

The perfective–imperfective distinction in Northern Paiute

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Like many languages, Northern Paiute—a Uto-Aztecan language from the Numic branch—distinguishes imperfective aspect, with the progressive suffix *-winni*, from perfective aspect, with the ‘punctual’ suffix *-hu*.

- (1) a. Amamu’a su=naatsi’i ti=kaadzi **madabbui-winni**. (Yaisi kaisu madabbui-maggwi-hu.)
morning DEF.NOM=man REFL=car **fix-PROG** PTC not.yet fix-COMPL-PUNC
‘This morning, the boy was fixing his car. He hasn’t finished fixing it yet.’ (elicitation, EM, BP47-8, 21:16)
- b. Amamu’a su=naatsi’i ti=kaadzi **madabbui-hu**. (#Yaisi kaisu madabbui-maggwi-hu.)
morning DEF.NOM=man REFL=car **fix-PUNC** PTC not.yet fix-COMPL-PUNC
‘This morning, the boy fixed his car. He hasn’t finished fixing it yet.’ (elicitation, EM, BP47-8, 19:17)

In keeping with one traditional definition, the perfective “presents the totality of the situation referred to,” while the imperfective “make[s] explicit reference to the internal temporal constituency of the situation” (Comrie 1976:4).

There is another aspectual category in Northern Paiute that is conveyed through a process of ‘durative gemination.’

- (2) Amamu’a su=nana ti=kaadzi **madabbu’i**. (Yaisi kaisu madabbui-maggwi-hu.)
morning DEF.NOM=man REFL=car **fix.DUR** PTC not.yet fix-COMPL-PUNC
‘This morning, the man was fixing his car. He hasn’t finished fixing it yet.’ (elicitation, EM, BP47-8, 17:06)

In a previous description, Thornes (2003:413) takes it to convey “[a]n aspectual distinction typically interpreted as durative[...],” which makes it sound like a type of imperfective aspect.

With achievement predicates, however, durative gemination is *incompatible* with assertions of noncompletion.

- (3) Amamu’a su=naatsi’i **mi’a**. (#Yaisi kaisu mia-maggwi-hu.)
morning DEF.NOM=boy **leave.DUR** PTC not.yet leave-COMPL-PUNC
‘This morning, the boy had left. He hasn’t left yet.’ (elicitation, EM, BP51-1, 2:00)
[EM: “The boy left this morning. *Kaisu miamaggwihu*... well, sound like that he’s not gone yet[...]. It don’t make sense.”]

Why does durative gemination, which otherwise behaves like imperfective aspect, behave like perfective aspect with achievements?

This is the same superficial profile as the (controversial) category of neutral aspect, which Smith (1997:77–81) proposes for French, Mandarin, and Navajo (see also Iatridou et al. 2003 on Bulgarian).

- (4) a. Demain il **jouera** un robre de bridge, mais il ne le finira pas.
tomorrow he **play.FUT** a rubber of bridge but he NEG it finish.FUT NEG
‘Tomorrow he will play a rubber of bridge, but he won’t finish it.’ (Smith 1997:202)
- b. Le cheval **gagnera** le course, (#mais il ne gagnera pas).
the horse **win.FUT** the race but he NEG win.FUT NEG
‘The horse will be winning the race, but he won’t win.’ (Smith 1997:80)

The neutral aspect only entails the initiation of an event. For activities and accomplishments, this means that the event does not have to terminate, but for achievements, the event necessarily culminates.

While the idea of neutral aspect is intuitively appealing, I propose that durative gemination in Northern Paiute does, in fact, convey a type of imperfective aspect.

The surprising behavior of achievements arises because they do not solely encode an instantaneous change of state, but also the result state, cf. Japanese (Ogihara 1998).

But this imperfective aspect must, unlike the progressive, allow for the events in the extension of the predicate to have no proper subparts, cf. Russian (Altshuler 2012, to appear).

In the rest of this talk, I will:

- describe the morphological properties of durative gemination;
- provide some general background on aktionsart in Northern Paiute;
- show how Smith’s (1997) neutral aspect is not the aspectual category conveyed by durative gemination;
- argue that it can instead convey imperfective aspect, if achievement predicates encode a result state;
- discuss what kind of imperfective aspect this must be for durative gemination to combine with predicates that do describe just instantaneous events.

1 What is ‘durative gemination’?

Morphologically, durative gemination does one of two things to a verb.

- If the onset of the final syllable is a lenis consonant (short, voiced), it becomes fortis (long, voiceless).

- (5) a. *hibi* → *hipi* ‘drink’
b. *pidi* → *piti* ‘arrive’
c. *yodzi* → *yotsi* ‘fly off’
d. *iga* → *ika* ‘enter’
e. *igwi* → *ikwi* ‘smell (tr.)’
f. *kwana* → *kwanna* ‘smell (intr.)’
g. *kumi* → *kummi* ‘dive’

- If there is no onset or if the onset is a glide, a glottal stop is inserted.

- (6) a. *madabbui* → *madabbu'i* 'fix'
 b. *mayi* → *ma'yi* 'find'
 c. *iwi* → *i'wi* 'fall asleep'

The same process is attested—albeit in a more restricted fashion—in other Numic languages, e.g. Mono (Lamb 1957:246), Shoshone (Crum and Dayley 1993:94), and Kawaiisu (Zigmond et al. 1990:96).

