A lexically-encoded temporal distinction in Scottish Gaelic perfect aspect

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Overview

- One or more varieties of Scottish Gaelic **display two types of perfect aspect**

    - *Celtic, Goidelic, 57,375 speakers (2011), endangered but undergoing revitalization efforts*

Overview

- I argue that one of these lexically encodes a restriction on the **length of the interval between event and reference times**

  - This restriction is not absolute, but is computed with respect to a norm

- This interval's primacy in the meaning of perfects has been questioned

Overview

- *air* ≅ 'have Vd'
- *an dèidh* ≅ 'have recently Vd' (not quite, as we'll see)
  - *An dèidh* has been noted (Ó Sé 2004) as an "alternative" to the perfect marker *air*, but its use and semantics have not been explored in depth.

Overview

(1) Bha/tha/bithidh   i   air   fàgail.
    be.PAST /be.PRES/be.FUT   3SF   AIR   leave.VN
    'She had/has/will have left.'

(2) Bha/tha/bithidh   i   an dèidh   fàgail.
    be.PAST/be.PRES/be.FUT 3SF   AN DÈIDH leave.VN
    'She had/has/will have (just/recently) left.'

Scottish Gaelic

- Several other aspect markers are syntactically parallel (*gu, a' dol a, air, a', ∅*) (See also Schreiner & Carnie 2016)
  - *Air* is analyzed as a perfect marker by Ramchand (1993)
  - I have shown that it shows behavior very similar to that of the English perfect (Reed 2012)
- I assume these particles and *an dèidh* compete for insertion into the (viewpoint) Aspect node

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Methods

- Data were gathered over the course of several years, primarily through elicitation

- One speaker from Skye, two speakers from Lewis

- All speakers bilingual and in their 60s, English acquired beginning at school

Establishing Perfect Meaning

Establishing perfect meaning

- In anteriority theories of perfects, the perfect says that event (/situation) time precedes reference (/assertion/topic) time (Reichenbach 1947, Binnick 1991, Hornstein 1990, Klein 1992, Smith 1997, Higginbotham 2009, Demirdache & Uribe-Etxebarria 1997 and f., et al.)

(3) PERFECT = $\lambda P_{(vt)}. \lambda t_{(i)}. \exists e: [\tau(e) < t \; \& \; P(e)]$

E.g. Kratzer 1998, Pancheva & von Stechow (2004)

Establishing perfect meaning

- **'Extended now' theories** (e.g., Bennett & Partee 1972, McCoard 1978, Dowty 1979)
  - The perfect locates an event within a time span that stretches from sometime in the past up to speech time/the present
- **'Perfect Time Span'** (Iatridou, et al. (2001), Pancheva & von Stechow (2004))
  - PTS: left bound introduced by a perfect-level adverbial (overt or understood); right bound is reference time
  - Event must take place within the PTS for a perfect sentence to hold true

Establishing perfect meaning

- Is *an dèidh* similar to an English perfect?
  - Distributionally aspectual
  - Infelicitous with past positional adverbials (cf. German)
    - Comrie 1976, McCoard 1978, Hornstein 1977, Dowty 1979, Klein 1992, Giorgi & Pianesi 1998, Musan 2001, Pancheva & von Stechow 2004, among others
  - Readings vary with different adverbial positions
    - e.g., Hornstein 1990, McCoard 1978, Comrie 1985, Klein 1992; see also Michaelis 1994
  - Experiential and resultative readings

Establishing perfect meaning

- Distributionally aspectual, not tense:

(4) Bha/tha/bithidh   Calum   an dèidh   dannsadh.
   be.PAST/be.PRES/be.FUT Calum   AN DÈIDH dance.VN
   'Calum had/have/will have just/recently danced.'

Establishing perfect meaning

- Past adverbial infelicity:

Presented to speaker without context; context provided by speaker S2: "Because you came down here with a plate of dinner for him, I'm looking at you and I'm saying, he's already eaten today. Go away with your food."

