THE IMPERFECTIVE SEMANTICS OF DURATIVE GEMINATION IN NORTHERN PAIUTE[1]

Maziar Toosarvandani

University of California, Santa Cruz

Like other Numic languages (Uto-Aztecan), Northern Paiute has a morphological process of durative gemination, which conveys some type of aspect. I describe the semantics of durative gemination in Northern Paiute, locating it within a typology of imperfective aspect emerging from the formal semantics literature. Like the imperfective aspect in other languages, durative gemination has an event-in-progress interpretation in addition to a number of other interpretations. Somewhat unexpectedly, one of these does not depict the internal structure of an event, but rather the event as a whole. I identify parallels between this completed interpretation for durative gemination in Northern Paiute and similar interpretations for the imperfective aspect in better-studied languages.

[Keywords: Uto-Aztecan; aspect; imperfective; Aktionsart; semantics; Northern Paiute (pao)]

1. Introduction. There is a morphological process in the Numic branch of Uto-Aztecan languages, traditionally called "durative gemination," which applies to verbs. In Northern Paiute (ISO code: pao), for instance, the verb *hibi* 'drink', whose basic form is illustrated in (1*a*–*b*), undergoes durative gemination to become *hipi*, as in (1*c*).[2]

[2] Transcriptions use the International Phonetic Alphabet, except that lenis *b*, *d*, *g*, *dz*, *m*, *n*, and *z* are [b ~ β], [d ~ ɾ], [g ~ ɣ], [dz ~ z], [m], [n], and [z ~ ɕ], fortis *p*, *t*, *k*, *ts*, *mm*, *nn*, and *s* are [pːʰ], [tːʰ], [kːʰ], [tsː], [mː], [nː], and [ɕː], voiced fortis *bb*, *dd*, *gg*, and *ddz* are [bːʰ], [dːʰ], [gːʰ], and [dzː], ' is [ʔ], and *y* is [j]. Any other double letters represent long vowels.

In the interlinears, I use the following abbreviations: acc = accusative, adv = adverbial, com = comitative, conj = conjunctive subject, cont = continuous aspect, dem = demonstrative, dim = diminutive, dl = dual, dur = durative gemination, emph = emphatic particle, excl = exclusive, f = feminine, gen = genitive, hab = habitual aspect, impf = imperfective aspect, incep = inceptive, instr = instrumental, int = intensive, ip = instrumental prefix, loc = postposition, neg = negation, nmz = nominalizer, nom = nominative, pass = passive, past = past tense, perf = perfect aspect,

(1*a*) Nɨɨ   ka=paa'a   **hibi–hu**.
        1SG:NOM   ACC=water   **drink–PFV**

'I drank the water.'

(elicitation, EM, BP45-6, 8:40)

(1*b*) Nɨɨ   ka=paa'a   **hibi–wɨnnɨ**.
        1SG:NOM   ACC=water   **drink–PROG**

'I am drinking the water.'

(elicitation, EM and MS, BP49-6, 58:30)

(1*c*) Nɨɨ   ka=paa'a   **hipi**.
        1SG:NOM   ACC=water   **drink:DUR**

'I am drinking the water.'

(elicitation, MS, BP45-6, 7:49)

Despite its name, durative gemination is actually a fortition process for most verbs: if the onset of the final syllable is lenis (e.g., *b*, *d*, *g*), it becomes fortis (e.g., *p*, *t*, *k*). In terms of its meaning, this process likely conveys aspect. It is in complementary distribution with affixal aspect morphology, such as the perfective suffix (1*a*) and the progressive suffix (1*b*) (Snapp et al. 1982:63; Thornes 2003:414). Moreover, as shown by comparing (1*c*) with (1*b*), durative gemination can have the same event-in-progress reading that the progressive has.

To my knowledge, there has been no in-depth investigation of the semantics of durative gemination in any Numic language. In his grammar of Northern Paiute, Thornes (2003:413) describes the process as "typically interpreted as durative," though something must be added to this description. Verbs such as *pidɨ* 'arrive' in (2*a*) can undergo durative gemination, as in (2*c*), even though they describe an instantaneous event without any duration.

(2*a*) Su=mogo'ni   **pidɨ–hu**.
        NOM=woman   **arrive–PFV**

'The woman arrived.'

(elicitation, EM, BP44-5, 33:41)

(2*b*) *Su=naatsi'i   **pidɨ–wɨnnɨ**.
        NOM=boy   **arrive–PROG**

Intended: 'The boy is arriving.'

(elicitation, EM, BP44-4, 1:27:59)

PFV = perfective, PL = plural, PROG = progressive aspect, PROSP = prospective aspect, PRS = present tense, PTC = discourse particle, QUOT = quotative, REFL = possessive reflexive anaphor, SEQ = sequential suffix, SG = singular, SIM = simultaneous suffix, SUBJ = indicative subject.

Fieldwork data is also annotated with the relevant metadata: (*i*) how the data were collected (in a dialogue, through elicitation, in a narrative, or in a prompted narrative), (*ii*) the initials of the speaker who uttered the example or provided a judgement for the example (EM or MS), (*iii*) a number (starting with BP) identifying the source recording for the example, and (*iv*) the example's location in the source recording (either a line number in the corresponding transcription of the recording or a timestamp). The source recordings and transcriptions are not currently available to the public at the request of the speakers, as they contain culturally sensitive and personal content.

(2*c*) Su=mogo'ni   **piti**.
      NOM=woman   **arrive:DUR**

'The woman arrived.'

(elicitation, EM, BP45-3, 35:11)

Strikingly, when the verb *pidi* 'arrive' undergoes durative gemination, it conveys that the event of arriving has been completed. Unlike *hibi* 'drink', its interpretation in (2*c*) more closely parallels the interpretation it has with the perfective suffix in (2*a*). In fact, *pidi* 'arrive' is incompatible with the progressive suffix (2*b*).

Here, I provide a semantic description of durative gemination in Northern Paiute, locating it within a typology of imperfective aspect that emerges from the literature in formal semantics (Bonomi 1997; Cipria and Roberts 2000; Deo 2009; Arregui et al. 2014). After providing some background in **2** on tense and aspect in Northern Paiute, I show in **3** that durative gemination has much the same range of readings as the imperfective aspect in the better-studied Romance and Slavic languages. In addition to the event-in-progress reading illustrated in (1*c*), it also has a continuous reading and a habitual reading. It does not have the event-in-preparation reading that is available for the imperfective in some languages (e.g., French and other Romance languages).

Then, in **4**, I identify another reading for durative gemination, which appears most plainly with achievement predicates that describe an instantaneous change-of-state event, such as *pidi* 'arrive' in (2*a*). This completed reading is also available with verbs that describe an event with duration, as I argue in **5**, though it is only manifested in the interpretation that durative gemination receives in narrative discourse. It might seem easy to dismiss the completed reading as an idiosyncratic property of durative gemination in Northern Paiute since it deviates so significantly from the event-in-progress reading, which often is taken to exemplify the imperfective aspect. I conclude in **6** by drawing parallels between the completed reading that durative gemination has in Northern Paiute and similar well-documented, but seldom studied, readings for the imperfective aspect in Romance and Slavic languages.

The data in this paper come primarily from my fieldwork on the variety of Northern Paiute spoken at Mono Lake in eastern California and immediately to the north in Bridgeport and Coleville, California, and Sweetwater, Nevada. There are speakers of Northern Paiute in many other communities across, and immediately adjacent to, the Great Basin, including in western Nevada (Fallon, Lovelock, McDermitt, Pyramid Lake, Reno-Sparks, Winnemucca, Walker River, and Yerington), northeastern California (Fort Bidwell), southeastern Oregon (Burns, Warm Springs), and southern Idaho (Fort Hall). Although there is some variation across these dialects (Babel et al. 2012, 2013), they are largely mutually intelligible.

For all dialects, there are probably no more than 700 speakers today (Golla 2011:174). For the Mono Lake dialect, there are probably no more than five

TABLE 1
AFFIXAL VERBAL MORPHOLOGY CONVEYING ASPECT IN NORTHERN PAIUTE

I	–hu	perfective
	–huka (–kuha)	inceptive
	–pɨ	perfect
	–pɨnni	continuative
	–wɨnnɨ	progressive
II	–dapi	'while lying down'
	–katɨ	'while sitting'
	–mi'a	'while going'
	–nɨmmi	'while walking'
III	–heggwi (–'yakwi)	habitual
	–kwɨ	prospective

speakers with varying levels of proficiency. In this paper, I have included both elicited and spontaneous speech from the two eldest, most fluent speakers of this dialect.[3] I also present felicity judgements from the same speakers since they are necessary for investigating the subtle semantic interactions among verbs, aspectual morphology, and temporal expressions. Wherever possible I present spontaneously produced speech data.

2. Aspect in Northern Paiute. I start this investigation of durative gemination by surveying the other aspectual categories that Northern Paiute has in **2.1**. Then, in **2.2**, I discuss how tense is realized in Northern Paiute since tense and aspect often interact morphologically. Finally, in **2.3**, I move on to durative gemination and its distribution relative to other aspectual morphology.

2.1. A brief survey of aspectual morphology. Northern Paiute primarily conveys aspect with the verbal affixes shown in table 1. When more than one form is listed, the primary one is from the Mono Lake dialect; the parenthetical form represents the Oregon dialect (Thornes 2003:398). These affixes were originally identified by Snapp et al. (1982:73–74) and Thornes (2003:398), though I have renamed some for clarity or based on my own analysis. The perfective is their "punctual" or "momentaneous," the perfect is Thornes's "perfective," and the continuative is his "perfective-stative."

---

[3] At the time of writing, Edith McCann was 90 years old and Madeline Stevens was 94 years old. They learned Northern Paiute as their first language and were introduced to English when they started school. Both trace their ancestry to Bridgeport, though they also have family from Mono Lake (Lee Vining) and Sweetwater. There are only a few differences in their speech; these consist entirely of very small lexical differences that reflect minor historical variation amongst the communities in the Mono Lake dialect area (e.g., tɨba'a 'pinenut' in Lee Vining, but tɨba elsewhere).

These aspectual affixes fall into three classes. The first class includes the perfective and the progressive suffixes, illustrated in (1a–b) above. These are in complementary distribution with one another, as well as with the perfect suffix –pɨ (3a), the inceptive suffix –huka (3b), and the continuative suffix –pɨnni, which can be glossed roughly as 'still' (3c).

(3a) Su=nana   tɨbuni–hu.   Tɨ=kaadzi   madabbui**–pɨ**.
     NOM=man   wake.up–PFV   REFL=car   fix**–PERF**

     'The man woke up. He had fixed his car.'
<div align="right">(elicitation, EM, BP55-3, 32:59)</div>

(3b) Su=naatsi'i   tɨ=kaadzi   madabbui**–huka**.
     NOM=boy   REFL=car   fix**–INCEP**

     'The boy started fixing his car.'
<div align="right">(elicitation, EM, BP50-1, 37:27)</div>

(3c) Su=naatsi'i   tɨ=kaadzi   madabbui**–pɨnni**.
     NOM=boy   REFL=car   fix**–CONT**

     'The boy is still fixing his car.'
<div align="right">(elicitation, EM, BP50-1, 39:38)</div>

Durative gemination also belongs to this class of aspectual morphemes, as I discuss in **2.3**, though it does not involve affixation.

In the second class, postural and motion verbs in their durative form are joined to the verb, including –katɨ 'while sitting' (4a), –dapi 'while lying down' (4b), –mi'a 'while going' (4c), and –nɨmmi 'while walking' (4d).[4]

(4a) Su=mogo'ni   hubia–du**–katɨ**.
     NOM=woman   song–make**–sit:DUR**

     'The woman is sitting and singing.'
<div align="right">(elicitation, EM, BP55-1, 4:03)</div>

(4b) Su=mogo'ni   hubia–du**–dapi**.
     NOM=woman   song–make**–lie.down:DUR**

     'The woman is lying down and singing.'
<div align="right">(elicitation, EM, BP55-1, 9:23)</div>

(4c) Su=mogo'ni   hubia–du**–mi'a**.
     NOM=woman   song–make**–leave:DUR**

     'The woman is going and singing.'
<div align="right">(elicitation, EM, BP56-3, 9:13)</div>

---

  [4] Thornes (2003:420–21) argues that these are verbal suffixes and not just members of verb-verb compounds because valence-changing morphology can intervene between them and the verb stem.

