories such as EVENT and STATE belong to a typology of situations, and grammatical aspect marking does not encode these distinctions. This is the standard view that has been adopted in most SLA research.

Another view in the semantics literature treats aspectual classification uniformly across syntactic levels in terms of the semantic properties of divisivity and quantization.⁵ Divisivity has been described in terms of the ‘subinterval property’ – the property of a temporal predicate to apply to subintervals (subsituations) of intervals (situations) that

they apply to (Bennett & Partee 1978: 14; Dowty 1979). At the level of lexical verbs, this means, for instance, that *love* is homogeneous (i.e. it has the subinterval property, and is atelic) because the semantic properties associated with *love* which hold for a particular interval also hold for each sub-interval of that period. By contrast, the predicate *kill* is quantized (lacks the subinterval property, and is telic) because it is true over a particular interval, but not true equally for each (or any) proper sub-interval of that larger interval.

Crucially, predicates can be described in terms of these properties *regardless* of whether they are lexical (simplex) or affected by further operations (derived). A lexically atelic predicate is, on this view, a lexical item which has the property of divisivity (the subinterval property); a derived imperfective sentence can equally be characterized by this property. Thus, imperfective and perfective sentences denote homogeneous and quantized predicates respectively, just as lexical verbs do.

This uniform classification of aspect across syntactic levels is highlighted by type-shifting that results from the use of aspectual morphology. For instance, the English progressive and the French Imparfait can be seen as stativizers, which change a non-divisive predicate to a divisive one (e.g. de Swart 1998, Herweg 1991, Mourelatos 1978). The aspectual class of a sentence is thus under-determined by the aspectual class of the uninflected verb and its arguments (the VP or uninflected eventuality description). Overt (e.g. adverbial) and covert (e.g. habitual) operators can apply to such a description to derive predicates of a different aspectual class.⁶ Specific examples are discussed in §2.3.

Of central importance, in contrast to the LAH, is the recognition that the aspectual properties of a VP contribute to, but do not exclusively determine, the aspectual properties of the sentence.⁷ In addition to the verb, other grammatical and semantic elements of a sentence feed into the derivation of the aspectual predication. The characterization of the cognitive task the bilingual speaker faces in identifying the relationships between morphology and semantics is thus a more comprehensive one. Unlike the LAH, this view also accommodates particular sensitivities to sentential aspect that may be primed by the L1, as in the current case study.

Our proposal for the mapping of aspect to morphology among learners with (im)perfectivity-marking L1s, based on the theory outlined in this section, is given in (4).

- (4) *The Sentential Aspect Hypothesis (SAH)*: Learners hypothesize that morphological marking is a form of agreement with the aspectual class of the sentential predication (not narrowly with lexical aspect alone).

This hypothesis predicts that temporally bounded sentential predicates (*regardless* of whether this boundedness arises from the lexical verb or a subsequent perfectivizing operation) are more likely to be overtly marked for temporal coordinates (i.e. bear overt past tense) than homogeneous, unbounded predicates. These predictions are especially pertinent to speakers of L1s with overt markers for perfective and imperfective sentential aspect, as such speakers may consider both of these categories to be inadequately signalled in English; as a result, past *-ed* and progressive *-ing* are likely to be recruited to these functions.

The specific predictions of the SAH are given in (5); these contrast with the predictions of the LAH given earlier in (2). A more detailed comparison of the hypotheses is given in §2.3.

- (5) SAH claim of mapping of L2 morphology to aspectual categories:

	DERIVED ASPECT		MORPHOLOGY
a.	Imperfective	←	Present
b.	Perfective	←	Past (overt)
c.	Imperfective	←	Progressive (overt)

2.2 Aspectual marking in English and Hindi

English is a tense-marking language that lacks morphological markers for perfective and imperfective aspect. The primary overt markers in the language indicate past tense and progressive aspect. By contrast, the verb systems of Indo-Aryan languages distinguish between perfective, imperfective, and progressive aspects. All individuals in the present study speak Hindi and a subset speak Gujarati or Punjabi (further details in §3). These three languages are almost identical in terms of the tense-aspect parameters relevant to this discussion: They inflect for imperfective and perfective with reflexes of the same Sanskrit participles and mark progressive with a periphrastic construction involving the same basic auxiliary verb (Masica 1991: 292-302).⁸

The crucial difference between English and Hindi with respect to the description of past time eventualities is that in every sentence Hindi speakers must choose between the perfective and the imperfective (or progressive) verb form. In (6a), the choice of perfective morphology with a lexically stative verb perfectivizes the predicate, ruling out a continuation of the state into the present time. By contrast, in (6b), the choice of imperfective morphology is compatible with a situation where the state continues to hold until the utterance time. Notice that in the English translation, past *-ed* is compatible with both perfective and imperfective readings, because English past is not sensitive to perfectivity.

- (6) a. main tiin saal pahle bambai-mein rah-ii
I three years ago bombay-LOC live-PERF.FEM
'I lived in Bombay three years ago (*... and I still live there).'
- b. main tiin saal pahle bambai-mein rah-t-ii th-ii
I three years ago bombay-LOC live-IMPERF-FEM be-SG.FEM
'I lived in Bombay three years ago (... and I still live there).'

Indian English speakers are therefore a useful case study for L2 aspectual effects: Their L1 primes them to be sensitive to perfectivity distinctions, but these distinctions are absent in the verbal morphology of English. This permits us to examine whether these speakers retain a sensitivity to clausal (im)perfectivity when acquiring English as an L2, or whether they rely on purely universal lexical aspect distinctions to determine the use of English morphology.

2.3 Comparison of SAH and LAH predictions for Indian English

Both the LAH and the SAH presuppose some version of aspectual 'agreement' as the basis of the learner's hypothesis regarding the use of overt morphological forms. The difference is that the LAH restricts this claim to agreement with lexical aspect, leaving unaddressed the possible influence of other aspectual operations, whereas the SAH claims that agreement is with the derived clausal predication, taking into consideration both the contribution of the lexical predicate as well as subsequent aspectual operators.

This difference is illustrated in examples (7)-(10). The first two examples, (7) and (8), illustrate cases in which the aspectual class of the VP is identical to the aspectual class of its resulting sentence.

- (7) Mary walked to work on Monday.
[PST [ACC mary-walk-to-work-on-monday]] (EVENT; PERFECTIVE)

In (7), the lexical aspect of the VP *walk to work* is telic and denotes bounded (quantized) eventualities. The only higher operator in the clause is past tense, which does not affect

the aspectual class. At the sentential level, then, the predication remains perfective (telic).

- (8) Mary knew the answer.
[PST [STA mary-know-the-answer]] (STATE; IMPERFECTIVE)

In (8), the lexical aspect of the VP *know the answer* is atelic and denotes unbounded (divisive or homogeneous) eventualities. Once more, the only higher operator is past tense. The aspectual class of the lexical predicate is again carried over to the sentence-level, i.e. it remains imperfective (atelic).

