Semantic Packaging and the Manner/Means Constraint on Algonquian Verbal Stem Structure

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1.   Introduction

• Since Bloomfield (1927, 1941, 1946, 1957, 1962), Algonquian verbal stem structure has standardly been analyzed in terms of a maximally tripartite templatic structure: *Initial-(Medial)-Final* (IMF):

(1)   IMF lexical affix template analysis   *Penobscot (Eastern Algonquian)*

Stem: wəčkawɑpekihl.ɑ-   '(animate) swings along in this direction' (PD:1996)

Initial: wəčkaw-   'hither'
Medial: -ɑpek-   '[cordlike element]'
Final: -hl.ɑ   'NA move, change'   *[NA = grammatical animate]*

• *Previously:* degree of iterability, minimal subset of IMF for well-formed stem, how Final element determines the stem's syntactic category (Goddard 1990; Rhodes 2003, 2006; Brittain 2002).

• *Here:* role of IMF in event-semantics packaging (Talmy 1985, 2000a,b) and constraints thereon:

❖   A general constraint on *Finals*:   **Finals are restricted to packaging Means semantics.**
     (§2.2: "Means" = Talmy 2000a,b's "Manner")

• Constraint defined only for and on *Finals*. *Initials* in contrast are the open and essentially unrestricted lexical affix class.   *(Medials = separate issue, not discussed)*

      Primary observation:
→   *Pb intransitive verbal stems of motion (and stance) consistently exclude Path (=Direction)/Result from morphologization as Finals. → Such semantics can only be packaged as **Initials**. (Medials idp'ly excluded)*

→   Finals exist matching English Manner (=Means)-incorporating verbs: *fly, run, paddle, swim, shake*
     None exist matching Path (Direction)-incorporating verbs: *come, go, arrive, return, ascend, descend*

• 3 more points of evidence for this constraint:

     §3.1:   *diachronic stability*: same in Penobscot (E. Alg), Nishnaabemwin (C. Alg)...
     §3.2:   *productive*: holds over stem-derived Finals, despite rich semantics (*pick berries*, etc.)
     §3.3:   *pervasive*: applies to transitive Finals…and in fact accounts for *Instrumental Finals*

• *Preliminarily*: directly fits recent models of event-structure syntax: Ramchand 2006, 2008.
• *Presently:* w/consistent and constrained semantic packaging in Algonquian verb stems, can see:

     • Facilitates and/or results from the acquisition of semantically-rich affixal morphology.
     • Parallels graphic morphology of Chinese logographic lexicon (§4) → universal grounding?
     • Polysynthetic stem structure: built by principled rules, and never just a lexical-semantic combinatory free-for-all.

2. IMF structure, and semantic packaging

2.1   The IMF structure: form and content

- IMF: maximally tripartite, with each part named for its positional distribution.
- Excepting certain types of Initials, all are **bound** morphology (cf. Salishan lexical affixes).

(2)   Primary stem structures   (Penobscot; following Goddard 1990:451)

a.   Initial

Stem:	nəpi(y)-	'water'
Initial:	nəpi-	'water'
cf. stem:	nəpi-w.i-	'NI be watery, wet (in the sense of covered or washed by water)'

b.   Initial-Final

Stem:	apakəss.in-	'NA lie facedown, flat, right-side down; NA lie flat on h/her belly'
Initial:	apak-	'flat'
Final:	-hs.in	'NA lie, be laying'

c.   Initial-Medial-Final

Stem:	apakihpskʷanehs.in-	'NA lie flat on h/her back'
Initial:	apak-	'flat'
Medial:	-(ə)hpəskʷan.e-	'back'
Final:	-hs.in	'NA lie, be laying'

- In principle, a language could distribute different subtypes of semantics freely/randomly across lexical affix categories...   →   **but this is not what we find!**

- Algonquianists note IMF-based semantic division of labor (esp. wrt Finals, Abstract Finals: Denny 1989, 1984, 1981, 1978, Rhodes 2006, 1980).

- Valentine 2001: detailed, encyclopedic account of IMF lexemes, including overview:

(3)   Properties of the IMF pattern   (Nishnaabemwin, Valentine 2001:333)

INITIAL (ROOT)	MEDIAL	FINAL
Primary • adjectival • adverbial Secondary • nominal • verbal	Nominal • body part • classifier • goal noun	Part of Speech Category / Verb Meanings defines part of speech (abstract final) and may add additional meaning (concrete final)

•   Rhodes 2006 summarizes and elaborates semantic aspects of (3):

(4)   Rhodes (2006:1) on IMF semantics

        Initials generally contain modificational information, most commonly information about the resultant state of the notional absolutive. Finals are the "real" verbs, with meanings like 'walk', 'grasp', 'see', 'think' and so on.

