

## Restricted and reversed aspectual contrasts

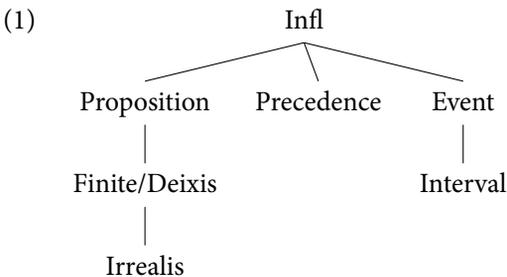
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### 3.1 Introduction

Scottish Gaelic is well known for the range and diversity of the contrasts it expresses in its aspectual and tense systems (Ramchand 1993; Reed 2012). As such it stands as an important proving ground for theories that represent morphosyntactic contrasts in tense, mood, and aspect.

One such theory (Cowper 1998, 1999, 2003, 2005*a*, 2010; Cowper and Hall 2007) identifies aspectual and tense contrasts using a feature geometry paired with a Distributed Morphology system of lexical insertion (for a contrasting view of feature relationships that does not use geometric dependencies see Harbour 2014*a*). Examining closely the contrasts expressed by the English auxiliary system (and those of other languages), Cowper and her colleagues propose a feature geometry. This feature structure is realized as lexicalized tense and aspect morphology. This geometry explains the range of possible semantic contrasts in the English system.

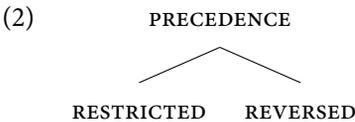
Cowper (2005*a*: 12) proposes that the dependencies expressed in the following feature geometry articulate the set of contrasts expressed in the English inflectional system:



The feature **EVENT** distinguishes clauses expressing events from those that express states. The dependent feature **INTERVAL** then further distinguishes

among event types. The presence of this feature represents the marked imperfective viewpoint aspect; its absence indicates the unmarked perfective viewpoint aspect. In English, the feature *INTERVAL* is realized by the *-ing* suffix on verbs. The *PRECEDENCE* feature is used to indicate that there is a temporal ordering relation of one time prior to another. This might be the relation between reference time and speech time, as in the English past tense, or it might be between event time and reference time, as found in English perfect aspect. The realization of this feature in the morphology will depend upon the other features it co-occurs with. *PROPOSITION* is the feature that marks the cognitive manifestation of an event. *FINITE/DEIXIS* is a bundled feature which both checks nominative case in the syntax and expresses the speaker-centred identification of the discourse anchor. The combination of *FINITE/DEIXIS* and *PRECEDENCE* will trigger the insertion of a past tense marker, such as *-ed* or the auxiliary *was*. When linked with a second temporal anchor (such as a reference time), *PRECEDENCE* will trigger the insertion of a past participle morpheme like *-en*. Finally, the *IRREALIS* feature is used to mark certain kinds of modal force, including *may* and *will*. The ‘future’ tense in English is taken to be a modal structure using *IRREALIS*.

In this chapter, we argue for two modifications to this feature geometry, both of which involve new dependencies upon the *PRECEDENCE* feature. The first modification is relatively uncomplicated; it simply allows for a restriction on the time between the two intervals ordered by the precedence feature. We call this feature *RESTRICTED*. We will show that this feature is used to encode the temporally restricted near or ‘after’ perfect and prospective aspects found in Scottish Gaelic. The second modification is more controversial, as it is explicitly rejected by Cowper (2003) and Cowper and Hall (2007).<sup>1</sup> We claim that certain kinds of forward-looking (i.e. future-like) meanings in Scottish Gaelic are not expressed by modal features like *IRREALIS*, but instead by a feature *REVERSED*. This feature indicates that the temporal ordering of event times managed by *PRECEDENCE* are reversed, so that they are forward-looking rather than backward-looking. In particular, we claim that this feature is used to mark unrestricted and restricted prospectives in the grammar. The proposed new dependencies are articulated in (2).



<sup>1</sup> More precisely, they reject the idea that the future is merely the opposite ordering of event time and discourse anchor from that found in the past.

This chapter is structured as follows. In §3.2, we review the rich morphological system of Scottish Gaelic for expressing aspectual contrasts. We explore five aspectual particles that mark progressive, unrestricted perfect, restricted perfect, unrestricted prospective, and restricted prospective aspects. In §3.3, we take a brief detour to summarize the claim made by us in previous work that the seemingly multimorphemic sequence *a' dol a<sup>L</sup>* has in fact been grammaticalized into a single Asp head. In §3.4, we show how the two revisions to Cowper's feature system map onto Scottish Gaelic aspect morphology. Finally, in §3.5, we look at some predictions made by our proposals. We show that the REVERSED feature correctly predicts semantic differences in the way the future is represented. We also suggest that the RESTRICTED feature can be extended from the aspectual domain to the tense system of many languages.

### 3.2 Scottish Gaelic aspect morphology

A quick review of the morphology and syntax marking the aspectual system in Scottish Gaelic will help set the scene for understanding the patterns we discuss in the rest of the chapter. See MacAulay (1996) for some foundational work that shaped our characterizations here.

