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Nobody's Perfect

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Abstract: This paper challenges the cross-linguistic validity of the tense–aspect category 'perfect' by investigating 15 languages from eight different families (Atayal, Brazilian Portuguese, Dutch, English, German, Gitksan, Japanese, Javanese, Korean, Mandarin, Niuean, Québec French, St'át'imcets, Swahili, and Tibetan). The methodology involves using the storyboard 'Miss Smith's Bad Day' to test for the availability of experiential, resultative, recent-past, and continuous readings, as well as lifetime effects, result-state cancellability, narrative progression, and compatibility with definite time adverbials. Results show that the target forms in these languages can be classified into four groups: (a) past perfectives; (b) experientials; (c) resultatives; and (d) hybrids (which allow both experiential and resultative readings). It is argued that the main division is between past perfectives, which contain a 'pronominal' tense, on the one hand, and the other three groups on the other, which involve existential quantification, either over times (experiential) or over events (resultative). The methodological and typological implications of the findings are discussed. The main conclusion of the study is that there is no universal category of 'the perfect', and that instead, researchers should focus on identifying shared semantic components of tense–aspect categories across languages.

Keywords: tense; aspect; perfect; perfective; experiential; resultative; storyboards; typology

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1. Introduction

The meanings of temporal and aspectual categories in languages of the world pose a cross-linguistic puzzle. On the one hand, similar kinds of semantic distinctions are encoded in language after language, and researchers find it useful to classify elements in different languages using recurring terms: 'perfect', 'perfective', 'imperfective', and so on. On the other hand, not every 'perfect', 'perfective', or 'imperfective' has a uniform semantics. It is not even clear if there are any universally valid semantic cores for the major tense–aspect categories.

Researchers have recently begun to address these questions. For example, Arregui et al. (2014) examine imperfectives in a number of languages and argue that they all share a common modal core but differ cross-linguistically in the modal bases. In this paper, we add to a small but growing body of research, which tackles similar big questions with respect to the 'perfect' (e.g., Bowler and Ozkan 2017; van der Klis et al. 2021). In principle, there are two ways in which the perfect could be defined: morphologically, as involving an auxiliary and a past participle, or semantically, as forms that lend themselves to the

same set of interpretations as the English present perfect and are subject to the same type of restrictions.[1]

Both definitions face similar challenges: forms that have been called perfects exhibit remarkable empirical variation, even among cognates in closely related languages (see de Swart 2016; van der Klis et al. 2017, 2021; Grønn and Stechow 2020, among others). For examples of such cross-linguistic variation, we need look no further than the West Germanic languages, English and Dutch. What is called the 'perfect' in these languages is expressed periphrastically by means of an auxiliary verb ('have' in English, 'have' or 'be' in Dutch) plus the past participle of the main verb. While the two forms have a number of semantic properties in common, there are some fine-grained differences: for example, the English present perfect is incompatible with definite temporal adverbials (modifiers referring to a specific time in the past; e.g., Klein 1992) as shown in (1), but the Dutch present perfect lacks this restriction (de Vuyst 1985, among others) as shown in (2).

(1) * I **have** work**ed** yesterday.

(2) Ik **heb** gisteren **ge**-werk-**t**.
I **have**.PRS.1SG yesterday PTCP-work-PTCP
'I worked yesterday.' (Dutch)

Beyond closely related languages, such as English and Dutch, many languages have tense–aspect categories which are classified as perfects but differ in even more major ways. For example, languages vary in whether their 'perfects' have a continuous reading (as in *I have been working since this morning*; see Section 2); languages whose perfects lack such readings include Greek (Iatridou et al. 2001) and Niuean (Matthewson et al. 2015). This has led some researchers to analyze the perfect in terms of a 'cline'. For example, Dahl and Wälchli (2016) claim that the grammatical space between perfects and iamitives is "a continuum without sharp boundaries anywhere."[2]

In the face of such variation, we set out to determine if there is a cross-linguistically stable core semantics for the perfect, that is composed of identifiable components. To determine the core semantic components of individual forms across languages, we use semantic fieldwork methodology: storyboard elicitation with follow-up judgment tasks. Such a methodology can effectively be reproduced consistently across languages, while allowing detailed probing of the semantic contribution of individual forms.

This approach contrasts with (and complements) the two main types of methodological approaches previously used in research on the perfect. On the one hand, the formal semantics literature (e.g., Klein 1992, 1994; Portner 2003, 2011, among many others) aims to account for detailed properties of the perfect in individual languages, usually English or a closely related language, such as German. The main data source for these studies typically consists of introspective judgments supplemented in some cases with naturally occurring examples. On the other hand, typological studies, such as Dahl (1985, 2000), Bybee et al. (1994), or Dahl and Velupillai (2011), identify perfects in a wider range of languages, using either descriptive grammars or questionnaires as their sources of information, and are necessarily much shallower in their characterization of the properties defining perfects.

In recent years, a third methodology has also emerged involving 'translation mining' (van der Klis et al. 2017, 2020), which uses parallel cross-linguistic corpus data to compare forms across different languages. So far, translation mining has been applied to the perfect mostly for Indo-European languages, but it could in principle be applied to any languages that have the right type and amount of corpus data, preferably of the same text in translation; see also several other papers in this issue of *Languages*: Bogaards (2022); Corre (2022); de Swart et al. (2022); Fuchs and González (2022); Mulder et al. (2022); and Le Bruyn et al. (2022). The translation mining methodology represents somewhat of a middle ground between formal studies that focus on a single language, and large typological studies.

In this paper, we also strike a middle ground between detailed semantic analysis and large-scale typology. We do this by investigating a genetically and structurally diverse set of languages that is smaller than would be found in a broad typological survey, but we

correspondingly examine the data in greater depth. Such a 'middle way' has been advocated by Polinsky and Kluender (2007) and Baker and McCloskey (2007), among others:

> The proposed change is a so-called "middle way" that would allow the comparison of a relatively small, intelligently selected sample of languages, using deeper structural analyses than is currently possible with large-scale sampling methods. (Polinsky and Kluender 2007, p. 280)

> We suggest that there is a "Middle Way" which will shed light on the crucial underlying issues. This Middle Way style of research would look at fewer languages than a typical typological study does, but at more languages than a typical generative study does. (Baker and McCloskey 2007, p. 294)

Our language set is not intended to be statistically representative of the world's languages, but by including languages that are unrelated and structurally different from English and from each other, we aim to capture at least some diversity. The languages in our data set are the Indo-European languages English, Dutch, German, Québec French, and Brazilian Portuguese, the Austronesian languages Niuean, Javanese, and Atayal, the Sino-Tibetic languages Mandarin and Tibetan, and Korean (Koreanic), Japanese (Japonic), Sťát'imcets (also known as Lillooet; Salish), Gitksan (Tsimshianic), and Swahili (Bantu).[3]

Unlike in the translation mining approach, our data are based on fieldwork with native-speaker consultants and/or our own intuitions as native-speaker linguists. This enables the collection of negative data.[4] For each language in our sample, we investigated one or more forms (individual morphemes or periphrastic constructions). Some of the forms investigated have been described as a perfect in the previous literature, while some were chosen because of their overlap with uses of the English present perfect. It was a criterion for inclusion in our data set that the forms could be used in at least one context that is typical of the English present perfect, as revealed through the use of a storyboard designed to include such contexts (see below for details).[5] In that sense, our approach is meaning based rather than form based. We refer to these morphemes and constructions theory-neutrally as 'target forms'.

The target forms are detailed in Table 1, in alphabetical order by language. For invariant morphemes, we simply list the morphemes; otherwise, we give a description of the forms used.

Table 1. Target forms investigated.

Language	Form	Name(s) in Traditional or Prior Literature, If Applicable
Atayal	*-in-*	Past; perfect; perfective
Atayal	*wal*	Past; perfect; perfective; perfective-perfect
Brazilian Portuguese[6]	verb + past ending	*Pretérito perfeito simples* (lit. 'simple perfect past')
Dutch	present auxiliary + past participle	*Voltooid tegenwoordige tijd* (lit. 'completed present tense')
English	present auxiliary + past participle	Present perfect
English	verb + *-ed*	Simple past
German	present auxiliary + past participle	*Perfekt*
Gitksan	*hlaa*	Inceptive; proximal
Japanese	~た *-ta*	Simple past
Japanese	~たことがあ{る, った} *-ta koto-ga a{-ru, -tta}* -PST NMLZ-NOM exist{-NPST, -PST}	Experiential nominalization

Table 1. *Cont.*

Language	Form	Name(s) in Traditional or Prior Literature, If Applicable
Japanese	~てしまった -te shima-tta -te AUX-PST	Auxiliary + past
Japanese	~てい{る, た} *-te i{-ru, -ta}* -te i{-NPST, -PST}	Imperfective; progressive; perfect
Javanese	*tau*	Experiential; past; 'ever'
Korean	었 *-ess*	Past; present perfect; anterior; perfective; existing stative; indirect evidential
Korean	었었 *-(e)ss-ess*	Past perfect; discontinuous past
Mandarin[7]	過 *-guo*	Perfective; experiential; past
Mandarin	了 *le*	Perfective; perfect; change of state; current relevance state
Niuean	*kua*	Perfect
Québec French	present auxiliary + past participle	*Passé composé*
St'át'imcets	*plan*	'already'
Swahili	*me*	Perfective or perfect
Tibetan	ཉམས *-myong*	'to experience'

In order not to pre-judge the analysis of these forms, we will either simply reproduce the form itself in glosses (where it is a single morpheme), or use non-controversial grammatical glosses (e.g., indicating when a target form is composed partly of a past participle).

As much as possible, we employ consistent data-collection methods across the different languages. Our results are largely based on the storyboard 'Miss Smith's Bad Day' (Matthewson 2014) both for data collected with speaker-consultants and for data volunteered by the authors. In the data, examples elicited using the 'Miss Smith's Bad Day' storyboard are annotated with 'MSBD'. See details below in Section 3.