Establishing perfect meaning

(5) Tha   Iain   an dèidh   ithe   an-diugh (mar tha).
     be.PRES Iain   AN DÈIDH eat.VN today   already
     'Iain has (recently-)eaten today (already).'

(6) #Tha   Iain   an dèidh   ithe   an-dè/a-raoir.
     be.PRES Iain   AN DÈIDH eat.VN yesterday/last night
     Intended: 'Iain has (recently-)eaten yesterday/last night.'

Establishing perfect meaning

- Ambiguity of adverbial attachment

(7) Bha   Calum   an dèidh   a'   bhùth fhàgail
    be.PAST   Calum   AN DÈIDH   the.SF shop   leave.VN

    aig meadhan-latha.
    at   mid-day
    'Calum had (recently) left the store at noon.'

Establishing perfect meaning

(8) Bha   Calum   an dèidh   a'   bhùth   fhàgail
    be.PAST Calum   AN DÈIDH   the.SF shop   leave.VN

    mar tha   aig   meadhan-latha.
    already   at   mid-day
    'Calum had (recently) left the store already at noon.'
   (assertion-time reading)

Establishing perfect meaning

(9) Bha   Calum   an dèidh   a'   bhùth fhàgail
be.PAST Calum   AN DÈIDH the.SF shop   leave.VN

dìreach   aig   meadhan-latha, agus   bha
directly   at   mid-day   and   be.PAST

Iain an dèidh   a'   bhùth fhàgail   aig   uair.
Iain AN DÈIDH   the.SF shop   leave.VN   at   one
'Calum had left the store precisely at noon, and Iain had left at 1.' (event time reading)

Establishing perfect meaning

- Experiential reading

Presented without context; context provided by speaker S2: Responding to "Let's go out for a drink with Calum." "I've seen him 3 times already this week! I'm Calumed up to here. He's got a new car and that's all he talks about."

Establishing perfect meaning

(10) Tha   mi an dèidh Calum   fhaicinn trì
be.PRES 1S AN DÈIDH Calum   see.VN   three

tursan an   t-seachdain seo   mar tha.
time.P the   week   PROX   already
'I have seen Calum three times this week already.'

Establishing perfect meaning

- Resultative reading

*Context: I spill my coffee. I run to the kitchen, where you're standing.*

(11) Tha   mi an dèidh   mo   chofaidh a dhòrtadh.
    be.PRES 1S AN DÈIDH POSS.1s coffee   spill.VN

    thoir   dhomh searbhadair!
    give.IMP to.me   towel
    'I've spilled my coffee, give me a towel!'

Establishing perfect meaning

- Perfect of recent past
- *Context: We are on the phone and I ask if you want to meet up for coffee. You decline, because you need to pick up a friend from the airport.*

Establishing perfect meaning

(12) Tha   Eilidh   an dèidh   Alba   a   ruigsinn,
      be.PRS Eilidh   AN DÈIDH Scotland reach/arrive.VN

      mar sin   feumaidh mi   a   togail
      so/like that   need   1S   3SF   pick.up

