A perfect-like stative: Icelandic *búinn að* and pragmatic competition in the aspectual domain¹

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Abstract. Modern Icelandic has two "perfects": *hafa* 'have' (a canonical HAVE-perfect) and *búinn*. The latter is younger, gaining an aspectual, perfect-like usage in the 16th century. Prior to this point it is attested as an adjectival participle meaning 'ready, prepared', derived from the verb *búa* 'reside, prepare, adorn', subsequently undergoing a meaning shift from 'ready, prepared' to 'finished' (Thráinsson 2017). In the modern language, *búinn* has a more restricted distribution than *hafa*, especially for some predicate classes (Jónsson 1992). The aims of this paper are twofold. Firstly, I provide an account of *búinn* in modern Icelandic, accounting for these selectional restrictions. Secondly, I show how a difference in truth-conditional meaning coupled with pragmatic reasoning can capture the three-way division of labour between *hafa*, *búinn* and the BE-*resultative*.

Keywords: aspect, perfect, Icelandic, scalarity.

1. Introduction

Many approaches to the semantics of the perfect cross-linguistically endeavour to explain restrictions with regard to reading types, such as *experiential*, *universal* and *resultative* (McCawley 1971). Henceforth I follow Larsson (2008) in the view that the distribution of Icelandic's two perfects, *búinn* and *hafa* 'have', is not adequately captured in terms of the markers having specialized for a subset of reading types. The intuition in (1) is that *hafa* is odd since the time span of the assertion is by default something like "his whole life" (prototypically experiential). *Búinn*, on the other hand, typically has what has been termed *current relevance* (Bybee et al. 1994; Portner 2003); even out-of-the-blue, *búinn* suggests that a state resulting from an eating event has consequences at speech time, which in turn gives rise to an inference of temporal recency.

- a. Hann er búinn að borða. He is BÚINN to eat 'He has eaten.'
 b. #Hann hefur borðað.
 - He HAS eaten 'He has eaten.'

That being said, there typically are no strict recency restrictions on the felicity of *hafa*. Moreover, this reading cannot be classified as *resultative*, since the embedded event description is atelic. This is despite the fact that *búinn* often has a resultative flavour and *hafa* an experiential one (Thráinsson 2017; Larsson 2008; Jónsson 1992). Rather, I will propose that the markers are

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appropriate answers to distinct Questions-Under-Discussion (QUDs) (Roberts 2012). The gist of this view is that, in (1), *eat* is interpreted as an accomplishment rather than an activity under *búinn* (as in *eat his lunch*). While there is indeed significant functional overlap between *búinn* and *hafa*, due to their differing semantics they impose different requirements on the common ground.

As pointed out by Larsson (2008), *búinn* readily gives rise to a "job-is-done" or "that's over" reading, like stative passives elsewhere in Germanic (Kratzer 2000), e.g. *the paper is accepted*. This line of analysis builds on insights from the previous literature, specifically Larsson (2008), which accounts for a number of interpretive contrasts between *hafa* and *búinn* in treating the latter as analogous to a stative passive construction and expressing a resultant state (Parsons 1990). Larsson's (2008) account nonetheless does not provide an explanation for why it is that *búinn* is felicitous with some unaccusative predicates only in the presence of adverbial modification.

In this paper, I build on Larsson (2008) and argue that the distribution of the two perfects can be tied to *búinn* requiring that its internal argument be quantized. The impetus for this move is drawn from Baglini (2012), who shows that the contextual felicity requirements associated with stative passives can be derived from scalar properties of the verb phrase. This view provides an avenue for deriving the interpretive contrasts between *búinn*, *hafa* and other constructions which overlap with them in meaning, namely the BE-*resultative*, which will be introduced in Section 2.

This paper is structured as follows. In Section 2, I begin by outlining the distribution of the two markers through the lens of their selectional restrictions. Here the focus remains on *búinn* as the more marked alternative. In Section 3, I argue that *búinn* has a more specific semantics than *hafa*, involving both a scalar and a causal component. Finally, in Section 4, I show how the semantics proposed in the previous section, coupled with standard assumptions about pragmatic reasoning suffice to explain division of labour that can be observed between the two markers.

2. Beyond reading types

2.1. The primary reading split

Morphologically speaking, *búinn* is the past participle of the verb *búa* which in modern Icelandic primarily means 'live, prepare, make ready' (Wide 2002: 57). Historically, *búinn* underwent a semantic shift from meaning 'prepared' to 'finished' (Thráinsson 2017). The meaning of the *búinn* construction is a result of the interplay of a few elements: the tense of the auxiliary *vera* 'to be', the lexical contribution of *búinn* as well as the Aktionsart of the verb it embeds.

- (2) a. María hefur bakað köku. María HAS baked cake.SG
 - María er búin að baka köku.
 María is BUINN to bake cake.SG
 'María has baked a cake.'

(Jónsson 1992: 134)

The contrast above is quite clear to Icelandic speakers, even in an out-of-the-blue context: *hafa* gets an experiential reading (María has baked a cake at some point in the past) and *búinn* is

understood as a resultative (entailing the existence of a cake at speech time).² Jónsson (1992) remarks that a natural follow-up would be *við getum því farið að fá okkur bita* 'we can go get ourselves a bite'. The resultative nature of this reading is clear because what is most salient is the state resulting from the event described, the existence of a cake holding at speech time.

(3)	a.	María hefur verið veik.
		María HAS been sick
	b.	María er búin að vera veik.
		María is BÚINN to be sick
		'María has been sick.'

(Jónsson 1992: 136)

With atelic complements, both *búinn* and *hafa* can have a universal reading. (3a) additionally has a salient experiential reading and (3b) has a recent past reading (María has been sick *lately* but not necessarily right now).³

Beyond this reading split, there is a salient interpretive effect associated with *búinn* which has to do with the speaker's expectations—this is why it is often translated with the help of the overt adverbial 'already' when rendered into English.⁴ The role of expectations has featured in previous analyses of the construction and will be discussed in considerable detail later on in this paper (Section 3).