(4*d*) Su=mogo'ni   hubia–du**–nɨmmi**.
     NOM=woman   song–make**–walk:DUR**

'The woman is walking around singing.'

       (elicitation, EM, BP56-3, 9:42)

These are generally taken to contribute some kind of aspectual meaning, though they still entail a postural or motion component of meaning (Thornes 2003:416, 2009:309–10, 2011:38). For instance, –*katɨ* 'while sitting' cannot be used felicitously in a context where the woman is not sitting. (For the original data in this paper, "#" indicates that speakers judged a sentence infelicitous in the context given.)

(5)   Context: A woman is standing and singing.
      #Su=mogo'ni   hubia–du**–katɨ**.
      NOM=woman   song–make**–sit:DUR**

'The woman is sitting and singing.'

[EM: "[. . .] would be she's sitting down and singing [. . .] instead of standing."]

       (elicitation, EM, BP55-1, 7:17)

The progressive suffix arose diachronically from a postural verb of this kind (Thornes 2003:409). It is homophonous with the durative form of the verb *wɨnɨ* 'stand', though, as shown in (6), it no longer conveys any postural meaning.

(6)   Context: The boy is sitting down in a chair and singing.
      Su=naatsi'i   hubia–du**–wɨnni**.
      NOM=boy   song–make**–PROG**

'The boy is singing.'

       (elicitation, EM, BP55-1, 0:21)

A verb with the progressive suffix can describe an event that is not a standing event, suggesting that it has been grammaticized as a purely aspectual morpheme.

In the third class, aspectual suffixes co-occur with the perfective and progressive suffixes. The habitual suffix –*heggwi* (7) and the prospective suffix –*kwɨ* (8) can appear outside both the perfective and progressive suffixes.

(7*a*) Su=mogo'ni   hubia–du**–hu–heggwi**.
     NOM=woman   song–make**–PFV–HAB**

'The woman sings now and then.'

       (elicitation, EM, BP52-6-s, 6)

(7*b*) Su=mogo'ni   hubia–du**–wɨnni–heggwi**.
     NOM=woman   song–make**–PROG–HAB**

'The woman sings now and then.'

       (elicitation, EM, BP56-3-s, 1)

(8*a*) Su=nana   tɨ=kaadzi   madabbui**–hu–kwɨ**.
        NOM=man   REFL=car   fix**–PFV–PROSP**

        'The man is going to work on his car.'

                                     (elicitation, EM, BP57-4-s, 5)

(8*b*) Su=nana   tɨ=kaadzi   madabbui**–winni–kwɨ**.
        NOM=man   REFL=car   fix**–PROG–PROSP**

        'The man is going to work on his car.'

                                     (elicitation, EM, BP57-4-s, 4)

Thornes (2003:404–5) argues that *–kwɨ* conveys prospective aspect, as opposed to future tense, because it "functions equally well to mark impending events in a narrative set squarely in the past," as in the passage below.

(9)   Nɨmmi,   ni=himma   **tsa–hani–kwɨ**–si,
      1PL:EXCL:NOM   1PL:EXCL:GEN=thing   **fingers[IP]–do–PROSP**–SEQ

      nɨmmi   **na–pa–gia–kwɨ**–si,   yaisi   usu
      1PL:EXCL:NOM   **PASS–water–give–PROSP**–SEQ   PTC   DEM:NOM

      mɨ=oo   aata–dɨ   hayu   ni=nimai–'yakwi,
      PL=DEM   sit:PL–NMZ   how   1PL:EXCL:ACC=tell–HAB

       "Talk English! Talk English!"

    'When we were taking off our things and were about to bathe, then
      that one of those were sitting there somehow kept telling us,
      "Talk English! Talk English!"'

                                    (narrative, Thornes 2003:537)

In (9), the two clauses containing the prospective aspect describe events that take place not in the future of the time of utterance, but in the future of the past events.

2.2. Northern Paiute as a tenseless language.   Verbs in Northern Paiute inflect for aspect, but not for tense (Thornes 2003:396; Toosarvandani 2016), as in Yukatec Maya (Bohnemeyer 2002), Kalaallisut (West Greenlandic: Shaer 2003; Bittner 2005), and Paraguayan Guaraní (Tonhauser 2011). Sentences do, however, get a default temporal interpretation that depends on aspect: present for the progressive (10*a*) and past for the perfective (10*b*).

(10*a*) Su=nana   tɨ=kaadzi   madabbui**–winnɨ**.
        NOM=man   REFL=car   fix**–PROG**

        'The man is fixing his car.'

        [EM: "Yeah, he's working on it now."]

                                   (elicitation, EM, BP46-3, 33:44)

(10*b*) Su=nana   tɨ=kaadzi   madabbui**–hu**.
       NOM=man   REFL=car   fix**–PFV**

       'The man fixed his car.'

       [MS: "He finished it, *madabbuihu*."]
                             (elicitation, EM and MS, BP44-4, 4:05)

This default interpretation can be overridden or reinforced with temporal adverbials.

(11*a*) **Mino'o**   tɨ=kaadzi   madabbui**–wɨnnɨ**.
       now   REFL=car   fix**–PROG**

       'He is fixing his car now.'
                             (elicitation, EM, BP50-1-s, 7)

(11*b*) **Mino'o**   tɨ=kaadzi   madabbui**–hu**.
       now   REFL=car   fix**–PFV**

       'He just fixed his car now.'
                            (elicitation, EM, BP50-1-s, 10)

(12*a*) **Idzi'i**   tɨ=kaadzi   madabbui**–wɨnnɨ**.
       yesterday REFL=car   fix**–PROG**

       'He was fixing his car yesterday.'
                            (elicitation, EM, BP44-4, 8:00)

(12*b*) **Idzi'i**   tɨ=kaadzi   madabbui**–hu**.
       yesterday REFL=car   fix**–PFV**

       'He fixed his car yesterday.'
                            (elicitation, EM, BP44-4-s, 4)

The adverb *mino'o* 'now' locates the time of a sentence at the utterance time, regardless of aspect (11*a–b*). Similarly, *idzi'i* 'yesterday' locates it at a time prior to the utterance time (12*a–b*).

In this respect, durative gemination often patterns like the progressive aspect. It can receive a default present interpretation (13), though this is reinforced or overriden by temporal adverbials (14*a–b*).

(13) Su=nana   tɨ=kaadzi   **madabbu'i**.
      NOM=man   REFL=car   **fix:DUR**

      'The man is fixing his car.'

      [MS: "That's he's doing it now [. . .]" EM: "Means he's fixing his car now."]
                          (elicitation, EM and MS, BP44-4, 3:34)

(14*a*) **Mino'o** su=nana   tɨ=kaadzi   **madabbu'i**.
       now   NOM=man   REFL=car   **fix:DUR**

       'The man is fixing his car now.'
                            (elicitation, EM, BP55-1, 31:55)

(14*b*) **Idzi'i**   su=nana   tɨ=kaadzi   **madabbu'i**.
        yesterday   NOM=man   REFL=car   **fix:DUR**

    'The man was fixing his car yesterday.'

                          (elicitation, EM, BP55-1, 32:22)

Crucially, in (11), (12), and (14), the form of the verb does not change: the temporal interpretation of these sentences is constrained entirely by the temporal adverbial.

2.3. The distribution of durative germination.   With this background in place, the only remaining aspectual morphology to be considered is durative gemination. In the broader Numic literature, it is usually characterized as a stem alternation: see Lamb (1957:246) on Mono, Crum and Dayley (1993:94) on Shoshoni, Dayley (1989:63) on Timbisha, Charney (1993:149) on Comanche, and Zigmond et al. (1990:96) on Kawaiisu. For Northern Paiute, however, Snapp et al. (1982:63–64) and Thornes (2003:413–14) show that it is a more general process that applies to verbs whenever it can.

When a verb bears an aspectual suffix, such as the perfective suffix in (15*a*–*c*), it appears in its basic form.

(15*a*) Nɨɨ   **habi–hu**.
        1SG:NOM   **lie.down–PFV**

    'I lay down.'

                          (elicitation, EM, BP45-5, 13:55)

(15*b*) Nɨɨ   tɨ=ddoogga   **mayɨ–hu**.
        1SG:NOM   REFL=dog   **find–PFV**

    'I found my dog.'

                          (elicitation, EM, BP49-5, 1:25:50)

(15*c*) Su=nana   tɨ=kaadzi   **madabbui–hu**.
        NOM=man   REFL=car   **fix–PFV**

    'The man fixed his car.'

                    (elicitation, EM and MS, BP44-4, 4:04)

When there is no aspectual suffix present, as in (16*a*–*c*), the verb must undergo durative gemination instead (Snapp et al. 1982:63; Thornes 2003:414).

(16*a*) Nɨɨ   **hapi**
        1SG:NOM   **lie.down:DUR**

    'I'm lying down.'

                          (elicitation, EM, BP46-7, 1:00:42)

(16*b*) Nɨɨ   tɨ=ddoogga   **ma'yɨ**.
        1SG:NOM   REFL=dog   **find:DUR**

    'I found my dog.'

                          (elicitation, EM, BP51-4, 00:50)

(16c) Su=nana   ti=kaadzi   **madabbu'i**.
       NOM=man   REFL=car   **fix:DUR**

  'The man is fixing his car.'

                              (elicitation, EM, BP44-4-s, 1)

The actual form that durative gemination takes is conditioned by the phono-
logical shape of the verb (Snapp et al. 1982:63). When the onset of the final
syllable is a lenis stop or fricative, it becomes fortis (16a).[5] When the onset
of the final syllable is a glide, a glottal stop is inserted instead (16b). This
also happens when there is no onset (16c).

   Some verbs do not undergo durative gemination. When the onset of the
final syllable is already fortis, or if it is a consonant that does not exhibit a
fortis-lenis contrast (i.e., the glottal segments ' and h), then the verb has the
same form both with an aspectual suffix (17a) and without it (17b) (Thornes
2003:23).

(17a) Su=mogo'ni   ka=poo   **wokwopa–hu**.
       NOM=woman   ACC=road   **cross–PFV**

  'The woman crossed the road.'

  [EM: "Means she's already through. She already crossed the
     road."]

                              (elicitation, EM, BP56-1, 54:11)

(17b) Su=mogo'ni   ka=poo   **wokwopa**.
       NOM=woman   ACC=road   **cross:DUR**

  'The woman is crossing the road.'

  [EM: "Yeah, she's still doing it."]

                              (elicitation, EM, BP56-1, 54:00)

Even when *wokwopa* 'cross' occurs without any overt aspectual morphology,
as in (17b), it still expresses aspect. Given the translation and the speaker's
comments, this is likely the same type expressed by durative gemination
(Thornes 2003:23).

   Durative gemination is not just a stem alternation in Northern Paiute: it
targets the final syllable of the verb, even if this is in a suffix (Snapp et al.
1982:63–64). For instance, one class of motion suffixes, including the motion
away suffix –*gaa*, undergoes durative gemination in lieu of the verb stem

---

   [5] In Numic languages, consonants in word-medial position contrast in complex ways ac-
cording to their manner of articulation. In the Mono Lake dialect of Northern Paiute, which I
report on here, plosives and affricates exhibit a three-way contrast between lenis (short voiced
unaspirated: i.e., *b*, *d*, *g*, *dz*), fortis (long voiceless aspirated: i.e., *p*, *t*, *g*, *ts*), and voiced fortis
(long voiced aspirated: i.e., *bb*, *dd*, *gg*, *ddz*); fricatives exhibit a two-way contrast between lenis
(short voiced: i.e., *z*) and fortis (long voiceless: i.e., *s*); and nasals exhibit a two-way contrast
between lenis (short: i.e., *m*, *n*) and fortis (long: i.e., *mm*, *nn*) (Babel et al. 2012).