      bhon a'   phuirt-adhair.   (S2)
      from the   airport
      'Eilidh has (recently) reached/arrived in Scotland, so I
      need to pick her up from the airport.'
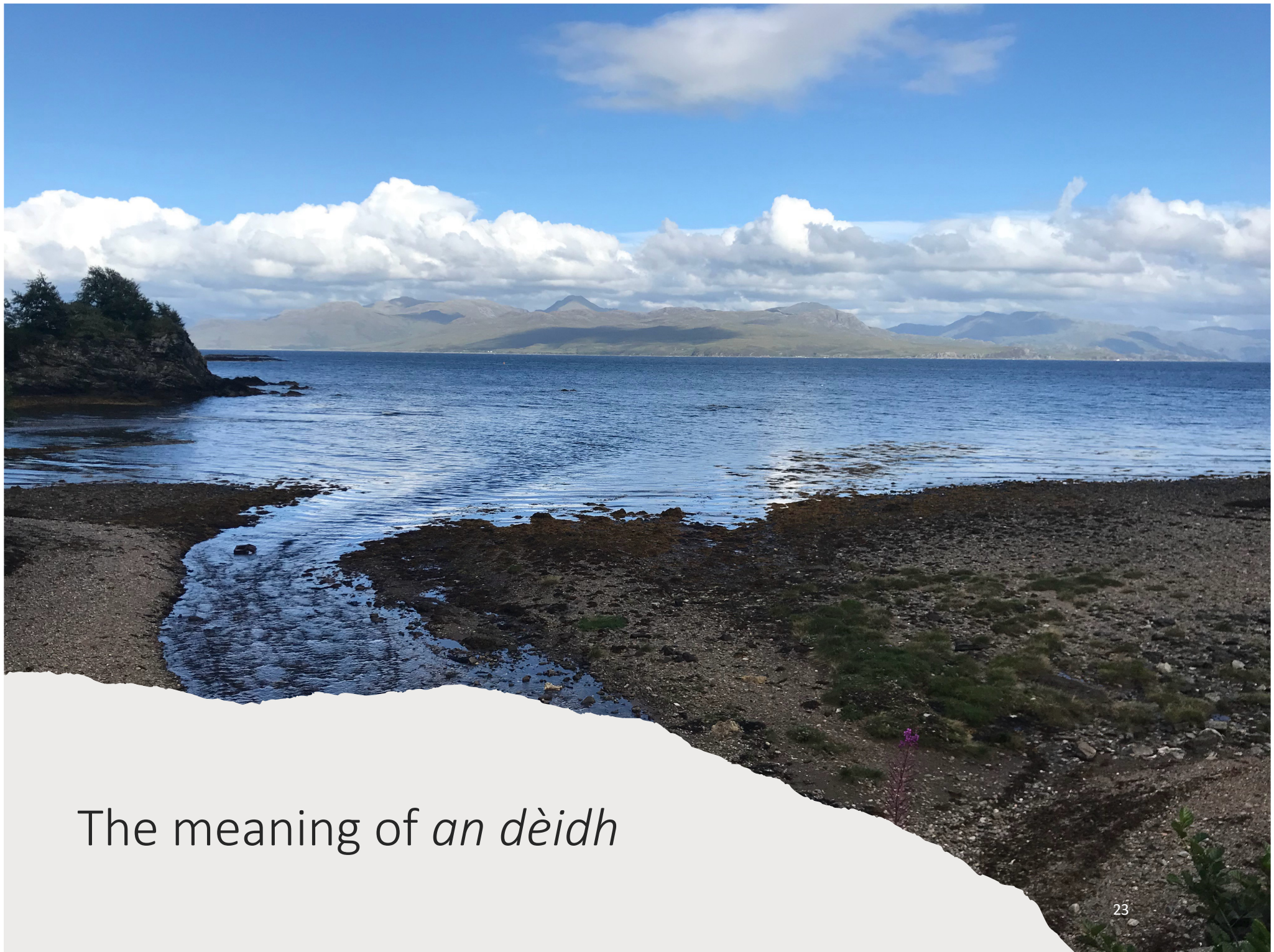
The meaning of *an dèidh*

The meaning of *an dèidh*

(13) Tha   mi air/(#an dèidh)   Cher   fhaicinn
      be.PRS 1S AIR/AN DÈIDH   Cher   see.VN
      trì   tursan na mo   bheatha.
      three   time.P in   POSS.1S life
      'I have seen/#recently-seen Cher three times in my life.'

The meaning of *an dèidh*

(14) Tha mi air/(#an dèidh) Cher fhaicinn trì tursan na
    mo bheatha. Chunnaic mi i dà thuras ann an dà
    mhìle, agus tha mi an dèidh a faicinn aon turas
    am bliadhna.