The fact that the expectations persist under negation constituted part of Jónsson's (1992) motivation for considering (2b) under negation as resultative, rather than experiential. It is difficult to coerce a result state from a non-existent cake-baking eventuality so one might ask whether this should be considered experiential instead. The intuition is however not parallel to (2a) were it under negation, which does not introduce any expectations about the result state. In fact, (2b), when negated, quite clearly expresses that a cake was expected but not (yet) delivered. Similarly, consider (4), which is felicitous in a context where María being sick would be in line with the speaker's expectations, for instance if María were the sole individual at her workplace not to have become ill in the month of January.

 María er ekki búin að vera veik.
 María is NEG BÚINN to be sick 'María has not been sick (yet)'

(Jónsson 1992: 134)

2.2. What counts as a result state?

Jónsson (1992) and Wide (2002) both use the term *result state* in a relatively broad fashion. To see this, let us consider how one might go about communicating the utterance in (5) in Icelandic. The English sentence is ambiguous without further contextual disambiguation, since the result state of having seen a movie does not differ appreciably from having had the experience of seeing the movie.

 $^{^{2}}$ hafa has an inferential reading as well, which could be rendered in English as 'Mary apparently/must have baked a cake' (Jónsson 1992). This reading will systematically be put aside in this paper, as the focus here is competition. ³Both universal and recent past readings are available here.

⁴This was confirmed by a cursory investigation of the *Samhlíða* corpus available at malheildir.arnastofnun. is.

(5) I have seen this movie.

A suitable translation of (5) could involve either *búinn* or *hafa*, the choice between them is largely dependent on how salient the effect of the event described is at speech time. For instance, given the context below in (6), *búinn* is the more natural option, while *hafa* is less natural. This example seems to hone in on the present-moment consequences of having seen the movie. Jónsson (1992: 135) mentions that it can for instance be used to emphasize that the speaker knows the whole plot.⁵

- (6) **Context**: We are outside a movie theatre discussing what we should watch. I would like to mention that I've already seen one of the movies and hence don't want to see it again:
 - á búin að sjá þessa mynd. Mig langar ekki að sjá hana aftur.
 I am BÚINN to see this movie I.ACC long NEG to see it again
 - b. Ég hef séð þessa mynd. Mig langar ekki að sjá hana aftur.
 I HAVE seen this movie I.ACC long NEG to see it again 'I have seen this movie. I don't want to see it again.'

Jónsson (1992) notes that this example differs from (2) in that the connection between what he calls "the salient effect" is tied to the lexical semantics of the predicate more tightly in that instance. The resultative/experiential distinction is especially blurry with iterative adverbials, as repeatability is sometimes taken as a criterion for experientials (Mittwoch 2008). Jónsson (1992) argues that (7) in fact involves a result state, something like being sick and tired of losing the keys. In any case, this usage of *resultative* goes beyond the more typical usage which is restricted to target states of telic eventualities. In response to this line of analysis, Larsson (2008) has pointed out that Jónsson's (1992) view of result states is reminiscent of *resultant* rather than *target* states; this matter will be taken up in more detail in Section 3.

(7) Ég er búinn að týna lyklunum *(fimm sinnum) en er sem betur fer með þá I am BÚINN to lose keys:DEF *(five times) but am as better goes with them núna.
now
'I have lost the keys *(five times) but as luck would have it I have them now.'
(Jónsson 1992: 139)

2.3. Restrictions with durative predicates

According to the foundational literature on the topic (Friðjónsson 1989; Jónsson 1992; Larsson 2008), *búinn* is only compatible with homogeneous predicates (states, activities) if there is adverbial modification, giving rise to a universal reading. The example in (8b) is only felicitous if, for instance, we are talking about a baby's scheduled nap. Otherwise it is odd. With the adverbial, however, *í allan dag* 'all day' it is felicitous. The same holds for *liggja í rúminu* 'lie in bed' (Friðjónsson 1989: 105). Jónsson (1992) accounts for this contrast by claiming that without the temporal specification, an experiential reading is the only one available, and *búinn* is thus ruled out. This reasoning seems somewhat circular to me. On the analysis presented

⁵Two of the younger speakers I consulted with perceive *hafa* to be more formal than *búinn* and would hesitate to use it in an informal context.

later on in this paper, unacceptability is not *directly* due to the lack of this, but rather what is missing is a salient contrast between degrees on a scale.

- (8) a. #Hún er búin að sofa.she is BÚINN to sleep Intended: 'She has slept'
 - b. Hún hefur sofið.
 she HAS slept Intended: 'She has slept'
 c. Hún er búin að sofa í allan dag.
 - she is BÚINN to sleep all day 'She has slept all day.'

(Thráinsson 2017: 126)

2.4. Restrictions with unaccusative predicates

It is often claimed that *búinn* requires supplemental adverbial modication in combination with unaccusative predicates (Jónsson 1992; Kress 1982; Thráinsson 2017). For instance, *búinn* seems to require measure modification (e.g. *a lot, enough*) when embedding intransitive accomplishments and iteration or frequency adverbials with intransitive achievements.

(9)	Bíllinn er búinn að ryðga *(mikið) í vetur. car:DEF is BÚINN to rust *(much) this winter 'The car has rusted *(a lot) this winter.'	(Thráinsson 2017: 127)
(10)	Skipið er búið að blása *(tvisvar). ship:DEF is BÚINN to whistle *(twice)	
	'The ship has whistled twice.'	(Kress 1982: 154)

Jónsson (1992) and Larsson (2008) both puzzle over the distribution of *búinn*, *hafa* and the BE-*resultative* construction. The latter is the typical way of expressing resultativity with change of location accusatives like *fara* 'go'.