Based on our study of a total of 22 forms in 15 languages from 8 families, we make the following generalizations and proposals. Overall, the category 'perfect' does not have cross-linguistic validity; the term should be retired. However, it is not appropriate to abandon all categorization and have a random collection of individual tense–aspect forms, since our investigation shows that the behavior of the target forms is not purely idiosyncratic. Nor do we find evidence that there is a prototype around which the forms cluster. Instead, our target forms divide into four identifiable sub-groups, with the forms within each sub-group displaying properties similar to each other.

The four categories we identify are (a) past perfectives; (b) experiential forms (forms that encode an experiential reading but do not convey a resultative reading); (c) resultative forms (forms that encode a resultative reading but exclude a purely experiential reading); and (d) hybrid forms (forms that allow for both experiential and resultative uses). The past perfective forms exhibit properties of a "pronominal" tense in the sense of Partee (1973) (i.e., a tense which is like a pronoun in that it represents a free variable which receives its value from the utterance context, but which also may get bound by quantificational elements elsewhere in the sentence), while the forms in the other three groups involve existential quantification: over times (experiential and hybrid forms) or over events/states (resultative and hybrid forms).

The remainder of the paper is structured as follows. In Section 2, we introduce the eight properties which form the empirical basis of our investigation. In Section 3, we

discuss our data-collection methodology, and in Section 4, we present the results, showing that there are four categories of target forms. We discuss some methodological, theoretical, and typological implications of our findings in Section 5, and conclude in Section 6.

2. Empirical Properties to Be Tested

The English perfect has no more likelihood of being a 'prototypical' exemplar of the perfect than a construction in any other language. However, it has been by far the most well-studied, and its empirical properties are certainly the most well understood. Therefore, in choosing which empirical properties to test, we opted to begin with eight properties which have been discussed in the context of the English perfect (see McCoard 1978; McCawley 1981; Michaelis 1994; Katz 2003; Portner 2003; Iatridou et al. 2001; Pancheva and Stechow 2004; Mittwoch 2008; Zhao 2022 'this issue' among others).[8] The forms in Table 1 are included because they share one or more properties with the English present perfect.

The first property is whether the construction has an *experiential* reading. This reading asserts that an event has happened at least once in the span of an individual's lifetime. There is often a sense that the event constitutes an experience of the subject (or sometimes another argument) that is still somehow relevant for the present. For instance, in (3) with Atayal *-in-*, the experience of having climbed a mountain marks the speaker as possessing a certain skill or knowledge; (4) is an example of one of our forms which does *not* allow an experiential reading, Gitksan *hlaa*.

(3) **Experiential reading**
Context: A teacher asks 'Who has ever climbed a mountain?' and a student replies:
m-<**n**>wah=saku'.
AV-<**in**>come=1SG.ABS
'I have gone (to climb a mountain).' (Atayal; MSBD)

(4) **No experiential reading**
Context: A teacher asks 'Who has ever climbed a mountain?'

#	He[-t]=s	Tom,	"O,	**hlaa**	baxyee-'y	lax	sga'nisd=ist."
	say[-3.II]=PN	Tom	oh	**hlaa**	climb-1SG.II	on	mountain=QUDD

'Tom said, "I've climbed a mountain."'
Consultant's comment: "Doesn't work there, no. You'd think I'm now climbing." (Gitksan; MSBD)

The second property we test for is the so-called *lifetime effect*; this tests whether the subject of the clause can pick out an individual who is no longer alive at the utterance time. Examples of forms with and without the lifetime effect are shown in (5) and (6), for Niuean *kua* and the German *Perfekt*, respectively.[9]

(5) **Lifetime effect (dead subjects disallowed)**
Context: The teacher is telling the children about Sir Edmund Hillary (who is dead at the time of the utterance).

#	Pehē	a	Miss Smith,	"Ko	Sir Edmund Hillary.	**Kua**	toli	a	ia
	say	ABS	Miss Smith	ko	Sir Edmund Hillary	**kua**	climb	ABS	3SG
		ki	luga	he	mouga		ko.		
		to	TOP	POSS	mountain		ko.		

'Miss Smith says, "This is Sir Edmund Hillary. He climbed to the top of Mount Everest."' (Niuean; MSBD)

(6) **No lifetime effect (dead subjects allowed)**
Context: As in (5).

Edmund Hillary	**hat**	den	Mount Everest	bestieg-**en**.
Edmund Hillary	**have**.PRS.3SG	the	Mount Everest	climbed-PTCP

'Edmund Hillary climbed Mount Everest.' (German; MSBD)

The lifetime effect only applies to the experiential reading of the English present perfect, and not to any of the other uses of the perfect (7).

(7) a. # David Bowie **has** act**ed** in several movies. (experiential)
b. Bowie **has become** even more of a legend since his death. (result state)
c. My cat **has** just di**ed**. (recent past)
d. Bowie **has been** an androgynous icon ever since Ziggy Stardust. (continuous)

The lifetime effect is therefore best regarded as a subtest of the experiential test. Consistent with that, the test sentence for the lifetime effect in the MSBD storyboard, shown in (5)–(6), is one that involves an experiential reading.

The third property we test for is whether a *result-state* reading is possible at the utterance time. This reading expresses a change that took place in the past, resulting in a state that still holds at the utterance time. Examples (8) and (9) show that this is possible for the Brazilian Portuguese *pretérito perfeito simples*, but not for Tibetan *myong*.

(8) **Result-state reading possible**
Context: While the teacher is talking, a student falls asleep. While he is still sleeping, another student reports that he has fallen asleep:
Bob dorm-**iu**.
Bob sleep-3SG.**PST.PFV**
'Bob has fallen asleep.'[10] (Brazilian Portuguese; MSBD)

(9) **Result-state reading not possible**
Context: As in (8).
\# བོབ་གཉིད་ཞོར་སྐྱོང་རེད།
bob gnyid.shor-**myong**-red.
bob sleep.fallen-**myong**-COP
'Bob has had the experience of falling asleep.' (Tibetan; MSBD)

For forms that allow a result state to hold at the utterance time, there is a second test, namely whether the *result state is cancellable* (i.e., can fail to hold at the utterance time). For some forms, the implication that the result state still holds cannot be cancelled by explicit denial; this shows that for these forms, it is entailed that the result state holds at the utterance time (and not merely conversationally implicated). Example (10) shows that the result state implication can be cancelled at the utterance time for the Dutch *voltooid tegenwoordige tijd*, while (11) shows that this is not possible for Niuean *kua.*

(10) **Cancellation of result state possible**

Ik	**ben**		mijn	sleutels	laatst		kwijt-**ge**-raak-**t**
I	**be**.**PRS**.1SG		my	keys	recently		lost-PTCP-become-**PTCP**
	maar	ik	heb		ze	weer	ge-vond-en.
	but	I	have.PRS.1SG		them	again	PTCP-find-PTCP

'I lost my keys recently, but I found them again.' (Dutch)

(11) **Cancellation of result state not possible**
Context: Telling your friend why you were late.

#	**Kua**	galo	(tei)	e	tau	kī	haaku	ka	kua	moua	tei.
	kua	lose	(recent)	ABS	PL	key	1SG.POSS	but	kua	find	recent

'I have lost my keys, but I found them.' (Niuean)

The fifth empirical property we tested is whether a *recent past* use is possible. This usage involves reference to an event that took place just before the utterance time. It differs from the result-state reading in that it does not require an identifiable result state, although that difference may not always be clear cut. The recent past use is possible for St'át'imcets *plan* as in (12), but not possible for Korean -(*e*)*ss-ess* as in (13).

(12) **Recent-past use possible**
Context: The teacher is trying to teach, but a child interrupts to say:

Plan	exw7ún	ta=gets-cn-ám'=a	háwint=kalh!
plan	cough	DET=get.tied-foot-MID=EXIS	rat=1PL.POSS

'Our pet rat just coughed!' (St'át'imcets; adapted from MSBD)

(13) **Recent-past use not possible**
Context: As in (12).
\# 우리 쥐가 방금 기침했었어요.
wuli cwi-ga bangkum kichimhay-**essess**-e-yo.
1SG.PL rat-NOM just.now cough-**essess**-DECL-HON
'Our (pet) rat just coughed.' (Korean; adapted from MSBD)

The sixth property is whether a *continuous* reading is possible. This reading asserts that a certain state started at some point in the past and lasts continuously during an interval that includes the utterance time and possibly extends beyond it. In the literature, this reading has been called a continuative perfect, a perfect of persistent situation, or a universal perfect, the last because it expresses universal quantification over all the time points within the relevant interval (e.g., Iatridou et al. 2001). This contrasts with the other readings of the perfect, which all involve existential quantification, saying that a certain event happened at least once. The continuous reading is possible for Swahili *me* as in (14), but not possible for Javanese *tau* as shown in (15).

(14) **Continuous reading possible**
Context: A student interrupts the teacher to complain:
Tom a-**me**-kuwa a-ki-ni-vuta n-ywele tangu darasa li-anz-e!
Tom SA1-**me**-be SA-PROG-1SG-pull C10-hair since class C5-start-MOD
'Tom has been pulling my hair since the beginning of the class.' (Swahili; MSBD)

(15) **Continuous reading not possible**
Context: As in (14).
\# Tomo **tau** njambak rambut-ku.
Tomo **tau** AV.pull.hair hair-1SG.POSS
Intended: 'Tom has been pulling my hair (since the beginning of class).'
Consultant's comment: *tau iku wes suwi*, '*Tau* is a long time ago.' (Javanese; MSBD)

The next property is whether the relevant construction can be used in discourse for *narrative progression*, by which we mean the carrying forward of the reference time in a sequence of eventive clauses. This occurs in a typical story, where each new sentence denotes an event that happened "just after" the event portrayed by the previous sentence; in English, it is possible for the simple past, but not for present perfects. Narrative progression is possible for the Québec French *passé composé*, as in (16), but not possible for Mandarin *-guo*, as shown in (17).