In both (7) and (8), the classification at the lexical/VP-level ‘shines through’ to the final aspectual classification due to the absence of intervening higher aspectual operators.

The next two examples, (9) and (10), involve a mismatch between the aspectual class of the lexical predicate and the final sentence-level classification. This divergence emerges because of the presence of (overt or covert) type-shifting aspectual operators, e.g. HABITUAL, GENERIC, PROGRESSIVE, PERFECTIVE.

- (9) Mary walked to work on Mondays.
[PST [on Mondays [ACC mary-walk-to-work]]] (EVENT; IMPERFECTIVE)

The lexical aspect of the VP in (9) is identical to that in (7); it is telic. However, the adverbial *on Mondays* is quantificational and yields a predicate which denotes intervals during which Mondays are characterized by Mary walking to work. This newly derived predicate is stative: it has the subinterval property (divisivity), which the original VP-level predicate did not. The sentence-level aspect class derived by the adverbial is therefore different from the aspectual class of the VP.

- (10) All of a sudden, Mary knew the answer.
[PST [PERF [STA mary-know-the-answer]]] (STATE; PERFECTIVE)

In (10), the lexical predicate is again identical to the predicate we saw in (8), namely stative. In this example, the perfectivizing adverbial *all of a sudden* intervenes and renders the originally stative (imperfective) predication perfective.

Under the standard LAH methodology, the additional aspectual operations in (9) and (10) would not be coded and the two sentences would be expected to behave exactly like their underived counterparts in (7) and (8) respectively. Past tense marking would be expected to occur more frequently with the eventive VP in (7) and (9) and less frequently with the stative VP in (8) and (10).

By contrast, the SAH predicts that learners are sensitive to aspectual operations above the VP-level and register the final aspectual class of sentences. They are consequently predicted to use more past tense morphology in sentences such as (7) and (10), due to the perfectivity of the final predication, and conversely less past tense morphology with sentences such as (8) and (9) due to the imperfectivity of the final predication.

We outline in (11) and (12) two complete sets of sub-predictions of the LAH and the SAH respectively.

- (11) **LAH predictions:**
- A. Past tense morphology
 - i. *Overall:* Past morphology will reflect the presence of a lexically TELIC (EVENT) VP. The absence of past morphology will correspond to lexically STATE VPs.
 - ii. *Internal gradations:* Degrees of past morphology use will correspond to aspectual classes at the lexical level (i.e. EVENT > ACTIVITY > STATE).
 - iii. *Misaligned cases:* When sentential operators result in a changed aspectual classification for the sentence, past morphology will still reflect the presence of a lexically TELIC VP, regardless of the sentential aspect.
 - B. Progressive morphology
 - i. *Activities:* Progressive morphology will be restricted to ACTIVITY VPs.
 - ii. *Imperfectivity:* Progressive morphology will not be extended to STATE VPs or other categories of IMPERFECTIVE sentences (habituals).
- (12) **SAH predictions:**
- A. Past tense morphology
 - i. *Overall:* Past morphology will reflect the presence of a PERFECTIVE sentence (these will contain lexically TELIC VPs if lexical and sentential aspect are aligned). The absence of past morphology will correspond to IMPERFECTIVE sentential aspect.
 - ii. *Internal gradations:* Degrees of past morphology use will correspond to degrees of PERFECTIVITY (e.g. relative temporal boundedness, presence of temporal coordinates).
 - iii. *Misaligned cases:* When sentential operators result in a changed aspectual classification for the sentence, past morphology will reflect the presence of a PERFECTIVE sentence, regardless of the lexical aspect of the VP.
 - B. Progressive morphology
 - i. *Activities:* Progressive morphology will not be restricted to ACTIVITY VPs.
 - ii. *Imperfectivity:* Progressive morphology will be extended to all categories of IMPERFECTIVE (habituals, statives). It will not be extended to PERFECTIVE sentences.

In short, the LAH predicts that morphological marking will be sensitive to the initial aspectual class (the lexical verb), whereas the SAH predicts that it will be sensitive to the final aspectual class (the lexical verb plus the effect of any subsequent operators) of the sentence. In the analysis, we sequentially evaluate each of the five detailed sub-claims in (11) and (12) for past and progressive morphology.

3 Data and methodology

The data for this study comes from 12 individuals (part of a larger bilingual dataset). All individuals are English-Hindi bilinguals (in some cases trilinguals) who are dominant in Hindi. None had English-medium education, but all completed school in India with English as a school subject. All use English on a daily basis for a limited number of interactions, predominantly with other L2 speakers of Indian English. The non-Hindi L1 languages are comparable in terms of their tense-aspect systems. The age range is varied, as these individuals were selected from the larger dataset primarily based on their lower English proficiency and presence of past tense omission in their grammars. (See Appendix A lists further details.)

We treat Indian English as an indigenously transmitted, stable bilingual variety of English and are therefore interested in the natural use of tense-aspect morphology by its speakers, in order to identify systematic shifts in the relation between morphological devices and aspectual reference over time. The interview conversations were therefore naturalistic sociolinguistic interviews, lasting 0.5–2 hours. Conversational topics covered work, leisure, cultural attitudes, and narratives of childhood and migration. The interviews were originally conducted as part of a broader examination of grammatical, phonetic, and social factors across the cline of Indian English bilingualism, and so only the subset of participants who show systematic past tense omission are included here. More balanced bilingual Indian English speakers tend to have standard past tense use, although the characteristic progressive usage described in this study can be found across all speakers in the larger bilingual data set; this difference between past and progressive nonstandardness across the bilingual continuum is accounted for in the analysis later.

The informal empirical observation for Indian English is that speakers *undershoot* Standard English usage in their use of English past tense morphology and *overshoot* Standard English usage in their use of progressive morphology. It is thus logical to examine which *meanings* constrain the use of the standard form in the former case, and to examine the extension of the *form* to new meanings in the latter case.

Thus, in the case of past tense morphology, we identified all instances of past time semantic *reference* and examined the degree of overt use of past tense *forms* in these contexts, coding each token for the factors listed in (13).

(13) Factors coded for 702 past tense tokens:

LEXICAL ASPECT	state, activity, event
SENTENTIAL ASPECT	perfective, 4 categories of imperfective
PAST TENSE FORM	null, overt, past/present/null-copula+progressive
VERB TYPE	simple past, progressive
STEM TYPE	3 regular suffix types, irregular
PHONOLOGICAL SEGMENT	preceding and following for regular verbs
VERB	<i>do, have, come, go, say, start, be-cop, be-aux</i> , other
SOCIAL FACTORS	age, sex, English education, daily use of English

In the case of progressive, we took the reverse approach. We identified all instances of overt progressive *forms* in the data and examined the type of aspectual *meaning* ascribed to each token, coding for the factors listed in (14).⁹

(14) Factors coded for 339 progressive tokens:

LEXICAL ASPECT	state, activity, event
SENTENTIAL ASPECT	perfective, 4 categories of imperfective
AUXILIARY TYPE	overt, null
TENSE	past, present, future
SOCIAL FACTORS	age, sex, English education, daily use of English

The coding of factors, particularly lexical and sentential aspect, for both sets of tokens is discussed in detail next.