- (11) a. Jón er farinn til Boston.Jón is gone to Boston'Jón has gone to Boston.
 - b. Jón er búinn að fara til Boston.
 Jón is BUINN to go to Boston
 'Jón has finished going to Boston.'
 - c. Jón hefur farið til Boston.
 Jón HAS gone to Boston
 'Jón has gone to Boston.'

(Jónsson 1992: 143)

The relevant contrast in (12) is such that only (11a) has a strictly resultative reading—it can only be uttered if Jón is on his way or has arrived in Boston already. (11b) is to be classified as resultative, too, but in a more widely encompassing sense of the term, according to Jónsson (1992). Here the intuition is such that Jón finds himself in the result state of having fulfilled some kind of requirement by traveling to Boston. On the other hand, (11c) attributes the experience of having gone to Boston to Jón; this utterance cannot be felicitously said if Jón has set off to Boston or is already there, either. Iterative modification provides another contrast: the

BE-*resultative* construction is infelicitous with iterative modification, as shown in (12a). (12b) is felicitous and suggests that Jón's requirement of traveling to Boston three times has been fulfilled. Finally, (12c) has an experiential reading.

(12)	a.	#Jón er farinn til Boston þrisvar sinnum.
		Jón is gone to Boston three times
		'Jón HAS gone to Boston three times.

- b. Jón er búinn að fara til Boston þrisvar sinnum.
 Jón is BÚINN to go to Boston three times 'Jón has gone to Boston three times.'
- c. Jón hefur farið til Boston þrisvar sinnum.
 Jón HAS gone to Boston three times
 'Jón has gone to Boston three times.' (Larsson 2008: 78)

According to Jónsson (1992), *búinn* cannot receive a resultative reading (in a strict sense, not the wider definition he pursues) in these instances due to blocking effects. Larsson (2008) points out that this is not a satisfactory explanation given the data at hand: it is not the case that resultative readings are blocked across the board under *búinn*, as shown below in (13).⁶ Furthermore, their availability cannot be correlated with the availability of BE-*resultatives*. Nor can it be correlated with structural properties of the participles, given the assumption that both anti-causative and resultative participles have an eventive *v*-layer (Embick 2004; Sigurðsson 2017).

- (13) a. Hún er hætt að reykja.she is stopped to smoke'She has stopped smoking.'
 - b. #Hún er búin að hætta að reykja núna.
 she is BÚINN to stop to smoke now
 'She has stopped smoking now.'
 - c. Hún er oft búin að hætta að reykja. she is often BÚINN to stop to smoke 'She has often stopped smoking.'
- (14) a. Snjórinn er búinn að bráðna nóg snow:DEF is BÚINN to melt enough 'The snow has melted enough.'
 - b. Snjórinn er bráðnaður.
 snow:DEF is melted
 'The snow has melted.'

(Larsson 2008: 79)

(Larsson 2008: 79)

In Section 3, I provide a principled explanation for the contrasts described above. Prior to proceeding to my analysis, I provide a brief sketch of the account in Larsson (2008), which captures important parallels between *búinn* and stative passives in terms of the role of expectations, but falls short of deriving the contrasts with unaccusatives and durative predicates.

⁶Throughout the paper, I refer to such examples as BE-*resultatives*, though they may also be considered stative passives. Canonical passives have identical participles with past morphological marking on the copula. These are largely, with few exceptions, homophonous with predicative deverbal adjectives (Thráinsson 2007).

2.5. Larsson's (2008) analysis

Larsson (2008) provides an analysis of *búinn* as a resultant state participle (Parsons 1990), which corresponds to the term *result state* as used in Jónsson (1992) and Wide (2002). It thus conveys anteriority but does not have a tense component. The primary motivation behind this analysis is evidence from parallels with stative passives. What is meant here by a resultant state and what are the grounds Larsson (2008) has for proposing such an analysis? She points to the prominence of "existential, clause-anticipating constructions", more commonly called impersonal constructions (Thráinsson 2017: 125). In the 2004-5 Icelandic parliamentary corpus, examples similar to (15) account for over half of all *búinn* tokens (Larsson 2008: 82).

(15) Það er búið að lögfesta lækkun.
it is BÚINN to legalize reduction
'A reduction has been made into law.'

While *target states* are the states resulting from a telic eventuality (Parsons 1990; Kratzer 2000), a *resultant* state, by contrast, denotes any state that is temporally preceded by an eventuality. If a door has been closed, the target state holds while the door remains closed, whereas the resultant state holds even after it is opened again. Thus, target states, unlike resultant states, are compatible with *still*, e.g. *the door is still open*.

Larsson (2008) notes that *búinn* resembles stative passives in other languages (specifically Swedish and German). These are not limited to telic predicates and allow adverbials of iteration and frequency (the general availability of which depends on the predicate, in contrast to canonical perfects). *Búinn* and stative passives resemble one another in yet another respect: the role of expectations (Larsson 2008: 84). Stative passives are odd out-of-the-blue initially and require a "job is done" or "that's over" reading to be felicitous . Larsson (2008: 84) points out that the Swedish example below in (16) is appropriate given a context where the cat is meant to be pet at least once every day.

(16) Katten är redan klappad.cat:DEF is already petted'The cat has already been petted.'

As mentioned above, *búinn* and stative passives do not have telicity restrictions. This means that they cannot be prototypical resultatives (cf. Pancheva, 2003) or target states (in the sense of Parsons 1990). Resultant states, on other hand, can be derived from atelic eventualities; on Larsson's (2008) analysis *búinn* merely asserts that some part of the event precedes reference or speech time; nothing is asserted about the endpoint of the event, leaving open the availability of universal readings.