In Northern Paiute, durative gemination is productive (see also Thomes 2003:413 fn. 27); it does not apply just to morphologically simple verbs.

- (7) *hubia-du* → *hubia-tu* 'sing' (song-make)
 (8) a. *nagi-gaa* → *nagi-ga'a* 'chase away' (chase-MOT)
 b. *hubia-du-noo* → *hubiadu-no'o* 'song while coming along' (sing-make-MOT)
 c. *aataa-moo* → *aataa-mo'o* 'sit around (pl.)' (sit.PL-MOT)

But not every verb can undergo this morphological process. The final syllable can have an onset that is a non-lenis consonant (i.e. fortis or voiced fortis) or a glottal stop.

- (9) a. *kwati* 'shoot'
 b. *nayaggwi* 'play handgame'
 c. *haki'i* 'hiccough'

This does not mean that these verbs cannot convey the same aspectual meaning as durative gemination.

- In general, with verbs that do have both forms, the simple form *cannot* occur on its own without any aspectual morphology.

- (10) a. *Su=nana ti=kaadzi **madabbui**.
 DEF.NOM=man REFL=car **fix**
 Intended: 'The man is fixing his car.' (elicitation, EM, BP44-4, 3:27)
 b. Su=nana ti=kaadzi **madabbu'i**.
 DEF.NOM=man REFL=car **fix.DUR**
 'The man is fixing his car.' (elicitation, EM, BP44-4-s, 1)
 c. Su=nana ti=kaadzi **madabbui-hu**.
 DEF.NOM=man REFL=car **fix-PUNC**
 'The man just fixed his car.' (elicitation, EM, BP51-1, 15:06)
 d. Su=nana ti=kaadzi **madabbui-winni**.
 DEF.NOM=man REFL=car **fix-PROG**
 'The man is fixing his car.' (elicitation, EM, BP46-3, 33:44)

- But the verbs that cannot undergo durative gemination for morphological reasons can occur without any aspectual morphology.

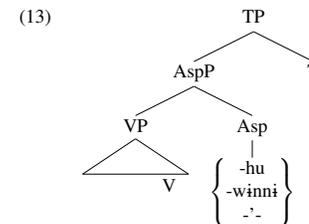
- (11) a. Nii **nayaggwi**.
 1SG.NOM **play.handgame**
 'I am playing handgame.' (elicitation, EM, BP45-5-s, 9)
 b. Nii **nayaggwi-hu**.
 1SG.NOM **play.handgame-PUNC**
 'I played handgame.' (elicitation, EM, BP45-5-s, 10)
 c. Nii **nayaggwi-winni**.
 1SG.NOM **play.handgame-PROG**
 'I am playing handgame.' (elicitation, EM, BP45-5, 51:37)

In these verbs, the morphological contrast between the simple form and the geminated form of the verb is neutralized. The simple form conveys the meaning of durative gemination, e.g. (11a).

When we can see it, durative gemination is in complementary distribution with other aspectual suffixes, e.g. the punctual *-hu* and the progressive *-winni*.

- (12) a. *Su=naatsi'i tsibu'i-**hu**.
 DEF.NOM=boy emerge.**DUR-PUNC**
 Intended: 'The boy emerged.' (elicitation, EM and MS, BP45-3, 19:25)
 b. *Su=naatsi'i tsibu'i-**winni**.
 DEF.NOM=boy emerge.**DUR-PROG**
 Intended: 'The boy is emerging.' (elicitation, EM, BP45-3, 20:50)

For this reason, I take durative gemination, represented as an infix *-'*, to realize the same Asp(ect) functional head that these other aspectual suffixes do.



An interesting aside. In the dialect spoken immediately around Mono Lake in eastern California, durative gemination is accompanied by an overt suffix, *-'yu*.

- (14) a. Nii ka=tiitsi-ggu toogga **punni**.
 1SG.NOM DEF.ACC=little-ACC dog see.**DUR**
 'I see the small dog.' (elicitation MS, BP32-3-s, 13)
 b. Su=mogo'ni i=mia-na **punni-'yu**.
 DEF.NOM=woman 1SG.GEN=leave-NMZ see.**DUR-DUR**
 'The woman sees me going.' (elicitation, EM, BP49-3-s, 4)

Durative gemination conveys an aspectual category that is in complementary distribution with other markers of aspect, e.g. the progressive and punctual suffixes.

2 Background on aktionsart in Northern Paiute

There are at least four aktionsart classes in Northern Paiute: i) activities, ii) accomplishments, iii) achievements, and iv) semelfactives.

1. Activities and accomplishments give rise to an ongoing interpretation with the progressive suffix *-winni*. Achievements are infelicitous; semelfactives are coerced into an iterative interpretation.

