<div align="center">Bundling perfect and perfective: the Atayal *wal*</div>

This study offers a semantic analysis of the preverbal aspectual marker *wal* in Atayal (Austronesian), which has been described as a past tense or a perfective aspect (Egerod 1965, Huang 1993). I show that neither proposal captures the properties of *wal*; instead, *wal* shares with the English perfect the anteriority, as well as the pragmatic effects—result state and current relevance. I propose that *wal* is a perfect aspect bundled with perfective aspect, and I show how this proposal in conjunction with pragmatic competitions of *wal* and other operators in the language explains the absence of universal and experiential perfect readings, and adverbial restrictions. The finding provides cross-linguistic evidence that languages vary in how they combine perfect with other aspect (Iatridou et al. 2001, Pancheva 2003, a.o.).

Interaction with lexical aspect. The Atayal *wal* has been described as a past tense (Egerod 1965) and a perfective aspect (Huang 1993), but a close examination shows that *wal* doesn't behave like either. The event in the scope of *wal* can be anterior to a future or past time in addition to the present (1-2), which falsifies the past-tense hypothesis. *Wal* also cannot be analyzed as a simple perfective aspect which places ET inside RT, because *wal* has a back-shifting effect, shown not only in (1) but also in the contrast in (2): Without *wal*, the matrix drinking event is consecutive to the subordinate coming event, but with *wal*, the former is anterior to the latter. This holds for every lexical class. The anteriority effect correlates with the fact that *wal* doesn't move RT forward in narratives, another difference from perfective (Partee 1984, Kamp and Reyle 1993).

(1) … p-k-rima'=nya'   *wal* thk-un   qu yapit   la.
     FUT-STA-already=3S.ERG WAL cook-PV ABS flying.squirrel PRT
   '(By the time you visit Grandpa,) he will have (already) cooked the flying squirrel.'

(2) m-wah=saku'   lga,   nbun   ni   tali' qu qwaw qasa la.
    AV-come=1S.ABS PRT.TOP   drink.PV ERG Tali' ABS wine that PRT
    'When I came, Tali' drank the wine.' (w/ *wal*: 'When I came, Tali' had drunk up the wine.')

On the other hand, *wal* behaves as a perfective aspect: *Wal* ensures that the described event terminates or culminates. This holds for all the eventive classes. Continuing the event or canceling the completion of the event results in a contradiction (3-5). Stative verbs, which are ambiguous between homogeneous and inchoative readings in Atayal, are only interpreted as inchoative when marked with *wal* (6).

(3) *wal*=saku' m-aniq (#*ga cyux=saku'*   *m-aniq*).   (Activity)
    WAL=1S.ABS AV-eat (#TOP PROG.DIST=1S.ABS AV-eat)
    'I ate (#and I am still eating).'

(4) *wal* kblayun ni   watan sa kawas wayal (#*ga ini' tmasuq   na'*). (Accomplishment)
    WAL make.PV ERG Watan LOC year   last (#TOP NEG finish.AV still)
    'Watan built the house last year (#but didn't finish it).'

(5) *wal* m-huqil qu mlikuy=nya' la (#*ulung   ini' huqil*).   (Achievement)
    WAL AV-die ABS man=3S.GEN PRT   fortunately NEG die.AV
    'Her husband (almost) died (#but fortunately he didn't die).'

(6) kt-an=maku'   tali' sa kawas wayal lga,   *wal* qthuy la.   (State)
    see-LV=1S.ERG Tali' LOC year   last PRT.TOP WAL fat.AV PRT
    'When I saw Tali' last year, he had become fat.'/ ≠ 'When I saw Tali' last year, he was fat.'

A restricted type of perfect. Considering the strong anteriority effect, I pursuit a perfect analysis of *wal*. However, *wal* is only partially similar to the English-type perfect. Like the English perfect, *wal* bears certain relevance effects to the current context (indicated in brackets) (7); *wal* is infelicitous in a context taking about a past situation (8).

(7) Context: *You heard that Tali' is asking people for some bamboo. You told him:*
    wal=maku' tt-un   shera'   mpuw msyaw ruma' la.
    WAL=1S.ERG chop-PV yesterday ten   rest   bamboo PRT
    'I have chopped more than ten pieces of bamboo yesterday.' [if you want some from me]

(8) Context: *Chatting with your son, you mentioned you chopped some bamboo yesterday.*
    #*wal*=maku'   tt-un   shera'   mpuw msyaw ruma' la.
     WAL=1S.ERG chop-PV yesterday ten   rest   bamboo PRT
    Intended for 'I chopped more than ten pieces of bamboo yesterday.'

Also, *wal* is not accepted when the relevant result state is not obtained at RT (9). Current result state, however, doesn't guarantee the use of *wal:* The progressive is preferred over *wal* in (10).