3. Proposal

As shown in the previous section, existing literature on búinn does not supply a satisfactory explanation for the restrictions of *búinn*, *hafa*, and the BE-*resultative* with change-of-state (COS) predicates. Kratzer's (2000) analysis, adopted by Larsson (2008), does not explain why stative passives become more felicitous when they are in the context of fulfilling an expectation. Maienborn (2009) provides an analysis of adjectival passives that accounts for this, arguing that

in order for them to be licensed, the context needs to make available a contrasting state, e.g. *Das Manuskript ist eingereicht* 'The manuscript is submitted' contrasts with an alternative state *s'* which differs from *s* on a salient scalar dimension. For instance, along a temporal scale: *Das Manuskript ist eingereicht, jetzt können wir uns an den Projektantrag machen* 'The manuscript is submitted, now we can get to the project proposal'. Gehrke (2015: 917) shows that Maienborn's pragmatic proposal is not sufficiently restricted, noting that the verb phrase needs to make available a one-dimensional quantity scale—pragmatic licensing may be possible, but depends on the saliency of such a scale.

(17) $\exists e[s : \mathbf{Q}(manuscript) \land result(e, s) \land submit(e)]$ Resultant state: ...contrast $(s, s') \land s' : \neg \mathbf{Q}(x) \land s' < s$ Target state: ...contrast $(s, s') \land s' : \mathbf{Q}'(x)$

(Maienborn 2009: 42)

Baglini (2012) points out some issues with Kratzer's analysis, in particular her strict division between *target* and *resultant* states. First, it is not clear why one ought to posit two underlying meanings for often homonymous expressions with meanings that are closely conceptually related. Second, as mentioned above, Kratzer's (2000) account does not in a principled way derive observed felicity restrictions for stative passives. Baglini's (2012) analysis does so by capitalizing on a contrast between incremental theme and COS verbs. COS verbs are associated with property scales as part of their lexical meaning (Rappaport-Hovav 2008). This is not the case with incremental theme verbs; these only acquire a scale in composition with their theme argument. Moreover, such a scale is an extent scale, reflecting an extent of change that has already been undergone and is not reversible, contrary to property scales. Thus the contrast described by Kratzer (2000) concerning reversibility and modification with *still* can be derived.

On Baglini's (2012) account, a "job-is-done" reading can be yielded from atelic predicates, too, if they are coerced to denote scalar change; the relevant event description is coerced into a homomorphic mapping with a quantized theme. With unaccusatives, this amounts to a requirement that the scalar change to the part structure of the nominal theme be measured out by means of a covert partitive head that yields a gradable event description.

My proposal is rooted in scalar approaches to aspectual composition, more specifically in the relationship between telicity, quantization and scalar structure (e.g. Hay et al., 1999). I argue that the restrictions on adverbial modification sketched above fall out if one takes it that *búinn* requires that its embedded event description be quantized. The relevant event description is coerced into a homomorphic mapping with the nominal theme, which in turn guarantees quantization: a predicate is quantized with regard to an individual x iff it holds of x but not of its proper subparts (Krifka 1998).

3.1. Proposal pt. 1: The role of boundedness

I focus on instances where *búinn* has more restrictive felicity conditions than *hafa*. One such instance is unaccusative predicates, as outlined in the previous section. Unaccusatives can be further broken down into multiple subtypes, following much of the literature on the scalar structure of eventualities (e.g. Kennedy and Levin 2008). Relevant for the present paper is a distinction between Incremental Theme and COS predicates. In both cases, a theme argument undergoes change along some ordered scale; the event description "measures out" this

change. For concreteness, I adopt a modified version of Beavers (2012) itself building on Krifka's (1998) mereological model of aspectual composition, according to which changes-of-state (and states more generally) are triples $\langle \delta, S, R \rangle$ defined as follows:

- (18) a. $\delta = \text{some property/dimension}$
 - b. S = a set of (intervals of) degrees for having property δ
 - c. R = an ordering of members of *S* (directionality) (Beavers and Koontz-Garboden 2020: 26)

According to Beavers (2012), purely stative terms serve to assert that there exists a $d \in S$ along a given dimension δ according to R, the latter imposing scalar structure. For upper-closed scales, for instance, d will resolve to the maximal value. With changes-of-state, $d \in S$ is resolved in much the same way for the state holding at the culmination of the event. It is additionally asserted that there is a degree $d' \in S$ at the beginning of the event that constitutes a change along R in the direction that is lexically encoded (i.e. a predicate like *darken* imposes an ordering R s.t. d' necessarily constitutes a lower degree ordered according to the property DARKNESS). Some COS predicates can be either telic or atelic—the determining factor here is the presence of an identifiable (quantized) degree bound, e.g. a scalar maximum (Hay et al. 1999; Kennedy and Levin 2008; Kennedy 2012).

Altogether, the calculation of telicity is sensitive to the mereological properties of three components (Beavers 2012): the event, the theme, and the scale. These three components are subject to two homomorphic relations, which Beavers (2012) combines into a single definition for a *Figure/Path Relation* as shown below. These correspond to Krifka's (1998) *Strict Incremental-ity Relation* and *Movement Relation*, defined in terms of degrees rather than mereologically.

(19) Figure/Path Relation: An event *e*, patient *x*, and continuous, ordered set of degrees *S* on some dimension δ stand in a Figure/Path Relation (FPR) iff every unique part $x' \le x$ corresponds to a unique subevent $e' \le e$, the sum of all such subevents constitutes *e*, and each e' stands in a Movement Relation with a continuous subset $S' \subseteq S$, where S' includes x' 's initial degree of δ in e' and where the maximal degree in S' is x'' s final degree of δ in e'. (Beavers and Koontz-Garboden 2020: 39)

A consequence of the one-to-one mapping between events and objects is a correspondence between quantized incremental themes and telic eventualities (Krifka 1989). Non-quantized incremental themes, conversely, correspond to atelic eventualities. This follows from the fact that non-quantized incremental themes hold of subparts just as atelic eventualities hold of subintervals (Bennett and Partee 2004).