- (15) a. Su=naatsi'i **hubia-du-winni**.
DEF.NOM=boy **song-make-PROG**
'The boy is singing.' (elicitation, MS, BP46-2, 1:38:13)
[MT: "Is he singing now?" MS: "Yes, he's singing."] activity
- b. Su=nana **ti=kaadzi madabbui-winni**.
DEF.NOM=man **REFL=car fix-PROG**
'The man is fixing his car.' (elicitation, EM, BP46-3, 33:44)
[EM: "No, he's still working on it."] accomplishment
- c. #Su=nana **mia-winni**.
DEF.NOM=man **leave-PROG**
Intended: 'The man is leaving.' (elicitation, EM, BP44-7, 1:24:13) achievement
- d. Nii **akwisiyae-winni**.
1SG.NOM **sneeze-PROG**
'I am sneezing (over and over again).' (elicitation, EM, BP45-5, 1:45:04)
[EM: "Akivisiyae-winni means you sneeze a lot of times."] semelfactive

2. Accomplishments can be distinguished from activities and other aktionsart classes. When modifying accomplishments, the adverb *tu'i* 'almost' can entail the event begins but does not culminate (Dowty 1979:58).

- (16) a. Context: The boy started singing, and he's still singing.
#Su=naatsi'i **tu'i hubia-du-hu**.
DEF.NOM=boy **almost song-make-PUNC**
Intended: 'The boy almost sang.' (elicitation, EM, BP50-2, 20:28)
[EM: "Probably lying, init?"] activity
- b. Context: The man started fixing his car, and he's still working on it.
Su=nana **ti=kaadzi tu'i madabbui-hu**.
DEF.NOM=man **REFL=car almost make-PUNC**
'The man almost fixed his car.' (elicitation, EM, BP50-2, 22:30) accomplishment
- c. Context: The man left and is going.
#Su=nana **tu'i mia-hu**.
DEF.NOM **almost left-PUNC**
Intended: 'The man almost left.' (elicitation, EM, BP51-5, 16:57)
[EM: "Isaya'e ['lie'], yeah[...]. Jcuz he's already left."] achievement
- d. Context: The boy sneezed.
#Su=naatsi'i **tu'i akwisiyae-hu**.
DEF.NOM=boy **almost sneeze-PUNC**
Intended: 'The boy almost sneezed.' (elicitation, EM, BP51-5, 19:20)
[EM: "Isaya'esu=duadzu. ['Also lying.']] semelfactive

While there are other diagnostics, these two suffice to distinguish four aktionsart classes in Northern Paiute.

3 The problem with neutral aspect

Going back to the original contrast, durative gemination is compatible with an assertion of incompleteness for activities and accomplishments, but not for achievements.

- (17) a. Amamu'a su=naatsi'i **hubia-tu**. Yaisi kaisu hubia-du-maggwi-hu.
morning DEF.NOM=boy **song-make.DUR** PTC not.yet song-make-COMPL-PUNC
'Yesterday, the boy was singing. He hasn't finished singing yet.' (elicitation, MS, BP47-6, 9:45)
activity
- b. Amamu'a su=nana **ti=kaadzi madabbu'i**. Yaisi kaisu madabbui-maggwi-hu.
morning DEF.NOM=man **REFL=car fix.DUR** PTC not.yet fix-COMPL-PUNC
'This morning, the man was fixing his car. He hasn't finished fixing it yet.' (elicitation, EM, BP47-8, 17:06) accomplishment
- c. Amamu'a su=naatsi'i **mi'a**. #Yaisi kaisu mia-maggwi-hu.
morning DEF.NOM=boy **leave.DUR** PTC not.yet leave-COMPL-PUNC
'This morning, the boy had left. He hasn't left yet.' (elicitation, EM, BP51-1, 2:00)
[EM: "The boy left this morning. *Kaisu miamaggwihu*...well sound like that he's not gone yet[...]. It don't make sense."] achievement

Smith (1997:77–81) proposes that this pattern arises for various categories in French, Mandarin, and Navajo because they encode neutral aspect (see also Iatridou et al. 2003 on Bulgarian). In her words, the neutral aspect:

"...includes the initial point and at least one internal stage of a situation (where relevant)" (p. 81).

In many analyses of tense and aspect, a clause is interpreted with respect to three different time intervals (Reichenbach 1947, Klein 1994).

- **event time** (t_e): the time at which the event described by the sentence takes place
- **reference time** (t_r): the time about which a claim is made
- **utterance time** (t_u): the time at which the sentence is uttered

Within such a framework, Pancheva (2003:282) proposes that the neutral aspect requires the reference time to overlap with the event time such that it includes some time interval preceding the event time (given by the τ function).

- (18) *The semantics of durative gemination (first version)*

$$[[\cdot]] = \lambda f \lambda t \exists e (f(e) \wedge \tau(e) \dot{\subset} t)$$

$$= \lambda f \lambda t \exists e (f(e) \wedge \tau(e) \cap t \neq \emptyset \wedge \exists t'' (t'' \in t \wedge t \not\subseteq \tau(e) \wedge \forall t''' (t''' \in \tau(e) \rightarrow t'' < t''')) : \langle (s, t), (i, t) \rangle$$

If durative gemination conveyed neutral aspect, then activity and accomplishments would not necessarily have to terminate within the reference time.