'I have seen Cher three times in my life. I saw
her twice in 2000 and I have recently-seen her
once this year.' [ᴜᴛ: 2011]

The meaning of *an dèidh*

- Which timespan does *an dèidh* care about?
- In the previous examples:
  - the perfect time span is long (left bound is beginning of speaker's life) and
  - the span between event and assertion times is long
- Which one leads to ungrammaticality?

The meaning of *an dèidh*

(15) √Trì   tursan na mo   bheatha   tha   mi
    three   time.P in POSS.1S life   be.PRES 1S

an dèidh   an   doras   a dhùnadh   agus
AN DÈIDH the.SM door   close.VN   and

ghabh   mi beachd   nach   robh
take.PAST   1S observation   NEG_COMP be.PAST.DEP

na   h-iuchraichean   agam.
the.P   key.P   at.1S
'Three times in my life I have just closed the door and realized I didn't have my keys.'

The length of the *an dèidh* restriction is determined with respect to a norm

- The "restriction" present with *an dèidh* applies to how close the event time is to the assertion time
- The timing is not absolute; acceptability depends on the semantics of the verb phrase and real-world knowledge

The meaning of *an dèidh*

- While *an dèidh* is felicitous in the context of having seen someone within the past week in (16), it is felicitous only if the event has occurred within the space of about an hour in (17).

(16) Tha   mi an dèidh   Cher fhaicinn trì   tursan bho

    be.PRS 1S AN DÈIDH Cher see.VN   three time.P from

    latha na   Sàbaid.

    day   of.the Sabbath

    'I have (recently) seen Cher three times since

    Sunday.' (Reed 2012: 77)

The meaning of *an dèidh*

- *Context: The speaker and a friend need to eat before going out. The speaker eats and otherwise gets ready. Her friend phones and asks if she is ready, and the speaker answers:*

(17) Tha   mi an dèidh/(#air)   ithe,   tha   mi deiseil.

       be.PRS 1S AN DÈIDH/(#AIR) eat.VN be.PRS 1S ready

       'I have (recently) eaten, I'm ready.'

The meaning of *an dèidh*

- The interval between event and assertion times: how "long" of a perfect is it?
- "the E_R interval does not have a distinguished status in the perfect" (Iatridou, et al. 2001:158)
- This interval cannot be modified by adverbials (as event and assertion times can be)
- But SG encodes this distinction grammatically

The denotation of *an dèidh*

The denotation of *an dèidh*

- Need to account for:
  - basic meaning,
  - the details of the time relation it conveys, and
  - its contextually-determined nature

The denotation of *an dèidh*

- I take *an dèidh* to be one possible realization of the (viewpoint) Aspect head; it specifies that event time precedes reference time.

  - The Aspect head is an operator that existentially quantifies over the event and introduces a relationship between the time of the event and another time; this time will be existentially bound by tense. Aspect composes with *v*P and sets up a relationship of precedence between event and reference time.

- (18)   Denotation of *an dèidh*, version 1

- ⟦an dèidh⟧ = $\lambda P_{(vt)}. \lambda t_{(i)}. \exists e: [\tau(e) < t \ \& \ P(e)]$

The denotation of *an dèidh*

- *an dèidh* contextually restricts the length of the interval between event and reference times
- Let ε_c stand for a small quantity, the value of which is determined by the context.
- The value of the interval between the final moment of event time and initial moment of reference time (calculated by subtracting $\tau(e)_{final}$ from t_{init}) must be less than or equal to this small quantity.

(19)   Denotation of *an dèidh*, version 2

$$[\![\text{an dèidh}]\!] = \lambda P_{(vt)}.\ \lambda t_{(i)}.\ \exists e: [\tau(e) < t\ \&\ P(e)\ \&\ [\,|t_{init} - \tau(e)_{final}|\ \leq \varepsilon_c]\,]$$

Computing ε_C

- This kind of situation-dependent meaning is also seen in quantifiers like *few* and *many*, which have been famously troublesome for generalized quantifier theory (e.g., Barwise & Cooper 1981).

- Extensional accounts of quantifiers like *few* and *many* (e.g. Barwise & Cooper 1981) tend to characterize the meaning of these words as involving the cardinality of the intersection of the set of Ns with the set of things that VP.