3.1 Coding lexical aspect

We determined the lexical aspect of verbal predicates in our data following standard diagnostic tests (Dowty 1979; Robison 1990; Shirai 1991; Shirai & Kurono 1998). The examples in (15)–(18) illustrate some of the tests used.

- (15) STATE TEST: INABILITY TO TAKE IMPERATIVE FORM
- a. * Be tall! (STATE)
 - b. Run! (ACTIVITY)
 - c. Get organised! (ACCOMPLISHMENT)
 - d. Win the race! (ACHIEVEMENT)
- (16) ACTIVITY TEST: ENTAILMENT FROM PROGRESSIVE TO SIMPLE PAST
- a. *True*: If Jim is walking then Jim walked. (ACTIVITY)
 - b. *False*: If Jim is building a shed then Jim built a shed. (ACCOMPLISHMENT)
- (17) EVENT TEST (ACCOMPLISHMENTS): ACCEPTANCE WITH TIME-SPAN ADVERBIALS
- a. Nina changed the tyre in ten minutes. (ACCOMPLISHMENT)
 - b. ? Nina's foot slipped in ten minutes. (ACHIEVEMENT)
 - c. ? Nina walked in ten minutes. (ACTIVITY)
- (18) EVENT TEST (ACHIEVEMENTS): ACCEPTANCE WITH PUNCTUAL ADVERBIALS
- a. Jim died at 8.25 pm. (ACHIEVEMENT)
 - b. * Jim built a shed at 8: 25 pm. (ACCOMPLISHMENT)
 - c. * Jim was tall at 8.25 pm. (STATE)

As hypotheses for aspectual use in learner speech center around telicity (for past morphology) and dynamicity (for progressive morphology), we follow Salaberry (1999) and other aspect literature (Kenny 1963; Mourelatos 1978; Bach 1986; De Swart 1998) in adopting a three-way classification for lexical predicates into states, activities, and events.

We take lexical aspect labels to apply to eventuality types (expressed by the verb together with its arguments, i.e. the VP, or sentence radical) rather than atomic verbs. This characterization has been implemented in much empirical work (Shirai and Andersen 1995: 750; Housen 2002: 174-5). Crucially, other aspectual operators in the clause are strictly excluded from this process of coding and classification.

3.2 Coding sentential aspect

Sentential aspect was determined through a combination of adverbial information, quantification and negation, narrative sequencing, and interviewer notes on intended meanings.¹⁰ Each token was coded for one of five possible sentential aspect categories: perfective or four types of imperfective (statives, progressives, delimited habituais, and non-delimited habituais). Each is described briefly below.

Perfective predicates lack the subinterval property (divisivity) and instead typically describe a temporally bounded event. (*After he finished BCom degree, then he said I want to do the ministry*, RS:c324). Stative predicates have the subinterval property (divisivity); in our coding, this property is not introduced by any additional operators, such as the progressive or the habitual, but rather is lexical. (*And father was the provider*, KP:c022). Progressive predicates refer to a subinterval of an ongoing episode.¹¹ (*We have to give them medicines, blankets because winter is coming*, RT:d107). In our coding, progressive strictly refers to an individual event; if it indicated a habit, it was classified as a habitual. Both types of habitual sentences involve a predicate that describes a generalization over episodes rather than reporting a particular episode. The habitual operator is understood to derive stative predicates from non-stative predicates. Delimited habituais, in particular,

are sentences with habitual predicates in which it is implied that the habit is temporary, or temporally bound. For instance, the temporal expression (*in*) *those days* delimits the temporal extent of the situation described. (*Those days only social worker worked in the Red Cross*, RT:d076). Non-delimited habituais are the sub-class of habitual predicates in which there is no explicit or understood temporal bound on the habit described. (*I studied with my aunt*, KP:c287).

The finer distinction between delimited and non-delimited habituais is relevant to both the past and the progressive segments of the SAH analysis. In terms of overt past tense marking, the presence of temporal coordinates in delimited habituais (as opposed to statives and non-delimited habituais) may marginally favor overt marking of those coordinates. In terms of progressive use, Standard English only licenses the *-ing* form with delimited habituais (and progressives) so non-delimited habituais and statives constitute imperfective domains susceptible to over-extension, according to the SAH.

In some parts of the analysis all five distinctions are examined, in others these are collapsed into fewer distinctions, such as perfective/imperfective.

3.3 Coding other factors

Factors other than lexical and sentential aspect are not discussed in detail in the analysis but their coding is reviewed briefly here. In order to test for the relative influence of diverse linguistic factors, the past tense data were coded for a multivariate regression analysis using the variation software Goldvarb (Sankoff, Tagliamonte, and Smith 2005). The progressive morphology data contained fewer tokens and was thus less amenable to regression analysis, so only chi-square measures and distributional statistics were used.

For the past tense form, which represented the dependent variable for the Goldvarb analysis, any form of overt past marking was counted as overt use and rare instances of highly nonstandard constructions (e.g. *I no want*) were excluded. Past progressives were included, as the auxiliary standardly requires past tense; perfect contexts were excluded. A distinction between simple past and past progressive token *types* was also coded; this factor was excluded from the multivariate analysis as the majority of tokens (648/702) were simple past. The few past progressive contexts had very high rates of past omission (79%), as is clear from the separate analysis of progressive data.

Preceding and following phonetic environment were examined as previous studies have shown these to be conditioning factors. Four distinctions in *stem type* of each past tense token were also coded: verb stems in which a vowel preceded the suffix (e.g. *freed*), verb stems in which a consonant preceded the suffix (e.g. *laughed*), verb stems with a syllabic suffix (e.g. *lifted*), and irregular forms (e.g. *saw*).

Certain verbs occur far more frequently in the data, so to identify any lexically-based skewing we coded for eight of the most frequent verbs: *do*, *have*, *come*, *go*, *say/tell*, *start*, copular *be*, auxiliary *be*. Auxiliary type (overt, null) and *tense* (past, present, future) were also coded for the progressive data, but as these were not subjected to a multivariate analysis they are not discussed further. We do not examine copula omission, which is not very robust in Indian English (Sharma and Rickford 2009), and treat the participle as the primary semantic marking device of interest. *Social factors* are also not examined in the present discussion, partly due to the small size of the sample.