- (19) a. $-- [- [-]_{t_r} --]_{t_e} -->$ $t_e \not\subseteq t_r$
hubiadu 'sing'
- b. $-- [- [-]_{t_r} --]_{t_e} -->$ $t_e \subseteq t_r$
madabbui 'fix'
- c. $-- [- [-]_{t_e}]_{t_r} -->$ $t_e \subseteq t_r$
mia 'leave'

In contrast, for achievements, the neutral aspect would require that the entire event be located within the reference time, since by hypothesis they describe instantaneous changes of state.

We can test these predictions by constraining the reference time with temporal adverbials:

- As predicted, the reference time can be restricted by a punctual adverbial like *wahaggwe* 'two o'clock', so it contains just the initiation of the event described by an activity or accomplishment and the entire event described by an achievement predicate.

- (20) a. Context: The boy started singing at 2. He finished singing at 3.
Waha-ggwe su=naatsi'i **hubia-tu.**
two-LOC DEF.NOM=boy **song-make.DUR**
 'At two o'clock, the boy was singing.' (elicitation, EM, BP51-5, 15:03)
 [EM: "Yeah, you could say that."]
- b. Context: The man started fixing his car at 2. He finished fixing it at 3.
Waha-ggwe su=nana ti=kaadzi **madabbu'i.**
two-LOC DEF.NOM=man REFL=car **fix.DUR**
 'At two o'clock, the man was fixing his car.' (elicitation, EM, BP51-5, 4:45)
 [EM: "He started at two then he was through at three. That's... That would be telling the truth."]
- c. Context: The woman left at 2. She reached her destination at 3.
Waha-ggwe su=mogo'ni **mi'a.**
two-LOC DEF.NOM=woman **leave.DUR**
 'At two o'clock, the woman left.' (elicitation, EM, BP51-5, 17:27)
 [EM: "Yeah, she left at two."]

- Also, the reference time can be restricted by a frame adverbial like *idzi'i* 'yesterday', so it contains the entire event—including the termination—described by an activity, accomplishment, or achievement predicate.

- (21) a. Context: The boy started singing yesterday morning at 9. He finished singing at 12.
Idzi'i su=naatsi'i **hubia-tu.**
yesterday DEF.NOM=boy **song-make.DUR**
 'Yesterday, the boy sang.' (elicitation, EM, BP51-5, 19:09)
 [EM: "I think you're *kai isaya'e* ['not lying']."]
- b. Context: The man started fixing his car yesterday morning at 9. He finished fixing it at 12.
Idzi'i su=nana ti=kaadzi **madabbu'i.**
yesterday DEF.NOM=man REFL=car **fix.DUR**
 'Yesterday, the man fixed his car.' (elicitation, EM, BP51-5, 19:55)
 [EM: "I think *kai isaya'e*['not lying'...]he did it all yesterday."]

- c. Context: The woman left yesterday morning at 9. She reached her destination at 12.
Idzi'i su=naatsi'i **mi'a.**
yesterday DEF.NOM=woman **leave.DUR**
 'Yesterday, the woman left.' (elicitation, EM, BP51-5, 21:33)
 [EM: "I think *kai isaya'e* ['not lying'], init... cuz she walked all the way."]

We also predict that the reference time should *not* be able to contain just the process component of the event described by an activity or accomplishment predicate (Schaden 2008:210f.). But this is entirely possible.

- (22) a. Context: The boy started singing at 1. He finished singing at 3.
Waha-ggwe su=naatsi'i **hubia-tu.**
two-LOC DEF.NOM=boy **song-make.DUR**
 'At two o'clock, the boy was singing.' (elicitation, EM, BP51-5, 2:40)
 [EM: "At two o'clock he's singing, and then three o'clock he's through singing."]
- b. $-- [- [-]_{t_r} --]_{t_e} -->$ $t_e \not\subseteq t_r$
hubiadu 'sing'
- (23) a. Context: The man started fixing his car at 1. He finished fixing it at 3.
Waha-ggwe su=nana ti=kaadzi **madabbu'i.**
two-LOC DEF.NOM=man REFL=car **fix.DUR**
 'At two o'clock, the man was fixing his car.' (elicitation, EM, BP51-5, 7:02)
 [EM: "That would be okay. He worked all the way through."]
- b. $-- [- [-]_{t_r} --]_{t_e} -->$ $t_e \subseteq t_r$
madabbui 'fix'

Similarly, if durative gemination conveyed neutral aspect, it should *not* be possible for the reference time to be located entirely after the change of state encoded by an achievement predicate. But this, too, is possible.

- (24) a. Context: The woman left at 1. She reached her destination at 3.
Waha-ggwe su=mogo'ni **mi'a.**
two-LOC DEF.NOM=woman **leave.DUR**
 'At two o'clock, the woman was going.' (elicitation, EM, BP51-5, 10:47)
 [EM: "Then she's still going till three o'clock."]
- b. $-- [-]_{t_e} -- [-]_{t_r} -->$ $t_e \not\subseteq t_r$
mia 'leave'

Durative gemination in Northern Paiute does not convey neutral aspect, even though it exhibits a similar contrast between activities and accomplishments on the one hand and achievements on the other.

4 What is in an achievement?

But how can the reference time be located *during* the event described by an activity or accomplishment predicate (23–22), but *after* the event described by an achievement (24)?

Perhaps achievements in Northern Paiute do not mean what we expect them to. Speakers report that an achievement predicate in its geminated form describes the result state that follows the transition.