In (3) we see the progressive.<sup>2</sup> This is marked with the auxiliary verb *bi* in one of its tensed forms with the verbal noun (VN) form of the main verb. An aspectual particle immediately precedes the VN. It takes the form *ag* in front of vowels and *a'* in front of consonants.

(3) Progressive

Tha	mi	ag	ithe	cèic.
be.PRES	I	PROG	eat.VN	cake
'I am eating cake.'				

Scottish Gaelic has two perfect aspects. The first is an unrestricted perfect, roughly equivalent to the English *have* perfect. This aspect is also marked using the auxiliary *bi* with a verbal noun form of the main verb. The aspectual particle used is *air*. In this form the word order is slightly different, with the object preceding the VN but following the aspect marker, as seen in (4):<sup>3</sup>

<sup>2</sup> All the Scottish Gaelic data in this chapter comes from our original fieldwork. Some of it may appear in other papers by us, including but not limited to Reed (2012) and Schreiner and Carnie (2016).

<sup>3</sup> The transitive particle *a*, shown in parentheses in (4), is normally omitted before vowel-initial words, but is present in these same constructions when the verbal noun begins with a consonant.

## (4) Unrestricted Perfect

Tha mi air an cèic (a) ithe.  
 be.PRES I PERF the cake TRAN eat.VN  
 'I have eaten cake.'

The second perfect (5) is sometimes called the 'after perfect'. It is called this because the particle that marks the aspect is homophonous with the preposition *as dèidh/an dèidh*, which means 'after' in other contexts. We will refer to this as the 'restricted perfect'. This aspect has the same syntactic structure as the unrestricted perfect but differs from it in meaning. The time span between the event time and the reference time must be short or restricted (see Reed 2012 for a more formal and detailed analysis of the semantics of the restricted perfect. See also Ó Sé 2004).

## (5) Restricted Perfect (After-perfect)

Tha mi as dèidh an cèic (a) ithe.  
 be.PRES I REST.PERF the cake TRAN eat.VN  
 'I have just eaten the cake.' (lit., 'I'm after eating the cake.')

In addition to the two backward-looking perfect aspects, Scottish Gaelic has two forward-looking aspects. The first is an unrestricted prospective, marked with *a' dol a<sup>L</sup>* (literally 'going to'; we will return later to what we believe the correct analysis of its morphology is). The particle is followed by the VN and then the object. This structure is used to indicate that an event will occur after a reference point. Effectively it is the semantic mirror image of a perfect. For more details on the semantics of this construction see Reed (2012) and Schreiner and Carnie (2016).

## (6) Unrestricted Prospective

Tha mi a' dol a<sup>L</sup> dh'ithe cèic.  
 be.PRES I PROSP eat.VN cake  
 'I am going to eat cake.'

Schreiner and Carnie claim that evidence for the aspectual nature of the prospective comes from the behaviour of adverbials, among other things. The separation of event and reference times, regardless of what order they

are in, means that each can be separately referenced. One property of the perfect is that it can occur with adverbials in two positions, yielding distinct interpretations: Clause-final adverbials allow both event time (ET) and reference time (RT) readings (7a), while clause-initial adverbials allow only a reference time reading (7b) (see also Hornstein 1993; McCoard 1978; Comrie 1976, 1985; Klein 1992; Michaelis 1994; Reed 2012).

- (7) a. Bha Calum air a' bhùth fhàgail aig  
 be.PAST Calum PERF the.F.SG shop leave.VN at  
 meadhan-latha.  
 mid-day  
 'Calum had left the store at noon.'  
 (RT or ET reading—either 'at noon' refers to the time under discussion, and Calum has already left by then, or his leaving was at noon.)
- b. Aig meadhan-latha, bha Calum air a' bhùth  
 at mid-day be.PAST Calum PERF the.F.SG shop  
 fhàgail (mar tha).  
 leave.VN (already)  
 'At noon, Calum had left the store (already).' (RT reading)

The same set of interpretations holds for the prospective. With a clause-final adverbial, either reading is available (8a), but the clause-initial adverbial is restricted to RT readings (8b).

- (8) a. Bha Calum a' dol a<sup>L</sup> phòsadh Màiri aig meadhan-latha.  
 be.PAST Calum PROSP marry.VN Màiri at mid-day  
 'Calum was going to marry Màiri at noon.'  
 (ET or RT interpretation available—i.e. either the wedding will take place at noon, or we don't know when the wedding will be, but we're reporting about the state of affairs at noon.)
- b. Aig meadhan-latha bha Calum a' dol a<sup>L</sup> phòsadh Màiri,  
 at mid-day be.PAST Calum PROSP marry.VN Màiri  
 ach aig uair gabh e an t-eagal.  
 but at hour take.PAST 3SG.M the fear  
 'At noon, Calum was going to [i.e. planning to] marry Màiri, but at one he got scared.' (RT interpretation only)

We also have evidence that the prospective is an aspect rather than a future tense. It can co-occur with any tense auxiliary (9a), and it cannot co-occur with other aspectual particles without a second auxiliary (9b).<sup>4</sup>

- (9) a. Bha/ta/bithidh                      Calum a' dol a<sup>L</sup> phòsadh Màiri.  
       be.PAST/be.PRES/be.FUT Calum PROSP marry.VN Màiri  
       ‘Calum was/is/will be going to marry Màiri.’  
   b. \* Tha        Iain air        a' dol a<sup>L</sup> sgriobhadh.  
       be.PRES Iain PERF PROSP write.VN  
       \*‘[Iain has going to write.]’