(16) **Narrative progression possible**

Je	me	**suis**	**levée**,	j'	**ai**	**pris**	une	douche	
1.SG.SBJ	1.SG.REFL	**be.PRS.1SG**	**get.up.**PTCP	1SG.SBJ	**have**	take.**PTCP**	a	shower	
	je		me	**suis**		**fait**	à	déjeuner	
	1SG.SBJ		1.SG.REFL	**be.PRS.1SG**		make.**PTCP**	to	breakfast	
		et	je	**suis**		**partie**	prendre	une	marche.
		and	1SG.SBJ	**be.PRS.1SG**		leave.**PTCP**	take	a	walk

'I got up, I took a shower, I made myself breakfast and I left for a walk.' (Québec French)

(17) **Narrative progression not possible**
\# 我起過床，沖過澡，吃過早餐，然後散過步。

wo	qi-**guo**	chuang,	chong-**guo**	zao	chi-**guo**	zaocan,
I	get.up-**guo**	bed	take-**guo**	shower	eat-**guo**	breakfast
	ranhou	san-**guo**	bu.			
	then	walk-**guo**	walk			

Intended for 'I woke up, took a shower, had breakfast and went for a walk.' (Mandarin)

The final test concerns whether the forms can be used with temporal adverbials that refer to a 'definite' time in the past. This is possible for Atayal *wal*, as in (18), but not possible for Gitksan *hlaa*, as in (19).

(18) **Definite time adverbials possible**
Context: One student claims that the class pet just died, but another contradicts her:

wal	rima'	m-hoqil	shera'	qoli'	qasa	la.
wal	already	AV-die	yesterday	mouse	that	COS

'That mouse already died yesterday.' (Atayal; MSBD)

(19) **Definite time adverbials not possible**
Context: As in (18).

#	**Hlaa**	'nu'w[-t] = hl	'wii	gaakhl	ky'oots.
	hlaa	die[-3.II] = CN	big	rat	yesterday

'The rat has died yesterday.' (Gitksan; MSBD)

3. Methodology

Our study is based primarily on data elicited using what Burton and Matthewson (2015) call a targeted construction storyboard. Such storyboards are series of illustrations designed to include contexts that test the distribution of a linguistic expression. They can be used to test a hypothesis about a specific form, and they can also be used at more exploratory stages of the research to establish which forms are volunteered by consultants in particular discourse contexts.

Typical storyboard elicitation sessions proceed as follows: the researcher first introduces the story in the contact language while showing the pictures, then the consultant retells the story in their own language.[11] Storytelling is complemented with follow-up elicitation. Storyboards include positive contexts—contexts where the target form is hypothesized to be felicitous—and can also include negative contexts, where the target form is hypothesized to be infelicitous. Since speakers hardly ever produce infelicitous or ungrammatical expressions spontaneously, the follow-up elicitation sessions involve the researcher offering the consultant the target expression in a variety of contexts, including the storyboard's negative contexts. This helps to determine the limits and restrictions on the distribution of the target form.

One advantage of storyboard elicitation over traditional out-of-the-blue translation tasks is that the images provide non-verbal contextual cues to support the production of linguistic data, thereby mitigating the interference of the contact language. Storyboard elicitation also provides a stable methodology across research contexts, yielding cross-linguistically comparable data (Burton and Matthewson 2015).

One limitation of the storyboard methodology in a cross-linguistic study is that it runs the risk of missing relevant discourse contexts or phenomena in some languages, which may be unknown prior to constructing the storyboard. For example, viewpoint aspect categories interact with lexical aspect. Even covering all the lexical aspectual classes in one language does not ensure that the sentences in the story will provide an exhaustive set of relevant aspectual classes in other languages. This limitation can be mitigated by using storyboards in conjunction with other methodologies, including traditional elicitation (e.g., translation tasks).

The storyboard we use here, 'Miss Smith's Bad Day' (Matthewson 2014), recounts a dreadful day in the life of a teacher. It introduces contexts for most of the properties described in Section 2 (as well as some contexts designed to test inchoativity since some target forms involve inchoative semantics, e.g., Niuean (Matthewson et al. 2015)). Follow-up elicitation includes two translation tasks targeting the cancellation of the result state and narrative progression. The full script for the storyboard is available online at: http://totemfieldstoryboards.org/stories/miss_smith/ (accessed on 7 May 2022), and full data sets for each target form are available online at: https://blogs.ubc.ca/taplab/nobodys-perfect-data/ (accessed on 7 May 2022).

4. Data and Classification of Languages

In this section, we present our results. The discussion is organized according to the four subgroups of forms we identified, namely, past perfectives (Section 4.1), experiential

forms (Section 4.2), resultative forms (Section 4.3), and hybrid forms (Section 4.4). Past perfectives are compatible with narrative progression and allow definite time adverbials; experiential forms, as the name suggests, allow the experiential reading but lack the resultative reading; resultative forms are characterized by the resultative reading and exclude a purely experiential reading; and hybrid forms show both experiential and resultative readings. With each group presenting their own combination of similar characteristics, we see the notion of a cross-linguistically valid category of the 'perfect' collapsing.

4.1. Group 1: Past Perfectives

As relevant background for this section, it is important to distinguish between the perfective/imperfective and the perfect/non-perfect aspectual distinctions. The perfective/imperfective distinction relates to whether, roughly speaking, the event time is included within the reference time (perfective) or the reverse (imperfective). A simple example of a past-tense perfective vs. a past-tense imperfective in English is given in (20).

(20) a. She **wrote** her dissertation last year.
b. She **was writing** her dissertation yesterday afternoon.

Perfect can co-occur with both perfective and imperfective aspects, as illustrated in (21) and as discussed by Pancheva (2003) and Rullmann and Matthewson (2018), among others.

(21) a. She **has written** her dissertation. (perfect + perfective)
b. She **has been writing** her dissertation. (perfect + imperfective)

The forms in the first group we discuss share some semantic properties with the English present perfect, and some of them happen to share the classic morphosyntactic characteristics of the English perfect (being formed with an auxiliary and a past participle). Nevertheless we will argue that they are actually past perfectives with a usage more similar to that of the English simple past in (20a) than to the English present perfect as in (21); see also Mulder et al. (2022) 'this issue' and Zhao (2022) 'this issue'.

We will show that the forms in this group are not subject to the full range of semantic restrictions that apply to the English present perfect. In particular, they do not exhibit lifetime effects (i.e., they allow dead subjects), they allow the cancellation of a result state, they are compatible with narrative progression, and they allow definite time adverbials. We therefore argue that the forms in this group behave semantically as past perfectives.

Table 2 summarizes the data for this group of forms. Note that in each data table, we present the behavior of the English present perfect in the leftmost column for comparison. In Table 2, the English simple past is also presented in order to show that it patterns like most of the forms in this group.[12]

Table 2. Past perfectives.

READINGS and *Limitations*	**eng**	**eng**	**nld**	**deu**	**fra-QC**	**por-BR**	**jpn**
	Present Perfect	***Simple Past***	***Voltooid Tegenwoordige Tijd***	***Perfekt***	***Passé Composé***	***Pretérito Perfeito Simples***	***- ta***
EXPERIENTIAL	✓	✗	✓	✓	✗	✗	✗
Dead subjects possible	✗	n/a	✓	✓	n/a	n/a	n/a
RESULT STATE (POSSIBLE at UT)	✓	✓	✓	✓	✓	✓	✓
Result state cancellable	✗	✓	✓	✓	✓	✓	✓
RECENT PAST	✓	✓	✓	✓	✓	✓	✓
CONTINUOUS	✓	✗	(✓)	✗	✗	✗	✗
Narrative progression possible	✗	✓	(✗)	✓	✓	✓	✓
Definite time adverbial allowed	✗	✓	✓	✓	✓	✓	✓

We take the definitional characteristics of this group to be their ability to support narrative progression—as shown for Brazilian Portuguese in (22)—and their compatibility with definite time adverbials, as shown for Japanese in (23).

(22) Eu acord-**ei**, tom-**ei** banho, **fiz**
I wake.up-1SG.**PST.PFV** take-1SG.**PST.PFV** shower make.1SG.**PST.PFV**
café e saí pra caminhar.
coffee and leave.1SG.**PST.PFV** to walk
'I got up, I took a shower, I made myself breakfast and I left for a walk.' (Brazilian Portuguese)

(23) ねずみは昨日死んだよ.
Nezumi-wa kinoo shin-**da**-yo.
rat-TOP yesterday die-**PST**-PART
'The rat died yesterday.' (Japanese; MSBD)

All the morphemes in this group have a positive score for both of these properties in Table 2, with one exception (see below). We hypothesize that the forms in this category contain pronominal tenses in the sense of Partee (1973): they are free variables that pick out a time that is salient in the discourse context (the reference time, in Reichenbachian terms), as illustrated in (24); t is a free temporal variable referring to a contextually salient interval preceding the utterance time (t_0), which contains the event time.

(24) [. . . t . . .] (where $t < t_0$)

This predicts that they can be restricted in their reference by definite time adverbials such as *yesterday*. They can also be used anaphorically (as Partee calls it) to pick out a time that is "just after" the reference time established by the immediately preceding sentence in a narrative discourse (i.e., the use in narrative progression).[13]

Partee proposed the pronominal tense analysis for the English simple past. As shown in Table 2, several Indo-European language forms traditionally known as 'perfects' (consisting of an auxiliary *have* or *be* plus the past participle) behave semantically like the English simple past, and unlike the English present perfect, which they resemble morpho-syntactically. For instance, the French *passé composé* has largely supplanted the simple past (*passé simple*) at least in colloquial French (Caudal and Vetters 2007) and is used routinely in narrative progression (see also van der Klis et al. 2021 for a corpus-based study). The German *Perfekt* is standardly used in storytelling as well, at least in colloquial southern German. The only exception is the Dutch *voltooid tegenwoordige tijd*, which does not allow for narrative progression and which seems to represent a borderline case: in storytelling, the simple past is preferred, but the *voltooid tegenwoordige tijd* seems much better than the English present perfect would be. However, since the *voltooid tegenwoordige tijd* patterns with past perfectives on the other criteria (especially compatibility with definite time adverbials), and narrative progression is allowed (and even preferred) in other varieties in the Dutch–German dialect continuum, we classify it with the past perfective group (see also de Vuyst 1985; Boogaart 1999; de Swart 2007; Mulder et al. 2022 'this issue').