In the case of *búinn*, I assume that the COS is contributed by the presence of a BECOME operator, adopting the formalization from Beavers and Koontz-Garboden (2020: 26).

(20) For all $e, s \in D_v$, BECOME(s)(e) = 1 iff *s* holds at the end of *e* and at the beginning of *e* there is a state *s'* such that there is a degree *d'* on δ_s

In what follows I will assume that $b \dot{u} inn$ needs a salient quantity scale; felicity is dependent on a modalized relation between the extent of change (i.e. a quantity scale) in the theme argument and a (contextually resolved free predicate variable) perfect state Q (Nishiyama and Koenig 2010), which will be introduced in the next section. It is the measure of the extent of this

change which has discourse significance; the pre-state and post-state are contrasted (Maienborn 2009). What matters here is the salience of a contrast between pre- and post-states as the extent of change relates to establishing the existence of a perfect state. Crucially, quantized theme arguments provide scales that are fully closed. *Búinn* and BE-*resultatives* pattern together in that the two require a quantized theme, as shown below in (21)

- (21) a. #Mjólk er drukkin. milk is drunk 'Milk is drunk.'
 - b. ?Mjólkin er drukkin.
 milk:DEF is drunk
 'The milk is drunk.'
 - c. Það er búið að drekka mjólkina.
 it is BÚINN to drink milk:DEF
 'The milk has been drunk.'
 - d. #Það er búið að drekka mjólk.
 it is BÚINN to drink milk
 'Milk has been drunk.'
 - e. Það hefur verið drukkin mjólk.
 it HAS been drunk milk
 'Milk has been drunk.'

The interpretive contrasts here as follows: (21a) cannot be uttered out of the blue and it is indeed difficult to conceive of a context in which it would be appropriate. (21b) would require a context that makes salient a "job-is-done" type interpretation: say two individuals are at a unique type of restaurant which requires that each item on the table be checked off a list before they proceed. (21c) sounds natural in this checklist context. (21d) is odd, as it contrasts the milk having been drunk with a state in which something aside from milk has been drunk—finding an appropriate context is thus dependent on highlighting the importance of it having been milk that was drunk and not another beverage. Finally, (21e) is acceptable and veers towards an inferential reading, which could be translated as 'It seems that milk has been drunk'.

Búinn is felicitous when it embeds bounded event descriptions. Consequently, accomplishments and achievements are the most typical types of eventualities associated with it. Quantized internal arguments are thus a pre-requisite in these cases as well. This account can moreover be extended to activities and states. Both, being homogeneous eventualities, typically yield universal or recent-past readings under *búinn* by default. However, both activities and states can be coerced into quantized event descriptions. With activities, this can be achieved by providing a quantity bound on a salient scale (e.g. a path), denoting the maximal extent to which a stateholder participates in the eventuality in question. Alternatively, both states and activities can be made bounded along a quantity scale with iterative marking. No proper mereological subpart of (22a), an atomic event of walking 2km, can be construed as being in the denotation of the predicate *walk 2km a day for many months*. The same logic can be extended to states—what is relevant to discourse in (22b) is the state-holder having undergone multiple individuated eventualities of sickness.

(22) a. Ég er búinn að ganga 2 km á dag í marga mánuði.I am BÚINN to walk 2 km in day in many months

'I have walked 2 km per day for many months.'

b. Ég er búin að vera veik mörgum sinnum á þessu ári.
I am BÚINN to be sick many times in this year 'I have been sick many times this year.'

3.2. Proposal pt. 2: Compositional implementation

In this section I outline the compositional details of my analysis. I build on Baglini (2012) who adopts the analysis in Kennedy and Levin (2008). Accordingly, I assume that COS predicates like *close* are of type $\langle d, \langle e, \langle v, t \rangle \rangle \rangle$ as exemplified below; *init* and *fin* are functions which take an individual and an event argument, yielding degrees of the property denoted by the predicate at the onset and culmination of the event—the function as a whole returns a measure of change undergone by x in degrees. Gradable predicates of this sort must then have their degree argument saturated. I assume that this can be accomplished by an overt degree argument or a covert head [[*pos*]], which takes the measure function as input and contributes a comparison standard (Kennedy and Levin 2008: 167). When [[*pos*]] is applied to a gradable property of events, it requires a fully closed scale in order to output a maximal value.

(23)
$$[[close_{\triangle}]] = \lambda d\lambda x \lambda e [close_{close}(x)(init(e)) \uparrow (x) fin(e) = d]$$

(24)
$$[[pos_v]] = \lambda G \in D_{\langle d, \langle e, \langle v, t \rangle \rangle \rangle} \lambda e. \exists x [G(x)(e) \succeq \mathbf{std}_{c,w}(G)]$$

In the case of incremental themes, the composition is more involved, as the theme argument must be mapped to a gradable property of events. Here I assume that this is accomplished by means of a covert partitive head following Baglini (2012).

(25)
$$[[part_{\Delta}]] = \lambda y \lambda d\lambda x \lambda e[part_{part(x)(init(e))} \uparrow (x) fin(e) = d]$$

Further, I assume Kennedy's (2007) *Principle of Interpretive Economy*, which states that conventional lexical meaning is maximally utilised to determine truth-conditional interpretation. Consider (1): *d* can be set to the maximum value (that is, 1) and the durative event description *eat* can measure out a change in a covert theme. Now, I proceed to show the derivation of (9). I begin with the denotation of vP, which is of type $\langle v, t \rangle$.