So, following Reed (2012), we conclude that the *a' dol a<sup>L</sup>* construction marks a true prospective aspect.

The other forward-looking aspect parallels the restricted perfect. It is limited to contexts where the event time and the reference time are perceived to be close together (again, see Reed 2012 for a formalization of this restriction). This restricted (or near) prospective has the same syntax as *air* and *as dèidh*, but is marked with the particle *gu* (10):<sup>5</sup>

- (10) Restricted Prospective  
       Tha        mi gu                      an cèic (a)        ithe  
       be.PRES I     REST.PROSP the cake TRAN eat.VN  
       ‘I’m about to eat the cake.’

Table 3.1 summarizes the distinctions discussed.

<sup>4</sup> A number of examples in this section are drawn from Reed [Schreiner] (2012).

<sup>5</sup> Adger (1994) identifies *gu* as a marker of ‘E>R’ (essentially a prospectivity marker). Reed (2012) demonstrates that this morpheme is in fact limited to contextually restricted time spans, as seen in the following examples:

- (i) # Tha        Iain gu taigh a        thogail ann an còig bliadhna.  
       be.PRES Iain GU house TRAN build.VN in        five year  
       #‘Iain is about to build a house five years from now.’  
   (ii) Tha        e        gu ceumnachadh ann am mìos.  
       be.PRES 3SG.M GU pace/graduate.VN in        month  
       ‘He is about to graduate in a month.’  
   (iii) Tha        Iain gu bhith trang a-màireach.  
       be.PRES Iain GU be.VN busy tomorrow  
       ‘Iain is about to be/going to be busy tomorrow.’

**Table 3.1** Summary of Scottish Gaelic aspect morphology

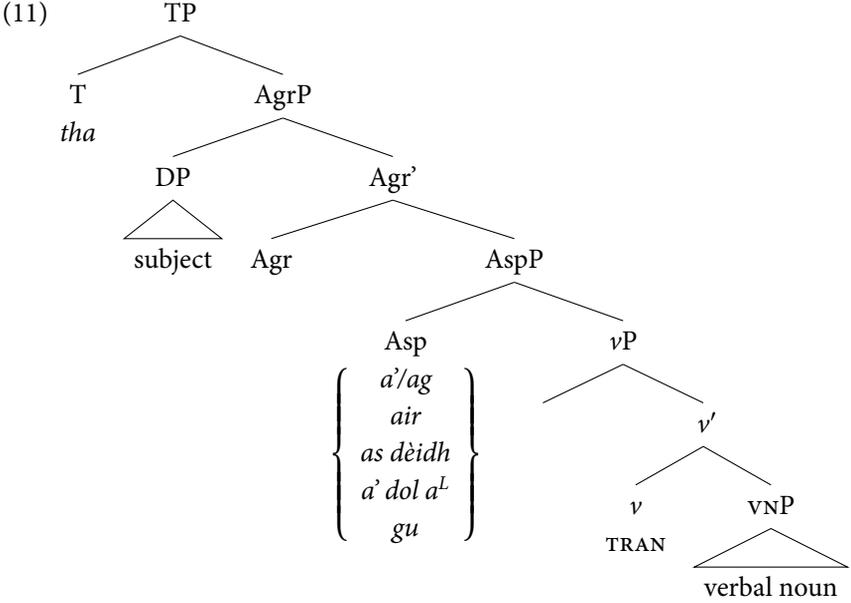
Particle	Interpretation	Structure
<i>a'</i>	progressive	<i>a'</i> + VN (+ OBJ)
<i>air</i>	unrestricted perfect	<i>air</i> (+ OBJ + TRAN) + VN
<i>as dèidh</i>	restricted perfect	<i>as dèidh</i> (+ OBJ + TRAN) + VN
<i>gu</i>	unrestricted prospective	<i>gu</i> (+ OBJ + TRAN) + VN
<i>a' dol a<sup>L</sup></i>	restricted prospective	<i>a' dol a<sup>L</sup></i> + VN (+ OBJ)

### 3.3 A single Asp head: Schreiner and Carnie (2016)

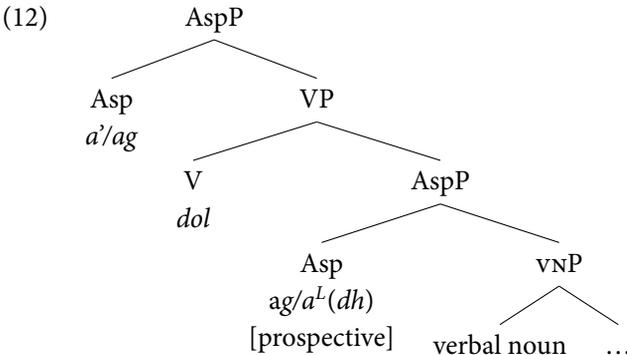
In order to understand how the feature structures proposed in this chapter are integrated into the syntax of the language, we need to explain our assumptions about the underlying structure of the particles that mark aspect. In particular, we need to demonstrate that what appears on the surface to be a complex multiword structure for the restricted prospective (*a' dol a<sup>L</sup>*), has in fact been grammaticalized as a single aspectual head. Schreiner and Carnie (2016), building on foundational work by Ramchand (1993, 1997) and Adger (1994, 1996), claim that the syntactic structure underlying the overtly marked periphrastic aspects of Scottish Gaelic is that in (11).<sup>6</sup> The aspectual particle is the realization of an Asp (Aspect) head. The auxiliary *bi* is the realization of T (Cowper 2010). The subject is licensed in a position between T and Aspect. For convenience, we label this position as the specifier of an AgrP, but nothing critical relies on this categorization. We leave aside the issue of the alternation in position of the object and VN, and assume that it is a consequence of different mechanisms of case-licensing (see Adger 1994; Carnie 1995; Bobaljik and Carnie 1996, among many others, for a discussion of this alternation).<sup>7</sup>

