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Categorial shift: foundations, extensions, and consequences

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ABSTRACT

As the papers in this volume make clear, *categorial* shift is often not *categorical*. Category-altering processes do not necessarily shift all morphological, syntactic, and semantic properties of their input simultaneously or completely (Noonan, 1985/2007; Mackenzie, 1987; Lehmann, 1988; Givón 1990, 2001, 2011; Croft, 1991; Koptjevskaja-Tamm, 1993, 2003; Cristofaro, 2003; Malchukov, 2004, 2006; Nikolaeva, 2007; Mithun, 2016a). A number of factors can affect the output of such processes, their course of development, and their consequences for the shapes of grammars. Here each of these issues is examined in turn. First is the identification of the lexical categories involved in the shifts: the structural level at which they take place (roots, bases, stems, words) and the criteria by which they are defined (morphological, syntactic, semantic). Also pertinent here is the nature of the shift processes, in particular, conversion. Second are some recurring trajectories of development of shift processes involving their extension to larger domains of structure. Third are some effects categorial shift processes can have on other aspects of grammar.

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1. Categories

A good understanding of categorial shift presupposes a clear identification of the input and output categories. A first step in identifying these categories is to specify the structural level of the items to be classified: roots, bases, stems, or words. (The term 'root' is used here for monomorphemic elements with lexical content, like English *leg* or *smirk*. The term 'base' is used for elements which can serve as input to further derivational or inflectional morphological processes, either monomorphemic like the roots *leg* and *smirk*, or polymorphemic like *difficulty* and *undertake*. The term 'stem' is used for elements that can be subject specifically to inflection, elements that often coincide with bases. The term 'word' is used for items that can stand alone, like *leg, legs, undertake, undertaken,* etc.)

The second step is to determine the criteria used to distinguish the categories, typically morphological, syntactic, or semantic. Morphological criteria can involve the internal structure of the words, including the distribution of elements within them and the derivational and/or inflectional processes to which they may be subject. For some languages such criteria provide clear classifications, but for others they are less useful. Some languages contain words with elaborate morphological structures, while others do not. Some have large inventories of derivational and/or inflectional processes, while others have few.

One process in particular can raise special challenges for an understanding of categorial shift. Conversion, sometimes also described as zero derivation, is a process whereby roots or bases construed as members of one class are pressed into service as members of another, with no overt change in the base form. Examples of conversion abound in English. The root *elbow*

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probably began life as a noun, but a homophonous verb *elbow* is now pervasive: *He skinned his **elbow**; He **elbowed** his way through the crowd.* The root *hit* probably began life as a verb, but a homophonous noun is now well established: *He **hit** the pavement running; Your blueberry pie was a real **hit**.* Where such relations between nouns and verbs are pervasive, questions are sometimes raised about the very existence of lexical categories at the root level. Should roots be classified as 'pre-categorial' (not classifiable until further morphological processes have occurred) or 'polycategorial' (flexible between different functions without further morphological processes)? Such issues are discussed in Evans and Osada (2005) and commentaries, Hengeveld (2013), and in papers in Rijkhoff and van Lier (2013), van Lier (2016), van Lier (2017), and Vapnarsky and Veneziano (2017).

Syntactic criteria generally involve either the distribution of items in phrases and sentences, or their syntactic functions. Nouns might be distinguished by their occurrence with determiners, for example, or by their capacity to function as subjects. Conversion might play a role at this level as well. Words with the internal morphological structure of verbs, for example, might be utilized as syntactic arguments, as will be seen.

It is generally agreed that semantic features should be considered only after structural ones. Roots, bases, or words should not be classified as nouns simply because they refer to people, places, or things. If they were, the result could be categories based more on translation than properties of the system under study. As is well known, concepts are not necessarily expressed via the same lexical categories across languages. In English, 'lightning' and 'fire' are classified lexically as nouns, for example, while in Mohawk, they are expressed as verbs. And many languages offer options. Typically only after classes of roots, bases, stems, or words have been established on the basis of structural and/or distributional characteristics are semantic considerations taken into account. At that point classes are labeled according to matches in meaning between the bulk of their members and those in comparable classes in other languages.