(18*b*–*c*). Of course, without this motion suffix, it is the verb stem itself that undergoes the process (19*a*–*b*).

(18*a*) Nɨɨ   ka=tɨhɨdda   **nagi–gaa–hu**.
       1SG:NOM ACC=deer   **chase–away–PFV**

       'I chased the deer away.'

                                              (elicitation, EM, BP56-3, 3:35)

(18*b*) Nɨɨ   ka=tɨhɨdda   **nagi–ga'a**.
       1SG:NOM ACC=deer   **chase–away:DUR**

       'I am chasing the deer away.'

                                              (elicitation, EM, BP51-1-s, 1)

(18*c*) *Nɨɨ   ka=tɨhɨdda   **naki–gaa**.
       1SG:NOM ACC=deer   **chase:DUR–away**

                                              (elicitation, EM, BP56-3, 1:43)

(19*a*) Nɨɨ   ka=tɨhɨdda   **nagi–hu**.
       1SG:NOM ACC=deer   **chase–PFV**

       'I chased the deer.'

                                              (elicitation, EM, BP56-3, 0:51)

(19*b*) Nɨɨ   ka=tɨhɨdda   **naki**.
       1SG:NOM ACC=deer   **chase:DUR**

       'I am chasing the deer.'

                                              (elicitation, EM, BP56-3, 0:29)

Taken together, these data show that durative gemination in Northern Paiute is a general process that applies to verbs whenever it can. Given its complementary distribution with aspectual suffixes, it is likely that durative gemination conveys aspect. In **3**, I describe what type of aspect this is.

3. The semantics of durative germination.   There is little discussion of the semantics of durative gemination in the Numic literature. It is usually described as drawing attention to the length of an event. For Northern Paiute, Thornes (2003:413) only says that the process conveys "[a]n aspectual distinction typically interpreted as durative." By this description, durative gemination most closely resembles the imperfective aspect, which according to Comrie's (1976:4) traditional characterization "make[s] explicit reference to the internal temporal constituency of the situation." In this regard, the imperfective aspect contrasts with the perfective aspect, which again according to Comrie "presents the totality of the situation referred to" (p. 4).

There are many theories of imperfective aspect. At the risk of oversimplifying, I adopt a generalized version of several related theories of imperfective aspect within formal semantics (Bonomi 1997; Cipria and Roberts 2000; Deo

2009; Arregui et al. 2014). Although the details of their implementation differ, they all assume that the imperfective, like other types of aspect, maps a situation described by the predicate to a contextually salient time interval (or to a parallel object with temporal extent). For ease of discussion, I refer to this as the "topic time," following Klein, who describes it as "the time span to which the speaker's claim on this occasion is confined" (1994:4).[6] The topic time need not overlap the actual time of speaking. This can be shown with temporal adverbs, such as *yesterday* in (20), which constrain the location of the topic time (Partee 1984:257).

(20) Yesterday, she arrived in France.

When this sentence is uttered, the topic time must be some time interval in the day before the time of utterance.

Within this framework, the imperfective aspect has different readings depending on how a situation described by the predicate is related to the topic time. At the very least, the imperfective "allows reference to incomplete or ongoing situations" (Deo 2009:475) because it has an event-in-progress reading, which it shares with the progressive aspect. Unlike the progressive, however, the imperfective has other readings, each corresponding to a different mapping between a situation and the topic time. In Romance (French, Italian, Spanish) and Slavic (Russian) languages, the imperfective can have a habitual reading (Bonomi 1997; Cipria and Roberts 2000; Deo 2009), a continuous reading (Cipria and Roberts 2000; Deo 2009), and an event-in-preparation reading (Arregui et al. 2014).

Importantly, the imperfective does not have each of these readings in every language. To account for the uniformity in its meaning, while still allowing for variation across languages, formal semantic theories seek to identify a shared semantic core for the imperfective aspect, which can be filled in pragmatically to produce different mappings between a situation described by a predicate and the topic time. Languages differ in how they allow the context to supplement the semantics in this way, giving rise to the observed cross-linguistic variation in the readings that are available.
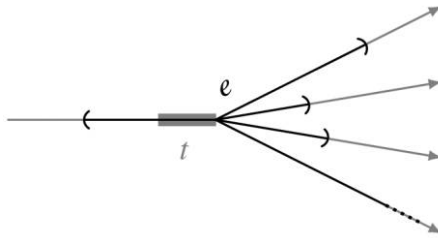
I characterize the different readings of the imperfective aspect more precisely below, identifying which of them durative gemination in Northern Paiute has. In addition to the event-in-progress reading (**3.1**), it has the continuous reading (**3.2**) and the habitual reading (**3.3**). Durative gemination does not have the event-in-preparation reading that is found with the imperfective in Romance languages (**3.4**). There is an additional reading for durative

---

[6] Klein's notion of a topic time is related, though not identical, to the notions of a "reference time" (Reichenbach 1947) or "topic situation" (Kratzer 2014). For present purposes, the differences are not relevant.

gemination in Northern Paiute, which more closely resembles the perfective aspect. I take up this completed reading in **4**.

3.1. The event-in-progress reading.   The most canonical reading for the imperfective aspect—the one that Comrie (1976) characterizes above—is the event-in-progress reading. Under this reading, an event described by the predicate does not terminate within the topic time and is in progress throughout that time. This is illustrated in (21), where *e* stands for the event and *t* for the topic time. (The open and close parentheses indicate the beginning and end points, respectively, of an event.)

(21)

The event-in-progress reading arises with accomplishment and activity predicates. Verbs from these *Aktionsart* classes all describe events with duration: whereas accomplishments are telic and have an inherent end point, activities are atelic, lacking an inherent end point (Vendler 1957:146).

Importantly, under the event-in-progress reading, the imperfective exhibits Dowty's (1979:133) imperfective paradox. With accomplishment predicates, it does not require the event to culminate within the actual world (Cipria and Roberts 2000:324; Arregui et al. 2014:327). The branching timeline in (21) represents the possible ways that the world could develop after the topic time. Along some of them—any of which might correspond to what really happens—the event never reaches its natural end.

Since English does not have the imperfective aspect, I use Romance languages to illustrate the event-in-progress and other readings. In the French sentences in (22*a*–*b*), the imperfective has an event-in-progress reading because it describes an event that does not terminate within the topic time. It is hence compatible with a continuation asserting that the event is still ongoing at some subsequent time.

(22*a*) L'–été   passé ils   **bâtiss–aient**   une
        the–summer   past   they **build:PAST:IMPF–3PL:IMPF**   a

    cabine; peut-être qu'–ils   la batiss–ent   encore.
    cabin   maybe   that–they it build:PRS–3PL   still

  'Last summer they were building a cabin; perhaps they are still
   building it.'

(22*b*) Ce   matin   elle   **chant–ait**;   peut-être
         this   morning she   **sing–3SG:PAST:IMPF** maybe

    qu'–elle   chant–e   encore
    that–she   sing–3SG:PRS   still

'This morning she was singing; perhaps she is still singing.'
(Smith 1997:198)

For the telic predicate in (22*a*), the mere fact that the continuation is fe-
licitous—and hence not contradictory—demonstrates that the building event
does not culminate within the topic time. For the atelic predicate in (22*b*), the
continuation is not just felicitous, but felicitous in a context where a single
singing event continues uninterrupted through the topic time to the present.

    The event in (22*a*) has not yet culminated by a time after the topic time, and
in fact, this event does not ever have to culminate. In (23), the imperfective
clause describes an event of the dog crossing the road, which the following
clause makes clear never culminates.

(23) Le   chien **travers–ait**   la   route,   quand il
      the dog   **cross–3SG:PAST:IMPF**   the   street   when   he

    s'–est   fait   écraser   par   un   autobus.
    3SG–was made   run.over   by   a   bus

'The dog was crossing the street when it was run over by a bus.'
(Arregui et al. 2014:321)

There might be some possible states of affairs in which the dog successfully
reaches the other side of the street—for instance, ones in which there is no bus
or the dog is moving just a bit faster—but the imperfective does not require
our world to be one of them.

    Durative gemination in Northern Paiute has an event-in-progress reading
with accomplishment and activity verbs. For both, it is compatible with a
continuation asserting that the event is still ongoing.[7]

(24*a*) Amamu'a   su=nana   tɨ=kaadzi   **madabbu'i**.   Yaisi   mino'o
         morning   NOM=man   REFL=car   **fix:DUR**   PTC   now

    tiggwisu   madabbui–winnɨ.
    still   fix–PROG

'This morning, the man was fixing his car. He is sill fixing it now.'
(elicitation, EM, BP46-7, 1:24)

(24*b*) Idzi'i   su=naatsi'i   **hubia–tu**.   Yaisi   tiggwisu
         yesterday NOM=boy   **song–make:DUR**   PTC   still

    hubia–du–winnɨ.
    song–make–PROG

---

[7] It is possible to identify the underlying *Aktionsart* of predicates in Northern Paiute using
several diagnostics that are described elsewhere (Toosarvandani 2014).

'Yesterday, the boy was singing. He is still singing.'

[EM: "Probably sing all night, init?" MS: "That's what it sounds like."]

(elicitation, EM, BP47-9, 30:54)

For the accomplishment predicate *tɨ=kaadzi maddabui* 'fix one's car' in (24*a*), durative gemination does not require the event to culminate since it is not contradictory to then assert that the event of fixing the car is still going on. For the activity verb *hubiadu* 'sing' (lit. 'song make') in (24*b*), durative gemination is compatible with an interpretation in which the singing continues without interruption until the present time.

In this respect, durative gemination parallels the progressive aspect. It, too, is compatible with an assertion of continuation for both accomplishments (25*a*) and activities (25*b*). Again, for the latter, the progressive can describe a singing event that continues uninterrupted until the present time.

(25*a*)   Amamu'a   su=nana   tɨ=kaadzi   **madabbui–wɨnnɨ**.   Yaisi
         morning   NOM=man   REFL=car   **fix–PROG**   PTC

       mino'o   tɨggwisu   madabbui–wɨnnɨ.
       now   still   make–PROG

'This morning, the man was fixing his car. He is still fixing it now.'

(elicitation, MS, BP46-7, 3:10)

(25*b*)   Idzi'i   su=naatsi'i   **hubia–du–wɨnnɨ**.   Yaisi   tɨggwisu
         yesterday   NOM=boy   **song–make–PROG**   PTC   still

       hubia–du–wɨnnɨ.
       song–make–PROG

'Yesterday, the boy was singing. He is still singing.'

[EM: "He sang all night long."]

(elicitation, EM, BP47-9, 33:00)

By contrast, verbs in the perfective aspect—which describe an event in its totality, including its end point—behave differently when followed by an assertion that the event continues.

(26*a*)   Amamu'a   su=nana   tɨ=kaadzi   **madabbui–hu.**   #Yaisi
         morning   NOM=man   REFL=car   **fix–PFV**   PTC

       mino'o.   tɨggwisu   madabbui–wɨnnɨ.
       now   still   fix–PROG

Intended: 'This morning, the man fixed his car. He's still fixing it now.'

[MS: "No, he don't cuz he's already finished it, and then. . . ."
EM: "Yeah, he already done it in the morning, so. . . He finished it in the morning."]

(elicitation, MS and EM, BP46-7, 2:09)

(26b) Idzi'i   su=naatsi'i **hubia–du–hu**.   Yaisi   tɨggwisu
      yesterday   NOM=boy   **song–make–PFV**   PTC   still

    hubia–du–wɨnnɨ.
    song–make–PROG

'This morning, the boy finished singing. He's still singing (again).'