(9) Context: *Describe to your friend how you lost your expensive watch and found it later.*
    #*wal*   m-gzyuwaw la.   cf. m-<*in*>gzyuwaw tuki=maku'.
     WAL AV-lost   PRT   AV-<PAST>lost   watch=1S.GEN
    Intended for 'My watch has (once) got lost.'   'My watch has (once) got lost.'

(10) {#*wal*/*cyux*}   p-gzyuwag-un ni rimuy qu tuki=nya'   la.
     WAL/PROG.DIST CAUS-lost-PV ABS Rimuy ABS watch=3S.GEN PRT
    'Rimuy has lost her watch.' (Context: *Could you come and give her a hand?)*

Unlike the English perfect, *wal* lacks experiential and universal perfect readings, (9) and (11) respectively, and it can co-occur with past time adverbials (4).

(11) Context: *The child has been playing the harmonica since this morning and he hasn't stopped.*
    #*wal* tlubuw   aring mayzbuq ru   qani na' qu laqi' qani.
     WAL mouth.harp.AV start.AV morning CONJ this still ABS child this
    Intended for 'This child has been playing harmonica from this morning till now.'

Further evidence for the absence of experiential perfect readings is that *wal* doesn't exhibit the so-called 'repeatability' of events in experiential perfect (Inoue 1979). Events that are unique and non-repeatable are compatible with *wal*:

(12) *wal* m-huqil la.
     WAL AV-die   PRT
    'He died.' (cf. ??'He has died.')

Analysis. I argue that the Atayal *wal* spells out two aspectual operators, a perfect with a perfective, in its scope: $[_{\text{AspP}}$ ***wal*** $[_{vP} vP]]] \approx [_{\text{AspP1}}$ **PRF** $[_{\text{AspP2}}$ **PFV** $[_{vP} vP]]]$. For the semantics of perfect, I follow the theory of Perfect Time Span (Iatridou et al. 2003, Portner 2003, a.o., cf. McCoard 1978). The $\text{PTS}_c(t)$ is an interval whose left boundary is determined by a context c and whose right boundary is provided by tense. As given in (13), I propose that *wal* not only introduces the PTS but also refers to a <u>non-final</u> subinterval of the PTS.

(13) $[[\ wal\ ]]^c = \lambda P.\ \lambda t.\ \exists t'\ \exists e\ [t' \subseteq \text{PTS}_c(t) \wedge \mathbf{t'} < \mathbf{t} \wedge \tau(e) \subseteq t' \wedge P(e)]$
    '*Wal* takes a predicate P and a time t, and asserts that there is a subinterval t' of the PTS
    that precedes t, and there is an event of P included within this interval t'.'

The semantics of perfective is built in by the inclusion relation $\tau(e) \subseteq t'$, which enforces that the event of the predicate culminates before the reference time, given that *t'* is a non-final subinterval of the PTS right demarcated by tense. The lack of universal perfects follows the perfective component. This analysis also predicts that *wal* cannot co-occur with the progressive; this is borne out:

(14) {**wal* *cyux*   / **cyux*   *wal*} m-qwalax la.
     WAL PROG.DIST   PROG.DIST WAL AV-rain   PRT
     Intended for 'It has been raining.'

Note that Atayal has no overt marking for tense so the difference between present and past perfect is not detected morphologically. When in a present tense context, the non-final subinterval of the PTS excludes the speech time, and thus may be modified by past time adverbials. I assume that the current relevance effect can be either derived through the PTS or by integrating extra calculation (cf. Schaden 2013). As for experiential perfects, which are not ruled out by (13), I argue the use of *wal* for them is blocked by the past tense *-in-* (it implicates that the event or state in question no longer holds at RT). By Grice's Quantity Maxim, *wal* is less specified than *-in-* in existential contexts and would not be used. This analysis allows but not enforces result state to persist at RT, and this correctly predicts that *wal* is overridden by the progressive in contexts where the result state includes RT (cf. (10)).

Concluding remarks. This finding supports the proposal in Iatridou et al. (2001) and Pancheva (2003) that ambiguity in the perfect comes from the embedded aspectual composition, and the source of the universal perfect is (marked) unboundedness (also cf. Guekguezian 2015). I also discuss in this paper potential alternatives such as a (relatively) past perfective (e.g., Lin 2006) and an aspect ambiguous between perfective and perfect (e.g., Condoravdi and Deo 2014), which I ultimately reject.

Selected references. Egerod, S. 1965. Verb Inflexion in Atayal. *Lingua* 15: 251-282. | Huang, L. M. 1993. *A Study of Atayal Syntax.* Taipei: The Crane Publishing Co., Ltd. | Iatridou et al. 2001. Observations about the form and meaning of the perfect. In *Ken Hale: A Life in Language,* Michael Kenstowicz (ed.), 189-238. Cambridge, MA: MIT Press. | Pancheva, R. 2003. The aspectual makeup of perfect participles and the interpretations of the Perfect. In *Perfect Explorations*, Alexiadou et al. (eds.), 277-306. Mouton de Gruyter.