•   Illustrating semantic compartmentalization: *intransitive motion-verb stems*

(5)   Valentine 2001:342 on the IMF structure of intransitive motion-verb stems in Nishnaabemwin

        Motion verbs customarily have a final specifying the nature of the motion, or the means of conveyance. Initials consist of DIRECTIONALS and other specifications of path, RELATIVE ROOTS, and a host of Manner terms.

•   Same in Penobscot:

(6)   Semantic compartmentalization in motion-verb stems   (Penobscot, cf. Valentine 2001:372, 384)

Stem:	nahipəye-	'NA paddle downstream'	
Initial:	nah-	'downstream'	= **DIRECTION**
Final:	-pəy.e	'NA paddle, move by paddling'	= **MEANS**

•   Schematized:

(7)   Intransitive motion-verb stem schema

Initial-   -Final
  | |
DIRECTION-   **-MEANS**

•   Nishnaabemwin and Penobscot (NA) intrans Motion Finals match up nicely wrt "Means-only":

(8)   Nishnaabemwin (Valentine 2001:374) and Penobscot intransitive Motion Finals compared

a.	Nishnaabemwin		b.	Penobscot	
-aabono	'by boat, floating'		*-akʷəho.k.e*	'float'	
-aaboozo	'float'		*-akʷəho.k.e*	'float'	
-aadagaa	'swim, wade'		*-akʷič.in*	'swim'	
			-ɑsok.e	'wade'	
-aandwe	'climb		*-ɑtaw.e*	'climb'	
-aashi	'be blown, sail'		*-əlɑmso.k.e*	'be blown by wind'	
-akawe	'move leaving tracks'		*-ɑpt.o*	'leave tracks'	
-akozhiwe	'paddle, sail'		*-pəy.e*	'paddle'	
-bagizo	'move quickly, rapidly'		*-has.i*	'rapid change of state/position'	
-bahigo	'ride on horseback'		*-əwam.əkʷ.e*	'ride on horseback'	
-bahiwe	'flee, running'		*-phow.e*	'flee'	
-batoo	'run'		*[full stem only, no secure Final]*		
-daabaanigo	'by vehicle'		*-ɑčkʷiph.{IpsAgt}*	'ride in car'	

-daabii	'dragging, by wagon, by sled'	*-ənahs.i*	'drag sled'
-gaa	'dance'	*-ək.α*	'dance'
-gaashin	'move leaving a trail'	*-αpt.o*	'leave tracks'
-ise	'fly'	*-təwihl.α*	'fly'
-oode	'crawl'	*-kʷ.əs.i*	'crawl'
-oomigo	'on horseback'	*-əwam.əkʷ.e*	'ride on horseback'
-ose	'walk'	*-ohs.e*	'walk'
-shimo	'dance'	*-ək.α*	'dance

- **Some**: just direct/partial cognates, but...
- **Many**: comparable semantics, via completely distinct etymological roots---but still Finals.

→ Such overlap is unexpected if each language is free to distribute semantic components arbitrarily across the set of IMF elements, or to develop own distinct constraints thereon.

- In 3.1: at least preliminarily, Means-only constraint appears to hold for Finals across the family.

2.2 Semantic packaging in the Talmyian analytical tradition: lexicalization patterns

- Compartmentalization of semantic labor = Talmyian *lexicalization patterns* (Talmy 2000a,b, 1985)

= Separate out key semantic components of verbal event structure (Motion, Path, Goal, Manner...)
· See how they "characteristically" manifest as surface lexical elements:
· Which semantic components "characteristically" appear as as *independent* morphemes
· Which semantic components "characteristically" appear as as *conflated* morphemes

- "Characteristic" = frequent, colloquial, pervasive lexicalization pattern (Talmy 2000b:27)

- EXAMPLE: *boat moves,   by floating,   ends up inside something*

- English: conflate *Manner* (floating) w/ *Motion* (moving) into a single element (the verb *float*), then farm out *Path* traveled as a separate element (*into*):

(9)   *The boat floated into the cave.*   (adapted from Talmy 2000b:49:(29a))

   float   into

   MOTION+MANNER   PATH

- Other languages (Spanish, etc.): characteristically conflate *Motion* with *Path* into single element (≈ verb like *enter*), then farm out *Manner* of that motion separately:

(10)   *The boat entered the cave floating.*   (cf. Talmy 2000b:49:(29a))

   enter   floating

   MOTION+PATH   MANNER

→ Clunkiness of this sentence illustrates its non-"characteristic" nature in English.