[EM: "He sang yesterday, then he started to sing again, today."]
(elicitation, EM, BP47-6, 4:06)

For the accomplishment predicate in (26a), the perfective aspect describes an entire fixing event that culminates, producing a contradiction with the assertion that the event is still in progress at a later time. For the activity predicate in (26b), it can only describe a singing event that is completed, since the continuation describes another singing event, which begins later.

Durative gemination also does not require the event described by an accomplishment predicate to culminate in the actual world.

(27a) Context: The woman is making a basket. When she is halfway
      done, someone sets it on fire and it burns up.
      Su=mogo'ni   ka=opo   **madabbu'i**.   Yaisi   ne–hu.
      NOM=woman   ACC=basket   **make:DUR**   PTC   burn–PFV

'The woman was making the basket. It burned up.'
(elicitation, EM, BP56-1, 1:06:42)

(27b) Su=mogo'ni   ka=opo   **madabbui–wɨnnɨ**.   Yaisi   ne–hu.
      NOM=woman   ACC=basket   **make–PROG**   PTC   burn–PFV

'The woman was making the basket. It burned up.'
(elicitation, EM, BP56-1, 1:03:59)

(27c) #Su=mogo'ni   ka=opo   **madabbui–hu**.   Yaisi   ne–hu.
      NOM=woman   ACC=basket   **make–PFV**   PTC   burn–PFV

'The woman made the basket. It burned up.'

[EM: "She finished it, and then it got burnt."]
(elicitation, EM, BP56-1, 1:08:00)

The sentence with durative gemination in (27a) is felicitous even though the event of the woman making a basket never culminates, because it burns up before it has been finished. Again, this matches the behavior of the progressive aspect (27b). As expected, a parallel sentence with the perfective aspect, which requires the event to actually culminate, is infelicitous in the same context (27c).

A final piece of evidence shows that durative gemination has an event-in-progress reading. Since this reading requires the topic time to be contained within the event, a temporal adverbial that delimits or frames the topic time should be able to describe a time interval that is contained within the event (Cover and Tonhauser 2015). Indeed, the temporal adverbial *wahaggwe* 'at

two o'clock' identifies a point in time, which can be located within the event described by a verb that has undergone durative gemination.

(28) Context: The man started fixing his car at 1:00; he finished fixing it at 3:00.

Waha–ggwe   su=nana   tɨ=kaadzi   **madabbu'i**.
two–LOC   NOM=man   REFL=car   **fix:DUR**

'At two o'clock, the man was fixing his car.'

(elicitation, EM, BP51-5, 7:02)

The sentence in (28) is felicitous in a context where the fixing event extends through two o'clock. This again parallels the behavior of the progressive (29*a*), but not the perfective (29*b*).

(29*a*) Context: The boy started fixing his car at 1:00; he finished fixing it at 3:00.

Waha–ggwe   su=naatsi'i   tɨ=kaadzi   **madabbui–winnɨ**.
two–LOC   NOM=boy   REFL=car   **fix–PROG**

'At two o'clock, the boy was fixing his car.'

(elicitation, EM, BP50-2, 45:33)

(29*b*) **#Waha–ggwe**   su=nana   tɨ=kaadzi   **madabbu–hu**.
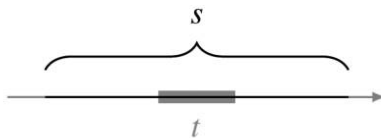**two–LOC**   NOM=man   REFL=car   **fix–PFV**

Intended: 'At two o'clock, the man fixed his car.'

(elicitation, EM, BP51-6, 38:00)

The parallel sentence with the progressive aspect in (29*a*) is judged felicitous in a context where the event extends from one to three o'clock. In contrast, since the perfective aspect requires the topic time to contain the event, it is infelicitous in the same context (29*b*). The entire event of fixing the car would have to be contained within the two o'clock time, which is not possible given how the world works.

3.2. The continuous reading.   The imperfective aspect also has what is called a "continuous" reading with stative predicates. States are situations with undifferentiated internal structure and without inherent initial or end points (Smith 1997:32). Under the continuous reading of the imperfective, a state simply holds throughout the topic time (Cipria and Roberts 2000:323; Deo 2009:476; Arregui et al. 2014:319).

(30)

In (31), again from French, the verb in the imperfective describes a state of indeterminate length that holds during a past time interval.

(31) Martha **viv–ait**   à   Paris.
     Martha **live–3SG:PAST:IMPF** at Paris.

     'Martha was living in Paris.'

<div align="right">(Smith 1997:200)</div>

To get a better sense for the continuous reading, compare this French sentence with its English translation. This paraphrase is not, in fact, adequate. It uses the progressive aspect, which lacks the continuous reading, and hence describes a situation of living that "is temporally contingent and subject to change" (Deo 2009:478). The original French, which uses the imperfective, does not describe such a transitory state.

Durative gemination in Northern Paiute has the same continuous reading with stative predicates, such as *pisabi* 'like'.

(32) Su=naatsi'i ti=ddoogga **pisapi**.
     NOM=boy   REFL=dog   **like:DUR**

     'The boy likes his dog.'

     [EM: "He likes it now. Well, he likes it all the time, I guess."]

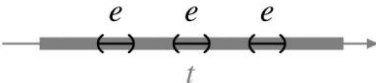<div align="right">(elicitation, EM, BP46-2, 30:18)</div>

This contrasts with the parallel sentence in (33), which uses the progressive and describes a liking state that is temporally contingent and subject to change. Speakers report that it only lasts for a short period of time.

(33) Su=naatsi'i ti=ddoogga **pisabi–winni**.
     NOM=boy   REFL=dog   **like–PROG**

     'The boy is liking his dog.'

     [EM: "*Pisabiwinni* would be just for a short time, yeah [. . .]"]

<div align="right">(elicitation, EM, BP52-4, 9:28)</div>

By comparison, from the speaker's comments in (32), it is clear that durative gemination has a continuous reading in which the state holds for an indeterminate amount of time.

3.3. The habitual reading.   In many languages, the imperfective aspect has a habitual reading, which describes what typically happens. Under one characterization of this reading, all typical events within the topic time are events described by the predicate (Cipria and Roberts 2000:325; Arregui et al. 2014:317).

(34)

The typical events—the ones that are characteristic, normal, or usual—are determined jointly by the context and the content of the utterance. In (35)

(French), the mother typically tells fairy tales to her son in the evening during the topic time, which is some contextually salient time period in the past.

(35) Sa mère lui **rancont–ait** des contes de fées
his mother him **tell–3SG:PAST:IMPF** some tales of fairies

    tous les soirs.
    all the evenings

'His mother would tell him fairy tales every evening.'

(Smith 1997:199)

In English, this kind of meaning is conveyed by the modal auxiliary *would*, as in the translation above, and by adverbs such as *typically*, *normally*, *characteristically*, or *usually*.

Durative gemination in Northern Paiute has a habitual reading. Speakers use it voluntarily to translate sentences in English that describe an event that occurs typically.

(36) Yonona=sabbɨ nɨɨ **sa'a**.
evening=only 1SG:NOM **cook:DUR**

'I cook only in the evenings.'

(elicitation, MS, BP12-5-s, 1)

In addition, in response to a question about what the woman generally does on Sundays, it is possible to answer felicitously as in (37), with a verb in its durative form.

(37) Q: Hau su=mogo'ni managgwi–heggwi a=nadzaddii–no'o?
     how NOM=woman do–HAB 4.GEN=Sunday–LOC

    'What does the woman do on Sundays?'

   A: Su=mogo'ni **hubia–tu**.
     NOM=woman **song–make:DUR**

    'The woman sings.'

(elicitation, EM, BP56-1, 1:15:49)

By contrast, the progressive aspect is infelicitous in response to the same question, as the first answer in (38) shows. Based on the speaker's comments, the progressive can only express a statement about a single occurrence of an event. As the second answer in (38) shows, the perfective aspect also does not allow a habitual reading.

(38) Q: Hau su=mogo'ni managgwi–heggwi a=nadzaddii–no'o?
     how NOM=woman do–HAB 4.GEN=Sunday–LOC

    'What does the woman do on Sundays?'

A1: #Su=mogo'ni   **hubia–du–wɨnnɨ**.
NOM=woman   **song–make–PROG**

Intended: 'The woman sings.'

[EM: "Well, what she's doing right now, I guess. *Hubiaduwɨnnɨ*, she's singing."]

(elicitation, EM, BP56-4, 28:41)

A2: #Su=mogo'ni   **hubia–du–hu**.
NOM=woman   **song–make–PFV**

Intended: 'The woman sings.'

[EM: "Means just once that she sang."]

(elicitation, EM, BP56-1, 1:17:20)

In addition to the event-in-progress and continuous readings, then, durative gemination has a habitual reading as well.

3.4. The event-in-preparation reading.   In some languages, the imperfective aspect also allows for an event-in-preparation reading. This reading describes an event whose preparatory stages overlap with the topic time; if the event begins at all, it does so after the topic time (Arregui et al. 2014:327).

(39)

In (40), from Spanish, the verb in the imperfective describes some preparatory period before a going-to-the-beach event, which holds during some past time. In this case, the event never actually occurs, as the second clause explicitly asserts.

(40) Hasta   ayer,   **íbamos**   a   la   playa de vacaciones,
until   yesterday, **go:PAST:IMPF:1PL** to the beach on vacation

pero hoy   Pepa dijo   que no   hay
but   today Pepa say:PAST:PFV:3SG that not exist:PRS

dinero para   eso.
money   for   that

'Up until yesterday we were going to the beach on vacation, but today Pepa said that there is no money for that.'

(Cipria and Roberts 2000:300)

Whereas the event-in-preparation reading is common for the imperfective in Romance languages, it is either not mentioned in descriptions of Slavic languages or it is explicitly described as impossible (Arregui et al. 2014:322).

Like the imperfective in Slavic languages, durative gemination in Northern Paiute does not have an event-in-preparation reading. In a context where a woman prepares to climb a mountain but never actually does so, durative gemination is infelicitous (41*a*). To convey the intended meaning, speakers instead offered a parallel discourse with the prospective aspect, as in (41*b*).

(41*a*) Context: The woman was ready to climb the mountain. The day before she started, she had a heart attack and died.

#Mu'a   su=mogo'ni   ka=kaiba   **pu'ya**.   Idzi'i
tomorrow   NOM=woman   ACC=mountain   **climb:DUR**   yesterday

u=bbiwɨ   katɨ–hu–si,   ya'i–hu.
3SG:GEN=heart   sit–PFV–SEQ   die–PFV

Intended: 'The woman was going to climb the mountain tomorrow. Yesterday, she had a heart attack and died.'
<div align="right">(elicitation, EM, BP55-1, 1:10:20)</div>

(41*b*) Mu'a   su=mogo'ni   ka=kaiba   **puya–kwɨ**.   Idzi'i
tomorrow   NOM=woman   ACC=mountain   **climb–PROSP**   yesterday

u=bbiwɨ   katɨ–hu–si,   ya'i–hu.
3SG:GEN=heart   sit–PFV–SEQ   die–PFV

'The woman was going to climb the mountain tomorrow. Yesterday, she had a heart attack and died.'
<div align="right">(elicitation, EM, BP55-1, 1:11:05)</div>

Since durative gemination cannot be used to describe the preparatory stages before an event begins, it does not have the event-in-preparation reading.

4. Another reading for durative germination. We saw above that durative gemination in Northern Paiute has much the same range of readings as the imperfective aspect in other languages: event-in-progress, continuous, and habitual. There is, however, another reading for durative gemination, one that is most clearly available with verbs such as *mayɨ* 'find'.

(42) Nɨɨ   ti=ddoogga   ma'yɨ.
1SG:NOM   REFL=dog   find:DUR

'I found my dog.'

[EM: "You already found him."]
<div align="right">(elicitation, EM, BP51-4, 0:50)</div>

For now, looking just at the translation and the speaker's comments, the sentence in (42) can have a reading other than the habitual because it can describe a single finding event. This is not a continuous reading, however, since *mayɨ* 'find' does not describe a state. Nor is it an event-in-progress reading: the finding event is not described as ongoing.