As for the other tests, the forms in this group are generally more permissive than the English present perfect, while lacking some of the readings associated with it. They do not show any restriction with respect to dead subjects (example (25) for Dutch) and can be used where a result state is cancelled (example (26) for the Brazilian Portuguese *pretérito perfeito simples*).

(25) Edmund Hillary **heeft** Mount Everest beklomm-**en**.
Edmund Hillary **have**.**PRS**.3SG Mount Everest climb-**PTCP**
'Edmund Hilary climbed Mt Everest.' (Dutch; MSBD)

(26) Eu perd-**i** minha chave mas meu amigo me
1SG lose-1SG.**PST.PFV** 1SG.POSS.F key but 1SG.POSS.M friend 1SG.OBL
ajudou a encontrá-la.
help.3SG.PST.PFV to find-3SG.F.OBL
'I lost my key but my friend helped me find it.' (Brazilian Portuguese)

This versatility supports our analysis of these morphemes as past perfectives: since their meaning contributes a free temporal variable (referring to the reference time), there is nothing to prevent them from picking out an event whose subject is no longer alive, or from allowing the cancellation of a result state. (See below for discussion of the absence of experiential readings—and the consequent lack of lifetime effects (labeled as n/a for 'not applicable' in Table 2)—in the Brazilian Portuguese, Québec French and Japanese forms).

In Table 2, most of the forms are marked as not having continuous readings. This is because our criterion for the availability of a continuous reading in combination with a left-bounded 'since'-type temporal adverbial is that it entails that the eventuality holds at present. If we weaken these requirements to look at combinations with other adverbials or continuous readings that allow, but do not entail, that the eventuality holds at present, the availability of continuous readings in this group is quite variable. Because continuous readings are so dependent on accompanying adverbials, we conclude that the presence or absence of continuous readings is not a good diagnostic for group membership, here or elsewhere. Here, we illustrate our findings concerning the availability of continuous readings for the languages in this group.

Almost all the forms in this group lack the continuous reading with 'since' adverbials. German, Dutch, Brazilian Portuguese, and Québec French all prefer to use the simple present with statives or imperfective eventives for eventualities that started at some time in the past and still obtain at present. This is illustrated by the contrast between (27) and (28) for German.

(27) # Ich **habe** seit 2010 in Vancouver **ge**-leb-**t**.
I **have**.**PRS**.1SG since 2010 in Vancouver **PTCP**-live-**PTCP**
Intended: 'I have lived in Vancouver since 2010.' (German)

(28) Ich **lebe** seit 2010 in Vancouver.
I live.**PRS**.1SG since 2010 in Vancouver
'I have lived in Vancouver since 2010.'
(Literally: 'I live in Vancouver since 2010.') (German)

The counterpart of (27) in the Dutch *voltooid tegenwoordige tijd* is possible (see (29)), but much less preferred than the simple present.

(29) # Ik **heb** sinds 2010 in Vancouver **ge**-woon-**d**.
I **have**.**PRS**.1SG since 2010 in Vancouver **PTCP**-live-**PTCP**
'I have lived in Vancouver since 2010.' (Dutch)

Even where the forms in this set can appear with adverbials that favor a continuous reading in English, there is an important difference, namely that there is no entailment that the eventuality continues to hold at the utterance time. As (30)–(32) show, the Dutch and German forms do not entail that the state still holds at the utterance time, in contrast to the English present perfect in (33).[14]

(30) Ik **heb** jaren in Vancouver **ge**-woon-**d**, maar vorig
I **have**.**PRS**.1SG years in Vancouver **PTCP**-live-**PTCP** but last
jaar ben ik naar Calgary verhuis-d.
year be.PRS.1SG I to Calgary move-PTCP
'I lived in Vancouver for many years, but last year I moved to Calgary.' (Dutch)

(31) Ich **habe** jahrelang in Vancouver **ge**-leb-**t**, aber
I **have**.**PRS**.1SG years.long in Vancouver **PTCP**-live-**PTCP** but
letztes Jahr bin ich nach Calgary ge-zog-en.
last year be.PRS.1SG I to Calgary PTCP-move-PTCP
'I lived in Vancouver for many years, but last year I moved to Calgary.' (German)

(32) Tom **heeft** de hele morgen aan mijn haar zitt-**en**
Tom **have.PRS**.3SG the whole morning at my hair sit-**INF**
trekk-en maar vijf minuten geleden **is** hij
pull-INF but five minute ago **be.PRS**.3SG he
ge-stop-**t**.
PTCP-stop-**PTCP**
'Tom was pulling my hair all morning, but five minutes ago he stopped.' (Dutch; MSBD)

(33) a. # I have lived in Vancouver for many years, but last year I moved to Ottawa.
b. # Tom has been pulling my hair all morning, but he stopped five minutes ago.

There are further subtleties with universally quantifying adverbials, such as '*always*'. For the *passé composé* in Québec French, for example, the continuous reading is entailed with *toujours* 'always' as shown in (34). The *passé composé* is, however, ungrammatical with bounded adverbials, such as *depuis* 'since' (34).[15]

(34) a. J' **ai** toujours vécu à Montréal,
1SG.SBJ **have.PRS.1SG** always live.PTCP at Montréal
(#mais j' ai déménagé en 2015).
(#but 1SG.SBJ have.PRS.1SG move.PTCP in 2015)
'I have always lived in Montreal (#but I moved away in 2015).' (Québec French)

b. * J' **ai** vécu à Montréal depuis 1982.
1SG.SBJ **have.PRS.1SG** live.**PTCP** at Montréal since 1982
Intended: 'I have lived in Montréal since 1982.' (Québec French)

Because for many of the languages in this group, the preferred (and sometimes the only) way to express continuous readings is the simple present, we suspect that the lack of continuous readings for the target forms is due, at least in part, to pragmatic competition with the simple present. Competition-based accounts of tense–aspect choice have been proposed in the literature (for instance, Schaden 2009; Chen et al. 2021), and this may eventually help account for the variability within this group, but since the details will depend on the full inventory of tense–aspect forms available in each language, pursuing this further is beyond the scope of this paper.[16]

Past perfective forms also vary with respect to whether they support experiential readings. The Japanese past marker *-ta*, for example, does not have an experiential reading itself, but is compatible with an experiential reading when it occurs inside a *koto*-nominalized clause, which further combines with the predicate *a{-ru, -tta}* 'to exist', as in (35) (Martin 2004; Hara et al. 2013). The combination in (35) is one of our target forms, and we discuss it in the experiential group in the following section.

(35) 僕、山に登ったこと(が)ある.
Boku yama-ni nobo-**tta** **koto(-ga)** **a-ru**.
1SG.MALE mountain-DAT climb-**PST** **thing(-NOM)** **exist-NPST**
'I've climbed a mountain.' (Japanese; MSBD)

The Brazilian Portuguese *pretérito perfeito simples* and the Québec French *passé composé* cannot be used to express experiential readings unless the adverbs *já*/*déjà* 'already' are present, as in (36) for Brazilian Portuguese. Without the adverb, the two forms necessarily refer to a definite past time.

(36) Eu **já** escal-**ei** uma montanha.
1SG.SBJ **already** climb-1SG.**PST.PFV** a mountain
'I have climbed a mountain.' (Brazilian Portuguese; MSBD)

However, *já/dejá* only support experiential readings when they occur with perfective forms. Hence, (37) cannot be interpreted as experiential.

(37) Eu **já** escal-**o** uma montanha.
1SG.SBJ **already** climb-1SG.PRS a mountain
'I already climb mountains (lit. I already climb a mountain).' (Brazilian Portuguese)

This suggests that experiential readings in Brazilian Portuguese and Québec French arise compositionally from properties of the past perfectives and the adverbs *já* and *déjà*. Similarly, the English simple past sometimes seems to support an experiential reading in the presence of the adverbials *ever* or *once*.

In summary, the forms in the 'past perfective' group pattern together in allowing definite time adverbials and narrative progression, while showing more permissive behavior than the English present perfect in allowing cancellation of result states and being compatible with dead subjects. We have suggested that these forms introduce a free temporal variable, as in (24), which correctly predicts that they will have anaphoric reference in narrative progression and allow temporal adverbials to restrict their reference. For continuous and experiential readings, we find that these usages are often dependent on adverbial elements that plausibly contribute universal quantification for continuous readings, and existential quantification for experiential readings. We argue that the forms in this group contrast with the forms in the other groups, which involve existential quantification.

4.2. Group 2: Experiential Forms

The next cluster of forms that we group together all allow an experiential reading but lack a resultative reading; this separates them from both the past perfectives and from resultative forms (see Section 4.3).

The forms in this group behave strikingly consistently with respect to the eight properties examined. As shown in Table 3, the results for six of the eight properties are the same. Moreover, the pattern shows that these experiential forms are in stark contrast with the English present perfect, with which they share only one positive property (the ability to convey an experiential reading) and one negative property (the inability to support narrative progression). There is variability in allowing recent past readings and/or definite time adverbials; this is discussed below.[17]

Table 3. Experiential forms.

READINGS and *Limitations*	**eng**	**man**	**tay**	**jav**	**jpn**	**bod**	**kor**
	Present Perfect	***-guo***	***-in-***	***tau***	***-ta koto-ga a{-ru, -tta}***	***Myong***	***-(e)ss-ess***
EXPERIENTIAL	✓	✓	✓	✓	✓	✓	✓
Dead subjects possible	✗	✓	✓	✓	✓	✓	✓
RESULT STATE (POSSIBLE at UT)	✓	✗	✗	✗	✗	✗	✗
Result state cancellable	✗	n/a	n/a	n/a	n/a	n/a	n/a
RECENT PAST	✓	✓	✓	✗	✗	✗	✗
CONTINUOUS	✓	✗	✗	✗	✗	✗	✗
Narrative progression possible	✗	✗	✗	✗	✗	✗	✗
Definite time adverbial allowed	✗	✓	✓	✓	✗	✗	(✓)

The following data illustrate each of the properties shared by this set of target forms. Firstly, they all allow for an experiential reading. See (38) for Atayal *-in-* (and (35) above for Japanese *-ta koto-ga a{-ru, -tta}*).