For some languages, all obvious criteria for distinguishing lexical categories converge to yield clear classifications. Accordingly, relatively little thought tends to be given to individual diagnostics. For others, however, available criteria may provide a weaker picture and/or yield conflicting classifications. The following sections examine some of the complexities that can arise with various combinations of these variables. In Section 1.1, a system is described with clear categorial distinctions at the root, base, stem, and word levels, but with extensive conversion at the word level. As a result, classes defined on morphological grounds do not necessarily coincide with those defined on syntactic grounds. In Section 1.2, another system is described with clear categorial distinctions at the root, base, stem, and word levels. Here, however, there is extensive conversion at the root and base levels, but not the stem and word levels. In Section 1.3, a third kind of system is described with extensive conversion at all levels, with the result that the very existence of distinct noun and verb categories has been called into question.

1.1. Strong categories, late conversion: Mohawk

Clear lexical categories at both the morphological and syntactic levels can be seen in languages of the Iroquoian family, indigenous to eastern North America. The classifications at these two levels of structure do not necessarily match, however. On the basis of morphological structure, three lexical categories are clearly distinguished: particles, nouns, and verbs. Examples here are drawn from Mohawk, spoken primarily in Quebec, New York State, and Ontario.

Particles are by definition monomorphemic, but they may be compounded. They serve a wide variety of functions.

(1) Mohawk particles

tóka'	'if'	*tsi*	'at, as, how, so, that'	*ne*	'the aforementioned'
ó:nen	'at the time'	*sótsi*	'too much'	*iáh*	'no, not'

Morphological nouns and verbs are polymorphemic. The morphological structures of both are templatic. Morphological nouns consist of a pronominal prefix indicating the gender of the referent or a possessor (alienable or inalienable), a noun stem, and a noun suffix. The noun suffix supplies no information beyond the fact that the word is a noun.

GENDER/POSSESSIVE PREFIX	NOUN STEM	NOUN SUFFIX

Fig. 1. Mohawk noun structure.

(2) Mohawk nouns

oká:ra'	*akká:ra'*
o-kar-a'	ak-kar-a'
N-story-NS	1SG.AL.POSS-story-NS
'story'	'my story'

Morphological verbs can show more elaborate internal structure. The basic verb template is in Fig. 2. Only the pronominal prefix, verb root, and aspect suffix are obligatory.

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PRE-PRONOMINAL PREFIXES	**PRONOMINAL PREFIX**	REFLEXIVE/ MIDDLE PREFIX	NOUN STEM	**VERB ROOT**	DERIVATIONAL SUFFIXES	**ASPECT/** TENSE SUFFIXES

Fig. 2. Mohawk verb structure.

The template is actually more complex than that sketched in Fig. 2. Within the prepronominal prefix sector are six ordered slots, some with multiple members: Partitive (PRT), Coincident (COIN), Contrastive (CONTR), Negative (NEG); Translocative (TLOC); Factual (FACT); Duplicative (DV); Future (FUT), Irrealis (IRR); and Cislocative (CLOC), Repetitive (REP). The Iroquoian languages generally contain fifty to sixty pronominal prefixes each, in three sets of paradigms: grammatical agents, grammatical patients, and fused transitive combinations. They distinguish person, clusivity, gender, and number. The derivational suffix sector includes Reversives (REV), Inchoatives (INCH), Causatives (CAUS), various Applicatives (APPL), Facilitatives (FCL), Ambulatives (AMB), Distributives (DISTR), and Purposives (PURP). The Aspectual suffixes include Habituals (HAB), Statives (ST), and Perfectives (PFV), and additional suffixes can mark Continuatives (CONT), Progressives (PROG), and Remote/Former Pasts. Some examples of verbs are below.

(3) Mohawk verbs

a. *Wahshakohkwenniahrá:ko*'.
wa-hshako-hkwenni-a-hr-a-kw-'
FACT-M.SG>3PL-clothing-LK-be.on-LK-REV-PFV
'He removed their harness.'

b. *Wa'tkanien'kwataséhon*'.
wa'-t-ka-nien'kw-atase-hon-'
FACT-DV-N.AGT-snow-go.around-DISTR-PFV
'It snowed.'

c. *Aiesa'nikonhraientásten*'.
aa-iesa-'nikonhr-a-ient-a-st-en-'
IRR-INDEF>2SG-mind-LK-lie-LK-CAUS-BEN.APPL-PFV
'one would mind-cause you to lie'
= 'One would explain it to you.'