Instead, when *mayɨ* 'find' undergoes durative gemination, it has what I call a "completed" reading. In this it is not alone, as other achievement verbs can have the same reading. Predicates from this *Aktionsart* class describe an instantaneous change-of-state event in which the patient goes from not having some property to having it. This can be the property of being found, another physical property, or simply the property of being in a certain location or position (Vendler 1957:147; Dowty 1979:77).

In **4.1**, I provide a characterization of the completed reading for durative gemination in terms of how the event is related to the topic time. This correctly predicts that, with at least some achievement predicates, durative gemination entails that the event culminates. Somewhat mysteriously, other achievement predicates do not have a culmination entailment when they undergo durative gemination. I argue in **4.2** that there are multiple classes of achievements in Northern Paiute, some of which allow for one of durative gemination's other readings, in addition to the completed reading. Finally, in **4.3**, I examine the availability of the completed reading with predicates from other *Aktionsart* classes.

4.1. The completed reading.   As a first approximation, I propose that when durative gemination has the completed reading, the topic time contains the event in its entirety. This contrasts with the event-in-progress and continuous readings, which locate the topic time within an event or state. The completed reading is illustrated in (43) for the instantaneous change-of-state event described by an achievement verb such as *mayɨ* 'find'.

(43)

This mapping is identical to the mapping imposed by the perfective aspect (Kratzer 1998:107). Consequently, under the completed reading, a verb describes roughly the same state of affairs when it undergoes durative gemination as when it bears the perfective suffix.

The completed reading can be demonstrated directly with temporal adverbials that constrain the topic time. In (44), *wahaggwe* 'two o'clock' restricts the topic time to the two o'clock time, which is able to contain the entire instantaneous change-of-state event described by *mayɨ* 'find'.

(44) **Waha–ggwe**   su=naatsi'i   ka=ddoogga   **ma'yɨ**.
     two–LOC   NOM=boy   ACC=dog   **find:DUR**

   'At two o'clock, the boy found his dog.'
                                        (elicitation, EM, BP49-6, 25:25)

In addition, when *mayɨ* 'find' undergoes durative gemination, it gives rise to what Altshuler (2010:9) calls a "culmination entailment." It necessarily expresses that the event culminates, as shown in (45).

(45) Su=naatsi'i tɨ=ddoogga **ma'yɨ**. #Yaisi kaisu
    NOM=boy REFL=dog **find:DUR** PTC not.yet

    u=mayɨ–maggwɨ–hu.
    3SG:ACC=find–finish–PFV

'The boy found his dog. He hasn't found it yet.'

[EM: "It don't make sense [. . .] he's already found the dog."]
          (elicitation, EM, BP56-1, 46:52)

The finding event described by the first sentence necessarily culminates because it is incompatible with an assertion of noncompletion. This culmination entailment arises because *mayɨ* 'find' can only have the completed reading, not the event-in-progress or continuous reading. When it undergoes durative gemination, the topic time invariably contains the entire finding event, including its culmination.

Not all achievement predicates behave in exactly the same way when they undergo durative gemination. On the one hand, verbs such as *tsibui* 'emerge' describe an event that can be contained in its entirety within the topic time (46*a*); it does not, however, give rise to a culmination entailment (46*b*).

(46*a*) **Waha–ggwe** su=naatsi'i nabagia–na–ggwe **tsibu'i**.
      two–LOC NOM=boy bathe–NMZ–LOC **emerge:DUR**

'At two o'clock, the boy got out of the bathtub.'
          (elicitation, EM and MS, BP47-3, 44:06)

(46*b*) Su=naatsi'i nabagia–na–ggwe **tsibu'i**. Yaisi kaisu
      NOM=boy bathe–NMZ–LOC **emerge:DUR** PTC not.yet

      tsibui–maggwɨ–hu.
      emerge–finish–PFV

'The boy was getting out of the bathtub. He hasn't gotten out yet.'
          (elicitation, EM, BP52-5, 48:10)

On the other hand are verbs that appear, at first glance, to behave just like *mayɨ* 'find'. The verb *mia* 'leave (to go away)' describes an event that can be contained within the topic time (47*a*) and gives rise to a culmination entailment (47*b*).

(47*a*) **Waha–ggwe** su=mogo'ni **mi'a**.
      two–LOC NOM=woman **leave:DUR**

'At two o'clock, the woman left.'
          (elicitation, EM, BP51-5, 17:27)

(47*b*) Amamu'a   su=naatsi'i **mi'a**.   #Yaisi kaisu
         morning   NOM=boy   **leave:DUR** PTC   not.yet

   mia–maggwɨ–hu.
   leave–finish–PFV

 'This morning, the boy left. He hasn't left yet.'

 [EM: "The boy left this morning. *Kaisu miamaggwɨhu* . . . well,
  sound like that he's not gone yet [. . .] It don't make sense."]
          (elicitation, EM, BP51-1, 2:00)

However, when *mia* 'leave (to go away)' undergoes durative gemination, it
also allows for the topic time to be located *after* the change-of-state event
(48*a*). By contrast, the topic time cannot be located after the finding event
for *mayɨ* 'find' (48*b*) or after the emerging event for *tsibui* 'emerge' (48*c*).

 (48*a*) Context: The woman left at 1:00. She reached her destination at
   3:00.
   Waha–ggwe su=mogo'ni **mi'a**.
   two–LOC   NOM=woman   **leave:DUR**

   'At two o'clock, the woman was going away.'
          (elicitation, EM, BP51-5, 10:47)

 (48*b*) Context: The woman found her dog at 1:00.
   #Waha–ggwe su=mogo'ni tɨ=dduisi **ma'yɨ**.
   two–LOC   NOM=woman   REFL=pet   **find:DUR**

   Intended: 'At two o'clock, the woman had found her pet.'

   [EM: "Probably that's not true. She can't find him at one, then
    two again. She already found it."]
          (elicitation, EM, BP51-5, 13:50)

 (48*c*) Context: The old man got out of the bathtub at 1:00.
   #Waha–ggwe su=wa'itsi nabagia–na–ggwe **tsibu'i**.
   two–LOC   NOM=old man bathe–NMZ–LOC   **emerge:DUR**

   Intended: 'At two o'clock, the old man had gotten out of the
    bathtub.'

   [EM: "[. . .] well I thought he got out at one."]
          (elicitation, EM, BP53-4, 46:20)

I gloss *mia* as 'leave (to go away)' because the topic time can contain the
leaving event (47*b*) or be located after this event at a time when the leaver
is going away (48*a*). Next, I argue that the somewhat variable behavior
of achievement verbs when they undergo durative gemination arises from
whether or not they lexically encode another event component in addition to
a change-of-state event.

 4.2. Three classes of achievements in Northern Paiute. I call
these predicates "achievements" because they describe an instantaneous

change-of-state event—a finding event, an emerging event, a leaving event. This is most clear from the interpretation they receive with the inceptive suffix –*huka*, which picks out the initial point of an event. With canonical durative predicates, such as the activity in (49*a*) or the accomplishment in (49*b*), the inceptive suffix is compatible with an assertion of noncompletion.

(49*a*) Su=mogo'ni **hubia–du–huka**.   Yaisi kaisu
 NOM=woman **song–make–INCEP** PTC   not.yet

  hubia–du–maggwɨ–hu.
  song–make–finish–PFV

  'The woman started singing. She hasn't finished singing yet.'
  (elicitation, EM and MS, BP53-4, 32:50)

(49*b*) Su=nana   tɨ=kaadzi **madabbui–huka**.   Yaisi kaisu
 NOM=man REFL=car **fix–INCEP**   PTC   not.yet

  u=madabbui–maggwɨ–hu.
  3SG:ACC=fix–finish–PFV

  'The man started to fix his car. He hasn't finished fixing it yet.'
  (elicitation, MS and EM, BP53-4, 33:05)

By contrast, this kind of continuation is contradictory for the achievement verbs *mayɨ* 'find' (50*a*), *tsibui* 'emerge' (50*b*), and *mia* 'leave (to go away)' (50*c*).

(50*a*) Su=naatsi'i tɨ=ddoogga **mayɨ–huka**. #Kaisu
 NOM=boy   REFL=dog **find–INCEP** not.yet

  u=mayɨ–maggwɨ–hu.
  3SG:ACC=find–finish–PFV

  'The boy found his dog. He hasn't finished finding it.'

  [MS: "Means he thought he found it, and then he didn't find it."]
  (elicitation, MS, BP53-8, 41:00)

(50*b*) Su=wa'itsi   nabagia–na–ggwe **tsibui–huka**. #Yaisi kaisu
 NOM=old.man bathe–NMZ–LOC **emerge–INCEP** PTC   not.yet

  tsibui–maggwɨ–hu.
  emerge–finish–PFV

  'The old man got out of the bathtub. He hasn't gotten out yet.'

  [EM: "He got out already, and he can't just be getting out."]
  (elicitation, EM and MS, BP53-4, 38:10)

(50*c*) Su=mogo'ni **mia–huka**. #Yaisi kaisu   mia–maggwɨ–hu.
 NOM=woman **leave–INCEP** PTC   not.yet leave–finish–PFV

  'The woman left. She hasn't left yet.'

  [EM: "She left already, and then you said that she didn't leave yet."]
  (elicitation, EM, BP53-4, 36:25)

The inceptive suffix conveys that an event has started. With achievements, it must also convey that the event has culminated, since an assertion of continuation is contradictory. This can only be possible if all achievement predicates describe an instantaneous change-of-state event whose initial point is also its end point.

That being said, I propose that there are at least three distinct classes of achievements predicates in Northern Paiute. The first, which includes the verb *mayɨ* 'find', just describes an instantaneous change-of-state event.

(51) Achievement class I

By contrast, the other two classes of achievements encode an additional meaning component, to which durative gemination and other expressions are sensitive. The second class includes the verb *tsibui* 'emerge' and describes the preparatory process that culminates in the change-of-state event, much like some achievements in English (Rothstein 2004:55).

(52) Achievement class II

The third class describes a change-of-state event plus a post-state component, much like achievements in Japanese (Ogihara 1998) or "inceptive statives" in S̱kw̱x̱wú7mesh (Bar-el 2005). For the verb *mia* 'leave (to go away)', the state that follows the leaving event is the state of going away.

(53) Achievement class III

Representative verbs for each of these classes are listed in table 2.

The additional meaning components encoded by the second and third classes of achievements are not visible to every type of aspect. For this reason, I indicate them with dashed lines in the diagrams above. The inceptive suffix *–huka*, for instance, does not see either the preliminary process or post-state. It treats all achievements as the same, as shown in (50*a–c*) above, picking up solely on the instantaneous change-of-state event they all describe. This differentiates achievements in Northern Paiute from accomplishments and other *Aktionsart* classes. These additional meaning components are, however, visible to other aspects, including durative gemination.

4.2.1. Durative gemination and the second class of achievements. When *tsibui* 'emerge' undergoes durative gemination, the topic time can

TABLE 2
THREE CLASSES OF ACHIEVEMENT PREDICATES IN NORTHERN PAIUTE

	Verbs	Lexical Semantics	Readings
I	*mayɨ* 'find'	change-of-state	completed (44)
	kadoma'e 'destroy'		
	wadzimia 'escape'		
	pidɨ 'arrive'		
II	*tsibui* 'emerge'	change-of-state plus	completed (46*a*)
	puya 'climb'	preliminary process	event-in-progress (54)
	sɨta 'get angry'		
III	*mia* 'leave (to go away)'	change-of-state plus	completed (47*a*)
	habi 'lie down'	post-state	continuous (48*a*)
	kadɨ 'sit down'		
	winɨ 'stand up'		

contain the instantaneous change-of-state event, as shown in (46*a*). The topic time can also be contained just within the preparatory process leading up to the change-of-state event.
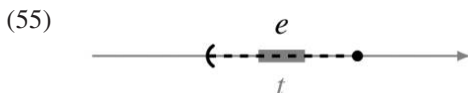
(54) Context: The man started getting out of the bathtub at 1:45. He got completely out by 2:15.