4 Findings: Past tense morphology

In this section, the first of two results sections, we summarize the patterns of use of past tense marking by Indian English speakers. We test the competing claims of the LAH and the SAH and divide the results according to the three sub-hypotheses in (11A.i-iii) and (12A.i-iii). Each pair of sub-hypotheses is repeated at the start of each subsection.

4.1 All past tense examples

We first examine all past tense data as a whole, according to the LAH and SAH predictions given earlier in (11.A.i) and (12.A.i). Table 2 shows that the LAH initially appears to be confirmed for these data: Overt past tense marking is significantly more frequent with telic predicates than with atelic predicates.

Table 2: Past marking according to lexical aspect

	% OVERT PAST TENSE	N
Atelic (states, activities)	45.7%	337
Telic (events)	68.2%	365

$\chi^2(1) = 36.3; p \leq 0.001$ (*significant*)

Given this apparent confirmation of the LAH pattern, we might conclude that lexical aspect is indeed the principle underlying Indian English tense morphology. However, in the present methodology we aim to assess the importance of lexical aspect in relation to other potential factors, most importantly sentential aspect.

The multivariate regression analysis of the relative influence of morpho-syntactic and semantic factors on overt use of past marking is presented in Table 3.

Table 3: Factors affecting overt past tense marking

FACTOR	TOTAL N	PERCENTAGE	WEIGHT
VERB			
'say/tell'	41	95.1%	.835
'be'-copula	135	63.0%	.765
'go'	44	77.3%	.657
'do'	39	66.7%	.653
'be'-auxiliary	52	46.2%	.517
other lexical V	282	52.1%	.355
'come'	47	66.0%	.337
'have'	32	15.6%	.283
'start'	30	40.0 %	.148
			Range = 687
SENTENTIAL ASPECT			
Perfective	346	76.6%	.820
Delimited habitual	53	45.3%	.325
Progressive	3	33.3%	.234
Stative	224	44.2%	.176
Non-delimited habitual	76	18.4%	.141
			Range = 679
LEXICAL ASPECT			
Activity	105	42.9%	.630
State	232	47.0%	.591
Event	365	68.2%	.404
			Range = 226
INPUT: .426, LOG LIKELIHOOD: -374.135, $\chi^2(32) = 54.491, p = 0.032$			
NOT SELECTED AS SIGNIFICANT: stem type, phonetic factors (for regular forms)			

Because the stepwise regression takes into account the relative effect of all the other factors, the best indicator of the strength of a factor is the weight listed for each factor in the final column. The relative magnitude of the weight (ranging from 0 to 1) indicates the strength and direction of the effect of that factor on the dependent variable (overt past marking). A weight greater than .5 indicates that the factor in question favors overt use of past morphology; a weight lower than .5 means that the factor favors omission of past morphology; a weight close to .5 means that the factor has little or no effect. The three independent variables with a significant effect are listed in decreasing order of conditioning overt past tense use.

We do not discuss the influence of the choice of verb here, save to note that it is the strongest factor, pointing to the importance of considering factors other than those of interest to a given hypothesis (cf. Bayley 1994, Langman and Bayley 2002). Of greatest interest to the present discussion is that, once the impact of other factors is taken into account, the lexical effect is almost entirely lost.

Let us first consider the overall strength of each factor. Sentential aspect exhibits a strong effect on past tense omission and lexical aspect shows a dramatically weaker effect—this is reflected in the wide range of weights for sentential aspect and the very narrow range for lexical aspect (679 and 226 respectively). The predictions for overall patterning of past tense use, (11.A.i) and (12.A.i), are thus resolved in favor of the SAH as the overall impact of sentential perfectivity on past tense marking is notably stronger than that of lexical telicity. (Individual rates are given in Appendix B.)

4.2 Graded aspectual distinctions

The next pair of predictions we assess, also in relation to the results in Table 3, is internal gradations by aspectual sub-type, as outlined earlier in the predictions in (11.A.ii) and (12.A.ii).

Turning first to the LAH prediction that lexical aspect will condition any internal gradations in the use of past morphology, we find a striking result. Although the percentages in Table 2 suggested that events are most strongly associated with overt past use, this ordering falls apart when other factors are considered. The weights for lexical aspect sub-types in Table 3 no longer follow the order predicted by the LAH: events marginally *disfavor* overt past marking and activities *favor* it. This inexplicable pattern is likely to be caused by differential rates of embedding of lexical aspect types within perfective and imperfective sentences.

In contrast to the lexical aspect distribution, we see a very regular, fine-grained gradient across the five sentential aspect sub-types in Table 3. Perfectives show by far the highest weight favoring overt use. Perfectives are predicted in the SAH to correspond with high rates of past marking due to their temporal boundedness. All imperfectives, by contrast, show low weights in Table 3, strongly favoring omission of past marking, as predicted. Null past examples from our data of the four imperfective subclasses are given in (19).

- (19) a. Non-delimited habitual: I studied with my aunt. [KP:c287]
 b. Progressive: (We have to give them medicines) because winter is coming. [RT:d107]
 c. Lexical stative: Those days people are very simple and affectionate. [RT:d014]
 d. Delimited habitual: Before some time I sell the watches, but right now no. [RG:d034]

Despite the consistently low rates of overt past use with imperfectives, we can identify meaningful distinctions among these sub-types as well. Of the four types of imperfective

sentence, temporally delimited habituais show a significantly higher rate of overt past tense marking than non-delimited habituais (confirmed by an independent chi-square test: $\chi^2(4)=119.2$, $p \leq 0.001$). As noted earlier, the SAH predicts more overt past marking with temporally delimited habituais (compared to statives and non-delimited habituais), as temporally bound habits are construed as episodic and temporary, resulting in overt marking to indicate temporal location. Correspondingly, the two categories of imperfective that bear no temporal coordinates semantically—stative and non-delimited habituais—show the lowest rates of overt past marking in Table 3.¹² All of these sub-distinctions are clausal, not lexical, and so the LAH therefore has no account for them.

The second pair of predictions, (11.A.ii) and (12.A.ii), are thus also resolved in favor of the SAH, as far clearer internal gradations can be identified and explained for sentential aspect sub-types than lexical aspect sub-types.

4.3 Misaligned examples

The final comparison in past tense use is a closer examination of the subset of examples in which lexical and sentential aspect are not aligned. These are cases in which the sentence contains a telic predicate but is ultimately imperfective, or vice versa, as discussed earlier in relation to the examples in (9) and (10). Such examples are far less frequent than aligned examples, but they represent key data that can truly establish the nature of a learner’s aspectual sensitivity yet have been entirely overlooked in the SLA literature.