The basic elements of the templates are clearly distinguished by another kind of morphological criterion, the morphological processes to which they can be subject. Only noun stems can serve as the basis of morphological nouns in the template in Fig. 1, like *-kar-* 'story' in example (2). Only noun stems can be incorporated into verbs in the template in Fig. 2, like *-hkwenni-* 'clothing' in (3a), *-nien'kw-* 'snow' in (3b), and *-'nikonhr-* 'mind' in (3c). Only verb bases can occur with the derivational and inflectional affixes in Fig. 2, like the roots *-hr-* 'put on/be on', *-atase-* 'go around', and *-ient* 'sit/lie', as well as the more complex verb bases *-hr-a-kw-* 'remove', and *-atase-hon* 'go around here and there'.

At the word level, however, there is pervasive conversion: large numbers of morphological verbs have been lexicalized as referring expressions, and the process continues to be highly productive. There is one set of morphological processes that is sensitive to the distinction between nouns and verbs at the word level, after conversion may have taken place. A set of enclitics can be added to words lexicalized as nouns, regardless of their internal morphological structure, to form new nouns. One of these is the augmentative *=kowa*.

(4) Mohawk augmentative enclitic *=kowa*

Morphological Particle	*takò:s*	'cat'
	*tako's=**kó:wa***	'wildcat'
Morphological Noun	*kahonwé:ia'*	'boat'
	*kahonweia'=**kó:wa***	'ship'
Morphological Verb	*katsi'nónhtaks*	'monkey'
	*katsi'nonhtaks=**kó:wa***	'ape, gorilla'

(The word *takò:s* 'cat' is morphologically a particle, without the defining internal morphological structure of a noun; it is a seventeenth-century loan from the Dutch *de poes*. The word *katsi'nónhtaks* 'monkey' is a morphological verb, *ka-tsi'nonht-ak-s* N.AGT-bug-eat-HAB, literally 'it eats bugs'.) Other enclitics include a diminutive, an enclitic adding the meaning 'genuine, prototypical', a locative nominalizer, a locative distributive nominalizer ('here and there'), type distributives ('various and assorted'), a characterizer ('the style, language, or custom of'), populatives ('people of'), and a decessive ('the late', 'the former').

The high productivity of conversion at the word level is especially salient in syntax. Morphological verbs frequently function to identify syntactic arguments and adjuncts. In example (5), 'One day the cow did not return home', morphological particles are marked with P, morphological nouns with N, and morphological verbs with V.

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(5) Mohawk sentence: Rita Konwatsi'tsaién:ni Phillips, speaker p.c.

P	P	V
Ó:nen	*kí:ken*	*shiwenhniserá:te'*
onen	kiken	shi-w-enhniser-at-e'
now	this	COIN-N.AGT-day-stand-ST
now	this	as it day stands

P	V
iáh	*tha'tetiawé:non*
iah	tha'-te-t-iaw-e-n-on
NEG	CONTR-DV-CLOC-N.PAT-go-DIR.APPL-ST
not	has she come back

P	P	V
kí:ken	*ne*	*teionhónskwaron.*
kiken	ne	te-io-nhonskw-a-ront
this	the.aforementioned	DV-N.PAT-jowl-LK-be.attached
this	the	she doubly jowl protrudes

'One day the cow did not return home.'

Long stretches of speech without morphological nouns are common. The sentence above contains three morphological verbs but just one syntactic predicate 'she did not return'. The verbs *shiwenhniserá:te'* and *teionhónskwaron* have become lexicalized as referring expressions, 'this day' and 'cow'.

In sum, Mohawk provides an example of a language with strongly differentiated lexical categories at the root, base, stem, and word level, but the classes defined by morphological and syntactic criteria do not necessarily coincide. Conversion at the word level, whereby morphological verbs function as syntactic arguments and adjuncts, plays a major role in the difference. Further discussion of lexical categories in Iroquoian languages is in Mithun (2000).