- (25) a. Su=nana **mi'a**.
DEF.NOM=man **leave.DUR**
'The man is going.' (elicitation, EM, BP46-7, 57:40)
[EM: "The man is walking. Yeah, right now."]
- b. Su=mogo'ni **piti**.
DEF.NOM=woman **arrive.DUR**
'The woman is here.' (elicitation, EM, BP46-7, 17:18)
[EM: "Yeah, she's here." MT: "Is she here now?" EM: "Uh-huh, she's here now."]
- c. Ni^h ti=ddogga **ma'yi**.
1SG.NOM REFL=dog **find.DUR**
'I found my dog.' (elicitation, EM, BP51-4, 00:50)
[EM: "You already found him."]

In the *-te i-ru* construction in Japanese, Ogihara (1998:99f.) argues that durative predicates can have a progressive interpretation, while achievements must have culminated, a distinction that is brought out by adverbials meaning 'now' (though see Nishiyama 2006 and Kiyota 2008:166–213).

- (26) a. Taroo-wa ima ie-o **tate-te i-ru**.
Taroo-TOP now house-ACC **build-TE I-PRES**
'Taro is now building a house.' accomplishment
- b. Taroo-wa genzai **kekconsi-te i-ru**.
Taro-TOP now **get.married-TE I-PRES**
'Taro is married now.' (Ogihara 1998:99f.) achievement

To account for this, Ogihara proposes the *-te i-ru* itself conveys a type of imperfective aspect. But achievement predicates in Japanese describe, not just the transition into a state, but also the ensuing result state, cf. 'inceptive statives' in Skłxwú7mesh (Bar-el 2005).

Extended to Northern Paiute, an achievement predicate like *mia* 'leave' would describe both the event of leaving as well as the result state of going (or walking) away.

- (27) $\llbracket \text{mia} \rrbracket = \lambda e \exists e' \exists e'' (e = (e' \cup e'') \wedge \text{BECOME}(\text{go})(e') \wedge \text{go}(e'')) : \langle s, t \rangle$

This achievement predicate is decomposed, following Dowty (1979) and Rothstein (2004), into a state (e'') and the event (e') of entering into this state, introduced by the BECOME operator.

Consequently, just as Ogihara proposes for Japanese, durative gemination itself can be treated as just another type of imperfective aspect. It can locate the reference time so that it is properly contained inside the event time.

- (28) *The semantics of durative gemination (second version)*
 $\llbracket \text{'-} \rrbracket = \lambda f \lambda t \exists e (f(e) \wedge t \subset \tau(e)) : \langle \langle s, t \rangle, \langle i, t \rangle \rangle$

For activity and accomplishment predicates, it is obvious how this gives rise to a nonterminating interpretation. As with other types of imperfective aspect, the event cannot end inside the reference time.

This meaning for durative gemination also derives the culmination entailment for achievement predicates. The reference time can be located inside the result state, entirely after the transition into this state.

- (29) a. Context: The woman left at 1. She reached her destination at 3.
Waha-ggwe su=mogo'ni **mi'a**.
two-LOC DEF.NOM=woman **leave.DUR**
'At two o'clock, the woman was going.' (elicitation, EM, BP51-5, 10:47)
[EM: "Then she's still going till three o'clock:"]
- b. $-- \llbracket [-]_{t_e'} [-]_{t_e} -- \rrbracket_{t_e} -- >$ $t_r \subset t_e$
mia 'leave'

It is also accounts for the fact that the reference time cannot be located just anywhere after the change of state event; it must be located somewhere within the result state.

- (30) a. Context: The woman left at 9. She reached her destination at 12.
Waha-ggwe su=mogo'ni **mi'a**.
two-LOC DEF.NOM=woman **leave.DUR**
Intended: 'At two o'clock, the woman had finished going.' (elicitation, EM, BP51-5, 38:09)
[EM: "That would *isaya'e*['lie'...] cuz she only walked nine to twelve, not to two."]
- b. $-- \llbracket [-]_{t_e'} [-]_{t_e} -- \rrbracket_{t_e} -- >$ $t_r \not\subset t_e$
mia 'leave'

However, it is does not make the right predictions for semelfactives. If durative gemination has the meaning above, then it should coerce an iterative interpretation with semelfactives, just like the progressive suffix *-winni*. But it is possible for the reference time to be coextensive with an instantaneous event, e.g. sneezing.

- (31) a. Context: The boy sneezed once at 2.
Waha-ggwe su=naatsi'i **akwisiya'e**.
two-LOC DEF.NOM=boy **sneeze.DUR**
'At two o'clock, the boy sneezed.' (elicitation, EM, BP51-1, 40:59)
- b. $-- \llbracket [-]_{t_e} \rrbracket_{t_e} -- >$ $t_r \not\subset t_e$
akwisiyae 'sneeze'

While it seems like durative gemination must convey imperfective aspect, it cannot constrain the reference time to be properly contained inside the event time.

5 A final modification

I pursue an idea that Altshuler (2012, to appear) has for the imperfective aspect in Russian. Like durative gemination, it leads to a culmination entailment with achievements.