The gradable property of events derived from the composition of the partitive head and the incremental theme argument combines with a predicate of eventualities by *Event Identification* (Kratzer 1996). The resulting gradable event description has its degree argument saturated by *mikið* 'much/a lot' which has the semantics in (26), mapping a gradable property to a comparison class and asserting that this standard is exceeded by a significant degree (treated analogously to *very* in Kennedy and McNally 2005).⁷

(26)
$$[[\operatorname{mikid}]]^{c,w} = \lambda G \in D_{\langle d, \langle e, \langle v, t \rangle \rangle \rangle} \lambda e. \exists x \left[\operatorname{std}_{c,w}(G) \prec \prec_{G,c} G(x)(e) \right]$$

(27)
$$[[a lot]]^{c,w}([[rust]])([[part_{\triangle}(the car)]]) = \lambda e. \exists x [rust(x)(e) \land part_{part(\sigma x. *CAR)(init(e))} \uparrow (\sigma x. *CAR) fin(e) \succ \succ_{G,c} std_{c,w}([[rust part_{\triangle}(the car)]])]$$

With these pieces in place, I now delineate the details of my proposal regarding the syntax and semantics of the $b\dot{u}inn$ construction. This involves two components: the meaning of the

⁷Formalization adopted from Bill and Koev (2022: 133).

participle itself as well as the copula *vera* 'to be'. Syntactically speaking, *búinn* is an adjectival participle (cf. Kratzer, 2000; Gehrke 2015) used as part of a copular construction, whether it has a non-finite verbal complement or is used adjectivally.⁸ I assume that it is located in AspP, taking a *vP* or VoiceP as its complement (depending on whether it embeds a transitive or intransitive structure).⁹

The structure of adjectival participles cross-linguistically is a matter of debate (Borik and Gehrke 2019). I adopt the view of participle formation in Icelandic of Sigurðsson (2017), who considers Icelandic data through the lens of Embick (2004). I thus distinguish between participles that are truly stative involving no eventive *v*-head and resultative and eventive participles which have a *v*-layer and event implications in accordance with that. Sigurðsson (2017) additionally argues that transitive and intransitive participles can be further distinguished on the basis of whether or not they project Voice.

Consider first the intransitive case, in which the theme argument must be externalized—the theme DP is merged from outside of the participial projection (Meltzer-Asscher 2012; Bruening 2014). AspP thus denotes a function predicated of an open individual (cf. McIntyre, 2013). I assume AspP composes with a predicative head (Meltzer-Asscher 2012), introducing a DP in its specifier. The predicative head then mediates between this function and the DP argument higher up by applying it to the individual argument in SpecPredP. In the transitive case, by contrast, the DP controls PRO in SpecVoiceP and is interpreted as agent and state-holder (cf. Biggs, 2021). The copula *vera* 'to be' mediates between PredP and TP, localizing the interval provided by tense in the runtime of the state in question.



I propose the denotation for *búinn* shown below in (29a). Where it takes a non-finite complement, it is a function from predicates of eventualities to predicates of states. When used adjectivally, the lexical entry lacks the first λ -term. Participial morphology (*-inn*) typically suppresses the initiator argument located in Voice (cf. Gehrke 2015), however in the case of unaccusatives it is vacuous (Bruening 2014). The second component of the denotation in (29a) is BECOME, defined above in (20). *Búinn* does not assert anteriority directly, rather only indirectly as an

⁸See Biggs (2021) and Fruehwald and Myler (2015) for analyses of the English *done* construction as copular.

 $^{{}^{9}}B\acute{u}inn$ can be embedded by *hafa*, suggesting that it is located structurally lower than canonical perfects (which are relative tenses, cf. Pancheva, 2003).

implicature by means of the state transition provided by BECOME.¹⁰ The copula *vera* 'to be' is of type $\langle \langle v,t \rangle, \langle i,t \rangle \rangle$ and serves to map the runtime of the state in question to the interval provided by tense: *i* is contained in the temporal trace of *s*. Finally, *búinn* contains a free predicate variable *Q* (Nishiyama and Koenig 2010) which holds of the state output by BECOME. The motivation behind this free variable will be treated in considerable detail in the following section. For now, let it suffice to say that *Q* that the state yielded by asserting *búinn*+vP cannot solely be determined from the lexical semantics of the verbal root in combination with BECOME.

(29) a.
$$\llbracket b (inn) \rrbracket^{g,w} = \lambda V_{\langle e, \langle v, t \rangle \rangle} \lambda s. \exists x \exists e [init(x)(e) \land V(e) \land BECOME(s)(e) \land Q(s)]$$

b. $\llbracket vera \rrbracket^{g,w} = \lambda V_{\langle v, t \rangle} \lambda i. \exists s [i \subseteq \tau(s) \land V(s)]$

The derived meaning for the top node in (28) is shown below. In prose, given present tense: If reference time is equal to *now*, then truth is yielded in case there exists a state *s* s.t. *now* is contained in the runtime (temporal trace) of *s*; there is an event *e* of rusting, an individual *x* composed of sub-parts of the car s.t. the amount of *x* that underwent rusting equals or exceeds a contextually high degree of rusting; the BECOME relation holds between *e* and *s* and the free predicate Q holds of *s*.

(30) $\begin{bmatrix} (28) \end{bmatrix}^{g,w} = \lambda i. \exists s [i \subseteq \tau(s) \land \exists x \exists e [rust(x)(e) \land part_{part(\sigma x. *CAR)(init(e))} \uparrow (\sigma x. *CAR) fin(e) \succ_{g,c} std_{c,w}(\llbracket rust part_{(the car)} \rrbracket) \land BECOME(s)(e) \land Q(s) \end{bmatrix}$

3.3. Nature of the QUD

Many analyses of perfects cross-linguistically use the term current relevance (CR) in relation to contrasts resembling the one in (1) (Portner 2003; Nishiyama and Koenig 2010). More specifically, *búinn* seems to impose a current relevance requirement not present with *hafa*. I propose that a type of CR can be derived easily from the scalar approach described in the previous section, coupled with notions of causality: the combined presence of BECOME and a degree argument in the lexical semantics results in a presupposition that there is a degree such that the attainment of this degree is *sufficient* (Nadathur and Lauer 2020) for the perfect state predicate variable Q.