The contrasting predictions of the SAH and the LAH for situations of misaligned aspect were given earlier in (11.A.iii) and (12.A.iii). The two hypotheses make opposite claims for misaligned cases. The LAH predicts a constant lexical effect with no difference between derived and underived sentential predicates. The SAH predicts that changes in the aspectual class of the sentence will influence past marking. Thus, for instance, event predicates that have been imperfectivized (e.g. by the habitual operator or a quantificational adverbial) should show low rates of past tense marking (e.g. *Mary walked to work on Mondays*), while state predicates that have been perfectivized (e.g. by a time-span adverbial) should show high rates of past tense marking (e.g. *Mary lived in Paris for five years*). In other words, the SAH makes the prediction that the *output of*, rather than the *input to* a sentential aspectual operator (such as adverbials) will determine the use of tense-aspect morphology.

Table 4 and Table 5 compare overt past marking for aligned and misaligned telic predicates (Table 5) and for aligned and misaligned atelic predicates (Table 5). Misalignments are less common than ‘transparent’ alignments and their total N values are low, but their distributions are unmistakable. In these cases, morphological marking is clearly resolved in favor of sentential, not lexical, aspect.

Table 4: Rate of past tense with perfective and imperfective sentences containing telic predicates

	% OVERT PAST TENSE	TOTAL N
Telic: Perfective (common)	75.9%	320
Telic: Imperfective (rare)	13.3%	45

$\chi^2(1)= 71.3$; $p \leq 0.001$ (*significant*)

Table 5: Rate of past tense with perfective and imperfective sentences containing atelic predicates

	% OVERT PAST TENSE	TOTAL N
Atelic: Imperfective (common)	42.4%	311
Atelic: Perfective (rare)	84.6%	26

$\chi^2(1) = 17.2; p \leq 0.001$ (*significant*)

In Table 4 (lexically telic predicates), we first see that the default configuration where telic verbs are embedded in perfective sentences correlates with very high rates of past tense marking. The LAH predicts that even if a telic verb is embedded in an *imperfective* sentence, its lexical aspect should continue to correspond to high rates of past marking. However, we see a dramatic drop in past tense marking in such cases, due to the imperfective status of these sentences.

In Table 5 (lexically atelic predicates), we see that the default configuration where atelic verbs are embedded in imperfective sentences correlates with very *low* rates of past tense marking, as expected. The LAH predicts that even if an atelic verb is embedded in a *perfective* sentence, the presence of a lexically atelic predicate in such a sentence should lead to low rates of past tense marking. However, we see an enormous increase in past tense marking in such cases, as a result of the perfective status of these sentences.

The LAH is thus strongly disconfirmed by these peripheral, yet crucial, instances where higher aspectual operators are responsible for changing the aspectual classification of the sentence.

To illustrate this finding more clearly, we provide a few examples with and without type-shifting aspectual operators in (20)–(25) below. All examples are from our data. They all occur in contexts of past-time reference, thus requiring overt past tense marking in Standard English. The nonstandard absence of past marking in these sentences depends not on the lexical predicate in the sentence but rather on the status of the sentence as perfective or imperfective. Examples (20)–(22) first show ‘aligned’ examples of all three lexical types with no higher operators causing any change in aspectual type. Examples (23)–(25) then show ‘misaligned’ examples of all three lexical types, in which higher operators cause changes in aspectual type.¹³

- (20) Lexical aspect: STATE; Sentential aspect: IMPERFECTIVE (no added operator)
Morphological marking: *Null past due to imperfectivity*

- a. When I come to Delhi after Partition, then Delhi is not so congested. [RT:d011]
b. Those days people are very simple and affectionate. [RT:d014]

- (21) Lexical aspect: ACTIVITY; Sentential aspect: IMPERFECTIVE (no added operator)
Morphological marking: *Null past due to imperfectivity*

- a. I work with the French people, no? [MM:d038]
b. I study in Punjab also, I study in Delhi also. Because of moving. [IA:d134]

- (22) Lexical aspect: EVENT; Sentential aspect: PERFECTIVE (no added operator)
Morphological marking: *Overt past due to perfectivity*

- a. I left. I got offered the job in Rajasthan. [IA:d037]
b. Then they opened the restaurant in Fremont. [RS:c390]

- (23) Lexical aspect: STATE; Sentential aspect: IMPERFECTIVE → PERFECTIVE (overt timespan adverbial operator)
Morphological marking: *Overt past due to perfectivity*
- a. For first 12 year I was there because my father was posted there. [RT:d033]
b. Six months I was there in the kitchen. [RS:c101]
- (24) Lexical aspect: ACTIVITY; Sentential aspect: IMPERFECTIVE → PERFECTIVE (overt temporal bound)
Morphological marking: *Overt past due to perfectivity*
- a. I worked for 14 years. That's enough. [SK:c274]
b. So we did the schooling over there and then moved. [KP:c026]
- (25) Lexical aspect: EVENT; Sentential aspect: PERFECTIVE → IMPERFECTIVE (covert habitual operator)
Morphological marking: *Null past due to imperfectivity*
- a. That time, this diplomat, they have a parties. [MM:d062]
b. Before some time I sell the watches, but right now no. [RG:d034]

Because the LAH is strictly formulated in terms of lexical/VP aspect, it offers no explanation for why derived stative based on telic verbs, summarized in row 2 of Table 4 and illustrated in (25), show the lowest rate of past marking. It also cannot explain why derived eventive predicates based on atelic verbs, summarized in row 2 of Table 5 and illustrated in (23) and (24), show the highest rate of past marking. On our proposal, these facts are expected since it is not the telicity value of the VP but rather that of the sentence that determines the use of past morphology.

5 Findings: Progressive morphology

As with past tense use, the LAH and the SAH make conflicting predictions for the behavior of progressive marking among learners, given earlier in (11.B) and (12.B). We begin by examining the influence of lexical activity verbs on *-ing* use, and then examine the influence of sentential imperfectivity.

5.1 Progressive *-ing* and activity verbs

The left side of Table 6 appears to initially confirm the LAH prediction in (11.B.ii) that Indian English speakers will use the progressive more with activity VPs and least with states.

Table 6: Distribution of progressive *-ing* across lexical aspect categories

INDIAN ENGLISH RATES			NATIVE RATES (HOUSEN 2002: 17)		
	% OF ALL	TOTAL N		% OF ALL	TOTAL N
	PROGRESSIVE			PROGRESSIVE	
Activity	47.5%	161	Activity	53%	263
Event	32.4%	110	Event	38%	186
State	20.1%	68	State	9%	46

However, the right side weakens support for the LAH significantly, as the bias in the data is not significantly different from native speaker distributions. Other studies have found a similar close mirroring (rather than exaggeration) of adult native usage frequencies in child or L2 learner language frequencies (e.g. Kiehlstedt 2002: 341). In fact, the slight trend in Indian English contradicts the LAH, as the rate of *-ing* use with states is *higher* than native rates and the rate with activities is *lower*. There is therefore no evidence supporting the LAH prediction that *-ing* will be restricted to activity VPs.