- (32) a. Ja **e-l** tort, no ego ne s'-e-l.
I **eat.IPFV-PAST.1SG** cake but it not PFV-eat-PAST.1SG
'I ate cake, but did not finish it.'
- b. K nam **priezža-l** otec domoj, (#no ne smog najti naš dom).
to us **arrive.IPFV-PAST.3SG** father home but he not able find our house
'Father came/had come to see us, but was unable to find our house.' (Altshuler, to appear)

Altshuler (to appear) proposes that the imperfective aspect in Russian:

“[does] not require proper event stages and, therefore, when [it] combines with non-achievement VPs, any one of the VP-event-stages satisfies [its] truth-conditions. . . When the VP is an achievement, however, the [operator] always lead[s] to an entailment that the described event culminated because the only event stage that could satisfy [its] truth-conditions is the VP-event.”

This can be contrasted with the progressive, for instance, which would require that the events in the extension of the predicate have *proper* subparts.

Adapting Altshuler’s idea within the current framework, I propose that durative gemination in Northern Paiute allows the reference time to be nonproperly contained within the event time.

- (33) *The semantics of durative gemination (final version)*
 $[[\text{'-'}]] = \lambda f \lambda t \exists e (f(e) \wedge t \subseteq \tau(e)) : \langle (s, t), (i, t) \rangle$

Such a meaning is sometimes proposed for the imperfective aspect in general, though it is not clear whether it is for the same reasons (Kratzer 1998:107, Paslawska and von Stechow 2003:322).

It accounts for the two difficult cases that we have been examining. First, for achievement predicates, it gives rise to a culmination entailment, because the reference time is located inside the result state.

- (34) a. Context: The woman left at 1. She reached her destination at 3.
Waha-ggwe su=mogo’ni **mi’a**.
two-LOC DEF.NOM=woman **leave.DUR**
 ‘At two o’clock, the woman was going.’ (elicitation, EM, BP51-5, 10:47)
 [EM: “Then she’s still going till three o’clock.”]
- b. $-- \underbrace{[[[-]_{t_e} [-]_{t_e}]]_{t_e}}_{mia \text{ 'leave'}} -->$ $t_r \subseteq t_e$

Second, for semelfactive predicates, it permits a noniterative interpretation, because the event time can be coextensive with the reference time.

- (35) a. Context: The boy sneezed once at 2.
Waha-ggwe su=naatsi’i **akwisiya’e**.
two-LOC DEF.NOM=boy **sneeze.DUR**
 ‘At two o’clock, the boy sneezed.’ (elicitation, EM, BP51-1, 40:59)
- b. $-- \underbrace{[[[-]_{t_e}]]_{t_e}}_{akwisiyae \text{ 'sneeze'}} -->$ $t_r \subseteq t_e$

A caveat. Altshuler (2012:64) dismisses this specific implementation, because the imperfective aspect in Russian requires the reference time to *follow* a (sub)part of the event.

- (36) Nedelju nazad Marija po-celova-l-a Dudkina. On **dari-l** ej cvety i
 week ago Maria PFV-kiss-PAST-3SG-F Dudkin he **give.IPFV-PAST.3SG** her flowers and
priglaša-l ee v teatr.
invite.IPFV-PAST.3SG her to theater
 ‘A week ago, Maria kissed Dudkin. He had given her flowers and had invited her to the theater.’ (Altshuler 2012:61)

In fact, Nishiyama (2006) and Kiyota (2008:166–213) argue something similar for *-te i-ru* in Japanese.

But for durative gemination in Northern Paiute, it is completely impossible for the reference time to follow the event time, regardless of the aktionsart of the predicate.

- (37) a. Context: The boy started singing at 9. He finished singing at 12.
Waha-ggwe su=naatsi’i **hubia-tu**.
two-LOC DEF.NOM=boy **song-make.DUR**
 Intended: ‘At two o’clock, the boy had finished singing.’ (elicitation, EM, BP51-5, 36:23)
 [EM: “Nine to twelve, was it? Nine to twelve. Yeah, *isaya’e* [‘lie’], I guess.”] activity
- b. Context: The man started fixing his car at 9. He finished fixing it at 12.
Waha-ggwe su=nana ti=kaadzi **madabbu’i**.
two-LOC DEF.NOM=man REFL=car **fix.DUR**
 Intended: ‘At two o’clock, the man had finished fixing his car.’ (elicitation, EM, BP51-5, 37:13)
 [EM: “That would *isaya’e* [‘lie’], init? Cuz he’s through at twelve. . . nine to twelve, init?”] accomplishment
- c. Context: The woman left at 9. She reached her destination at 12.
Waha-ggwe su=mogo’ni **mi’a**.
two-LOC DEF.NOM=woman **leave.DUR**
 Intended: ‘At two o’clock, the woman had finished going.’ (elicitation, EM, BP51-5, 38:09)
 [EM: “That would *isaya’e* [‘lie’] . . . [cuz she only walked nine to twelve, not to two.”] achievement
- d. Context: The man sneezed at 12.
Waha-ggwe su=nana **akwisiya’e**.
two-LOC DEF.NOM=man **sneeze.DUR**
 Intended: ‘At two o’clock, the man had sneezed.’ (elicitation, EM, BP51-6, 9:41)
 [EM: “Yeah, that would be *isaya’e* [‘lie.’]”] semelfactive

Finally, I should point out the extensional semantics for durative gemination above is clearly a simplification.