(38) *Context: A teacher asks, 'Who has ever climbed a mountain?' and a student replies:*
m-<**n**>wah=saku'.
AV-<**in**>come=1SG.ABS
'I have gone (to climb a mountain).' (Atayal; MSBD)

Interestingly, the forms in this group are compatible with a dead subject. In other words, they do not have lifetime effects as associated with the experiential readings of the English present perfect (see (7) above); this is shown in (39) for Japanese *-ta*.

(39) Context: *Hillary is dead.*
ヒラリーはエベレストの頂上まで登ったことがあります。

Hilary-wa	Everest-no	choujou	made	nobo-**tta**
Hilary-TOP	Everest-GEN	top	until	climb-**PST**
	koto-ga	**ari**-mas-**u**.		
	thing-NOM	**exist**-POL-**NPST**		

'Hillary has climbed to the top of Mount Everest.' (Japanese; MSBD)

This contrast between the lifetime effect of the English present perfect and its absence with the forms in our experiential group suggests that this restriction should not be treated as a necessary feature of experiential forms. Furthermore, it seems to support the idea that the explanation of the lifetime effect in English lies in the semantics of the English present tense (Portner 2003).

Secondly, all the forms in this group disallow a result state holding at the utterance time; (40a) shows that Atayal *-in-* is infelicitous if Tali' is currently a teacher, as the result of his acquiring the job. Note that the sentence in (40b), which was volunteered by the consultant for the result-state reading, has a progressive aspect (which in Atayal gives rise to a result state reading with achievement verbs).

(40) Context: *I haven't seen Tali' for a long time. How is he doing?*

a. # m-<**in**>-'-sinsiy qu Tali'.
AV-<**in**>-become-teacher ABS Tali'
'Tali' once became a teacher.'
Consultant's comment (translated): "He was a teacher but he is not doing it."[18]

b. **cyux** m-'-sinsiy qu Tali' la.
PROG.DIST AV-become-teacher ABS Tali' COS
'Tali' has become a teacher.' (Atayal)

As predicted by our claim that these forms do not entail a result state, a clause with *-in-* can be followed by a clause stating that the result state no longer holds, as in (41).

(41)

m-<**in**>pahuw	kakay	ni	Piray	hru	nyux	blaq
AV-<**in**>break	leg	GEN	Piray	first.CONJ	PROG.PROX	good.AV
misuw	qani	la.				
now	this	COS				

'Piray's leg got broken and it's recovered now.' (Atayal; Chen 2018, p. 210)

Because these experiential forms lack a current result state in the first place, the result-state cancellability test does not apply; hence, it is marked as n/a in Table 3.

Lastly, neither a continuous reading nor narrative progression are possible for any of the forms in this group. The former is illustrated in (42) for Tibetan, and the latter in (43) for Korean.

(42) # འཛིན་གྲྭ་འཚོགས་ནས་བྱས་ཏོམ་གྱིས་ང་འི་སྐྲ་ནས་འཐེན་བསྡད་སྨྱོང་རེད།

'dzin.grwa-'tshogs	nas	byas	Tom-gyis	nga-i	skra	nas
class-assemble	from	start	Tom-AGT	1SG-GEN	hair	from
'then-bsdad-**myong**-red.						
pull-CONT-**myong**-COP						

'Tom has been pulling my hair from the beginning of class.' (Tibetan; MSBD)

(43) # 나는 깨어났었다. 그리고나서 샤워했었고, 아침 먹었었고, 산책 나갔었다.

nan-un	kkayena-**ssess**-ta.	kulikonase	syawe-hay-**ssess**-ko,
1SG-TOP	wake.up-**essess**-DECL	after.which	shower-do-**essess**-CONJ
achim	mek-**essess**-ko,	sanchayk	naka-**ssess**-ta.
breakfast	eat-**essess**-CONJ	walk	go.out-**essess**-DECL

'I've woken up, then I've taken a shower, and then I've had breakfast and have gone for a walk.' (Korean)

Following the analysis of Chen et al. (2021) of Atayal *-in-* and Javanese *tau* as existential past tenses, we suggest that all the forms in this group, which pattern the same way as *-in-* and *tau* regarding the above-discussed properties, could be analyzed as involving existential quantification over times, as indicated schematically in (44).

(44) $\exists t$ [. . . t . . .] (where t is included in an interval right-bounded by t_0)

According to this idea, these forms introduce a past time, within an interval right-bounded by the utterance time, at which the eventuality holds; this interval can be further restricted, either lexically or by means of a contextual variable (see below). An experiential reading arises as the default interpretation when the domain over which the existential quantifier applies is the interval of the speaker's life span. The direct encoding of existential quantification in these forms accounts for the inability to convey a continuous reading, which has been analyzed as involving universal quantification over an interval (see e.g., Iatridou et al. 2001). The existential quantification inherent to these forms also correctly predicts that these forms are all rejected in narrative progression. Much like how indefinites in the nominal domain cannot be used anaphorically, asserting the existence of a past time cannot update the reference time in a narrative (see Chen et al. 2021 for a more detailed discussion).

Lastly, the absence of a present result state is expected, given that the experiential forms are concerned with a past interval, not including the utterance time, during which the eventuality and its result state hold. At a minimum, this yields a cessation implicature (i.e., the result state no longer holds at the utterance time), which presumably has then been lexicalized as an uncancellable entailment due to competition with other forms in the language that express that the result state holds at the utterance time (for instance, a resultative or a present stative). The details of this explanation may differ for each language depending on its inventory of tense–aspect forms and require further investigation.

The two properties that the experiential forms vary on—compatibility with a definite time adverbial and the availability of a recent past reading—can plausibly be ascribed to variation in the domain of existential quantification. Some forms do not allow restriction of the domain of the existential quantifier, which makes them incompatible with a definite time adverbial (e.g., Japanese *-ta koto-ga a{-ru, -tta}*, and Tibetan *myong*). Others can restrict it and do allow for a definite time adverbial.[19] Recent past readings likely reflect the option of restricting the interval to one that is close to the utterance time; it is expected that only the forms that allow domain restriction by definite time adverbials may have a recent past reading, as Mandarin *-guo* and Atayal *-in-* do. Javanese *tau* represents another possibility: disallowing a recent past reading but allowing definite time adverbials (see Chen et al. 2021 for examples). While these varying behaviors are compatible with the analysis of Chen et al., fleshing out the analytic details will require additional detailed fieldwork going beyond the scope of this paper.

To summarize, we suggest that existential quantification over times constitutes an essential component in the meaning of the forms in the experiential group, whereas they may vary in other semantic components, such as the possibility and nature of restrictions on the interval being quantified over. Existential quantification over times predicts the experiential reading, the lack of continuous or resultative readings, and the incompatibility with narrative progression. We suggested that variations in domain restriction may account for the variability among the forms with respect to whether they allow definite time adverbials and recent past readings.

The experiential forms in this group all involve existential quantification over a temporal variable. Existential quantification can also apply over event and state variables, as is the case for the resultative forms in the next section (see also Michaelis 1994).

4.3. Group 3: Resultative Forms

In this section, we discuss a set of forms that convey a resultative reading and exclude an experiential reading. In our data set, these forms include the Mandarin sentence-final particle *le*, the Atayal preverbal auxiliary *wal*, the Gitksan pre-predicative particle *hlaa* (Rigsby 1986), and the gerundive ending plus auxiliary and past tense *-te shima-tta* in Japanese.[20] What characterizes the members of this group is that they allow for a reading in which the result state of the event holds at the utterance time, but they disallow an experiential interpretation. This contrast in felicity between resultative and experiential readings is shown in (45)–(46) for Atayal *wal*.

(45) Resultative
Context: A asks B what time it is, and B answers, "I don't know . . . "
wal m-gzyuwaw tuki=mu la.
wal AV-lost watch=1SG.GEN COS
'My watch has got lost.' (Chen 2018, p. 167) (Atayal)

(46) Experiential
Context: Mrs. Smith asks the children who has climbed a mountain. One replies:
\# **wal**=saku' m-karaw.
wal=1SG.ABS AV-climb
Intended for 'I have climbed a mountain.' (Atayal; MSBD)

As shown in Table 4, the forms that convey a resultative reading do not exhibit consistent behavior for all the properties tested for by our storyboard. (Note that because of the lack of experiential readings, the diagnostic for whether an experiential reading allows the subject to be dead at the utterance time is not applicable, and hence this is marked as n/a in the table.)[21]

Table 4. Resultative forms.

READINGS and *Limitations*	**eng**	**git**	**tay**	**man**	**jpn**
	Present Perfect	***Hlaa***	***Wal***	***Le***	***-Te Shima-tta***
EXPERIENTIAL	✓	✗	✗	✗	✗
Dead subjects possible	✗	n/a	n/a	n/a	n/a
RESULT STATE (POSSIBLE at UT)	✓	✓	✓	✓	✓
Result state cancellable	✗	✗	✗	✗	✓
RECENT PAST	✓	✓	✓	✓	✓
CONTINUOUS	✓	✓	✗	✓	✗
Narrative progression possible	✗	✗	✗	✗	✗
Definite time adverbial allowed	✗	✗	✓	✓	✓

The languages in this group do not allow the result state to be cancelled at the utterance time. This is illustrated for Atayal *wal* in (47) and Gitksan *hlaa* in (48).[22,23]

(47) \# **wal** m-pahuw kakay ni Piray ru nyux blaq la.
wal AV-break leg GEN Piray CONJ PROG.PROX good.AV COS
Intended for 'Piray's legs broke but they've recovered (lit. they're good).'
Consultant's comment (translated): "What is good? It cannot be his legs because they are broken." (Chen 2018, p. 165) (Atayal)

(48) # **Hlaa**=n kw'ood-in[-t]=hl hak'aga-'y, ii[=t] hlimoo-'y=hl
hlaa==1SG.I lose-CAUS[-3.II]=CN key-1SG.II CCNJ[=3.I] help-1SG.II=CN
ansiip'insxw-'y win[=na] gukws 'wa-t.
friend-1SG.II COMP [=1SG.I] back find-3SG.II
Intended for 'I lost my key but my friend helped me get it back.'
Consultant's comment: "*Hlaa* doesn't seem to fit there." (Gitksan)

The Japanese form *-te shima-tta* differs from the other target forms in this group because the result state can be cancelled, that is, it does not have to hold at the utterance time, as shown in (49). Crucially, this Japanese form includes a past tense morpheme. It seems that in (49), the reference times of the past tenses in the two sentences do not have to be coreferential. Thus, while there was a result state at the earlier time, it can be absent later. Compare this with an English past perfect, which also allows this type of cancellation of the result state.