<sup>6</sup> We have simplified the tree here by putting *tha* in T. It probably originates in a *v* head, possibly located above Asp (Travis 2010): [<sub>TP</sub> T+*tha* [<sub>VP</sub> *t<sub>V</sub>* [<sub>AspP</sub> Asp [<sub>VP</sub> ... ]]]]. We abstract away from this detail.

<sup>7</sup> In particular we assume, following the authors listed here, that accusative case is licensed post-verbally in VO orders and pre-verbally in OV orders by the TRAN particle. The typical analysis of TRAN is that it is either an Agr category or a *v* category, perhaps corresponding to Voice. It is unlikely to be an Asp head, because it is not correlated with any semantic distinction and shows up in contexts without any marked aspect, such as non-finite clauses.



This analysis is relatively straightforward when it comes to the particles *a'/ag*, *air*, *as dèidh*, and *gu* but it is far from transparent for the prospective marker *a' dol a<sup>L</sup>*. The prospective marker translates literally as ‘going to’.<sup>8</sup> It is a legitimate question whether the aspectual particle analysis in (11) is appropriate or whether this particular sequence might be better analysed as a biclausal structure with an embedding verb ‘go’, taking an infinitival complement clause as in (12).



<sup>8</sup> The use of *a' dol* as a progressive verb of motion and *a<sup>L</sup>* as a directional preposition can be seen in examples such as (i):

- (i) Tha mi a' dol a<sup>L</sup> Ghlaschu.  
 be.PRES 1SG PROG go to Glasgow  
 ‘I’m going to Glasgow.’

Schreiner and Carnie (2016) argue against (12) and claim that the *a' dol a<sup>L</sup>* sequence in Scottish Gaelic (but not Modern Irish) has been grammaticalized into an Asp head. In this section, we briefly summarize that argument. We will not recapitulate all the arguments from Schreiner and Carnie (2016) here, but give a few points to give a flavour of the evidence.

In Modern Irish, a wide variety of embedding predicates are compatible with what McCloskey (1983) identifies as a prospective interpretation. For example, Irish allows other verbs such as *stad* 'stop', *suigh* 'sit', *lean* 'follow', and *tosaigh* 'begin' to take a prospective complement. McCloskey (p.c.) has suggested to us that this is evidence that in Irish at least the 'going' (*ag gabhail*) portion of the construction is not critical to the prospective meaning, and instead these are biclausal constructions like (12), where the *a<sup>L</sup>(dh)* functions as the sole prospective marker, albeit one that can also be used to mark purpose clauses.<sup>9</sup>

- (13) a. Tá mé ag gabhail a dh'ithe greim bidh. [Irish]  
 be.PRES 1SG PROG go.VN PRT eat bite food.GEN  
 'I'm going to eat a bite of food.'
- b. Thosaigh mé a dh'ithe mo dhinnéar.  
 begin.PAST 1SG PRT eat.VN my dinner  
 'I began eating/to eat my dinner.'
- c. Stad mé a dh'ithe mo dhinnéar.  
 stop.PAST 1SG PRT eat.VN my dinner  
 'I stopped eating/to eat my dinner.'
- d. Lean mé orm a dh'ithe mo dhinnéar.  
 follow.PAST 1SG on.1SG PRT eat.VN my dinner  
 'I went on to eat my dinner/I went on eating my dinner.'
- e. Shuigh mé a dh'ithe mo dhinnéar.  
 sit.PAST 1SG PRT eat.VN my dinner  
 'I sat down to eat my dinner.'

The facts of Scottish Gaelic, however, are quite different. Other embedding verbs are incompatible with prospective interpretations. To the extent that such

<sup>9</sup> A word is in order here about this particle. In its most usual form *a<sup>L</sup>* (where the superscript <sup>L</sup> indicates that it triggers the lenition consonant mutation on the following verbal noun), it is ambiguous with the transitive particle found with inverted object order. The *a<sup>L</sup>* here, however, is distinct from that particle in two ways: (a) it doesn't trigger object inversion, and (b) rather than deleting in front of verbal nouns beginning with a vowel, as the transitive marker does, this one prefixes a *dh* in front of vowel-initial words. We use (*dh*) throughout this chapter to distinguish this *a<sup>L</sup>* particle from other *a<sup>L</sup>* particles found in the language. The same distinctions also exist in Irish.

embedding verbs license any interpretation at all, they are restricted to purpose clause interpretations and exclude any separate aspectual meaning.