- Intensional accounts like that of Keenan & Stavi (1986) involve comparative norms in possible worlds.

Computing ε_C

- Lappin (2000) presents an intensional parametric account that also depends on the concept of normative situations

- The problems are similar for *an dèidh*;

- Instead of needing to compare the cardinality of a set (that is the intersection of an N with a VP) to a norm, we need to compare the value of the length of an interval of time (between an event time and an reference time) to a normative interval of time for that VP (and discourse situation).

Computing ε_C

- Lappin (2000) *many*: comparing the 'actual situation' *sa* to the set of normative situations (*sn*), S.

(20) $[\![B]\!]^{sa} \in [\![many]\!]([\![A]\!]^{sa})$ iff S ≠ ∅, and for every sn ∈ S, $|[\![A]\!]^{sa} \cap [\![B]\!]^{sa}| \geq |[\![A]\!]^{sn} \cap [\![B]\!]^{sn}|$ (Lappin 2000: 602)

- To paraphrase, *many As are B* is true in an actual situation if and only if it is true that the number of As that are B in the actual situation is greater than or equal to the number of As that are B in any normative situation. What constitutes the normative situation is determined on a case-by-case basis.

Computing ε$_C$

- where *i* is an interval of time:

(21)

$|i_{sa}| \leq \varepsilon_c$ iff S ≠ ∅, and for every sn ∈ S, $|i^{sa}| \leq |i^{sn}|$

- That is, an interval in an actual situation is shorter than ε$_c$ if and only if the size of the actual interval is less than or equal to the size of the interval in any normative situation.

Computing normative situations

- One way of conceiving of the "shortness" of an interval conveyed by *an dèidh* in these cases is that it conveys that the interval is less than average.

- For the normative situation for the interval between graduating (*g*) and getting a job (*j*), the normative situation could be defined as follows (here, t_x merely represents "time of x", not reference time specifically):

Computing normative situations

(22) sn_{gj}: $|\ t_j^{sn} - t_g^{sn}\ | < k$, where k = average $\{|\ t_j^{S} - t_g^{S}\ |\}$

- That is, the normative situation regarding graduating and getting a job is:
  - the value of the interval between graduating and getting a job is less than the average of the length of normative graduation-job intervals

Computing normative situations

- Going on runs?

(23) $sn_{run}: |\ t_{run(n)}^{sn} - t_{run(n-1)}^{sn}\ | < k$, where k = average $\{\ |\ t_{run(n)}^{S} - t_{run(n-1)}^{S}\ |\}$

- That is, the normative situation regarding running (for someone who tends to run every few days) is that the value of the interval between the current run and the previous run is less than the average of the length of normative between-run intervals.

Final denotation

- The final denotation for *an dèidh* integrates the normative situation:

Denotation of *an dèidh*, final version

(24) ⟦an dèidh⟧ =

$\lambda P_{(vt)}.\ \lambda t_{(i)}.\ \exists e: [\tau(e) < t\ \&\ P(e)\ \&\ [|t_{init}-\tau(e)_{final}| \leq \varepsilon_c]]$

$(|t_{init}-\tau(e)_{final}| \leq \varepsilon_c$ iff $S \neq \emptyset$, and for every $sn \in S$, $|i^{sa}| \leq |i^{sn}|)$

Final denotation

- To paraphrase, *an dèidh* is a function that takes a predicate of events; it returns a function that takes a time (provided by tense) and returns 'true' iff the event time precedes or is coextensive with that time, the event is a *P* event,

- and the value of the interval between the final moment of event time and the initial moment of reference time is less than or equal to ε_c. The event-reference interval is less than or equal to ε_c iff the value of the actual interval is less than or equal to the value of the equivalent normative interval (elsewhere defined).

Sentence-level denotation

(25)   Tha   Iain an dèidh   ruith.

be.PRS Iain AN DÈIDH run.VN

'Iain has (recently) run.'