(49) 鍵をなくしてしまったけど、友達が見つけるのを手伝ってくれた。
Kagi-o nakushi-**te** **shima-tta** kedo tomodachi-ga
Key-ACC lost-**te** **shima-PST** but friend-NOM
mitsuke-ru-no-o tesuda-tte kure-ta
find-NPST-NMLZ-ACC help-te kure-PST
'I had lost my key but my friend helped me find it.' (Japanese)

There are two main approaches to the analysis of resultatives. One approach includes the result state directly in the denotation of the resultative morpheme (Kratzer 2000 for target state resultatives; Bohnemeyer 2014; Marquardt et al. 2019). The other approach derives the resultative inference by restricting the temporal interval that spans the event time and the reference time (the "Perfect time span" or "Extended now"; see McCoard 1978; Iatridou et al. 2001; Pancheva 2003; Rothstein 2008) to a short interval. Most naturally then, the result state holds at the reference time, supporting the resultative reading (e.g., Mittwoch 2008; Chen 2018 for Atayal *wal*). Both types of analyses have the resultative contributing existential quantification over eventualities, over the event leading to the result state (Kratzer 2000; Mittwoch 2008), over the result state itself (Bohnemeyer 2014) or both (Pancheva 2003; Marquardt et al. 2019). We suggest that all the forms in this group follow one of these two resultative strategies, and contribute existential quantification of an eventuality variable *e*, as illustrated in (50).

(50) $\exists e$ [. . . e . . .]
(where the result-state of e holds at t_0, or e is included in a short interval right-bounded by t_0)

None of the forms in this group allow for experiential readings. This is shown for Gitksan *hlaa* above in (4), and in (51) for Mandarin sentence-final *le*.[24] This sets the forms in the resultative group apart from the experiential forms: the resultatives do not allow unrestricted existential binding of a temporal variable, unlike the experiential forms.

(51) *Context: A teacher asks her class:*
誰爬山了?
shei pa shan **le**?
who climb mountain **le**
'Who has climbed a mountain?' (Mandarin; MSBD)

According to our analysis from the preceding section, experiential readings arise when the eventuality described by the prejacent is claimed to hold at a time falling within a relatively unrestricted time interval. Both types of analyses of resultatives summarized above rule out experiential readings, but in different ways. According to approaches which include the result state in the resultative morpheme, the result state is simply claimed to hold at the reference time—there is no existential closure over times. Approaches that rely on a restricted time span to derive the resultative reading involve existential closure over times, but the domain of existential closure is restricted to a short interval in order to derive a resultative rather than experiential reading.

Looking at the remaining properties in the table, all the members of this group allow for a recent-past reading, which naturally goes together with the result-state reading (if a result state still holds, it is likely that the event happened recently, and vice versa). All the forms disallow narrative progression and are compatible with definite time adverbials. Beyond this, there is more variability, however. Mandarin *le* allows the continuous reading, but Gitksan *hlaa*, Atayal *wal*, and Japanese *-te shima-tta* do not.[25]

To summarize, the forms in this group uniformly disallow experiential readings and allow result state readings. Furthermore, the result state cannot be cancelled. We suggest that these forms are resultatives, encoding a result state through existential closure over eventualities or through restricting the temporal interval delimited by the event time and the reference time. These forms, like the experiential forms, involve existential closure, but this is either over a restricted temporal interval or over eventualities.

4.4. Group 4: Hybrid Forms

The final set of forms in our data set are 'hybrid' forms, because they encode both experiential readings *and* resultative readings. The English present perfect belongs in this group, along with Niuean *kua*, Swahili *me*, and St'át'imcets *plan*. The results for these languages with respect to our eight diagnostic tests are summarized in Table 5.[26]

Table 5. Hybrid forms.

READINGS and *Limitations*	**eng**	**swa**	**niu**	**lil**	**jpn**
	Present Perfect	***me***[27]	***kua***	***plan***	***-te i{-ru, -ta}***
EXPERIENTIAL	✓	✓	✓	✓	✓
Dead subjects possible	✗	✗	✗	✓	✗(..*-ru*)/✓(..*-ta*)
RESULT STATE (POSSIBLE at UT)	✓	✓	✓	✓	✓
Result state cancellable	✗	✗	✗	✗	✗
RECENT PAST	✓	✓	✓	✓	✗
CONTINUOUS	✓	✓	✗	✗	✓
Narrative progression possible	✗	✗	✓	✗	✗
Definite time adverbial allowed	✗	✓	✗	✓	✓

As Table 5 shows, the languages in this group are defined by the fact that they can have both the experiential and the resultative readings, and they all disallow cancellation of the result state. Swahili *me,* Niuean *kua* and English present perfect exhibit lifetime effects—this is interesting, as they are the only forms in our data set to do so; the experiential forms did not exhibit lifetime effects. However, beyond this, their behavior is heterogeneous. Swahili *me* and Niuean *kua* each differ from the English present perfect on only one diagnostic: Swahili *me* allows a definite time adverbial, whereas Niuean *kua* does not allow the continuous reading (Matthewson et al. 2015). However, the remaining two forms (St'át'imcets *plan* and Japanese *-te i{-ru, -ta}*) pattern quite differently. *Plan* allows dead subjects, lacks the continuous reading, and allows for definite time adverbials. *-te i{-ru, -ta}* cannot be used for the recent past, and it allows definite time adverbials; it also allows dead subjects but only with *-ta*.

There are (at least) two different ways in which we could analyze the hybrid forms. The first approach would be to treat them as lexically ambiguous between the experiential reading and the resultative reading. The second would be to propose a unified interpretation that is compatible with both types of contexts. This is essentially what theorists working on the English present perfect have been attempting for a long time (for instance, in the "Extended Now" or "Perfect Time Span" analyses; e.g., Pancheva and Stechow 2004).

The pursuit of a unified semantics finds some cross-linguistic support from the fact that we find forms in Swahili and Niuean that pattern very similarly to the English present perfect. Matthewson et al. (2015) propose a unified semantics for Niuean *kua*, adapting analyses of the English perfect. They suggest that the main difference between the English present perfect and Niuean *kua* is that *kua* encodes inchoativity. They follow Iatridou et al. (2001) in proposing that the continuous reading requires events to be homogeneous throughout the perfect time span (events must hold at each subinterval of a time *t*). Since inchoatives with *kua* involve changes of state, they fail to meet the homogeneity requirement. This derives their inability to occur with continuous readings, while otherwise having a contribution closely resembling the English perfect.[28] It is possible that the compatibility between *me* and definite adverbials in Swahili could likewise receive an independently motivated explanation, while the semantics of *me* otherwise builds on the same core that offers a unified semantics for the experiential and resultative readings.

What can we conclude from all this regarding the status of "the perfect" as a cross-linguistic category? *WALS* (Dahl and Velupillai 2011) defines the perfect cross-linguistically as any category that can have both an experiential and a resultative interpretation, so essentially like our hybrid group. Within this group, we do seem to have three forms that pattern closely together and for which a unified semantics can capture both the experiential and resultative readings. However, these forms are a very small subset of the forms that we have found to carry at least some aspect(s) of the meaning associated with the English present perfect. Moreover, the forms in the hybrid category are overall quite heterogeneous when it comes to the set of properties we tested, so it is not clear that forms carrying both an experiential and resultative interpretation should be privileged a priori as a cross-linguistic category. The variation within this group may even be as great as that between groups, lending weight to the conclusion that there seems to be little or no support for stipulating a special status for this particular combination of properties.

5. Discussion

While our study confirmed that the English present perfect is *not* representative of a prototypical perfect across languages, focusing on the set of properties it exhibits allowed us to uncover cross-linguistic patterns in how languages may cluster properties in the tense–aspect domain. In this section, we address some methodological considerations, typological generalizations that emerged from our survey, and theoretical implications.

5.1. Methodological Considerations

One of the contributions of this paper is a methodology for a 'middle way' approach to cross-linguistic semantic research: we illustrated this middle way by examining the cross-linguistic typology of tense–aspect forms that are similar to the perfect. Our methodology was based around a storyboard targeting the properties of interest within each of the languages in our sample, along with follow-up elicitation for a more detailed investigation of the forms that were identified as target items through their use in the storyboard. In this section, we discuss some benefits and challenges of the methodology we adopted.

A major advantage of the storyboard approach was a set of consistent stimuli and diagnostics across a wide range of languages. The storyboard methodology also has the usual advantages of facilitating more naturalistic language use and mitigating interference of the contact language (Burton and Matthewson 2015).

A number of methodological considerations nevertheless arise in the context of applying a storyboard that was originally based on the English present perfect to different (especially understudied) languages. There are certain forms that could have fit our typology, for instance, but which were not categorized as target forms because they did not occur in the storyboard narration for independent reasons. We refer to these as *missed forms*. Similarly, certain readings of target forms did not occur in the MSBD storyboard for independent reasons but were obtained in follow-up elicitation: we refer to these as *missed readings*. There are also forms that initially seem to fit into the typology based on

our diagnostics, but in fact on closer inspection behave very differently from the rest of the target forms in their grouping. We refer to these as *partial fits*. We discuss examples of each of these cases below.