- (14) a. Stad sinn a dh'ithe cèic. [Scottish Gaelic]  
 stop.PAST 1PL PRT eat.VN cake  
 'We stopped in order to eat cake.' / \*'We stopped eating cake.'  
 (purpose clause only)
- b. Bha sinn a' stad a dh'ithe cèic.  
 be.PAST 1PL PROG stop.VN PRT eat.VN cake  
 'We stopped in order to eat cake.' / \*'We stopped eating cake.'  
 (purpose clause only)
- c. \* Thòisich mi a dhannsadh a-rithist.  
 begin.PAST 1SG PRT dance.VN again  
 Intended: 'I began to dance again.'
- d. \* Bha sinn a' tòiseachadh a dh'ithe cèic.  
 be.PAST we PROG start.VN PRT eat.VN cake.  
 Intended: 'We were starting to eat the cake.'
- e. \* Thòisich a' mhuir a dh'fhàs dorcha.  
 begin.PAST the sea PRT grow.VN dark  
 Intended: 'The sea began to grow dark.'
- f. \* Thòisich àireamh-shluaigh an Ath-Leitheann a dh'fhàs  
 begin.PAST population the Broadford PRT grow  
 nas motha.  
 COMPR bigger  
 Intended: 'The number of people in Broadford began to grow bigger.'

Further, and again unlike Irish, purpose clause interpretations are completely unavailable in Scottish Gaelic 'going to' constructions when they use the *a' dol a<sup>L</sup>* form, as in (15):

- (15) Tha mi a' dol a<sup>L</sup> dh'ithe cèic.  
 be.PRES 1SG PROSP eat.VN cake  
 'There is cake-eating in my future.' / \*'I'm travelling in order to do some cake eating.'

In order to get the motion + purpose interpretation, a locative must be used, as in (16):

- (16) Tha mi a' dol ann a dh'ithe cèic.  
 be.PRES 1SG PROG go.VN THERE PRT eat.VN cake  
 'I'm going there in order to eat cake.' (purpose clause interpretation)

Finally, when the verb 'go' is not in its *a' dol* form, but in a different form (e.g. the preterite), then the purpose clause interpretation becomes the only available one, and the prospective interpretation disappears, as in (17):

- (17) Chaidh mi a<sup>L</sup> dh'ithe cèic.  
 go.PAST I PRT eat.VN cake.  
 'I went in order to eat cake.' / \*I was going to be eating cake at some future point.'  
 (There must be physical going; i.e. purpose clause)

Clearly there is something special about *a' dol a<sup>L</sup>* in Scottish Gaelic. In Schreiner and Carnie (2016), we propose that this sequence has been grammaticalized into an Asp head marking prospective aspect and as a consequence does not allow biclausal purpose clause interpretations.

A prediction of this claim is that *a' dol a<sup>L</sup>* should behave as a single particle when it comes to, for example, constituency phenomena. In Schreiner and Carnie (2016) we present a number of such cases, but repeat only one here: If *a' dol a<sup>L</sup>* is a grammaticalized Asp head, then it shouldn't be allowed to be interrupted by adverbial material. The examples in (18) demonstrate that this position is available for embedding predicates like *a' stad* 'stopping', but not for *a' dol a<sup>L</sup>* 'going to'.

- (18) a. Tha mi a' stad a-rithist a<sup>L</sup> dh'ithe cèic.  
 be.PRES 1SG PROG stop.VN again PRT eat cake.  
 'I am stopping again to eat cake.'
- b. Tha mi a' suidhe a-rithist a<sup>L</sup> dh'ithe cèic.  
 be.PRES 1SG PROG sit.VN again PRT eat.VN cake  
 'I am sitting again to eat cake.'
- c. \*? Tha mi a' dol a-rithist a<sup>L</sup> dh'ithe cèic.  
 be.PRES 1SG PROG GO again PRT eat.VN cake.  
 'I'm going again to eat cake.' (marginally acceptable with a purpose reading)
- d. Tha mi a' dol a<sup>L</sup> dh'ithe cèic a-rithist.  
 be.PRES 1SG PROSP eat.VN cake again  
 'I'm going to eat cake again.'

This, along with facts from clefting and ellipsis, lead Schreiner and Carnie (2016) to conclude that *a' dol a<sup>L</sup>*, despite surface appearances, has been reanalysed as an Asp head.

This analysis aligns *a' dol a<sup>L</sup>* with the other aspect particles, and leads us to propose a featural representation for it in line with what we propose for the other particles, as detailed in §3.4.

### 3.4 The featural representation of aspect contrasts in Scottish Gaelic

Two of the marked aspects in Scottish Gaelic are easily expressed in Cowper's (2003; 2005*a*) system of contrastive features: the progressive and the unrestricted perfect.