1.2. Strong categories, early conversion: Central Alaskan Yup'ik

A slightly different situation is offered by languages of the unrelated Eskimo-Aleut family of the Arctic. Examples cited here are drawn from Central Alaskan Yup'ik, spoken in southwestern Alaska. Like the Iroquoian languages, Eskimo-Aleut languages are morphologically complex, and morphology provides clear diagnostics for classifying words as particles, nouns, and verbs. Both nouns and verbs begin with a single root, optionally followed by any number of derivational suffixes (termed postbases in the Eskimoan literature), and obligatorily end with an inflectional suffix complex (termed endings). There are large inventories of both derivational and inflectional suffixes: in his monumental Yup'ik dictionary, Jacobson (2012) lists around 500 of each. The derivational suffixes vary widely in their specificity. There is, for example, a relatively general agentive nominalizer *-(s)ta* 'one who' (*cali-* 'to work', *cali-**sta*** 'worker') as well as a quite specific instrumental nominalizer *-qetaaq* 'device that alternately verbs and does the reverse' (*mayur-* 'to go up', *mayu-**qetaar**-uuq* 'elevator'; Jacobson, 2012: 847). There is a very general verbalizer *-u-* 'to be' (*asveq* 'walrus', *asver-**u**-uq* 'it is a walrus') as well as the specific *-rpagnite-* 'smell or taste strongly of' *(neqerrluk* 'dried fish', *neqerrlug-**pagnit**-uq* 'it smells strongly of dried fish'; Jacobson, 2012: 854).

The basic internal structure of nouns is sketched in Fig. 3. The inflectional ending distinguishes case (ergative, absolutive, locative, ablative, terminalis, vialis, equalis), number (singular, dual, plural), and, optionally, possession via a transitive pronominal suffix identifying the possessor and possessed.

ROOT	(DERIVATIONAL SUFFIXES)	INFLECTION CASE, NUMBER, (POSSESSION)

Fig. 3. Yup'ik noun structure.

(6) Yup'ik nouns

a. *angayuaqaagka*
angayuqaq-agka
parent-1SG>3DU.ABS
'my parents'

b. *apaurluni*
apa-urluq-ni
grandfather-dear-3R.SG>3SG.LOC
'to her dear grandfather'

The basic structure of verbs is in Fig. 4. Here the inflectional ending consists of a mood suffix and a pronominal suffix identifying the core arguments of the clause. Moods include an Indicative, Optative, Subordinative, Participial, and the Connectives Precessive ('before'), Consequential ('because'), Contingent ('whenever'), Concessive ('although, even if'), Conditional ('if, when in the future'), Contemporative I ('when in the past'), and Contemporative II ('while'). There are both intransitive and

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transitive pronominal suffixes, which distinguish 4 persons (1, 2, 3, and 3R (coreferential third person)), and singular, dual, and plural number. As in Mohawk, a verb can stand alone as a full sentence, complete with predicate and arguments.

ROOT	(DERIVATIONAL SUFFIXES)	INFLECTION	
		MOOD	PRONOMINAL SUFFIXES

Fig. 4. Yup'ik verb structure.

(7) Yup'ik verbs

a. *kassuuteqatallerani*
kassuug-te-qatar-ller-ani
encircle-reciprocally-FUT-CONT-3SG
'when he was going to get married'

b. *Tangersuumiitamken.*
tangerr-yuumiite-a-mken
see-NEG.DESID-TR.IND-1SG>2SG
'I do not want to see you.'

At the root and base levels there are clear distributional criteria for distinguishing Yup'ik nouns from verbs. Some derivational suffixes attach only to noun bases, and some attach only to verb bases. Some produce only new noun bases, and some produce only new verb bases.

(8) Yup'ik derivational suffixes

N	->	N	*-cengaq*	'one with small N'
	ii	'eye'	*ii-cengaq*	'one with little eyes'
N	->	V	*-ngar-*	'to hit or get it in the V'
	ii	'eye'	*ii-ngar-*	'get hit in the eye'
V	->	N	*-aq*	'that which has been Ved'
	mumigte-	'turn over'	*mumigt-aq*	'pancake, translation'
V	->	V	*-caar-*	'to try to V'
	qavange-	'fall asleep'	*qavang-caar-*	'try to sleep'

In addition, however, there is extensive conversion at both the root and base levels. As a result, there are numerous pairs of homophonous roots and bases.

(9) Some Yup'ik roots and bases

aaqassaq	'skin for chewing'
aaqassar-	'chew on skin to soften it'
tangluq	'snowshoe'
tanglur-	'to snowshoe'
iqvaq	'picked berry'
iqyar-	'to pick berries'
malik	'companion, thing taken along'
malig-	'take someone/something along'
tugeq	'ice pick (for making holes in river, lake, or sea ice)'
tugek-	'strike with the point of a stick, ice pick, etc; hit the cut bank (in a river)'

(The orthographic *q*/*r* and *k*/*g* alternations are purely phonological. Stops *q* and *k* occur word-finally, but are lenited to corresponding fricatives *r* [ʁ] and *g* [ɣ] word-internally. Only noun stems can occur word-finally, when they are in the unmarked absolutive case.)