N.B.   "*Manner*" imprecise: hereon sharpen to "***Means***" = "instrument"of activity, motion/stance.

- Penobscot (and Nishnaabemwin) evidently more of the first type (9) .
→ [Motion + Manner] *conflated.*
= **FINALS**:

(11)   Motion and Manner (*Means!*) conflation: Penobscot Means of Motion Finals

-ohs.e   'NA walk'
-pəy.e   'NA paddle (watercraft)'
-akʷič.in   'NA swim'
-kətah.i   'NA jump'
-ək.α   'NA dance'
-hl.α   'NA move, change'

- Correspondingly, Path (Directional) semantics---lexicalized *separately.*
= **INITIALS**:

(12)   Separate lexicalization: Directional Initials

wəčkaw-   'to here'
ələm-   'away'
awep-   'up'
pənekʷ-   'down'
note-   'out(side)'
pitike-   'inside (a house, building)'
naləm-   'upstream'
nah-   'downstream'

→ Earlier schema (7) for Penobscot and Nishnaabemwin is a Talmyian lexicalization pattern (13):

(13)   Intransitive motion-verb stem schema

Initial-   -Final
   | |
PATH/DIRECTION-   -MEANS

- Can (oversimplifying) loosely say that Penobscot and Nishnaabemwin share same lexicalization pattern as (core) English...simply differ in the surface-ordering of the separate components:

(14)   Surface-ordering of separate and conflated components

a.   note-   -ohs.e   (Penobscot: *notesse-* 'walk out')
       OUT   **WALK**

b.   walk   out   (English: *walk out* 'walk out')
       WALK   **OUT**

- Potent(ial) pedagogical value: *Brings order, familiarity to what English-based learners generally see as giant polysynthetic monster words.*

❖ Penobscot and Nishnaabemwin lexicalization pattern not just characteristic: *exceptionless.*

- Not only explains rich set of *attested* motion-verb stems, but also principled lexical *gaps.*

- All Directional semantics are rigidly excluded from manifestation via Finals.
→ There are *no* Finals with any Directional semantics at all.

- I.e. no Finals corresponding to monomorphemic (?) English Direction-incorporating verb stems:

(15) English Direction-incorporating verb stems

come
go (in the sense of *go away* rather than simply *move, make motion*)
arrive
return
ascend
descend

- Semantically comparable Penobscot stems require Initials to express Directional component; end up as bipartite Initial-Final structures (16, 17):

(16) Directional Motion verb stems in Penobscot (I):   ≈ English *go*

a. Stem: ələmihl.α-   'NA go away'
   Initial: ələm-   'away'   = **DIRECTION**
   Final: -hl.α   'NA move, change'   = **MEANS**

b. Stem: ələmohs.e-   'NA walk away, onward'
   Initial: ələm-   'away'   = **DIRECTION**
   Final: -ohs.e   'NA walk'   = **MEANS**

c. Stem: ələmakʷim.i-   'NA glide off, away into the water'
   Initial: ələm-   'away'   = **DIRECTION**
   Final: -akʷim.i   'NA swim (gliding)'   = **MEANS**

(17) Directional Motion verb stems in Penobscot (II)   ≈ English *come*

a. Stem: pečihl.α-   'NA come'
   Initial: pet-   'arrive (here)'   = **DIRECTION**
   Final: -hl.α   'NA move, change'   = **MEANS**

b. Stem: pečohs.e-   'NA arrive, walk hither'
   Initial: pet-   'arrive (here)'   = **DIRECTION**
   Final: -ohs.e   'NA walk'   = **MEANS**

c. Stem: petakʷim.i-   'NA glide off, away into the water'
   Initial: pet-   'arrive (here)'   = **DIRECTION**
   Final: -akʷim.i   'NA swim (gliding)'   = **MEANS**

- Such a consistent pattern is unlikely to be coincidental.