The progressive in Scottish Gaelic seems to have the same basic properties as the equivalent construction in English (Ramchand 1993; Reed 2012). So, we adopt the same feature structure as proposed by Cowper, and suggest the Vocabulary Item insertion (VI) rule in (19) for the *a'/ag* morpheme. The feature structure here is identical to that used for the VI rule for English *-ing* by Cowper. We assume that this feature structure is housed in the progressive Aspect head.

$$(19) \quad \text{Asp VI Rule:} \quad \begin{array}{ccc} \text{EVENT} & \Leftrightarrow & a'/ag \\ | & & \\ \text{INTERVAL} & & \end{array}$$

The simple past and future forms (see e.g. (14), (27)), on the other hand, encode perfective aspect. Cowper (2003) proposes for English that eventive clauses without INTERVAL receive a perfective interpretation. We suggest the same is true in Scottish Gaelic. Just as in English, a feature structure of EVENT without INTERVAL is lexicalized by a rule that yields a simple form, while EVENT with a dependent feature results in a periphrastic form. We propose the VI rule in (20) for the simple forms:

$$(20) \quad \text{Asp VI Rule:} \quad \text{EVENT} \Leftrightarrow \emptyset$$

There is no aspectual marking in these cases; instead, the different forms are the realizations of the feature structures in Tense.

The unrestricted perfect is similarly straightforward. The PRECEDENCE feature can be realized in either T (giving past tense) or Asp (giving the perfect). We propose the VI rule in (21) for *air*, the unrestricted perfect Asp head:

(21) Asp VI Rule: PRECEDENCE  $\Leftrightarrow$  *air*

The other three aspects (the restricted perfect, the unrestricted prospective, and the restricted prospective) require some modifications to Cowper's system.

We start with the restricted aspects. As the name implies, the time interval between the event and the reference time is limited (see Reed 2012 for discussion). So we propose that the temporal ordering feature PRECEDENCE bears a dependent feature that marks this limitation: RESTRICTED. When this feature appears as the only dependent of PRECEDENCE, we have a restricted perfect meaning. This is lexicalized with the rule in (22):

(22) Asp VI Rule: PRECEDENCE  $\Leftrightarrow$  *as dèidh*  
 |  
 RESTRICTED

Next we turn to the unrestricted prospective aspect. First, recall from above that prospectives are like perfects in that they have a precedence relation between RT and ET, but the precedence relation is reversed: while in perfects the event precedes the reference time, in prospectives, the event has not yet occurred at RT.<sup>10</sup> We suggest that this is best represented by a feature dependent upon precedence called REVERSED (23):

(23) PRECEDENCE  
 |  
 REVERSED

We use this dependent feature rather than proposing a SUBSEQUENCE feature as an alternate to the PRECEDENCE feature, because of the way it can combine with the RESTRICTED feature discussed above. If we had a SUBSEQUENCE

<sup>10</sup> An anonymous reviewer notes that perfect events, given that they precede reference time, must have an endpoint, making them different from prospectives in more ways than just the ordering of event and reference times. We note, however, that not all perfects include such an endpoint; in particular, in the case of 'universal' perfects in languages such as Scottish Gaelic and English, the perfect event continues into the reference time. Thus we assume that it is not encoded in the semantics of the perfect that the endpoint of reference time must precede event time; instead, such an arrangement is merely one possibility for the times involved in perfect aspect.

feature, RESTRICTED would have to be allowed to be a dependent of both PRECEDENCE and SUBSEQUENCE.<sup>11</sup> With a REVERSED feature, RESTRICTED can always be a dependent of PRECEDENCE independent of the direction of the precedence relationship.<sup>12</sup>

Cross-linguistic motivation for such a feature is not limited to the temporal domain. Pantcheva (2011), for example, proposes a reversal operation in her discussion of the decomposition of the Path head. This operation acts on a Goal path to yield a Source path, meaning that in her system a Source is more complex than a Goal in its semantic makeup (a Goal is a Goal, but a Source is a Goal + operation). She suggests that this additional complexity is attributable to a general cognitive bias (the ‘Goal bias’): ‘children and adults prefer to linguistically express Goals over Sources when describing motion events, change of state events, change of possession events, etc.’ (Pantcheva 2011: 70).

PRECEDENCE without the REVERSED feature is interpreted with the event time before the reference time, as in a perfect (the usual case). PRECEDENCE with the REVERSED feature has the event happening after the reference time, yielding a prospective. The VI rule for the grammaticalized *a’ dol a<sup>L</sup>* head is given in (24):

$$(24) \quad \text{Asp VI Rule:} \quad \text{PRECEDENCE} \quad \Leftrightarrow \quad a' \textit{ dol } a^L$$

$$\begin{array}{c} | \\ \text{REVERSED} \end{array}$$

Finally, the REVERSED feature co-occurs with the RESTRICTED feature in the restricted prospective. This is realized by the VI rule in (25), which inserts *gu* in this context.

<sup>11</sup> An anonymous reviewer wonders whether REVERSED could just occur under a SUBSEQUENCE feature, as well as under the PRECEDENCE feature. Although nothing necessarily prohibits us from locating REVERSED under both features, listing these as separate features instead of making REVERSED dependent upon PRECEDENCE makes the similarities between perfect and prospective (in contrast to other aspects) accidental. We suggest that Gaelic shows the two RESTRICTED aspects it does, and not more, because RESTRICTED is a feature of aspects that predicate a separation relation between ET and RT, and not others (such as the progressive). The separation of these times results in an interval that may in principle be short or long; a language like Scottish Gaelic can grammaticalize information about this interval.