- Durative gemination, like the progressive suffix *-winni*, exhibits the imperfective paradox, so that an intensional meaning is required.

- (38) Su=mogo’ni ka=poo **wokwopa**. Su=kaadzi
 DEF.NOM=woman DEF.NOM=road **cross.DUR** DEF.NOM=car
 u=wi-dzaga-hu-ka.
 3SG.ACC=IP.long.thing-strike-PUNC-MOT
 ‘The woman was crossing the street. The car hit her and ran.’ (elicitation, EM, BP51-1, 1:12:17)
 [EM: “She didn’t make it across the street. . . yeah, not yet. She got hit by the car.”]

- Unlike the progressive suffix *-winni* (see the Appendix), durative gemination allows for both a progressive and a habitual interpretation.

- (39) Q: Hau su=nana managgwi-’yu a=nadzaddii-no’o?
 how DEF.NOM=nana do.DUR-DUR 4.GEN=Sunday-LOC
 ‘What does the man do on Sundays?’
- A: Su=nana ti=kaadzi **madabbu’i**.
 DEF.NOM=man REFL=car **fix.DUR**
 ‘The man fixes his car.’ (elicitation, EM, BP51-5, 43:44)

6 Conclusions

There are a number of languages with aspectual categories that exhibit the same interaction with aktionsart that durative gemination in Northern Paiute does. Achievement predicates give rise to a culmination entailment, while activity and accomplishment predicates do not.

As we saw, there have two general strategies in the literature for dealing with this tension.

- The aspectual contribution is not what we were expecting: e.g. neutral aspect in French, Mandarin, Navajo, and Bulgarian (Smith 1997, Pancheva 2003) or a type of imperfective aspect that allows for the events in the extension of the predicate to have no proper subparts (Altshuler 2012, to appear).
- The lexical meaning of achievement predicates is not what we are expecting, e.g. Japanese (Ogihara 1998).

In Northern Paiute, both strategies were needed to account for the meaning of durative gemination.

Data and acknowledgments

The data in this paper comes primarily from my own fieldwork on the variety of Northern Paiute spoken at Mono Lake in eastern California (Lee Vining, California) and immediately to the north in Bridgeport and Coleville, California and Sweetwater, Nevada. I am greatly indebted to Grace Dick, Leona Dick, Morris Jack, Elaine Lundy, Edith McCann, and Madeline Stevens for teaching me about their language.

Examples are annotated with relevant metadata: (i) how the data was 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 (iii) the example's location in the source recording (either a line number in the corresponding transcription of the recording or a timestamp).

Abbreviations

ACC = accusative, ADV = adverbial suffix, APPL = applicative, CAUS = causative, COMPL = completive, DEF = definite, DEM = demonstrative, DIM = diminutive, DL = dual, DS = different subject, DUR = durative gemination, EMPH = emphatic particle, EXCL = exclusive, F = feminine, GEN = genitive, IRR = irrealis, INCEP = inceptive, INCH = inchoative, INCL = inclusive, IND = free choice indefinite, INSTR = instrumental nominalizer, INT = intensive, IP = instrumental prefix, LOC = locative postposition, M = masculine, MOD = modal particle, MOT = motion suffix, NEG = negation, NMZ = nominalizer, NOM = nominative, NSP = nonspecific object, PASS = passive, PERF = perfect, PL = plural, PLUR = pluractional, PRO = resumptive pronoun, PROG = progressive, PRS = present tense, PROSP = prospective, PTC = discourse particle, PUNC = punctual, Q = question particle, QUOT = quotative, REFL = possessive anaphor, SEQ = sequential marker, SG = singular, SIM = simultaneous marker, STAT = stative aspect, TI = 'general tense' (Thornes 2003:398).

Appendix: Other aspectual categories in Northern Paiute

The progressive suffix

The *-winni* suffix conveys progressive aspect, a type of imperfective aspect, since it depicts an event as ongoing. It does not entail the termination of the event with accomplishment predicates or with activity predicates.

- (40) a. Amamu'a su=naatsi'i ti=kaadzi **madabbui-winni**. Yaisi kaisu madabbui-maggwi-hu.
 morning DEF.NOM=man REFL=car **fix-PROG** PTC not.yet fix-COMPL-PUNC
 'This morning, the boy was fixing his car. He hasn't finished fixing it yet.' (elicitation, EM, BP47-8, 21:16)
- b. Amamu'a su=naatsi'i **hubia-du-winni**. Yaisi kaisu hubia-du-maggwi-hu.
 morning DEF.NOM=boy **song-make-PROG** PTC not.yet song-make-COMPL-PUNC
 'This morning, the boy was singing. He hasn't finished singing yet.' (elicitation, MS, BP47-6, 12:30)

In part, the meaning of the progressive suffix can be treated by locating the reference time within the event time.

- (41) *The semantics of the progressive suffix*
 $[-winni] = \lambda f \lambda t \exists e (f(e) \wedge t \subset \tau(e)) : \langle (s,t), (i,t) \rangle$

Indeed, with the reference time specified by a temporal adverb such as *wahaggwe* 'at two o'clock', progressive sentences are judged true in contexts where the reference time is subsumed in the event time.