Waha–ggwe su=wa'itsi **tsibu'i**.
two–LOC NOM=old.man **emerge:DUR**

'At two o'clock, the old man was getting out of the bathtub.'
(elicitation, EM, BP56-1, 8:31)

In (54), *tsibui* 'emerge' has a "slow motion" reading, in which the event appears to be stretched out. The instantaneous change-of-state event—when the man goes from being in the bathtub to being out of it—is preceded by a long preparatory process. The topic time, restricted to the two o'clock time, is located just within this process component.

(55)

For achievements from the other classes—such as *mayɨ* 'find' and *mia* 'leave (to go away)'—it is not even possible to construct realistic contexts where the change-of-state is preceded by such a lengthy preparatory process.

When the topic time is contained in the process component described by *tsibui* 'emerge', durative gemination has the event-in-progress reading. As a consequence, achievement verbs in this second class do not give rise to a culmination entailment, as shown in (56), repeated from (46*a*) above.

(56) Su=naatsi'i   nabagia–na–ggwe   **tsibu'i**.   Yaisi kaisu
     NOM=boy   bathe–NMZ–LOC   **emerge:DUR** PTC not.yet

   tsibui–maggwɨ–hu.
   emerge–finish–PFV

   'The boy is getting out of the bathtub. He hasn't gotten out yet.'

   [EM: "He's getting out of the tub, but he's still getting out of the tub."]
                (elicitation, EM, BP52-5, 48:10)

Since there is a reading available for *tsibui* 'emerge' where the end point of the event is not located within the topic time, it is possible to assert felicitously that the event has not yet culminated at some later time.

  By contrast, verbs from the first class only have a completed reading with durative gemination because they describe just an instantaneous change-of-state event. They consequently do give rise to a culmination entailment, as shown for *mayɨ* 'find' in (57), repeated from (45) above.

(57) Su=naatsi'i   tɨ=ddoogga   **ma'yɨ**.   #Yaisi kaisu
     NOM=boy   ACC=dog   **find:DUR** PTC   not.yet

   u=mayɨ–maggwɨ–hu.
   3SG:ACC=find–finish–PFV

   'The boy found his dog. He hasn't found it yet.'

   [EM: "It don't make sense [. . .] he's already found the dog."]
                (elicitation, EM, BP56-1, 46:52)

The topic time must contain the change-of-state event, yielding a contradiction with a continuation that asserts noncompletion.

4.2.2. Durative gemination and achievements from the third class.   When an achievement verb from the third class undergoes durative gemination, the topic time can be located after the change-of-state event, as shown in (58), repeated from (48*a*).

(58) Context: The woman left at 1:00. She reached her destination at 3:00.
    Waha–ggwe   su=mogo'ni   **mi'a**.
    two–LOC   NOM=woman   **leave:DUR**

   'At two o'clock, the woman was going away.'

   [EM: "Then she's still going till three o'clock."]
                (elicitation, EM, BP51-5, 10:47)

To account for this fact, I am proposing that *mia* 'leave (to go away)' also encodes a stative component—the post-state of going away that follows leaving—inside of which the topic time can be located.

(59)

Importantly, the topic time cannot be located just anywhere after the leaving event. As shown in (60), it is infelicitous for the topic time to be located after the going away has stopped.

(60) Context: The woman left at 9:00. She reached her destination at 12:00.
      #Waha–ggwe   su=mogo'ni   **mi'a**.
      two–LOC   NOM=woman   **leave:DUR**

      Intended: 'At two o'clock, the woman had finished going away.'

      [EM: "That would *isaya'e* 'lying' [. . .] cuz she only walked nine to twelve, not to two."]

      (elicitation, EM, BP51-5, 38:09)

This additional meaning component is only found with achievements from the third class. Neither *mayɨ* 'find' nor *tsibui* allows for the topic time to follow the change-of-state event, as we saw in (48*b–c*) above.

Two things need to be clarified about what I am calling a post-state. First, what follows the change-of-state event for a verb such as *mia* 'leave (to go away)' might alternately be analyzed as a process, or an event with duration. It is actually quite difficult to distinguish between these two alternatives, and I do not attempt to do so here. I nonetheless continue to call this additional meaning component a post-state. What matters most here is that achievement verbs from the third class encode it, whereas other achievements do not.

Second, it would be difficult not to notice that the verbs in the third class are all motion or posture verbs. In many languages, including English, verbs in this semantic domain (e.g., *stand*, *sit*, *lie down*) are ambiguous between an achievement meaning, describing an instantaneous change-of-state, and an activity meaning, describing a process. In Northern Paiute, these verbs are not ambiguous. If they had an independent activity meaning, we would expect them to also pattern with activities, but they never do. With the inceptive suffix, for instance, *mia* 'leave (to go away)' is incompatible with an assertion of noncompletion (50*c*), unlike an activity predicate (49*a*).

Even though achievement verbs from the third class encode an additional meaning component, they give rise to a culmination entailment when they undergo durative gemination, as shown in (61), repeated from (47*b*) above.

(61) Amamu'a   su=naatsi'i   **mi'a**.   #Yaisi   kaisu
      morning   NOM=boy   **leave:DUR** PTC   not.yet

      mia–maggwɨ–hu.
      leave–finish–PFV

      'This morning, the boy left. He hasn't left yet.'

      [EM: "The boy left this morning. *Kaisu miamaggwɨhu* . . . well, sound like that he's not gone yet [. . .] It don't make sense."]

      (elicitation, EM, BP51-1, 2:00)

With *mia* 'leave (to go away)', durative gemination can have the completed reading, as in (47*a*). It can also have the continuous reading when the topic time is contained in the post-state, as in (58). Durative gemination still gives rise to a culmination entailment with this verb, though, because it encodes a post-state, not a preparatory process. The topic time either contains the change-of-state event or is located after it, producing the contradiction in (61).

4.2.3. Additional evidence for the three-way classification of achievements. There are two additional pieces of evidence for identifying three classes of achievements in Northern Paiute. First, verbs from neither the first class (62*a*) nor the third class (62*c*) are felicitous with the progressive suffix.[8]

(62*a*) *Nɨɨ   tɨ=ddoogga   **mayɨ–wɨnnɨ**.
       1SG:NOM   REFL=dog   **find–PROG**

       Intended: 'I am looking for my dog.'
                                (elicitation, EM and MS, BP49-5, 1:25:29)

(62*b*) *Su=nana   **mia–wɨnnɨ**.
       NOM=man   **leave–PROG**

       Intended: 'The man is leaving.'
                                (elicitation, EM, BP44-7, 1:24:13)

If these predicates do not encode a process component, they cannot describe an event with enough duration to contain the topic time, as required by the progressive, which only has an event-in-progress reading. By contrast, achievements from the second class are compatible with it.

(63)   Su=naatsi'i   nabagia–na–ggwe   **tsibui–wɨnnɨ**.
       NOM=boy   bathe–NMZ–LOC   **emerge–PROG**

       'The boy is getting out of the bathtub.'

       [EM: "He's slowly getting out of the tub."]
                                (elicitation, EM, BP56-4, 2:18)

In (63), *tsibui* 'emerge' again has the same "slow-motion" interpretation that it has with durative gemination in (54). The progressive, then, can also locate the topic time within the preparatory process encoded by this verb.

---

[8] While *mayɨ* 'find' definitely cannot describe a single event that is in progress, it may have a different interpretation when it bears the progressive suffix: "[In (62*a*), t]hat means more than one little dog . . . it's gotta be more than one" (elicitation, MS, BP49-5, 1:25:29). The speaker here suggests that this verb can describe multiple events of finding distributed across individuals described by the object. Similarly, *mia* 'leave (to go away)' may be able to describe multiple events distributed across individuals, though individuals described by the subject, when it bears the progressive suffix: "A lot of people *miawinni*, means they are all leaving" (elicitation, EM, BP46-8, 12:41). Further investigation, which I leave for the future, is needed to corroborate these comments.

Second, the second and third classes of achievements are felicitous with *tɨggwisu* 'still' when they undergo durative gemination.

(64*a*) Su=naatsi'i nabagiana–ggwe **tɨggwisu** **tsibu'i**.
          NOM=boy   bathtub–LOC   **still**   **emerge:DUR**

'The boy is still getting out of the tub.'

(elicitation, EM, BP52-2, 42:30)

(64*b*) Su=naatsi'i **tɨggwisu** **mi'a**.
          NOM=boy   **still**   **leave:DUR**

'The boy is still going away.'

(elicitation, EM, BP47-2, 9:35)

This adverb only occurs with predicates that encode a state or event with duration, such as the process component of *tsibui* 'emerge' (64*a*) or the post-state encoded by *mia* 'go away' (64*b*). The first class of achievements, which encodes neither of these meaning components, is simply incompatible with *tɨggwisu* 'still'.

(65) #Su=naatsi'i tɨ=ddoogga **tɨggwisu** **ma'yɨ**.
        NOM=boy   REFL=dog   **still**   **find:DUR**

Intended: 'The boy had still found/is still looking for his dog.'

[EM: "That don't sound right. He found his dog already, he can't find him again." MS: "He would be like *tɨ=ddoogga tɨggwi wati* ['still looking for his dog']."]

(elicitation, EM and MS, BP49-6, 27:45)

This follows if *mayɨ* 'find' describes just an instantaneous change-of-state event, which lacks any duration.

I have remained silent here on why the additional meaning components encoded by the second and third classes of achievement verbs are only visible to some aspects (durative gemination and progressive aspect), and not to others (inceptive aspect). Achievements of the second class are commonly found in other languages, including in English (e.g., *The climber is reaching the summit*). Under one common analysis, such achievements describe as their basic meaning an instantaneous change-of-state event. They can be coerced, however, into an activity to make them compatible with aspects, such as the progressive, that require an event with some duration (Rothstein 2004:56–58). The question then becomes why only some aspects can trigger this coercion.[9] A similar question would arise for achievements from the third class, if a parallel analysis were advanced for them.

---

[9] Alternately, these achievement predicates might be treated as very short accomplishments that do not truly describe an instantaneous change-of-state event (Verkuyl 1989:55–58). Under

It is clear that the class of achievement predicates in Northern Paiute is heterogenous, resulting in their varied ability to give rise to a culmination entailment. Achievements that only have a completed reading, such as *mayɨ* 'find', give rise to a culmination entailment because the topic time always contains the instantaneous change-of-state event. Achievements that encode a post-state, such as *mia* 'leave (to go away)', also give rise to a culmination entailment because the topic time must either contain the change-of-state event or be located after it. Only achievements that encode a preparatory process, such as *tsibui* 'enter', do not give rise to a culmination entailment: they can have an event-in-progress reading, where the change of state is not located inside the topic time.

4.3. A prediction about semelfactive predicates.   Although the completed reading may appear most obviously with achievements, it should be available with predicates from other *Aktionsart* classes, as long as there is no incompatibility with their lexical semantics. With semelfactive predicates—predicates describing an instantaneous event that does not result in a change of state—durative gemination expresses that just a single occurrence of the event took place. For *akwisiye* 'sneeze', durative gemination consequently has an interpretation (66*a*) that is identical to the perfective (66*b*).[10] These both contrast with this verb's interpretation in the progressive (66*c*).

(66*a*) Nɨɨ   **akwisiya'e**.
         1SG:NOM   **sneeze:DUR**

   'I sneezed (once).'

                                        (elicitation, EM, BP45-5, 1:44:35)

   [EM: "You're sneezing." MT: "Am I sneezing once or over and
      over again?" EM: "Just once."]

(66*b*) Nɨɨ   **akwisiye–hu**.
         1SG:NOM   **sneeze–PFV**

   'I sneezed (once).'

   [MS: "Somebody sneezed." EM: "Just one time, though."]
                                        (elicitation, EM and MS, BP44-4-s, 22)

---

this view, there is the additional question of why some aspects treat achievements differently from accomplishments in Northern Paiute, as in (49*b*) and (50*a*–*c*).