- Constraint looks to be acting as/from a deeply-entrenched principle of the lexicon-building system.

- **NEXT UP:**   3 lines of evidence for an entrenched "deep principle".

**3.	Evidence for an entrenched "deep principle"**

3.1	Diachronic stability

• 	Constraint is evidently shared between Penobscot (E. Alg) and Nishnaabemwin (C. Alg). = *(8)*
·	Present field work (+ antecedents' fine lexicography!): Passamaquoddy-Maliseet, too.
·	W. Abenaki, E. Abenaki dialects; tentatively, Wampanoag (Hicks 2006), Munsee (O'Meara 1990).
·	Still brewing: rest of the Algonquian family (Cree, Meskwaki, etc.)? Plains langs and Blackfoot?

→	Penobscot+Nishnaabemwin just by themselves show complete diachronic stability.
→	Argues against constraint being accidental/lang-specific pattern, and for being principled rule.

3.2	Language-internal stability/productivity

• 	Language-internal stability:	to the extent that derivation of Penobscot Finals is productive, the very same Means-only constraint applies

• 	Finals typically characterized as a closed class (Rhodes 2006:1, Valentine 2001:33, inter alia)
→	But at the same time Algonquianists also note a process deriving Finals from full stems:

• 	***Stem-derived Finals (SDFs):*** take a source stem and create an onsetless string from it → Final.
		See Wiltschko 2009 and citations for Salishan lexical suffixes derived via onset consonant deletion.
·	For vowel-initial stems, surface-vacuous:

(18)	Stem-derived Finals: vowel-initial stems

a.	Free stem:		ap.i-			'NA sit'
	Final:			-ap.i			'[same]'

b.	Free stem:		akʷič.in-		'NA swim, NA be in the water'
	Final:			-akʷič.in		'[same]'

c.	Free stem:		alohk.e-		'NA work'
	Final:			-alohk.e		'[same]'

·	Delete any stem-initial sonorant onset consonant:

(19)	Stem-derived Finals: sonorant-onset-consonant initial stems	(cf. Rhodes 2006, Wolfart 1996)

	Free stem:		mawis.i-		'NA gather, pick berries, nuts, or fruit'
	Final:			-awis.i			'[same]'

·	Initial obstruent onset (?): Valentine 2001:399 (Nishnaabemwin): Final -*aapi* < stem *baapi*- 'laugh'
• 	SDFs are not rare, but the process is not obviously actively productive: unknown if it is purely historical/fossilized, or simply quite limited in synchronic productivity.

❖	All evident examples of SDFs in Penobscot obey the Means-only constraint on simplex Finals.

→	This even though Final-deriving stems have Initials!
→	Which in principle should mean that at least some SDFs could contain Directional, Result-state, or other like semantics strictly found in Initials, and (by present claim) illicit in Finals.
❖	Yet none do.

→   SDFs stay w/in the "Means-only" semantic ranges already established for simplex Finals (20, 21):

(20)   Stem-derived Finals: Means of Motion

a.   Free stem: ap.i-   'NA sit'
        Final: -ap.i   '[same]'

        cf. stem: sɑnkew-ap.i-   'NA sit peacefully, still'

b.   Free stem: akʷič.in-   'NA swim, NA be in the water'
        Final: -akʷič.in   '[same]'

        cf. stem: kʷ(əh)sakɑ-kʷič.in-   'NA swim across a body of water'

(21)   Stem-derived Finals: Means of Activity

a.   Free stem: məkənəss.e-   'NA gather firewood/driftwood [...]'
        Final: -əkən(əh)s.e   '[same]'

        cf. stem: nɑt-əkəns.e-   'NA go to get firewood [...]'

b.   Free stem: natəyel.i-   'NA hunt (for various kinds of game)'
        Final: -atəyeli   '[same]'

        cf. stem: nɑt-atəyel.i-   'NA go to hunt'

c.   Free stem: wɑlk.e-   'NA dig, hollow out, excavate'
        Final: -ɑlk.e   '[same]'

        cf. stem: kis-ɑlk.e-   'NA have made a cache, have finished
                                                        burying something'

•   Full-stem derivations bring extra level of semantic richness: 'gather firewood', etc.
→   But only within the confines of what is (semantic-categorically) a permissible Final: ***Means***.
→   Hence even cases where an Initial in an SDF shifts away from otherwise licit *non-Final* semantics:

•   *First:* Initial *akʷit-* 'immersed or soaked in water' as a Result-state Initial---impossible for a Final:

(22)   *akʷit-* 'immersed or soaked in water' as a Result-state Initial

        Stem: akʷitən.ɑ-   'place NA in water, soak NA in water'

        Initial: akʷit-   'immersed'   **= RESULT**
        Final: -ən.ɑ   'handle.NA'   **= CAUSAL MEANS**

•   *Second:* Initial *akʷit-* nonetheless can be a subcomponent in an SDF:
•   Specifically, an SDF from the full-stem *akʷič.in-* 'NA swim, NA be in the water':

(23)   Full stem *akʷič.in-* 'NA swim, NA be in the water' (=20b)

        Initial: akʷit-   'immersed'
        Final   -.in   '[abstract Final: stative?]'

- Initial *akʷit-* in full stem is a bit ambiguous as to whether it indicates a Result state or not, but...

- In corresponding SDF (24), contribution is definitely not of a resultant immersed state---at best, only an implicit *intermediate* state---but simply to name the specific Means of Motion involved.

(24)   SDF -*akʷič.in* 'NA swim [NA be in the water (?)]'

Stem: pətəkakʷič.in-   'NA swim back'

Initial: pətək-   'back, returning'
Final   -akʷič.in   'NA swim'

→   Here too the Means-only constraint has an active effect, limiting possible SDF semantics.

❖   The existence of this constraint may be a significant cause of the relative rarity of stem-derived Finals, as it puts rather severe limits on possible candidate stems.

- Insofar as derivation of Finals is productive, semantic content of output identically constrained.

3.3   Pervasiveness of Means-only constraint: Instrumental transitive Finals

- Constraint extends to transitive stems: transitive Motion stems have the same [*Direction-Means_of_Motion*] pattern as intransitive ones

- Final is rather explicitly the Means by which the Directional motion is carried out:

(25)   [*Direction-Means_of_Motion*]: transitive stems

Stem: awepiphᵒ.α-   'pull NA up, pull NA up above'
Initial: awep-   'up(wards)'   = **DIRECTION**
Final: -phᵒ.α   'grab NA'   = **MEANS**

- Pattern esp. clear if we alternate other transitive Finals against the same Directional Initial:

(26)   [*Direction-Means_of_Motion*]: transitive Finals

a.   Stem: awepən.α-   'hold NA up by hand (with arms extended)'
      Initial: awep-   'up(wards)'   = **DIRECTION**
      Final: -ən.α   'handle NA'   = **MEANS**

b.   Stem: awepapil.α-   'string NA up, hang NA up with a rope'
      Initial: awep-   'up(wards)'   = **DIRECTION**
      Final: -apil.α   'act on NA with cord'   = **MEANS**

c.   Stem: awepkaw.α-   'push NA up with any body part (except hand)'
      Initial: awep-   'up(wards)'   = **DIRECTION**
      Final: -əhkaw.α   'apply "other" body part to NA' = **MEANS**

- Transitive Final consistently specifies the Means of Motion, and nothing of the Direction.
· Same constraint appears to hold generally over transitive Finals as well.

=   transitive *Instrumental Finals*   (Bloomfield 1962, 1946, Goddard 1990, Wolfart 1996, Rhodes 1980)

=   *Instrumental Causative Finals*   (Valentine 2001:438)

❖   The existence of transitive Instrumental Finals is nothing more than the logical outcome of the very same Means-only constraint seen limiting the semantic range of intransitive Finals.

4.   "Means" semantics in the Chinese logographic lexicon

•   Morpholexical compartmentalization of Means/Instrumentality is in fact rather pervasive: it even extends to lexicon systems that we might think of as "supralinguistic".

❖   The lexicon of Chinese logographs shows a very striking parallel between Algonquian Finals and its own set of *semantic* graphic elements (SGEs)---i.e. graphic *morphemes*---used in deriving the basic lexemic units of the system.

•   Basic unit: logographic elements known as 字 (Mandarin: zì); English: '(Chinese) character'.

·   *字 zì can (but need not always) correspond to a word in a spoken Chinese "dialect"; typically correspond at least to a morpheme.*

•   Bulk of the logographic lexicon is made up of 字 zì that are compositional in nature, consisting of at least two graphic elements: one hinting at the *semantics* of the morpheme represented by the logograph, and one borrowing a familiar pre-existing logograph to hint at its *phonetic* form.