- (42) a. Context: The boy started singing at 1 o'clock and he continued until 3 o'clock.
Waha-ggwe su=naatsi'i **hubia-du-winni**.
two-LOC DEF.NOM=boy **song-make-PROG**
 'The boy was singing at two o'clock.' (elicitation, EM, BP50-2, 45:09)
- b. Context: The boy fixing his car at 1 and he continued until 3.
Waha-ggwe su=naatsi'i ti=kaadzi **madabbui-winni**.
two-LOC DEF.NOM=boy REFL=car **fix-PROG**
 'The boy was fixing his car at two o'clock.' (elicitation, EM, BP50-2, 45:33)

In addition, we expect there to be interactions between the progressive suffix and aktionsart.

- The progressive suffix is simply infelicitous with achievement predicates, e.g. *mia* 'leave' in (15c), since progressive aspect is not compatible with their result state component.
- With semelfactive predicates, such as *akwisiyae* 'sneeze' in (15d), the progressive suffix coerces an iterative interpretation, which consequently has duration and can contain the reference time.

The *-winni* suffix has a true progressive interpretation, since it does not permit habitual interpretations.

- (43) Q: Hau su=nana managgwi-'yu a=nadzaddii-no'o?
 how DEF.NOM=nana do-DUR 4.GEN=Sunday-LOC
 'What does the man do on Sundays?'
 A: #Su=nana ti=kaadzi **madabbui-winni**.
 DEF.NOM=man REFL=car **fix-PROG**
 Intended: 'The man fixes his car.' (elicitation, EM, BP51-5, 44:53)
 [EM: "*Madabbuiwinni* means he's fixing it now, the car."]

Of course, the semantics for the progressive suffix does not account for the so-called imperfective paradox (Dowty 1979:133). When *-winni* applies to an accomplishment predicate, such as *ka=poo wokwopa* ‘cross the street,’ the event need not culminate in the actual world.

- (44) Su=mogo’ni ka=poo wokwopa-winni. Su=kaadzi
 DEF.NOM=woman DEF.ACC=road cross-PROG DEF.NOM=car
 u=wí-dzaga-hu-ka.
 3SG.ACC=IP.long.thing-strike-PUNC-MOT
 ‘The woman was crossing the road. The car hit her and ran.’ (elicitation, EM, BP50-1, 1:17:26)

Likely, just as for the English progressive, an intensional semantics is needed for the progressive in Northern Paiute (Dowty 1977, Dowty 1979:133–192, Landman 1992, Portner 1998).

The punctual suffix

The *-hu* suffix conveys a type of perfective aspect, since it portrays an event in its totality. For accomplishment predicates, the punctual suffix entails their culmination; it is not compatible with an assertion of incompleteness.

- (45) a. Amamu’a su=naatsi’i ti=kaadzi madabbui-hu. #Yaisi kaisu madabbui-maggwi-hu.
 morning DEF.NOM=man REFL=car fix-PUNC PTC not.yet fix-COMPL-PUNC
 ‘This morning, the boy fixed his car. He hasn’t finished fixing it yet.’ (elicitation, EM, BP47-8, 19:17)
- b. Amamu’a su=naatsi’i hubia-du-hu. #Yaisi kaisu hubia-du-maggwi-hu.
 morning DEF.NOM=boy song-make-PUNC PTC not.yet song-make-COMPL-PUNC
 ‘This morning, the boy sang. He hasn’t stopped singing yet.’ (elicitation, EM, BP47-6, 11:50)

Perhaps surprisingly, with activity predicates like *hubiadu* ‘sing,’ the punctual suffix is also incompatible with an assertion of incompleteness, even though activities are not inherently telic.

I take the punctual suffix in Northern Paiute to entail termination of the event, cf. the perfective aspect in Dëne Sųłíné (Wilhelm 2007:47–53). Semantically, this can be cached out as maximization over events; there can be no larger event within the reference time that satisfies the predicate’s event description.

- (46) *The semantics of the punctual suffix (static version)*
 $[-hu] = \lambda f \lambda t \exists e (f(e) \wedge \neg \exists e' (e \subset e' \wedge f(e'))) \wedge \tau(e) \subseteq t : \langle \langle s, t \rangle, \langle i, t \rangle \rangle$

We can see independently that the punctual suffix locates the event time of the clause inside the reference time.

- (47) a. Context: The boy sang yesterday from 9 o’clock until 12 o’clock.
 Idzi’i su=naatsi’i ti=kaadzi hubia-du-hu.
 yesterday DEF.NOM=boy REFL=car song-make-PUNC
 ‘Yesterday, the boy sang.’ (elicitation, EM, BP50-4, 1:00:59)
- b. Context: The boy sang yesterday from 9 o’clock until 12 o’clock.
 Idzi’i su=naatsi’i ti=kaadzi madabbui-hu.
 yesterday DEF.NOM=boy REFL=car fix-PUNC
 ‘Yesterday the boy fixed his car.’ (elicitation, EM, BP50-4, 1:04:45)

When the reference time is restricted by the temporal adverbial *idzi’i* ‘yesterday’, a punctual sentence is judged as true in a context where the run time of the event is located wholly inside the time interval it delimits.

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