$= \exists t'\ [t' = t_{now}\ \&\ \exists e: [\tau(e) < t'\ \&\ [\![\text{Iain run}]\!](e)\ \&\ [|t_{init}\text{-}\tau(e)_{final}| \leq \varepsilon_c]]]$

$(|t_{init}\text{-}\tau(e)_{final}| \leq \varepsilon_c$ iff $S \neq \emptyset$, and for every $sn \in S$, $|i^{sa}| \leq |i^{sn}|)$

$(sn_{run}: |\ t_{run(n)}^{sn} - t_{run(n\text{-}1)}^{sn}\ | < k$, where k = average

$\{\ |\ t_{run(n)}^{S} - t_{run(n\text{-}1)}^{S}\ |\})$

Sentence-level denotation

- In this way, we have a set denotation for *an dèidh*, while still allowing for different normative situations depending on the predicate, the discourse context, and perhaps even the individual speaker.

Summing up

- I have argued that Scottish Gaelic shows a "remoteness" distinction in perfect aspect, grammatically encoding a particular type of temporal recency.

- The perfect with *an dèidh* is concerned with the length of the interval between event and reference times.

- I have adapted Lappin's (2000) intensional semantics for *many* to account for the contextually-determined part of the meaning of *an dèidh*.

Summing up

- The data presented here:
  - Support a viewpoint aspect approach to the perfect
  - Add to our understanding of aspect cross-linguistically
  - Suggest that any theory of temporal distinctions must be able to account for degrees of at least some types of aspect
  - Provide another instance of the grammaticalization of vagueness and/or context dependence in the temporal realm

Implications

Implications: Anteriority theories

- These data are readily accounted for if we take the perfect to be a distinction of grammatical aspect relating event and reference times, and take the primary relation conveyed by the perfect to be event time preceding reference time.

Implications: Anteriority theories

- Within such an anteriority-theoretic approach, the interval restricted by *an dèidh* falls out of the analysis of the perfect
- Only the special restriction on the event-reference interval needs to be accounted for separately

Implications: Anteriority theories

- The interval between event and reference times is not explicitly introduced in the semantics;

- However, it is functionally "provided" for us:

- The semantics of *an dèidh* can target it by virtue of it being the span between two other times that are bound in one way or another.

Implications: Graded temporality

- Foundational descriptive literature on remoteness distinctions (e.g., Morolong 1978, Dahl 1983, Comrie 1985, Machobane 1985)

- Substantial literature developing on the semantics of graded temporality cross-linguistically (e.g., Hayashi 2001, Cable 2013, Mucha 2017, Bochnak & Klecha 2018, Tallman & Stout 2018)

Implications: Graded temporality

- Only two gradations of aspect here (not three, five, or seven, e.g.—though note two distinctions of prospectivity)
- Bochnak & Klecha (2018) predict "that any graded tense system which is context dependent like Luganda's should also be vague." (388-389)
  - This is not graded tense, but…

Implications: Graded temporality

- Various dialects of Irish show two types of perfect—one (or two) periphrastic perfects meaning 'I have [verb]ed', as well as one "after perfect", which patterns with the an dèidh perfect (see extensive discussion in Ó Sé 1992, Ó Sé 2004).
- Hiberno English and Scottish English both also have "after perfects" as well
- Nurse (2008) mentions several Bantu languages with what seem to be clear examples of more than one perfect.

Implications: Graded temporality

- This is certainly not a comprehensive list.
- Having more than one temporal distinction of perfect aspect in a language is not an isolated phenomenon and should be kept under consideration whenever theories of aspect are being built or maintained

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Appendices
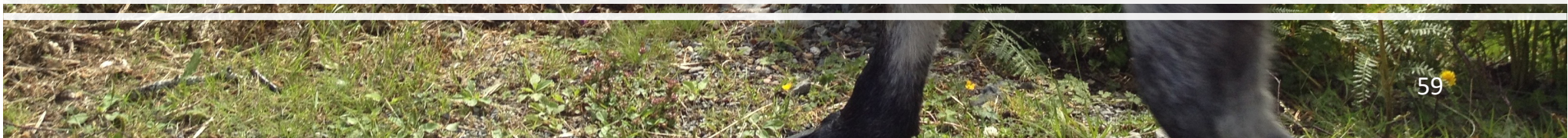
Methods