<sup>12</sup> An anonymous reviewer asks what our proposal means for languages that don’t use the reversed feature—could they use PRECEDENCE for both future and past? Cowper’s (2003: 5) description of this feature is ‘[Precedence] signifies that the IP in whose head it appears is located temporally prior to its temporal anchor.’ This temporal anchor can be speech time (in the case of Tense) or reference time (in the case of Aspect). Languages with a true future tense (rather than a modal) would presumably employ the REVERSED feature for tense, dependent on PRECEDENCE.



The addition of *REVERSED* and *RESTRICTED* to the feature geometry thus captures exactly the additional aspectual contrasts found in Modern Scottish Gaelic.

### 3.5 Predictions

The addition of the *RESTRICTED* and *REVERSED* features is motivated by the aspectual contrasts in Scottish Gaelic. But, of course, any complication of a theoretical claim requires confirmation from its interaction with other parts of the grammatical system. In this section, we consider two predictions of the proposal we made above. First, we look at the possibility that the *REVERSED* feature can also be used to distinguish past from future tenses, and the implications this has for tense morphology in Scottish Gaelic. Second, we look at the typological implications of the restricted feature and see if it has use beyond Scottish Gaelic and beyond restricted perfects and prospectives.<sup>13</sup>

#### 3.5.1 Two pathways to the future?

We have largely ignored the fact that for Cowper and her colleagues the feature *PRECEDENCE* has two realizations in English and other languages: It is realized as past tense when anchored to the speech time, and as the past participle when anchored to reference time. If, as we propose, there is a *REVERSED* feature dependent upon *PRECEDENCE*, then it follows that this feature should

<sup>13</sup> An anonymous reviewer brings up a typological question of the *PRECEDENCE* feature: Why is the default relation event time before reference time (as in a perfect), and not the other way around (as in a prospective)? It is difficult to determine without a large, targeted typological study what the frequency status of perfects vs. prospectives is in the world's languages, as the existing data on prospectives is limited. As we are not proposing a cross-linguistic feature geometry here, we do not attempt to make a universal claim about a typological default for this feature. It seems possible that having the choice between a *PRECEDENCE* feature and a *SUBSEQUENCE* feature might benefit analyses of any languages that might include a prospective but not a perfect. However, a *SUBSEQUENCE* feature would not improve the current analysis. Putting a *SUBSEQUENCE* feature in place of *PRECEDENCE* would not change the analysis (unless it was to reflect a wider typological pattern). If precedence and subsequence features were both present, with *RESTRICTED* dependent on each, the generalization that *RESTRICTED* is a feature of perfects and prospectives to the exclusion of progressives is lost.

be active in the T domain as well as in the Asp domain. So we might ask if the dependency PRECEDENCE—REVERSED could be a pathway to future tense. Cowper (2005a) and Cowper and Hall (2007) explicitly exclude a ‘pure’ subsequence model of the future (i.e. using the opposite of PRECEDENCE to mark the future), noting that futures in English almost always have some kind of modal force to them. They propose that future ‘tense’ is really one possible realization of the modality feature IRREALIS. This is consistent with the fact that English *will* behaves both syntactically and semantically like a modal auxiliary. We claim that the same is not true for the Scottish Gaelic future. We claim that the Scottish Gaelic future tense is not linked to IRREALIS but it is instead a representation of PRECEDENCE—REVERSED, but realized in the T head rather than the Asp head.

First note that future tense marking in Scottish Gaelic is not accomplished via the usual means for marking mood/modality. Most mood/modality in Scottish Gaelic is expressed by a structure using two verbs. The modality either is expressed as a copular construction with some kind of modal nominal, such as *urrainn* ‘able/ability’ in (26a), or is a verb itself as in (26b)–(26c) (Byrne 2002; Black 2006). There is no modal marking on the lexical verb.

- (26) a. B’                    urrainn dhomh cèic ithe.  
           COP.COND able        to.1SG cake eat.VN  
           ‘I can eat cake.’  
   b. Faodaidh mi cèic ithe.  
           may.FUT I cake eat.VN  
           ‘I may eat the cake.’  
   c. Feumaidh mi cèic ithe.  
           must.FUT I cake eat.VN  
           ‘I must eat the cake.’

The future tense, by contrast, is marked directly on the verb in Scottish Gaelic by the suffix *-(a)idh*, not by a separate modal verb or modal noun structure. Note that future tense morphology and modality are not incompatible with each other, as shown in (26b). Modal verbs in Scottish Gaelic may appear in the future or past tense like other verbs. So future tense and modals are grammatically distinct in the language.

More revealing, however, is the fact that Scottish Gaelic, unlike its close sibling Modern Irish, completely lacks a present tense form of the verb.<sup>14</sup>

<sup>14</sup> Modern Irish has a present tense form for regular verbs, a special past habitual form, and a present habitual specifically for the verb ‘to be’. All of these are missing from the Modern Scottish Gaelic paradigms.