An instance where investigation using the MSBD storyboard resulted in potential missed forms concerned the Tibetan particles *-yod* (ཡོད), *-yod-red* (ཡོད་རེད), *-'dug* (འདུག), and *-bzhag* (བཞག). These have all been described as perfect particles in Tibetan (Garret 2001; Tournadre and Dorje 2003; Kalsang et al. 2013; though Kalsang et al. 2013 do not categorize *-bzhag* (བཞག) as a perfect), but they carry additional evidential requirements that also restrict their distribution (see Kalsang et al. 2013 for discussion of how aspect and evidentiality are related for these particles). Because the storyboard tested for the readings of, and restrictions on, the English present perfect, there was no attempt to meet the evidential requirements of these particles. Hence, these forms did not surface in elicitations based on MSBD. (We remain agnostic regarding whether they share properties with resultative, experiential or hybrid forms in the typology we are proposing.)

Certain readings of the target forms were also missed, because the MSBD storyboard only involved a limited number of predicates, and (potential) target forms in other languages that are restricted by lexical aspect could therefore be inappropriate in the storyboard for independent reasons. This was the case for the resultative reading of the Japanese construction *-te i{-ru, -ta}*, which was not captured in the narration of MSBD. The sentences intended for a resultative reading instead gave rise to a continuous reading with this Japanese form, as in (52).

(52) ボブが寝ています。
Bob-ga ne-**te** **i**-mas-**u**
Bob-NOM sleep-**te** **i**-POL-**NPST**
'Bob is sleeping.' (Japanese; MSBD)

Notice that the predicate used in the storyboard, *ne-* 'sleep,' happens to be a durative verb. However, the *-te i{-ru, -ta}* form does give rise to a resultative reading when combined with instantaneous verbs (Kindaichi [1950] 1976), a class of verbs similar to Vendler's (1957) achievements (Ogihara 1998). With the instantaneous verb *kae-* 'return,' for example, a resultative reading is available, as in (53).

(53) *Context: A child answers an intercom. A visitor asks: 'Is your mother home?'*
母は帰っています。#でもさっき出かけました。
Haha-wa kae-**tte** **i**-mas-**u**.
mother-TOP return-**te** **i**-POL-**NPST**
'My mother has returned home.'
Demo sakki dekake-mashi-ta.
but while.ago leave-POL-PST
'But she left a while ago.' (Japanese)

Cases like (53) would be overlooked without supplemental fieldwork and speaker–linguists' introspective judgments. This illustrates the importance of the second step of our methodology, which involved follow-up elicitation on individual languages to verify and expand on the storyboard findings. Future research could also involve a storyboard designed to target a wider range of lexical aspects, prioritizing predicates that likely have similar aspectual properties cross-linguistically.

An example of a partial fit involves the Ktunaxa (isolate, BC, Canada) form *ma* (which was not included in our current study). Preliminary fieldwork based on the MSBD storyboard shows that *ma*'s distribution is similar to that of our past perfective group: it can be used in narrative progression, it is compatible with definite time adverbials, it is incompatible with continuous readings, it is incompatible with contexts that entail that the result state holds at the utterance time, and it is compatible with contexts that support experiential readings. However, a closer look at *ma* reveals that it is optional, and it is used to mark a contrast between two past time intervals. In narrative progression, it can be translated as *before* or *after*, suggesting that a past perfective analysis does not capture its meaning

completely, nor does it predict its distribution in the discourse. Relying exclusively on MSBD would not allow us to uncover the specific properties of markers, such as Ktunaxa *ma*, which have an overlapping distribution with past perfectives. This again highlights the importance of follow-up elicitation in conjunction with the storyboard. Since *ma*'s behavior was not consistent with the other past perfectives, and its behavior also did not fit any of the other groupings, we decided not to include it in this grouping for the time being and leave its classification for future research.

We believe that the storyboard methodology used in this study to investigate a relatively small but diverse set of languages systematically and in depth (the 'middle way') is a definite step forward. Of course, we do not want to claim that one particular methodology can be the be-all and end-all. Ideally, this study should be followed up by future research, investigating a wider range of languages, and employing a range of different methodologies, including (but not limited to) more refined storyboards targeting a wider range of lexical aspects, as well as other grammatical tense–aspect categories and constructions. The point is not to try to find one unique methodology that solves all problems, but rather to search for converging evidence from multiple methodologies.

In this sense, the current study, though using a storyboard aimed initially at the properties of the present perfect in English, brings us one step closer to future empirical investigations with a more cross-linguistically informed starting point.

5.2. Typological Generalizations and Their Formal Implications

The typology that we have arrived at through our investigation divides broadly into forms involving free temporal variables vs. forms involving existential quantification over times or eventualities. The past perfectives exhibit the properties of free temporal variables that get their reference from the context (i.e., "pronominal tenses" in Partee's sense), and are used in narrative progression and other anaphoric contexts. The other groupings all plausibly involve existential quantification. Experiential readings in particular have been analyzed as involving existential quantification over times, and the Atayal and Javanese target forms in this group have been explicitly analyzed as existential past tenses (Chen et al. 2021). Resultatives have also received analyses involving existential quantification, either over the event leading to the result state (e.g., Kratzer 2000) or over the result state (e.g., Marquardt et al. 2019), some analyses also involving a restricted temporal interval (e.g., Mittwoch 2008). Hybrid forms could also be analyzed as involving existential quantification over times and/or events, as has been proposed for the English present perfect (e.g., Pancheva and Stechow 2004). We can therefore consider our typology as hinging on the distinction between forms representing free temporal variables and forms supplying existential quantification, with subtypes of existential forms arising through quantification over different things (e.g., times vs. events/states), or allowing different restrictions on the domain of quantification. We predict that each type will share some fundamental properties accounting for their similar behavior but will also differ in other regards.

Our results therefore show that, cross-linguistically, there is no uniform category associated with contexts that support the use of the English present perfect, but nevertheless there are structured groupings of forms each with characteristic properties. Full analyses of these groupings in the typology are still required, and these may not be the only such groupings that would arise if more languages were to be included in the investigation. However, we believe these groupings offer a more empirically sound starting place for cross-linguistic research than does the hypothesized and now (we believe) defunct cross-linguistic category of 'perfect'.

While we do not yet have detailed formal analyses for each cluster of forms, some preliminary typological generalizations can be made about the fine-grained patterns that emerged in our survey. Some properties were observed consistently within a cluster and can therefore be hypothesized to be reliable empirical diagnostics for the cluster, which may reflect properties encoded in the semantic denotation of that group of forms.

For example, all forms in the resultative group prohibit the cancellation of a result state, as does the English present perfect. This suggests that non-cancellability is indeed a core property of a resultative reading, which may serve as a reliable diagnostic of this group. Formally, this means that a resultative reading should be semantically encoded as an entailment, whether that is contributed by the form itself (Bohnemeyer 2014), or compositionally (Pancheva 2003), but crucially not merely as an implicature dependent on the discourse context (cf. Klein 1992).

In contrast, other properties of the English perfect were not observed consistently within any group and therefore seem to be idiosyncratic facts about English; they should not be used as empirical diagnostics cross-linguistically, and if they are part of the semantic denotation, this should be on a language-specific basis. For instance, all forms in the experiential group were compatible with a dead subject. This suggests that the restriction on experiential readings to live subjects observed in the English present perfect is idiosyncratic to it (and some other hybrid forms), and therefore not a necessary property of the experiential reading across languages.

Similarly, while all past-perfective forms in our data set were compatible with definite time adverbials, there was no consistent pattern across the other groups: some experiential, resultative, and hybrid forms were compatible with definite time adverbials, unlike the English present perfect. This suggests again that this property should not be used as a diagnostic to identify a cross-linguistic 'perfect'.

6. Conclusions

In this study, we used the targeted storyboard method, supplemented with follow-up elicitation, to conduct a detailed and in-depth investigation of a relatively small but diverse set of languages, while maintaining a high level of consistency in the application of empirical criteria across the languages in the sample. Based on the results of this study, we argued that the target forms in our data set can be divided into four groups: past perfectives, experientials, resultatives, and hybrid forms. The main analytical division appears to be that between past perfectives on the one hand, and the other three groups on the other. Past perfectives contain a free temporal variable referring to a time that is salient in the discourse context, whereas the forms in the other three groups involve existential quantification, either over times (experiential) or over events (resultative).

We also identified properties that seem to be more variable both within and between these groups, such as the availability of continuous readings. Detailed differences between languages may often be analyzed in terms of compositional interactions between tense–aspect forms and other elements in the sentence (such as adverbials), as well as pragmatic competition between the various tense–aspect forms available in the overall inventory of the language.

Based on these findings, we conclude that there is no such semantic universal as 'the perfect'. While one could, in principle, decide to call the hybrid group as 'the perfect', doing so does not seem to contribute to our understanding of the tense–aspect forms under investigation. There is no empirical motivation to prioritize the hybrid group over the others, and such an approach risks masking the differences within the hybrid group as well as the similarities with the other groups. Forms within the hybrid group are rather heterogenous, and the only consistent properties in the hybrid group, the experiential and resultative readings, are not unique to this group. A more productive approach then, would be to identify experiential and resultative readings across languages and to ask why some tense–aspect forms specialize in one of these readings while the others give rise to both. In this study, we chose to strike a middle ground between detailed formal investigation of individual languages and broad-based typological surveys. Due to the relatively small number of languages in our data set (though they are genetically and typologically diverse), any empirical generalizations about the clustering of properties of the target forms can only be tentative at this point. We hope that in future research, these can be tested in larger samples of languages.