   [10] The durative form for *akwisiye* 'sneeze' is *akwisiya'e*. The final vowel *e* of the basic form has a variable pronunciation that not infrequently shades into a diphthong: *e ~ ae ~ ai*. This is the Numic "sixth vowel," which may come from Proto-Numic **ai* (Nichols 1974:39–50). If this is correct, although durative gemination operates opaquely for this verb, it would have been historically more predictable: **akwisiyai → *akwisiya'i (> akwisiya'e)*.

(66*c*) Nɨɨ   **akwisiye–winni.**
            1SG:NOM   **sneeze–PROG**

'I am sneezing (over and over again).'

[EM: "*Akiwisiyewɨnnɨ* means you sneeze a lot of times."]
                                          (elicitation, EM, BP45-5, 1:45:04)

Since the progressive only has an event-in-progress reading, it requires an event with duration. Semelfactives are consequently coerced into describing an iterative event, just as in English (e.g., *John is sneezing*).

When they undergo durative gemination, semelfactives can describe a single event because they have a completed reading: the topic time contains the sole event. This can be confirmed using a temporal adverbial.

(67)   Context: The boy sneezed once at 2:00.
          Waha–ggwe   su=naatsi'i   **akwisiya'e**.
          two–LOC   NOM=boy   **sneeze:DUR**

'At two o'clock, the boy sneezed.'
                                          (elicitation, EM, BP51-1, 40:59)

Under the completed reading for durative gemination, the sneezing event in (67) is located entirely within the two o'clock time.

Since semelfactives are punctual predicates, it is perhaps not surprising that they have a completed reading. There should also be nothing preventing durative predicates, such as activities and accomplishments, from having a completed reading when they undergo durative gemination. It is more difficult to show this, but I believe that it is possible.[11] In **5**, I argue that the completed reading is found with durative predicates based on how they are interpreted in narrative discourse.

5. Durative gemination in discourse.   In many languages, when a sequence of sentences is understood as a narrative discourse, it is interpreted as "forward moving" in time. Aspect plays a crucial role in this narrative progression (Kamp and Rohrer 1983; Partee 1984; Hinrichs 1986, among others). The temporally forward moving sequence of sentences in (68) is entirely in the perfective.[12]

---

[11] In particular, temporal adverbials prove to be of no use. Since activity and accomplishment predicates have an event-in-progress reading with durative gemination, it would not be possible to tell whether a sentence was judged felicitous because the entire event was contained within the time delimited by the adverbial, or whether just part of it was.

[12] The final clause in (68) contains the sequential suffix *–si*, which conveys that this clause temporally precedes the unmarked clause that occurs linearly before it (Toosarvandani 2016). This lexical material overrides the default interpretation that arises from narrative progression.

(68) Su=ddoogga=bino'o yaa   ika   tɨbbi–ma yaa
      NOM=dog=PTC   there this:ACC rock–LOC there

      na'ona–ba–tɨ   **mia–hu**. Yaisi yaa   su=hɨbbɨ   tɨhɨdda
      around–LOC–LOC **leave–PFV** PTC   there NOM=thing   deer

      mia–hu,   umɨ–ma   si'e–hu–si.
      leave–PFV 2/3PL–LOC get.scared–PFV–SEQ

'The dog **ran** to the other side of the rock. Then the deer **ran**
   away, because he got scared of them.'
                                   (prompted narrative, EM, BP25-2-t1, 91–93)

Each sentence in (68) is interpreted as taking place in close temporal succes-
sion after the preceding sentence. The event of the deer leaving takes place
immediately after the event of the dog running to the other side of the rock. By
contrast, the progressive aspect does not push the time of the narrative forward.

(69) Su=naatsi'i ka=tɨ=ddoogga–no   ka=paa'a   paninɨdi–ggwe
      NOM=boy   ACC=REFL=dog–COM   ACC=water lake–LOC

      kwagwabi–hu–bitɨ–ggwaddi. Tɨhɨdda=bino'o   yaa
      fall:DL–PFV–arrive–DL   deer=PTC   there

      mɨ=bbuni–ggwinnɨ.
      2/3PL=see–PROG

'The boy and the dog **fell** into the pond. The deer was standing
   there **looking** at them.'
                                   (prompted narrative, MS, BP25-2-t2, 72–73)

The second sentence in (69) describes an event of the deer looking at the
boy and dog. It is in the progressive and is interpreted as temporally *over-
lapping* the event of their falling into the pond described by the preceding
sentence. The *Aktionsart* class of a predicate also contributes to narrative
progression: like verbs in the progressive, stative predicates are generally
interpreted as temporally overlapping the events described in the preced-
ing discourse.

   In Northern Paiute, durative gemination need not advance the time of a
narrative. As shown in (70), it can receive the same interpretation in discourse
as the progressive.

(70) . . . mɨ=nodda=bino'o   **ina–hu–dui**   mani–winni–na.
            PL=bee=PTC   **go.everywhere–PFV–INT** do–PROG–SIM

      Su=naatsi'i=bino'o tui   ggwati–na   tɨggwisu tui
      NOM=boy=PTC   try.to look.for–SIM still   try.to

      ggwati,   tɨ=pa'mogo. Su=kɨibbɨ=bino'o   ma–ma
      look.for:DUR REFL=frog NOM=prairie.dog=PTC DEM–LOC

mɨ=muima–ggwɨnni–na,   **sua'i**.
2/3PL=peek–PROG–SIM   **laugh:DUR**

'. . . the bees **went** everywhere. The boy is still **looking** all over,
looking all over for the frog. The prairie dog is peeking out at
them and **laughing**.'

<div align="right">(prompted narrative, MS, BP25-2-t2, 43–45)</div>

The last two sentences—both containing verbs that have undergone durative
gemination—describe events that overlap temporally with the closest preced-
ing clause in the perfective aspect. The events of the boy's looking for the
frog and the prairie dog's laughing take place at the same time as the event
of the beehive falling from the tree.

However, like the perfective aspect, durative gemination can sometimes
advance the time of the narrative. This is particularly common with achieve-
ment predicates.

(71) Su=naatsi'i=bɨno'o u–ma   si'e–hu–si,   yaa
     NOM=boy=PTC   3SG–LOC   get.scared–PFV–SEQ there

    poyoha–ga'a.   Yaa   hɨbbɨ tɨbbɨ–ma   **katɨ**   pita–ga,
    run–away:DUR there   thing rock–LOC   **sit:DUR** below–LOC

    su=naatsi'i   u–ma   si'e–hu–si.   O=ddoogga–tsi
    NOM=boy   3SG–LOC   get.scared–PFV–SEQ 3SG:ACC=dog–DIM

    yaa–su   **hapi–'yu**   yaa   tiipɨ–na.
    there–ADV **lie.down:DUR–DUR** there earth–LOC

'The boy got scared of him and **ran away**. The boy **sat down**
on the rock below, because he got scared of him. The dog **laid
down** on the ground.'

<div align="right">(prompted narrative, EM, BP25-2-t1, 86–87)</div>

In the discourse in (71), the event of the dog lying down, which is described
by the third sentence, immediately follows the event of the boy sitting down
on the rock, which is described by the main clause of the preceding sentence.
This event in turn immediately follows the event of the boy running away,
described in the first sentence.[13]

Given these facts, narrative progression cannot depend directly on whether
a clause is in the perfective or the progressive aspect. While the perfective

---

[13] Both *kadɨ* 'sit down' and *habi* 'lie down' are achievements from the third class and thus
have continuous readings when they undergo durative gemination. Under this reading, we would
expect both the last two sentences to temporally overlap the event of the boy running away.
However, the discourse in (71) is part of a narrative that was prompted using a wordless picture
book, Mercer Mayer's *Frog, Where Are You?* (NY: Dial Books, 1969). The event of the boy
getting onto the rock is depicted in one drawing. It clearly temporally precedes the event of the
dog lying down next to him, which is depicted in the next drawing.

pushes the time of the narrative forward and the progressive does not, durative gemination can behave like both. Instead, following a suggestion by Arregui et al. (2014:337–38), we can take narrative progression to depend on the mapping between the event and the topic time. When the topic time contains the event, as in the perfective aspect, a sentence is interpreted as temporally following preceding discourse. By contrast, when it is properly contained within the event, as in the progressive, a sentence is interpreted as temporally overlapping preceding discourse. Durative gemination allows both mappings, so it can, but need not, advance the time of the narrative.

   Using narrative progression, we can test whether durative predicates have a completed reading with durative gemination. Indeed, activities and accomplishments can also temporally advance the narrative.

(72) Yaisi   su=Padua'a   yaisi   inɨ   **sɨta'a**.   Yaisi   sɨku
     PTC   NOM=Bear   PTC   very   **get.mad:DUR** PTC   PTC

     mɨ=**naki**   yaisi   mii,   ka=tɨhɨdda.   Yaisi   sɨku
     2/3PL:ACC=**chase:DUR** PTC   QUOT   ACC=deer   PTC   PTC

     isu   Wassa   yaisi   sɨku   paa'a–ggɨmai–ba,   paba   huupɨ.
     this:NOM   Crane   PTC   PTC   water–LOC–LOC   big   river

     Yaisi   sɨku   paba–'yu   huupɨ   inɨ   huu–winni–na,   yaisi
     PTC   PTC   big–NOM   river   very   flow–PROG–SIM   PTC

     sɨku   imɨ   yaisi   kai   pisa   u–kuba–ggwe   mi'a.
     PTC   3PL:NOM   PTC   NEG   good   3SG–LOC–LOC   leave:DUR

     Ka=paa'a–dɨ   kai   pisa   manni.   Yaisi   su=Wassa,
     ACC=water–LOC   NEG   good   cross:DUR   PTC   NOM=Crane

     imɨ   u=**ddɨɨkwi'i**,   "U–hu   su=Padua'a
     3PL:NOM   3SG:ACC=**tell:DUR** 3SG–EMPH   NOM=Bear

     ni=naki,   ni=patsa–kwɨ–si,"   mii
     1PL:EXCL:ACC=chase:DUR   1PL:EXCL:ACC=kill–PROSP–SEQ   QUOT

     yaisi.
     PTC

     'Bear **got very mad**. They say that she **chased** them, the deer.
     Crane was by the water, by the big river. The big river was
     running swiftly, and they couldn't cross it [lit. go through it].
     They couldn't cross it. They **said** to Crane, "Bear is chasing us
     in order to kill us."'

                                   (narrative, MS, BP43-1-t1, 15–20)

In (72), the verbs *nagi* 'chase' and *tɨɨkwi* 'tell', which describe events with duration, push the time of the narrative forward. The event of Bear chasing

the deer takes place immediately after the event of her getting mad, which is described in the preceding sentence; the event of the deer asking Crane to cross the river takes place immediately after this. Similarly, in (73), the verbs *tsoba* 'pick up' and *hani* 'do' advance the narrative temporally when they have undergone durative gemination.

(73) Saa'a o=agɨ–hu–si=bino'o,   yaisi   eho–gga–na,
       later 3SG:ACC=open–PFV–SEQ=PTC PTC   pinenut.hook–have–SIM

      wɨdɨ–ggu   kudu'u–gga–na,   o–ma–ma   yaisi siku
      long–ACC   stick–have–SIM   3SG–INSTR–INSTR   PTC   PTC

      agɨ–na   **wɨ–ta'ni**.   Yaisi
      open–NMZ   **long.thing[IP]–shake:DUR**   PTC

      u=namaya–ki–na   u–hu
      3SG:ACC=gather–toward–SIM   3SG:ACC–EMPH

      yadda–we–tu   hanni,   u=**ddzopa**.
      winnowing.basket–LOC–LOC   do:DUR   3SG:ACC=**pick.up:DUR**

      Yaisi   ka=wono–ga–na   wono–we–tu
      PTC   ACC=burden.basket–have–SIM   burden.basket–LOC–LOC

      hanni.
      do:DUR

      'Later, when they have opened up, you have a pinenut hook, a long
      stick, and you **shake** out the open ones with it. And then, when
      you are gathering them, you **put** them in the winnowing basket.
      Then, if you have a burden basket, you **put** them in it.'
                              (procedure, MS, BP09-1-t4, 23–24)

The event of putting the open pine cones in the burden basket takes place immediately after the event of gathering them in the winnowing basket, which in turn takes place immediately after the event of shaking them out of the tree. (In both examples, there are intermediate clauses that describe states, which temporally overlap these events.)