5.2 Progressive *-ing* and imperfectivity

The LAH also claims that the progressive will not be over-extended to states. This is strongly disconfirmed by our data. The SAH prediction that *-ing* will be over-extended to the remaining two imperfective categories—statives and non-delimited habituals—is clearly supported. Table 7 shows that the progressive in Indian English is systematically over-extended to lexical and derived (i.e. habitual) stative predicates.

Table 7: Distribution of progressive *-ing* across sentential aspect categories

	% OF ALL PROGRESSIVES	TOTAL N
Delimited habitual	33.0%	112
Non-delimited habitual	30.7%	104
Progressive	18.3%	63
Stative	14.7%	50
Perfective	2.9%	10

Of the categories in Table 7, progressive and delimited habitual contexts are standard environments for use of the progressive form in English. A few stative uses of the progressive are licensed in standard English, but for the most part the use of the progressive with non-delimited habituals, statives, and perfectives is non-standard (and thus listed in boldface in Table 7).¹⁴

Within imperfective categories, solid extension of *-ing* occurs in the domains of habituality and stativity. In other words, as the SAH predicts, Indian English speakers extend the progressive construction to all imperfective categories. Examples from the data of *-ing* use with non-delimited habitual reference are give in (26) and with stative reference are given in (27).

(26) Over-extension to non-delimited habituals

- a. I have got a driver. My son *driving* his own car. [IA:d103]
- b. My parents are sometimes there *going* and *coming*. [RT:c157]
- c. Generally only dry-cleaning clothes *are coming*. [PB:d035]
- d. There's no Indian crowd [in Rochester] and it's *snowing*. [RS:c123]
- e. Every week I'm *calling* [my parents]. [RS:c171]

The examples in (26) crucially show that in Indian English, both activities (*snow*, *drive*), and events (*come*, *call*) — occur with *-ing*, but only due to the systematic semantic contribution of imperfectivity made by the habitual/generic reading of the sentence.

(27) Over-extension to statives

- a. Some people *are thinking* it's a bad job. [MM:d138]
- b. They were asking me for 80% or something. But I *was only having* 70%. [DD:d108]
- c. Friendship we *are missing* because relatives and friends circle 95% in India. [KD:c176]
- d. Japanese patients have a tendency that they would not *be knowing* English. [AM:d132]
- e. Then what they'll feel is like, we *are knowing* each other. [RS:c383]

(26) gave examples of derived states (habituals); (27) shows underived (lexical) states. (27) clearly shows that states (*think, know, have*) are also robust targets for *-ing* use, a category that the LAH specifically predicts will not be associated with over-extension of the progressive form. The SAH, by contrast, recognizes that progressive, stative, and habitual predicates share something at the sentence-level — imperfectivity. Together, the uses seen in (26) and (27) indicate that English progressive morphology has been recruited as a broader marker of imperfectivity by speakers of Indian English.

5.3 Summary

The analysis in §4 and §5 has demonstrated that Indian English speakers associate morphological marking with sentence-level (im)perfectivity rather than with the lexical predicate in the sentence. This was found to be true for use of the past tense form as well as the progressive form.

The three types of evidence from past tense use included: overall rates of past marking, finer gradations in past tense use, and past marking in cases of misalignment between lexical and sentential aspect. In all three cases, stronger support was found for sensitivity to sentential predication than lexical aspect. When lexical aspect appeared to be a factor, this pattern disappeared when sentential aspect was taken into account. Apparent lexical effects in simple descriptive statistics can be explained by widespread alignment of lexical and sentential aspect; the crucial ‘misaligned’ cases supported this interpretation. Further support was found in the robust over-generalization of *-ing* to imperfective contexts.

This widespread sensitivity to sentential aspect would not have been registered had only standard LAH methodologies been employed. The results according to the original predictions of the two hypotheses are summarized in Table 8.

Table 8: LAH and SAH predictions and results

LAH:	PAST –ED USE			PROGRESSIVE –ING USE		
	<i>states</i>	<i>activities</i>	<i>events</i>	<i>states</i>	<i>activities</i>	<i>events</i>
Rate of overt <i>-ed</i>	low ✗	mid ✗	high ✓			
Rate of overt <i>-ing</i>				low ✗	high ✗	low ✗

SAH:	PAST –ED USE		PROGRESSIVE –ING USE	
	<i>imperfective</i>	<i>perfective</i>	<i>imperfective</i>	<i>perfective</i>
Rate of overt <i>-ed</i>	low ✓✓	high ✓✓		
Rate of overt <i>-ing</i>			high ✓✓	low ✓✓

6 Reintroducing contact factors in L2 aspect

The lexical aspect approach has led to a backgrounding of L1 and target L2 influences in learning situations, influences for which the fields of creole studies and second language acquisition have shown extensive evidence (Bickerton 1981, Lefebvre 1998; Odlin 1989; Siegel 2003). Substrate or L1 effects, superstrate or target L2 effects, and universal tense-aspect biases (e.g. markedness, prototype, aspect-before-tense effects) are all possible explanations accommodated by the SAH. The emergent system of Indian English—whereby Indian English speakers reassign English (past) tense and (progressive) aspect morphology to mark perfective and imperfective aspect respectively—invites a return to such influences as explanations.

Although it is conceivable that the emergent system in Indian English has a universal basis (e.g. Bickerton 1981), we adopt a more conservative position here. The present pattern does not seem to arise across all contact situations; Bickerton (1984) in fact notes that Indian English contradicts universalist predictions and suggests an L1 influence. In general, substrate (L1) and superstrate (target L2) sources must be assessed before appeals are made to universal explanations (Sharma 2009), and we find that these provide a sufficient explanation for innovations in Indian English.

In order to establish whether the perfective-imperfective use of *-ed* and *-ing* involves direct transfer of L1 functions, we compare the Indian English usage to the primary Indo-Aryan substrate for the variety, Hindi, as well as to the superstrate English.

Table 9: Morphological devices for aspect in Hindi, Indian English, and Standard English

		HINDI	INDIAN ENGLISH	STANDARD ENGLISH
PAST	Perfective	dho-ya	wash-ed	
	Neutral			wash-ed
IMPERF	Progressive	dho raha	wash-ing	wash-ing
	Habitual	dho-ta	wash-ing	wash-s
	Stative	jan-ta	wash-ing	know-s

The comparison in Table 9 shows that at least within past reference, the transfer of perfective meaning to the English form *-ed* arises directly from the past perfective Hindi inflection *-(y)a*. A semantic-morphological pairing from the L1 contributes its semantics to a morpheme from the target L2 (a process described in Lefebvre 1998 as relexification).

Let us now examine whether the imperfective uses of the progressive can similarly be explained simply by L1 transfer, as suggested informally by Bickerton (1984).