•   This type of logograph is a 形聲字 xíngshēngzì 'form-sound character' = 'phono-semantic compound character'.

(27)   形聲字 xíngshēngzì: phonetic element 馬 mǎ 'horse'

     logograph   *semantic graphic element (SGE)*

logograph	semantic graphic element (SGE)
馬 mǎ 'horse'	---
媽 mā 'mother'	女 nǚ 'woman'
馮 mǎ '[river name]'	水, 氵 shuǐ 'water, liquid'
螞 mǎ 'ant'	虫 chǒng 'vermin'
瑪 mǎ 'agate; cornelian'	玉, 王 yù 'jade; precious stone'
嗎 ma '[interrogative particle]'	口 kǒu 'mouth'

•   Most productive of several types of logograph formation in the Chinese logographic lexicon; rather tidily reflects a view of a lexical item as an interface between the basic components that feed the existence of language: the articulatory-perceptual (= form, or better, *carrier*) and the conceptual-intentional (= content).   *= [phonetic/visual/graphic form + semantic content].*

❖   Focus here on SGEs: when we look at a set of Chinese verbal logographs, we find that the set of commonly used SGEs bears a more-than-chance resemblance to the set of commonly used Penobscot verbal Finals:

(28)   Algonquian verbal Finals and Chinese logographic SGEs: Means semantics

	SGE	*verbal Final*

a.   手, 扌 shǒu 'hand'   -ən.α 'act on NA by hand'

抓 zhuā 'grab'   nim-ən.α- 'clutch, seize NA by hand, grasp NA'
提 tí 'raise'   awep-ən.α- 'lift NA'
拉 lā 'pull'   kʷakʷ-ən.α- 'push NA by hand'
換 huàn 'exchange'   eso-(ə)n.α- 'exchange NA'

b.   口 kǒu 'mouth'   -am.α 'act on NA by mouth'; (-hp-ᵒ.α 'act on NA by mouth')

咬 yǎo 'chew, bite'   səkʷəsk-am.α- 'chew NA into pieces, masticate NA'
嚐 cháng 'taste, test flavor' akʷet-am.α- 'taste NA, sample NA by tasting, test, try the taste of NA'
哇 ái 'growl (of dog)'   nik-i-m.i- 'NA growl'

c.   言, 訁 yán 'speak; speech'   -αtəw.e 'speak (language); -m.α 'act on NA by speech';
                                 -ətonk.e 'talk'

說 shuō 'speak; say'   alənαp-αtəw.e- 'speak a Native language'
訊 xùn 'question, ask'   akʷeč-i-m.α- 'ask NA, consult with NA'
講 jiǎng 'speak'   tal-ətonk.e- 'be talking'
論 lùn 'discuss'   tas-i-m.α- 'discuss NA, talk about NA'

d.   火 huǒ 'fire'   -əs-ᵒ.α 'act on NA by heat, by fire'; -αkʷ-as-ᵒ.α 'act on NA by
                                 cooking'
燒 shāo 'burn, bake, roast'   pəkihk-əs-ᵒ.α- 'scorch NA, bake NA'
烤 kǎo 'roast, bake, broil'   kahkikʷ-αkʷ-as-ᵒ.α- 'broil NA'
煮 zhǔ 'cook, boil'   kis-αkʷ-as-ᵒ.α 'cook NA done, finish cooking NA'

e.   刀, 刂 dāo 'knife'   -əs-ᵒ.α 'act on NA by blade'

切 qiē 'cut, slice'   p(əh)kʷe-əs-ᵒ.α 'slice NA, cut a piece from NA'
割 gē 'cut off, sever'   təm-əs-ᵒ.α 'cut NA off, sever NA'
刻 kè 'carve, engrave, cut' čil-əs-ᵒ.α 'cut NA with a knife, incise NA'

=   very productive set of graphic morphemes...and a very productive set of Chinese:Penobscot
     parallels

→   Too pervasive and productive to be a coincidence!

5.   Conclusion

5.1   Fairly modest claim(s)

•   The initial observation that Finals in intransitive motion-verb stems strictly carry Means semantics (as against Initials, which carry Direction/Path, Result, etc.) reflects an *active* constraint on Finals rather than a lexical accident:

(a) diachronically stable
(b) synchronically productive (assuming stem-derived Finals are not just fossils)
(c) pervasive: cross-cuts transitivity, creates morphosemantic classes like Instrumental Finals

❖   This constraint is almost certainly not the fundamental one!