Schaden's (2013) insight is that CR ought to instead be framed in terms of conditional probability with regard to a QUD. Here he builds on Portner (2003: 501) who proposes that the perfect's prejacent p is related to a second proposition, a *discourse topic* or QUD q by an epistemic accessibility relation. Further, it is presupposed that p is a complete or partial answer to the QUD. Schaden (2013) models the relation between propositions probabilistically: the conditional probabilities $(p|\neg q)$ and (p|q) ought to be non-equal. The greater the difference between conditional probabilities, the higher CR value. Given the prejacent *He has eaten* and the state *He is not hungry*, at least a partial answer to the QUD ((p|q) = 1) is entailed. If $\neg q$ holds, $\neg p$ is likely also true $((p|\neg q) \approx 0)$ —the conditional probabilities diverge significantly.

As discussed in the previous section, *búinn* is sensitive to a scalar contrast between $\neg p$ and p as this relates to a salient proposition q. I implement this in the form of a presupposition.

¹⁰I assume universal readings have embedded imperfective morphology (Larsson 2008; Sigurðsson 2017).

(31) **Presupposition**: The existence of a degree (of the extent of change along a quantity scale in the theme/state-holder) s.t. this degree is causally sufficient to give rise to Q

It follows from the presupposition given in (31) that *búinn* has a quantization requirement (when interpreted non-universally).

(32) **Sufficiency**: Causal sufficiency holds if "the effect occurs in the course of normal causal developments" (Nadathur and Lauer 2020: 12)

I contend that both components are necessary in order to capture competition between *búinn* and *hafa*. This is discussed in the next subsection.

3.4. Causal component

In this subsection, I discuss the role of sufficiency. The attentive reader may question why I draw on this notion rather than causal necessity. It seems to me that the relevant relation is one of *inevitability* rather than *counterfactual necessity* in the sense of Lewis (1973). In the *Rusting* example, for instance, it is not so that had it not rusted to such an extent over the winter, that it would necessarily be drivable. Rather, I take this relation to be one of metaphysical settledness, corresponding to *causal sufficiency* in Nadathur and Lauer (2020). That is, the car having rusted to such an extent makes the existence of a new state of affairs certain, as opposed to a mere possibility. In conjunction with the remaining background situation, the prejacent had the ensuing effect of inevitably leading to a state where the perfect state holds.

Let us now consider some of the examples from earlier in the paper in a new light, given the presence of causal sufficiency and the free predicate variable Q. In (1) (the *Eating* example) the extent of change is sufficient to give rise to Q = "He is no longer hungry". In this case, the relationship between the eventuality and state returned by BECOME is still somewhat direct (the state of having eaten). Nonetheless, the perfect state evoked by *búinn* is rather the state of not being hungry, which is related to the state yielded by BECOME by the causal sufficiency relation. With iteratives such as (7) (*Keys*), the relevant intuition is that the perfect state wouldn't hold were it not for the extent of the key-losing. Under normal circumstances, this extent of key-losing gives rise to frustration and thus, Q resolves to *I am fed up with my forgetfulness*.

4. Competition and the QUD

Schaden (2009) proposes that the present perfect and simple past compete with one another and that it is this competition which determines the surface distribution of the two in a given language. The crux of the view in Schaden (2009) is that, in languages with perfect/past variation, there are contexts in which the speaker has a perceived choice between forms, as well as contexts in which the choice of form is pre-determined by surrounding linguistic or contextual material. Given this, it is predicted that the two exist in a complementary relation: a more generalized (in his terms, less restricted) present perfect coincides with a more marked simple past (in English, or vice-versa in German). Markedness here cannot be ascertained solely on the basis of morphological or semantic complexity, otherwise there would be no cross-linguistic variation in *default* perfect forms, instead Schaden (2009) uses a broader notion of markedness on the basis of compatibility with more or fewer situations. Integral to Schaden's (2009)

competition account is a contrast between the present perfect, which does give rise to a perfect state, and a simple past that does not. In the following, I will show that *búinn*, *hafa* and the BE-*resultative* compete with one another, as well as with the simple past. The resulting pragmatic division of labour is hence more intricate than what Schaden (2009) describes for English, German, Spanish and French.

4.1. Competition with hafa

In order to compare *búinn* and *hafa*, I first briefly spell out my assumptions regarding the semantics of *hafa*. For concreteness, I adopt the analysis in Schaden (2009): I assume compositionally that *hafa* embeds viewpoint aspect, with the lexical entry in (33). It asserts i) that the moment of utterance *i* included in the runtime of the perfect state and ii) the existence of an interval *i'* preceding *i* (the latter interval introduced by a higher tense layer) and iii) the existence of a predicate variable over states Q(s). In this sense, *hafa* is more like a relative tense (cf. Bohnemeyer, 2014).

(33) $\lambda I_{\langle i,t \rangle} \lambda i \exists i' \exists s [i' \prec i \land i \subseteq \tau(s) \land Q(s) \land I(i')]$

The scalar sufficiency relation between the prejacent and the perfect state means that *búinn* is especially suited for a particular pragmatic function. Recall that *búinn* presupposes the existence of a degree (an extent of change) which gives rise to a state that itself serves as a (partial or complete) answer to the QUD. As a result, it is an especially suitable assertion when the QUD is of the form: 'What can happen now?'.¹¹ On the other hand, *hafa* is used when the QUD is 'Has *p* occurred'? In this case, what is relevant is whether there an instantiation of *p* which temporally precedes reference time. The resulting pragmatic division of labour aligns with a contrast between more specific and more general inquiries, or between assertions with higher and lower CR.