In contrast to the clear L1 effect in perfectivity marking, imperfectivity presents something of a puzzle in Table 9: both the L1 and the L2 systems make a comparable distinction between the progressive meaning (expressed by *rahna* in Hindi, *-ing* in English) and other imperfective meanings (expressed by *-ta* in Hindi, and absence of overt morphology in English). Nevertheless, the contact variety of Indian English has a system which bears no resemblance to either the L1 or the target language. Instead, we find a generalization of one form, *-ing*, across all imperfective contexts.

If direct transfer from Hindi were involved, we might expect to find a single Hindi imperfective marker that forms the basis for the new meaning of *-ing* in Indian English. However, the Indian English use of *-ing* is neither identical to the use of the Hindi progressive marker *rahna*, nor the Hindi imperfective marker *-ta*. Rather, the

range of uses of *-ing* in Indian English is the union of the uses of these two forms. Indian English *-ing* has become a general imperfective marker, thus strikingly similar to Romance systems such as French, in which the Imparfait form (in the past tense) conveys the full range of imperfective meanings. This resemblance is illustrated in (28).

(28)		INDIAN ENGLISH	FRENCH IMPARFAIT
	Progressive	<i>She was running.</i>	<i>Elle courait.</i>
	Habitual	<i>In school, I was reading a lot.</i>	<i>À l'école, je lisais beaucoup.</i>
	Stative	<i>I was knowing your friends.</i>	<i>Je connaissais vos amis.</i>
	Possessive	<i>He was having some money.</i>	<i>Il avait de l'argent.</i>

Why would a third system—identical neither to the L1 nor the L2—arise? And why is there no direct L1 transfer effect as in the perfective? The three basic categories of imperfective in Table 9 (based on Comrie 1976) are insufficiently detailed to answer this question, as they inaccurately suggest that the boundary between progressive and other imperfectives is parallel in Hindi and English, leaving the emergence of a new system unexplained. In Table 10—a more detailed list of imperfective clause types and their corresponding morphology—we see a significant mismatch between the Hindi and English systems, the most likely source of the innovative imperfective use of *-ing* in Indian English.

Table 10: Allocation of imperfective marking in English and Hindi

TYPE	EXAMPLE	ENG	HINDI	IND ENG
Progressive	He is writing.	-ing	rahna	-ing
Prelim. stage	He's arriving now.	-ing	rahna	-ing
Future	She's leaving tomorrow.	-ing	rahna	-ing
Weather	It's raining.	-ing	rahna	-ing
Delimited habitual	She's driving these days.	-ing	-ta / rahna	ing
Adverb over time	Flying all day, the bird tired.	-ing	-ta	-ing
Adverb (simul.)	He walked towards me smiling.	-ing	-ta	-ing
Persistent activity	The wind kept blowing.	-ing	-ta	-ing
State	You love music.	–	-ta	-ing
Habitual	I drive.	–	-ta	-ing
Posture	He is standing outside.	-ing	-a (perf)	-ing
Location	A letter was lying there.	-ing	-a (perf)	-ing
Temporary state	He is holding it.	-ing	-a (perf)	-ing
Nonfinite	They like swimming.	-ing	-na (perf)	-ing
Possession	I have a dog.	–	–	-ing

The key detail in Table 10 is the unusually wide range of constructions that English *-ing* is used with (Comrie 1976: 25). The Hindi auxiliary construction with *rahna* is more strictly progressive than English *-ing*. As a result, *-ing* encroaches extensively on non-progressive territory associated with *-ta* in Hindi. In searching for forms equivalent to *rahna* and *-ta*, the Hindi speaker encounters *-ing* in both domains and thus over-generalizes *-ing* as a general marker of imperfectivity.

We can argue, therefore, that imperfectivity marking in Indian English involves *both* a substrate (L1) and a superstrate (target L2) effect. Overt marking of progressive and imperfective aspect is obligatory in the L1, Hindi, triggering a search for a comparable form-meaning mapping in the L2. The form *-ing* is identified as an appropriate exponent of imperfectivity due to its wide range of uses in the target L2, English.

In sum, the imperfective-perfective sentential aspect contrast, which is obligatorily marked in Hindi, is replicated in bilingual Indian English via the allocation of new functions to the forms *-ed* and *-ing*.

7 Conclusion

This paper has examined the contact-driven emergence of a new aspectual system in Indian English. The widely adopted view that lexical aspect influences learners' restructuring of tense-aspect morphology was explored, but critiqued due to its neglect of the possibility that certain learners attend to additional aspectual information in a clausal predication. Our competing hypothesis proposed that learners are broadly sensitive to the properties of the clausal predication rather than narrowly sensitive to lexical aspect.

The latter hypothesis was confirmed more strongly in several ways: Indian English speakers aligned overt past morphology with (lexical and derived) perfective predications and overt progressive morphology with (lexical and derived) imperfective predications, creating a perfective/imperfective distinction absent in English morphology. These patterns are inexplicable on a pure lexical aspect view but can be accounted for by a treatment that places lexical aspect within a more comprehensive, compositional framework of aspectual predication.

Unlike the lexical approach, the sentential aspect approach allows for universal, substrate, or superstrate sources. These possibilities were explored in the closing section. The reanalysis of *-ed* as a marker of perfectivity appeared to derive directly from the L1 system; the reanalysis of *-ing* as a marker of imperfectivity appeared to derive from L1-L2 interaction.

The greater complexity in the reanalysis of *-ing* may account for a detail noted in §3, namely that past tense omission is not as widespread a feature of Indian English as nonstandard progressive use. Perfectivity-driven past tense use generates a *subset* of Standard English uses; learners will soon encounter explicit counter-evidence (in the form of past imperfective clauses) and can eventually move past this particular L1 effect. By contrast, imperfectivity-driven progressive use generates a *superset* of Standard English uses. The Subset Principle (Berwick 1985) states that if a learner is starting from a grammar that is a subset of the target grammar, they can expand straightforwardly to the target based on positive evidence in the input. But an initial superset grammar already generates all standard uses and therefore requires explicit negative evidence in order to change. This difference in transfer effects on past and progressive usage may account for the difference in their degrees of nonstandardness in Indian English. Indeed, this difference may account more generally for the greater number of disconfirmations of LAH predictions for progressive morphology use, noted in §1.2. This is certainly observable in the English of native speakers of German or French, who acquire standard English past usage but retain L1 effects in their use of the progressive.

Our claims regarding the SAH have so far been restricted to individuals with perfectivity-marking L1 systems. We have suggested that at least *these* bilinguals may be vulnerable to clausal effects. Such effects of L1 perfectivity on L2 tense use should not be surprising, given evidence that L1 tense can influence L2 perfectivity use (Duff and Li 2002). We have also been conservative in treating the perfectivity effect as deriving from L1 transfer, rather than universal markedness. This is supported in an initial comparison to a slightly different L1 system—the Chinese substrate in Singaporean English (Sharma 2009). Further comparisons to different L1-L2 combinations can confirm the empirical scope of sentential aspect sensitivity.