5.2   Collapsing various semantic types of [Initial-Final] construction

•   *Instrumental Causative Finals* → same elements indicate causal Means in [Result-Cause] stems:

(29)   Instrumental Finals as Causative Means Finals   (after Valentine 2001:438)

a.   Stem: səkʷəskən.ɑ-   'crack, fracture, break NA into pieces'
      Initial: səkʷəsk-   'into pieces'   = **RESULT**
      Final: -ən.ɑ   'handle NA'   = **CAUSAL MEANS**

(30)   Collapsing construction types: *Means*

[*(Instrumental) Means of Causation*] + [*Means of Motion*]   →   [*Means*]

(31)   Collapsing construction types: *transitivity*

a.   transitive[*Result-Cause*] + intransitive[*Result-Cause*]
      → {transitive + intransitive}[*Result-Cause*]

b.   transitive[*Direction-Means_of_Motion*] + intransitive[*Direction-Means_of_Motion*]
      → {transitive + intransitive}[*Direction-Means of Motion*]

(32)   Collapsing construction types: *Direction/Path ≈ Result*

[*Direction-Means*] + [*Result-Means*] → *[Result-Means] = the baseline structure*

•   I.e. Direction/Path as "intended" Result (-State/Location).

→   Need a more precisely constrained approach to this kind of reductive analysis: §5.4?

☺   For now: nature of Initial semantic components left as open, elsewhere class.

→   Reflects semantic (and likely syntactic) diversity of verb-stem's "Left Edge" (Brittain 2002)

→   Keeps focus on the evidently specifically constrained set, i.e. the Finals.

5.3   Unidirectionality of Means-only constraint

❖   Predicted: Means semantics *not* blocked from manifesting as Initials or as freestanding stems.

→   Else there would be no stems (w/their Initials) to act as inputs to the SDF process.

•   Which, besides being true (= §3.2), matches expected relationship to grammaticalization:

Finals   = restricted class   = more grammaticalized, functionalized class
Initials = less restricted, open class   = less functional, more lexical (= "lexicon-al") class

•   Assuming canonical unidirectionality of [lexical→functional], predicts that Finals historically derive from Initials and/or freestanding stems, even as the reverse normally never occurs.

→   Which we have established.

5.4   Event-structure syntax (Ramchand 2006, 2008)

•   All this falls out directly from a macro-role approach to event-structure syntax:

=   Ramchand 2006:18: "three sub-event projections are necessary to represent all the possible components of the event structure building processes of natural languages"

=   **[cause [process [result]]]**   *(cf. also Ramchand 2008:39-40, 107)*

•   *simple*:   Finals = {cause, process}   Initials = {result}

•   *nice*:   • Finals could denote events or processes (+ causes) simply by inheritance from subcomponents known as *abstract Finals* (cf. Rhodes 2006:6)
                             • Finals are higher in the tree = more functional, less lexical than Initials

•   *but*:   Plenty of details remaining to be worked out...

So: Present results still early approximation, not yet a formal-theoretical understanding.
But: Clearly pervasive, as illustrated by parallels in Chinese logographic lexicon system.

❖   ...and already has much promise for L2 pedagogical purposes:

→   A rigid structure-to-semantics compartmentalization might help L1 acquisition of a polysynthetic bound-morphology lexicon...

→   I.e. radically narrows the search space for a child seeking to map a meaning to an element that they never even hear in isolation.

•   This "shortcut" reapplied to second-language learning: knowing the semantic domain that each lexical affix is (or is not) limited to makes learning them easier, and facilitates guessing from context the meanings of new ones, and recalling those of half-remembered ones.

•   Accessibly presented, attention to IMF semantic compartmentalization can disentangle and de-exoticize Algonquian polysynthetic lexicons for second-language learners.

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6.   Appendix: data sources for stems and Finals cited without full reference

• Siebert 1996 (= PD:*page number*) gives 3sNA inflected forms as his basic entry; 1s forms, which unambiguously identify the stem-final vowel, were given only secondarily. To save space, we give only his original 3sNA forms, and provide the stem vowel from the 1s form without direct citation.