- English was used as the metalanguage
- Contexts were generally presented in English. In some cases, a sentence or two of Scottish Gaelic (previously elicited, or in simple cases, constructed by me) was presented as lead-up
- In some cases, sentences were presented in Scottish Gaelic for grammaticality (or, more often in the cases here, felicity) judgments;
- Other times, sentences were presented in English and the speaker was asked to give a sentence with as close to the same meaning as possible in Scottish Gaelic. (Usually this was done to collect natural sentences that would later provide context for a test sentence.)
- Contexts and topics were tailored to the speaker's background and interests
- Truth value judgment tasks were generally not appropriate for this data—the difference between the uses of the two perfect markers is one of felicity rather than truth value

Limitations of the data

- Working with a limited number of speakers presents certain challenges to generalizability for the phenomena under investigation

- *an dèidh*, the challenges are all that much more real, as the construction is known not to be used everywhere, and there are dialectal differences in at least pronunciation, if not meaning.

- Both of the primary speakers consulted here report that it is likely not used by young speakers of the language much anymore.

- I found no examples of aspectual uses of *an dèidh/an dèidh* in the Annotated Reference Corpus of Scottish Gaelic (Lamb, et al. 2016);

- In the *Corpas na Gàidhlig*, however, aspectual instances (in finite clauses) of *an dèidh* were found in seven texts.

- In all of these texts, more numerous instances of *air* perfects were also found. Given this and the fact that all of the speakers consulted use both *air* and *an dèidh/an dèidh*, I think it is safe to say that both are in the grammars of some speakers.

- However, it is difficult (if not impossible) to tell whether the "recent" meaning in *an dèidh/an dèidh* is present in the instances found in the corpus. So, we must rely on the information garnered from the speakers via elicitation.

Comparing theories

- 'Extended Now' theories (McCoard 1978, Dowty 1979, Iatridou et al. 2001, Pancheva & von Stechow 2004) say that the (present) perfect involves a time span that extends from a point in the past up to the present—that is, up to the reference time (= utterance time/now)

- Pancheva & von Stechow's formulation ensures that the event will precede (or precede and partially overlap with) reference time,

- Does not set up or acknowledge an event time or the interval between it and reference time.

- Nothing about the Perfect Time Span theory precludes adjustments to the semantics of the perfect to include explicit reference to an event time, but the formulation as it stands does not provide what is needed to account for the meaning of an dèidh

Comparing theories

- Result(ant) state theories (Moens & Steedman 1988, Parsons 1990, Kamp & Reyle 1993, Katz 2003, Smith 1991) take the perfect to denote a relationship between a past event and a present situation

- There is nothing that pinpoints the location of the reference time within the result state; it is only set up so that the result state must overlap with the reference time.

- There is no specification within this type of theory of when the reference time occurs with respect to the event or within the result state. Thus there is no easy way to specify that the distance between event and reference times must be short.

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Implications: Graded temporality

- Nurse (2008) mentions at least two Bantu languages with what seem to be clear examples of more than one perfect.
- Luhya-Bukusu: two perfects (Nurse uses the term 'anterior'), "the first more, the second less recently" (p. 158). Both can combine with some or perhaps all of the language's distinctions of past and future
- Haya (p. 158 and forward): three distinctions--"Anterior", "Perfective Anterior", and "Remote Perfective Anterior", (roughly 'we have bought', 'we have already bought' (emphasizing the completedness of the act), and 'she has already died/is already dead (and died long ago)', respectively); each can co-occur with each of thethe language's three past tenses and two futures
- Nurse also mentions Ila, Kanyok, and several other languages as possibly having more than one distinction of perfect aspect