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Notes

[1] There is a longstanding debate on the nature of the perfect cross-linguistically. The perfect has been analyzed as a derived state (Moens 1987; Parsons 1990; Klein 1992, 1994; Kamp and Reyle 1993; Giorgi and Pianesi 1997; Smith 1997; de Swart 1998; Musan 2001, 2002; Nishiyama and Koenig 2004, 2006), a viewpoint aspect (von Stechow 1999, 2001, a.o.), as syntactically a viewpoint aspect but semantically similar to an embedded tense (Iatridou et al. 2001; Pancheva 2003; Pancheva and Stechow 2004), or something in-between tense and aspect (Comrie 1976, 1985). For overviews, see Inoue (1979), Kiparsky (2002), Mittwoch (2008), Ritz (2012), and Grønn and Stechow (2020). In this paper, we refer to the perfect neutrally as a tense–aspect category, but nothing in our analysis hinges on that terminological choice. We leave open the possibility that some of the forms we discuss in this paper are aspects and some are tenses but deciding this for each individual language is beyond the scope of this paper.

[2] See Olsson (2013) for the original study of iamitives, a category which he argues is similar both to the perfect and to expressions such as 'already'. See also Koss et al. (2022) 'this issue'.

[3] Out of an abundance of caution, we chose to specify that our French and Portuguese data come from American varieties of both languages. While Barbosa (2008) shows no significant difference between the past perfective forms in Brazilian and European Portuguese, we are unaware of any comparative study for varieties of French targeting the tense and aspect system. Nevertheless, we note that the French data introduced here are consistent with facts of European French reported in the literature.

[4] Since many of the languages we investigate are minority languages and/or languages without a large written tradition, it would be impossible to conduct translation mining due to the absence of parallel corpora. Furthermore, languages investigated using translation mining so far have included (closely) related Indo-European languages (see e.g., Corre 2022 'this issue' for a comparison between past-related forms in English and Breton). This might be a reason why in this approach the relevant forms were selected based on form-related criteria; in our approach, the relevant criteria are semantic in nature. This is partially driven by the fact that we are interested in comparing genetically unrelated languages, which often have no similarities in form in the relevant semantic domain.

[5] We use comparison with the English present perfect to identify forms for investigation because the properties of the English present perfect have been extensively investigated. See the beginning of Section 2 for discussion.

[6] The literature on the perfect in Brazilian Portuguese usually talks about the *pretérito perfeito composto* 'compound past perfect', formed with *ter* 'have' + past participle (e.g., Schmitt 2001, who refers to this as present perfect). However, we do not discuss that form here because it did not appear in any of the volunteered forms for our storyboard. Moreover, a primary condition for the use of the *pretérito perfeito composto* is the pluractionality of the event, which is unlike the characteristics that we test in other languages. See Mendes (2005) for a diachronic analysis of the *pretérito perfeito composto*, showing that the form used to have a perfective use, but has shifted to an imperfective (pluractional), and in perfective contexts where it used to appear it has been supplanted by the *pretérito perfeito simples* in contemporary Portuguese. For an analysis of the simple and compound forms in Spanish, see Fuchs and González (2022) 'this issue'; see also Mulder et al. (2022) 'this issue'.

[7] For the distribution of *guo* in embedded contexts in Mandarin, see Sun and Demirdache (2022) 'this issue'.

[8] Many of properties of the English *present* perfect are not necessarily shared by the past perfect or constructions in which the perfect appears in its infinitival form.

[9] The lifetime effect of the English present perfect has been accounted for in various ways; see Portner (2003) for an overview. For example, it has been suggested that it may be explainable in terms of a repeatability condition. According to this, examples like (5) are odd because since Edmund Hillary is dead, the event of him climbing Mount Everest can't be repeated.

[10] In Brazilian Portuguese, atelic verbs such as *dormir* 'to sleep' can get a change of state reading in the perfective.

[11] The contact language for most of the fieldwork contexts here was English, with the exception of Mandarin, Atayal, and part of the Javanese and St'át'imcets fieldwork.

[12] Language abbreviations (either ISO codes or based on them): 'eng' = English, 'nld' = Dutch, 'deu' = German, 'fra-QC' = Québec French, 'por-BR' = Brazilian Portuguese, 'jpn' = Japanese.

[13] There are more diagnostics for pronominal vs. existential tense, such as the scope and interpretation of negation (see, for example, Chen et al. 2021). See Aonuki (2021) for detailed argumentation that the English simple past and the Japanese past *-ta* are pronominal tenses.

[14] There is more to be said here about Dutch, however, because when the adverbial is *sinds* 'since', asserting that the state has ceased to hold at the utterance time *does* result in contradiction. It appears that there are subtle differences between adverbials; see Iatridou et al. (2001) for some discussion.

(i)	#	Ik	**heb**		sinds	2010	in Vancouver	**ge**-woon-**d**,	maar	vorig
		I	**have**.PRS.1SG		since	2010	in Vancouver	PTCP-live-PTCP	but	last
			jaar	ben	ik	naar	Calgary	verhuis-d		
			year	be.PRS.1SG		to	Calgary	move-PTCP		

Intended: 'I have lived in Vancouver since 2010, but last year I moved to Calgary.' (Dutch)

[15] A reviewer points out that in some varieties of French, *'since'* clauses are grammatical with the *passé composé* in sentences such as *Depuis qu'elle est petite, Mireille a toujours adoré les macarons* 'Since she was little, Mireille always loved macarons' (Schaden 2021, p. 11). In Québec French at least, 'since' clauses are only grammatical with the *passé composé* if they occur with a universal temporal adverbial such as *jamais* 'never' or *toujours* 'always'. We take this to show that the *passé composé* by itself does not license adverbials referring to a left-bounded interval.

[16] Schaden (2009) proposes that English/Spanish and German/French perfects share the same semantics (i.e., they denote a past event and a perfect state, cf. Nishiyama and Koenig 2004), but the two types of languages differ in whether the perfect or past tense is the default past-referring form. Unlike in English/Spanish, perfects in German/French are the default form and their use would not trigger an inference that a perfect state is currently relevant—hence, there are no pragmatic effects such as the incompatibility with definite past-time adverbials and lifetime effects. It remains to be explored how such a competition theory could capture the range of cross-linguistic variation and similarities beyond those pragmatic effects (see also Corre (2022) 'this issue'; see Mulder et al. (2022) 'this issue' and Zhao (2022) 'this issue' for an alternative competition analysis). As we show in this paper, all the forms in Table 2 allow the cancellation of a result state, unlike English perfect, and the lack of lifetime effects across our four groups is a consequence of the absence of experiential readings.

[17] Additional language abbreviations introduced in this table: 'man' = Mandarin, 'tay' = Atayal, 'jav' = Javanese, 'bod' = Tibetan, 'kor' = Korean.

[18] Such a cessation inference has been noted for the English simple past in stative sentences (see, for example, Musan 1997; Altshuler and Schwarzschild 2013).

[19] Korean *-(e)ss-ess* appears to be subject to speaker variability. Our consultant did not accept the suggested form for 'The pet rat died yesterday' (from MSBD) with *-(e)ss-ess*; but for some speakers it would be possible to use *-(e)ss-ess* with a definite time adverbial in a change-of-state context or if it is used to emphasize the past nature of something. See also (i) from Chung (2012, p. 48).

(i)

han	sikan-cen-ey	changmwun-i	yel-i-**essess**-ta
one	hour-before-LOC	window-NOM	open-PASS-**PST**-DEC

'The window was opened an hour ago.'

[20] Another synchronic use of Atayal *wal* is as a past-perfective motion verb meaning 'went' (Huang 2008; Chen 2018). Japanese *shima-* is an auxiliary (Kondo 2014) grammaticized from the homophonous verb meaning 'put away/finish' (Ono and Suzuki 2014, p. 204).

[21] Additional language abbreviation introduced in this table: 'git' = Gitksan.

[22] Gitksan *hlaa* can also be used for events that will occur in the near future, when it appears in combination with the future marker *dim*, as shown in (i).

(i) *Context: We were enjoying the sunshine in the garden. Black clouds have just gathered and it looks like it is about to rain any minute now.*

Hlaa	yukw	dim	wis.
hlaa	PROG	FUT	rain

'It's going to rain.'

In these uses, obviously there is no result state that holds at the utterance time. Matthewson et al. (2019) argue that *hlaa* is a temporal proximity marker.

[23] The result state of Mandarin *le* is not cancellable at the utterance time *in a change of state reading* (as has been noted in the literature, e.g., Lin (2003, p. 281)), but *le* additionally allows a contrary-to-expectation reading (which possibly involves no change of state, see Soh 2009), and it seems that in that reading, the result state need not hold at the utterance time (see e.g., Soh and Gao (2008, p. 467)). See Soh (2009) for an alternative analysis according to which *le* involves changes in the interlocutors' presuppositions.

[24] See Mittwoch (2008), Marquardt et al. (2019) for discussion of the potential relation between result states and experiential readings. Marquardt et al. (2019) discuss a morpheme *-p* labeled 'perfect' in Mee (Trans–New Guinea) that also excludes experiential readings and requires the target state to hold at the reference time, expanding the number of languages with forms exhibiting this behavior.

[25] There is a methodological issue regarding the continuous reading of *le*: while *le* is infelicitous in the target context of our storyboard, it has been noted elsewhere to allow a continuous reading (e.g., Lin 2003, p. 279). This is possibly due to the additional inchoativity effects of *le*, which are not met in the storyboard, or to the debate on whether the continuous reading is entailed or implicated; see Soh and Gao (2008).

[26] Additional language abbreviations introduced in this table: 'swa' = Swahili, 'niu' = Niuean, 'lil' = St'át'imcets.

[27] me does not pattern like our past perfective group, which contrasts with the fact that some call it perfective in the literature on Swahili.

[28] St'át'imcets *plan* also involves inchoative semantics in combination with states and activities, so the lack of a continuous reading may receive a similar explanation for this form. The source of inchoativity in these cases is less clear. In Sḵwx̱wú7mesh and SENĆOŦEN(two other Salish languages), states and activities lexically have inchoative readings (Bar-el 2005; Kiyota 2008; although cf. Turner 2007), so it is possible that the lexical aspect is similarly playing a role in St'át'imcets, as well as the semantics of *plan* itself.

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