I assume the two are in competition, where *hafa* is the unmarked form. The determination of this markedness asymmetry is rooted in the fact that the use of *hafa* is subject to fewer selectional and contextual restrictions. While both convey a perfect state, *búinn* imposes more restrictions on the common ground—*hafa* has no comparable presupposition. Moreover, if *hafa* is used the hearer infers by *Quantity* that a high threshold of CR (as defined in the previous section) does not hold. Given sufficiently high CR, *hafa* is entirely infelicitous. This is illustrated below in (34), which constitutes a canonical high CR context (from Schaden, 2009). On the whole, my approach thus provides an avenue for understanding where the temporal recency inference of *búinn* originates, namely as an epiphenomenon.

- (34) **Context:** I am overjoyed, I cannot believe it!
 - a. Ég vann!

 Won

 b. Ég er búinn að vinna!

 am BÚINN to win
 #Ég hef unnið!

 HAVE won
 Won!'

¹¹Wide (2002: 248) writes that it occurs "in situations where a problem or turning point in interaction occurs".

The analysis provided in this paper can account for contrasts between biinn and hafa with regard to adverbial modification. Consider (37), cited by Friðjónsson (1989: 105) as unacceptable without an adverbial to bound the time-span of the assertion, such as *all day*. On my account, unacceptability is not *directly* due to the lack of an adverbial, but rather what is missing is a salient contrast between $\neg p$ and p states, which can be provided by context. Consider the contexts in (35) and (36). The former makes explicit that the simple punctual state transition from the bed not having been lain in to this being the case is sufficient to give rise to a state that, in turn, is a complete answer to the QUD 'Can I lie in my bed?'. I thus predict that biinn is licit in this context and that *hafa* ought to be dispreferred. The latter context does not satisfy *biinn*'s presupposition—there is no salient scalar contrast. Rather, the QUD concerns whether p is instantiated at any interval extending into the indefinite past. This is borne out.

- (35) I went on vacation and told my house sitter to, under no circumstances, let my dog sit on my new bedsheets. I arrive home and ask: Can I lie in my bed now?
- (36) I am curious whether you ever let your dog lie in bed with you.
- (37) Hann er búinn að liggja í rúminu.He is BÚINN to lie in bed:DEF'He has lain in the bed.'

(35): √ (36): ?

4.2. Competition with BE-resultatives

As discussed in Section 2.5, Larsson (2008) claims that inchoative unaccusatives (i.e. intransitive COS predicates) have resultative readings under both *búinn* and BE. This must be under a wide definition of resultativity, as the interpretive effects of the two markers cannot be equated. I take it that the BE-*resultative* is the unmarked way to refer to target states. Given this configuration, the use of *búinn* triggers pragmatic reasoning to the effect that the speaker had some motivation to refer to a perfect state that goes beyond what is made available from the lexical semantics of the participle. Conversely, use of the BE-*resultative* does not rule out that such a state might exist—this can be bolstered by other elements in the (extra-)linguistic context.¹²

Let us consider the predicate *brotna* 'break', which has a two-valued property scale as part of its lexical semantics. As it is the transition from *not-broken* to *broken* which is relevant, the interpretive effects of *búinn* and BE-*resultatives* may seem to bleed together. It is possible to bring out the relevant interpretive contrasts using targeted contexts, as in (38): In Context 1, *búinn* is natural, as the QUD concerns whether the speaker's expectations are going to be fulfilled or not. (38a) is licit as well but does not address expectations in the same manner. In Context 2, *búinn* again targets the speaker's expectations—now it is degraded, since it seems to suggest that the glass breaking ought to have been the main point of the experiment. (38a) does not suggest as much and is perfectly felicitous here; so is the simple past.

(38) Context 1: I learn that I purchased a low quality windshield and I am waiting for it to crack. While driving, I notice a crack starting to form.Context 2: Scientists are working to develop a new type of glass that can withstand

¹²Diachronically speaking, unaccusatives constitute a relatively innovative context for *búinn* (Thráinsson 2017). Some, especially older speakers find (38b) altogether unacceptable and would instead prefer *hafa* or simple past.

high air pressure, more precisely 2000 psi. After many trials, it looks like the latest model will pass the test. The glass is exposed to 2000 psi and holds its shape, but soon afterwards shatters. One utters: We succeeded...

a. Sjáðu, glerið er brotið. look, glass:DEF is broken 'Look, the glass is broken.' 1: √ 2: √
b. Sjáðu, glerið er búið að brotna. look, glass:DEF is BÚINN to break 'Look, the glass has broken.' 1: √ 2: ?

The properties of *búinn* and BE-*resultatives* diverge more saliently when one examines durative COS predicates. Let us take *hækka* 'raise' as an example. It denotes an increase along the property dimension of HEIGHT, a transition whereby a contextual standard on this dimension is reached. I take it that BE-*resultatives* simply assert that the theme argument is in a state which counts as *raised* according to this standard. The presence of a perfect state variable, in combination with the presence of a causal presupposition, triggers pragmatic reasoning under *búinn*: not only does the hearer have to saturate the predicate variable Q, this variable is closely related to the extent of change (which must be delimited in some fashion to fulfil its presupposition). I suggest that this then additionally triggers the hearer to reason that it could not have been the contextual standard that was meant, since if it were, the speaker could have used BE instead. As the context in (39) makes available a degree *d* that is sufficient for renovations to carry on, *búinn* is felicitous, while (39a) is degraded.

- (39) **Context**: Now we can now move on to the next step in our home renovations...
 - a. #Það er hækkað til lofts.
 - it is raised to ceiling
 - b. Það er búið að hækka til lofts
 - it is BUINN to raise to ceiling
 - 'The ceiling has been raised.'

5. Conclusion and outlook

The *búinn* construction is an argument-structurally complex derived stative, which has considerable functional overlap with the meaning space of perfects cross-linguistically. It is a participle which contributes a change-of-state, imposing restrictions on the scalar structure of the embedded event description. The analysis presented here supports the view that PERFECT is not strictly speaking a unified class, but the combination of a number of meaning components (Matthewson et al. 2015), among them frequently a change-of-state, which may have differing realizations across languages.

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