In Northern Paiute, then, predicates that describe events with duration can have a completed reading when they undergo durative gemination. They do not give rise to a culmination entailment because they can also have an event-in-progress reading. Just like achievement predicates, however, they can move the time of the narrative forward.

6. Conclusion. The semantics of durative gemination in Northern Paiute has not received much attention until now. I proposed that it conveys imperfective aspect, with many of the same readings it has in better-studied languages. This includes the event-in-progress, continuous, and habitual readings.

In addition, I identified another reading for durative gemination. Under the completed reading, it gives rise to a culmination entailment with some, though not all, achievement predicates. When durative gemination has a completed reading, it can also advance the time of the narrative with durative predicates.

It might seem unexpected that durative gemination in Northern Paiute has a completed reading. The properties it gives rise to, however, have been reported for the imperfective aspect in other languages. In Russian and other Slavic languages, for instance, the imperfective has a *konstatacija fakta* or "statement of fact" use, in which achievement predicates give rise to a culmination entailment (Altshuler 2010, 2014). The examples in (74*a*–*b*) are in Russian.

(74*a*) K   nam   **priezža–l**   otec   domoi, (#no on   ne
         to   us   **arrive:IMPF–PAST** father home   but   he   not

          smog najti naš   dom.)
          smog najti our   house

    'Father came to see us at home, but was unable to find our house.'
                  (Altshuler 2014:742)

(74*b*) Ja **e–l**   tort, no   ego ne   s'–e–l.
         I   **eat:IMPF–PAST**   cake   but it   not PFV–eat–PAST

    'I ate cake, but did not finish it.'

                  (Altshuler 2014:760)

In (74*a*), the achievement predicate is incompatible with an assertion of non-completion because it describes a completed event. By contrast, an activity predicate in the imperfective is compatible with such an assertion, as shown in (74*b*), presumably because it can have an event-in-progress reading.

Similarly, although it is sometimes claimed that the imperfective in French cannot trigger narrative progression (see, for example, Kamp and Rohrer 1983:258), there is a use of the imperfective—the *imparfait narratif*—that does advance the time of the narrative (Imbs 1960:92; Grévisse 1980:835), as in (75). (It is attested in other Romance languages as well; see Arregui et al. 2014:334–39 for discussion and references.)

(75) A   huit   heures, les   voleurs **entr–aient**   dans
      at   eight   hours   the   robbers **enter–3PL:PAST:IMPF** in.

      la   banque. Ils   **discut–aient**   avec un
      the   bank   they **discuss–3PL:PAST:IMPF**   with a

      employé puis se   **dirige–aient**   vers   le
      clerk   then 3   **move–3PL:PAST:IMPF**   toward   the

      guichet principal.
      desk   main

    'At eight, the robbers entered the bank, they discussed with a
    clerk, then they moved towards the main desk.'
                  (Jayez 1999:159–60)

Here, the sequence of three sentences in the imperfective describes a sequence of events, with each one taking place immediately after the other: first the event of entering, then the event of speaking, and finally the event of moving.

There are many theories of the imperfective aspect. To date, these have relied primarily on data from well-studied languages, such as French and Russian. By examining the semantics of the imperfective aspect in a lesser-studied language, I hope it will clarify what these theories need to account for. In particular, giving rise to a culmination entailment or triggering narrative progression are sometimes taken to be exceptional properties of the imperfective aspect when they show up in a language. For French, traditional grammarians, such as Imbs and Grévisse, have assumed that the *imparfait narratif* does not need to be unified with the more canonical event-in-progress reading. More recently, accounts of the imperfective in both Romance and Slavic take it to be either underspecified or substantially disjunctive in its meaning (Jayez 1999; Borik 2002; Grønn 2003, 2008). However, the existence of both properties with durative gemination in Northern Paiute—a genetically and geographically distinct language—supports attempts to unify the completed reading with the other readings for the imperfective aspect (Labelle 2003; Altshuler 2010, 2014; Arregui et al. 2014).

REFERENCES

ALTSHULER, DANIEL. 2010. Temporal interpretation in narrative discourse and event internal reference. Ph.D. dissertation, Rutgers University.

—————. 2014. A typology of partitive aspectual operators. Natural Language and Linguistic Theory 32:735–75.

ARREGUI, ANA; MARÍA LUSIA RIVERO; AND ANDRÉS SALANOVA. 2014. Cross-linguistic variation in imperfectivity. Natural Language and Linguistic Theory 32:307–62.

BABEL, MOLLY; ANDREW GARRETT; MICHAEL J. HOUSER; AND MAZIAR TOOSARVANDANI. 2013. Descent and diffusion in language diversification: A study of Western Numic dialectology. IJAL 79:445–89.

BABEL, MOLLY; MICHAEL J. HOUSER; AND MAZIAR TOOSARVANDANI. 2012. Mono Lake Northern Paiute. Journal of the International Phonetic Association 42:233–43.

BAR-EL, LEORA. 2005. Aspectual distinctions in Skwx̱wú7mesh. Ph.D. dissertation, University of British Columbia.

BITTNER, MARIA. 2005. Future discourse in a tenseless language. Journal of Semantics 22:339–87.

BOHNEMEYER, JÜRGEN. 2002. The Grammar of Time Reference in Yukatek Maya. Munich: Lincom.

BONOMI, ANDREA. 1997. Aspect, quantification, and when-clauses in Italian. Linguistics and Philosophy 20:469–514.

BORIK, OLGA. 2002. Aspect and reference time. Ph.D. dissertation, University of Utrecht.

CHARNEY, JEAN ORMSBEE. 1993. A Grammar of Comanche. Lincoln: University of Nebraska Press.

CIPRIA, ALICIA, AND CRAIGE ROBERTS. 2000. Spanish *imperfecto* and *pretérito*: Truth condition and *Aktionsart* effects in a situation semantics. Natural Language Semantics 8:297–347.

COMRIE, BERNARD. 1976. Aspect: An Introduction to the Study of Verbal Aspect and Related Problems. Cambridge: Cambridge University Press.

COVER, REBECCA, AND JUDITH TONHAUSER. 2015. Theories of meaning in the field: Temporal and aspectual reference. Methodologies in Semantic Fieldwork, eds. Ryan Bochnak and Lisa Matthewson, pp. 306–50. Oxford: Oxford University Press.

CRUM, BEVERLY, AND JON P. DAYLEY. 1993. Western Shoshoni Grammar. Boise, ID: Department of Anthropology, Boise State University.

DAYLEY, JON P. 1989. Tümpisa (Panamint) Shoshone Dictionary. Berkeley: University of California Press.

DEO, ASHWINI. 2009. Unifying the imperfectivea and the progressive: Partitions as quantificational domains. Linguistics and Philosophy 32:475–521.

DOWTY, DAVID. 1979. Word Meaning and Montague Grammar. Dordrecht: Kluwer.

GOLLA, VICTOR. 2011. California Indian Languages. Berkeley: University of California Press.

GRÉVISSE, MAURICE. 1980. Le bon usage: Grammaire française avec des remarques sur la langue française d'aujourd'hui. Paris: Editions Duculot.

GRØNN, ATLE. 2003. The semantics and pragmatics of the Russian factual imperfective. Ph.D. dissertation, University of Oslo.

———. 2008. Imperfectivity and complete events. Interdependence of Diachronic and Synchronic Analyses, eds. Folke Josephson and Ingmar Söhrman, pp. 149–65. Amsterdam: John Benjamins.

HINRICHS, ERHARD. 1986. Temporal anaphora in discourses of English. Linguistics and Philosophy 9:63–82.

IMBS, PAUL. 1960. L'emploi des temps verbaux en français moderne. Paris: Librairie C. Klincksieck.

JAYEZ, JACQUES. 1999. Imperfectivity and progressivity: The French imparfait. Semantics and Linguistic Theory (SALT) 9:145–62.

KAMP, HANS, AND CHRISTIAN ROHRER. 1983. Tense in texts. Meaning, Use, and Interpretation of Language, eds. Rainer Bäuerle; Christoph Schwarze; and Arnim von Stechow, pp. 250–69. Berlin: Mouton de Gruyter.

KLEIN, WOLFGANG. 1994. Time in Language. London: Routledge.

KRATZER, ANGELIKA. 1998. More structural analogies between pronouns and tense. Semantics and Linguistic Theory (SALT) 8:92–110.

———. 2014. Situations in natural language semantics. The Stanford Encyclopedia of Philosophy, ed. Edward N. Zalta. <http://plato.stanford.edu/archives/spr2014/entries/situations-semantics/>.

LABELLE, MARIE. 2003. Events, states, and the French imparfait. Romance Linguistics: Theory and Acquisition, eds. Ana Tereza Pérez-Leroux and Yves Roberge, pp. 165–80. Amsterdam: John Benjamins.

LAMB, SYDNEY M. 1957. Mono grammar. Ph.D. dissertation, University of California, Berkeley.

NICHOLS, MICHAEL. 1974. Northern Paiute historical grammar. Ph.D. dissertation, University of California, Berkeley.

OGIHARA, TOSHIYUKI. 1998. The ambiguity of the -te iru form in Japanese. Journal of East Asian Linguistics 7:87–120.

PARTEE, BARBARA H. 1984. Nominal and temporal anaphora. Linguistics and Philosophy 7: 243–86.

REICHENBACH, HANS. 1947. Elements of Symbolic Logic. Berkeley: University of California Press.

ROTHSTEIN, SUSAN. 2004. Structuring Events. Oxford: Blackwell.

SHAER, BENJAMIN. 2003. Toward the tenseless analysis of a tenseless language. Semantics of Underrepresented Languages in the Americas (SULA) 2:139–56.

SMITH, CARLOTA S. 1997. The Paramater of Aspect, second ed. Dordrecht: Kluwer Academic.

SNAPP, ALLEN; JOHN ANDERSON; AND JOYCE ANDERSON. 1982. Northern Paiute. Studies in Uto-Aztecan Grammar, ed. Ronald W. Langacker, vol. 3, pp. 1–92. Dallas: Summer Institute of Linguistics and the University of Texas.

THORNES, TIM. 2003. A Northern Paiute grammar with texts. Ph.D. dissertation, University of Oregon.

———— . 2009. Historical pathways in Northern Paiute verb formation. New Challenges in Typology: Transcending the Borders and Refining the Distinctions, eds. Patience Epps and Alexandre Arkipov, pp. 295–320. Berlin: Mouton de Gruyter.

———— . 2011. Dimensions of Northern Paiute multi-verb constructions. Multi-verb Constructions: A View from the Americas, eds. Pieter Muysken and Alexandra Y. Aikhenvald, pp. 27–61. Leiden: Brill.

Tonhauser, Judith. 2011. Temporal reference in Paraguayan Guaraní, a tenseless language. Linguistics and Philosophy 34:257–303.

Toosarvandani, Maziar. 2014. Achievements in Northern Paiute. Semantics of Under-Represented Languages in the Americas (SULA) 8:105–20.

———— . 2016. The temporal interpretation of clause chaining in Northern Paiute. Language 92:850–89.

Vendler, Zeno. 1957. Verbs and times. The Philosophical Review 66:143–60.

Verkuyl, H. J. 1989. Aspectual classsses and aspectual composition. Linguistics and Philosophy 12:39–94.

Zigmond, Maurice L.; Curtis G. Booth; and Pamela Munro. 1990. Kawaiisu: A Grammar and Dictionary with Texts. Berkeley: University of California Press.