**Table 3.2** Regular Scottish Gaelic verbs (exemplified by *fuirich* ‘wait’)

	Past	Present	Future/Habitual
<b>Independent</b>	<i>Dh'fhuirich</i>	—	<i>Fuirichidh</i>
<b>Dependent</b>	<i>Cha do dh'fhuirich</i>	—	<i>Chan fhuirich / Ma fhuiricheas</i>

**Table 3.3** The verb *bi* ‘be’

	Past	Present	Future/Habitual
<b>Independent</b>	<i>Bha</i>	<i>Tha</i>	<i>Bithidh</i>
<b>Dependent</b>	<i>Cha robh</i>	<i>Chan eil / Am bheil</i>	<i>Cha bhi / Ma bhitheas</i>

The exception is the auxiliary verb *bi*, which expresses the traditional three-way tense distinction. The majority of verbs in Scottish Gaelic morphologically express a two-way distinction between a past and a future/habitual form. The past is typically formed by applying the initial consonant mutation of lenition to the first sound (or in some cases by prefixing *dh'*). The future is formed with a suffix, typically *-(a)idh*. There are also variant forms that appear in ‘dependent’ contexts in which the verb is preceded by a particle (such as the negative marker *cha*, the relative clause marker, or the conditional particle). Examples of these forms are shown in Table 3.2 using the verb *fuirich* ‘wait’.

The verb *bi* ‘to be’ has a richer paradigm. It has a present tense in addition to the past and future/habitual, as shown in Table 3.3.

An important point about the non-modal nature of future morphology in Scottish Gaelic is visible from the fact that many of the bleached uses of the English present tense (e.g. generic, habitual, etc.; see Cowper 1998) are expressed with the future tense in Scottish Gaelic (Gleasure 1986, 1990):

- (27) a. *Bithidh Mairi ag òl.*  
 be.FUT Mary PROG drink.VN  
 ‘Mary drinks.’
- b. *Bruidhidh Màiri Gàidhlig gu tric.*  
 speak.FUT Mary Gaelic frequently  
 ‘Mary speaks Gaelic frequently.’

Note that the forms in (27) lack modal force,<sup>15</sup> and are clearly not irrealis in meaning. This is explained if future tense in Scottish Gaelic is not a realization

<sup>15</sup> Of course, it is not the case that all future tense forms in Scottish Gaelic lack modal force, but we speculate that any such interpretations follow from conversational implicatures rather than grammatical modality.

of the *IRREALIS* feature. This conclusion is consistent with the view expressed by Hayashi (2011: 85–110), who argues that the South Baffin Inuktitut *-laaq* also expresses a general future tense rather than modal future. Ó Sé (1990) argues that the *realis/irrealis* distinction is realized in Modern Irish as part of the preverbal particle system, rather than verbal/tense morphology. If his analysis transfers over to Scottish Gaelic, then it follows that we should not use *IRREALIS* to mark future tense in the language.

These facts suggest to us that the future tense in Scottish Gaelic is a realization not of *IRREALIS* but of *PRECEDENCE*, like the past tense. Like prospective aspect, though, the time relation in future tense is reversed with respect to its *PRECEDENCE* counterpart. This is explained if it (like prospective aspect) realizes *PRECEDENCE—REVERSED*.

### 3.5.2 Precedence and restricted tense systems

A second prediction of the analysis presented above is that just as *PRECEDENCE—REVERSED* might extend to both tense and aspect systems, *PRECEDENCE—RESTRICTED* could do the same and be found in tense systems as well as aspect systems.<sup>16</sup> One such possibility is the French recent or immediate past (28):

- (28) Je viens de dire ... [French]  
 I come of say.INF  
 ‘I just said ...’

Another possible example is the *hodiernal* (for ‘today’ events whose runtimes are contained within the current day) and *hesternal* (for ‘yesterday’ events whose runtimes occurred in the day before the current one, or a bit farther in the past) tenses described in some detail by Dahl (1985). These tenses are restricted in distance from the time of speech. They are found in a wide

<sup>16</sup> One possibly surprising fact for us is that Scottish Gaelic, which uses the *RESTRICTED* feature in the aspectual system, lacks a restricted tense system. Under Cowper’s feature system we expect that featural distinctions can express themselves in either temporal or aspectual domains, as the domains differ only in what discourse anchors the features refer to. Cowper (2003: 11–2) debates the possibility of single vs. multiple projections for Tense, Aspect, and Mood, leaving it as a question open to further empirical support. The fact that Scottish Gaelic lacks restricted contrasts in tense (and e.g. that French has a restricted tense contrast but no concomitant contrast in the aspectual domain) suggests that the featural specifications for Tense and Aspect need to be able to be different within a given language. This would fall out of the analysis if the inflectional phrases of Tense and Aspect are projected separately and allow different features.

variety of languages and language families, including many Bantu languages, Inuktitut, and some Polynesian languages (see e.g. Givón 1972; Johnson 1977; Nurse 2003; Hayashi 2011; Cable 2013). In such languages, the Tense node rather than the Aspect node (or possibly in addition to it, if the language happened to employ restricted aspects as well) would contain PRECEDENCE—RESTRICTED. Further feature(s) would be necessary for languages that employ more than one distinction of tense restriction.

### 3.6 Conclusions

We have argued that Cowper's (2003, 2005*a*) feature-geometric representation of temporal and aspectual contrasts should be modified to include two additional features: REVERSED, which is used to mark both prospective aspect and non-modal futures, and RESTRICTED, which accounts for restricted perfect and prospective aspects, and possibly hodiernal and recent tenses. Adding these features as dependents to the already well-motivated PRECEDENCE feature is a minor adjustment that expands the explanatory power of Cowper's system to a new range of aspectual and tense contrasts.

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