• The only modifications from the original Siebert 1996 ms. are replacing 'he' and 'it' (and related pronouns) with 'NA' (animate) and 'NI' (inanimate), and separating distinct senses with semicolons rather than numbered subentries.

nə̀pi	'water'	(PD:319)
nə̀pəyo	'NI is watery, wet (in the sense of covered or washed by water)'	(PD:318)
apákəssin	'NA lies facedown, flat, right-side down; NA lies flat on h/her belly'	(PD:66)
apakihpskʷánehsin	'NA lies flat on h/her back'	(PD:66)
náhihle	'NA goes, travels downstream'; nənáhihla 'I...'	(PD:293)
-akʷəho.k.e	pəmákʷəhoke 'NA floats along'	(PD:373)
-akʷič.in	pəmákʷičin 'NA swims along, by'	(PD:373)
-ɑsok.e	ɑ́səwɑsoke 'NA wades diagonally' [N.B. accent questionable]	(PD:119)
-ɑtaw.e	pə́mɑtawe 'NA climbs' [N.B. accent questionable]	(PD:374)
-əlɑmso.k.e	pəmɑlɑ́msoke 'NA/NI is blown along by the wind'	(PD:375)
-ɑpt.o	pə̀mɑpto 'NA leaves footprints'	(PD:374)
-pəy.e	pə̀mipəye 'NA paddles along'	(PD:376)
-has.i	čánihaso 'NA is stopped, obstructed; NA stays, tarries'	(PD:128)
-əwam.əkʷ.e	nəpəməwáməkʷehkhɑ 'I use NA to ride on, I ride NA' [= 2ndry deriv.]	(PD:371)
-phow.e 'flee'	pəmíphowe 'NA flees'	(PD:376)
-ɑčkʷiph.{*IpsAgt*}	[nə]nɑtɑčkʷíphoke=ka 'I went for a ride' [reqs. *Impers Agt* theme sign]	(Snow 1968)
-ənahs.i	pə́mənahso 'NA pulls, hauls a sled, draws a sled' [N.B. accent questionable]	(PD:375)
-ək.ɑ	tàləke 'NA is dancing there, NA is in the act of dancing'	(PD:451)
-ɑpt.o	áləmɑpto 'NA makes tracks leading away, NA leaves a trail	(PD:44)
-təwihl.ɑ	aləmítəwihle 'NA flies away'	(PD:46)
-kʷ.əs.i	pə̀mikʷəso 'NA creeps, crawls along'	(PD:376)
-ohs.e	kɑkɑ́wohse 'NA walks fast (at the top of usual capacity'	(PD:175)
áləmihle	'NA goes away'	(PD:46)
áləmohse	'NA walks away, onward'	(PD:46)
aləmákʷimo	'NA glides off, away into the water'	(PD:44)
péčihle	'NA comes'	(PD:361)
petákʷimo	'NA swims here; NA comes gliding through the water'	(PD:366)
péčohse	'NA arrives, walks hither'	(PD:361)
àpo	'NA sits'	(PD:73)
ákʷičin	'NA swims, NA is in the water'	(PD:30)
álohke	'NA works'	(PD:56)
máwiso	'NA gathers, picks berries, nuts, or fruit'	(PD:256)
mánesse	'NA gathers clams/shellfish'	(PD:251)
sɑnkéwapo	'NA sits peacefully, still'	(PD:419)
kʷsakákʷičin	'NA swims across a body of water' [N.B. /ɑ/ vs. /a/ somewhat uncertain]	(PD:241)
mə̀kənəsse	'NA gathers firewood, driftwood (not requiring cutting or chopping)'	(PD:273)
nátəkənse	'NA goes to get firewood (that doesn't require cutting)'	(PD:304)
nátəyelo	'NA hunts (for various kinds of game)'	(PD:297)
nɑtátəyelo	'NA goes to hunt'	(PD:304)
wàlke	'NA digs, hollow outs, excavates'	(PD:451)
kísɑlke	'NA has made a cache, has finished burying something'	(PD:214)
nətákʷitənɑ	'I place NA in water, soak NA in water'	(PD:31)
pətəkákʷičin	'NA swims back'	(PD:387)
nətawépiphɑ	'I pull NA up, pull NA up above'	(PD:93)
nətáwepənɑ	'I hold NA up by hand (with arms extended)'	(PD:93)
nətawepápilɑ	'I string NA up, hang NA up with a rope'	(PD:93)
nətawépkawɑ	'I push NA up with any body part (except hand)'	(PD:93)
nəsəkʷə́skənɑ	'I crack, fracture, break NA into pieces'	(PD:427)