Finally, it remains to be seen whether earlier studies that appear to confirm the LAH are in fact merely picking up an epiphenomenon of sentential aspect marking. This applies in particular when perfectivity-marking L1s were involved (e.g. Bayley 1994;

Giacalone Ramat & Banfi 1990; Dietrich et al. 1995; Robison 1995; Shirai 1995).¹⁵ Apparent lexical effects were identifiable in the present study and could have been interpreted as the principal cause, as in previous studies. It was only the attention to the complete aspectual derivation that led to the discovery that lexical effects constitute part of a broader sentence-level aspect-marking process. It follows that many lexical aspect studies that did not consider aspectual operations above the VP in their data may have failed to identify what is in fact underlying sensitivity to the final aspectual predication.

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Appendix A: Participants' social characteristics

SPEAKER	AGE	SEX	OCCUPATION	FIRST LANGUAGE
MM	30	F	cook	Hindi
IA	66	M	shop owner	Hindi
RS	26	M	waiter	Hindi
BB	32	M	salesman	Hindi, Garhwali
RG	33	M	street stall owner	Hindi
KP	54	F	housewife	Hindi, Gujarati
RT	84	F	retired	Hindi, Punjabi, Dogri
RR	48	M	shop owner	Hindi, Gujarati
KD	34	M	shop owner	Hindi, Gujarati
SK	38	F	shop owner	Hindi, Punjabi
CK	67	M	shop owner	Hindi, Gujarati
PB	59	M	shop owner	Hindi, Punjabi

Appendix B: Individual rates for overt and null past tense with perfective and imperfective sentences

SPEAKER	PERFECTIVE			IMPERFECTIVE		
	OVERT	NULL	(TOTAL N)	OVERT	NULL	(TOTAL N)
MM	82.9	17.1	(35)	13.0	87.0	(46)
IA	80.8	19.2	(26)	12.5	87.5	(24)
RS	87.8	12.2	(123)	39.6	60.4	(48)
BB	66.7	33.3	(9)	27.3	72.7	(11)
RG	100.0	0.0	(3)	50.0	50.0	(6)
KP	82.4	17.6	(34)	44.4	55.6	(63)
RT	70.0	30.0	(30)	42.9	57.1	(63)
RR	84.4	15.6	(32)	63.0	37.0	(46)
KD	11.1	88.9	(9)	42.9	57.1	(14)
SK	46.2	53.8	(26)	0.0	100.0	(14)
CK	44.4	55.6	(9)	71.4	28.6	(7)
PB	50.0	50.0	(10)	64.3	35.7	(14)

Notes

¹ Related proposals have used a variety of terms: Primacy of Aspect, Aspect-Before-Tense, Defective Tense, Inherent Aspect or simply Aspect Hypothesis (Slabakova 2002: 176) We use the term Lexical Aspect Hypothesis to highlight the focus on the lexical verb.

² Non-standard use of tense-aspect morphology in Indian English has been noted in the literature: progressive marking with lexical states, omission of past marking, and perfect marking with simple past reference (Schneider 2007). The present analysis offers a unified explanation for these uses.

³ Some versions of the LAH claim a strict order of acquisition for past/perfective morphology (ACH > ACC > ACT > STA), the reverse order for present/imperfective morphology, and a third order for progressive (ACT > ACC > ACH) (Li and Shirai 2000: 50).

⁴ Not all operators are morphologically encoded, e.g. the habitual reading of English past sentences is attributed to a covert operator (Krifka et al. 1995, Rimell 2004).

⁵ A predicate P is divisive if and only if, when it applies to an entity x, it also applies to any y that is part of x; this property is characteristic of atelics. A predicate P is anti-divisive, or quantized, if and only if, when it applies to an entity x, there is no proper subpart y of x such that P applies to y; this property is typical of telics (Krifka 1989). We use 'telic / atelic' to denote VP-level aspect and 'perfective / imperfective' to denote sentence-level aspect; both are described in terms of the properties of homogeneity and divisivity.

⁶ See Deo (2006) for an account of the precise relationships between types of aspectual operators within a unified semantic theory of aspect, and for extensive typological support for this model.

⁷ Our use of 'sentential aspect' is not identical to 'grammatical aspect'. 'Grammatical aspect' refers to grammaticalized aspectual operators such as imperfective and perfective. 'Sentential aspect' refers to the final aspectual class (imperfective vs. perfective) of the sentence, whether this is determined by the lexical class of the verb or by higher elements that apply to the basic predication. 'Sentential aspect' thus subsumes both lexical and grammatical aspect.

⁸ In Gujarati, the progressive alternates with the imperfective form for events-in-progress. Gujarati also forms the present imperfective with the reflex of a different Sanskrit paradigm (Masica 1991: 302).

⁹ A second reason for this approach is that the progressive is optional in some contexts in Standard English (e.g. *She's working there / She works there*), making it impossible to demarcate all *-ing* contexts.

¹⁰ To check reliability, 10% of both data sets were independently re-coded by the second researcher. The inter-rater reliability was 85.2% (post-discussion: 96.3%).

¹¹ The number of past tense progressives in the data is low because, in our coding, if null past marking could be interpreted as narrative present it was. Our coding thus errs on the side of potentially producing fewer non-standard tokens. Other studies have treated all absence of past tense in narratives as evidence for the LAH (see Bardovi-Harlig 2000: 219); however, this favors the coding of narrative present (often used with atelics) as unmarked past atelics, in agreement with the LAH.

¹² We predict a similar distinction within stative predicates, with individual-level (permanent property, e.g. *to be tall*) predicates patterning like non-delimited habituals, and stage-level (temporary property, e.g. *to be amused*) predicates patterning like delimited habituals, due to the presence of temporal coordinates. We only found a slight trend in this direction. The number of progressive examples is too small to allow any discussion of its relation to past tense marking.

¹³ In (26) and (27), 'for' time-span adverbial phrases, 'when' clauses, and 'then' adverbials trigger episodic, bounded readings for lexically stative predicates, i.e. they are perfectivizers (Dowty 1986). In (28), the sentences all have a habitual reading in the discourse context.

¹⁴ The low number of *-ing* use with perfectives confirms (12.B.i). Interestingly, these few cases are inceptives and ingressives (*come, start, begin*), which were also associated with null past marking.

¹⁵ The observation that even child learners of perfective-imperfective systems appear to have an initial lexical aspect effect (Sankaran 2008) suggests that lexical aspect may have a special status in L1 learning. Even here, both lexical and viewpoint information may be salient (Slobin 1985).