Conversion in both directions, N -> V and V ->N, is highly productive. The root *kankiiq* 'ice skate', for example, is a loan from Russian конъкй, but it has a counterpart *kankiir-* 'to ice skate'. Despite the large numbers of homophonous noun and verb roots and bases, it is clear that this is not a polycategorial system (Mithun, 2017). Speakers know whether or not a verb root or more complex verb base has a homophonous noun counterpart, and vice-versa. If there is a counterpart, they know what its precise meaning is, which is not necessarily predictable. Of the 6500 lexical bases in the Jacobson dictionary, 35% are listed as only nouns, 53% as only verbs, and just 12% as noun/verb pairs.

Many but not all derivational suffixes also participate in conversion. Some, like the causative *-cetaar-*, are added to verb bases. But some of the new bases they have formed function as nouns, while others function as verbs: added to the verb 'to die', *-cetaar-* derives a noun base meaning 'poison'; added to the verb 'to fear', it derives a new verb base 'try to scare'.

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(10) Yup'ik derivational suffix *-cetaar-*: Jacobsen (2012, p. 748)

V	->	N, V		
tuqu-		'to die'	*tuqu-cetaaq*	'poison'
nepe-		'to stick'	*nep-cetaaq*	'glue, tape'
qavar-		'to sleep'	*qavar-cetaaq*	'sleeping pill, anesthetic'
alinge-		'to fear'	*aling-cetaar-*	'to try to scare'
qinu-		'to fuss'	*qinu-cetaar-aa*	'he is trying to provoke her'
inarte-		'to lie down'	*inar-cetaar-aa*	'he is trying to get him to go to bed'

Despite the pervasive conversion at the root, base, and stem levels, Yup'ik does not show conversion at the word level. Words inflected as verbs function syntactically as predicates, and those inflected as nouns identify arguments and adjuncts. In this sense, it is the mirror image of Mohawk, where conversion operates *only* at the word level.

1.3. Subtle categories, conversion throughout: Salishan

A third group of languages have long provided puzzles for lexical categorization. These are members of the Salishan family of the Pacific Northwest of North America, spoken over an area from British Columbia south into Oregon, and the Pacific coast east into Montana (Hukari, 1976; Kuipers, 1968; Hess and van Eijk, 1986; Demers and Jelinek, 1982, 1984; Jelinek and Demers, 1982, 1994; Kinkade, 1983; Thompson and Kinkade, 1990; Jelinek, 1993, 1995) This family is not related to either Iroquoian or Eskimo-Aleut, genealogically or areally. Various internal classifications have been proposed, some with three main branches (Bella Coola; Coast-Tsamosan-Tillamook; Interior Salish), some four (Bella Coola; Tillamook; Tsamosan; Interior), some five (Bella Coola; Coast; Tillamook; Tsamosan; Tillamook; Interior).

Grammarians have regularly been faced with the dilemma of whether to distinguish noun and verb categories at all. Kinkade wrote:

> Only predicates and particles can be distinguished . . . But whether looked at morphologically, syntactically, semantically, or logically, and whether at a surface or deep level, the notions 'noun' and 'verb' (as well as other traditional parts of speech) are not relevant in Salish. A Salishan sentence contains at least a predicate, which may be inflected for pronominal subject and/or object (as well as aspect, control, transitivity, etc.). An overt subject or object may be expressed by adding another predicate in apposition to the pronominal elements affixed to the main predicate. (Kinkade, 1983, p. 25, p. 25)

Describing Bella Coola, also known as Nuxalk, Nater (1984, p. 33) reports:
Morphologically, Bella Coola stems fall into three classes according to whether they allow

(i) a bipersonal paradigm, characterized by suffixes for object and subject,
(ii) a unipersonal paradigm with suffixes expressing subject or possessor, or
(iii) no personal paradigm.

He remarks that the syntactic functions of words are understood from the larger context.

(11) Bella Coola root *man* 'father': Nater (1984, p. 33)

a. ***Man-ts***.
father-1SG
'I am a father.'

b. *ti*=***man-ts***=*tx*
NON.F.PROX=father-1SG=DEF
'my father'

c. *ʔinu* *ti*=***man-ts***=*tx*.
2SG NON.F.PROX=father-1SG=DEF
'You are my father.'

In his grammar of Upper Chehalis, spoken in southwestern Washington State, Kinkade distinguishes just two kinds of morphemes: roots and affixes. One and the same root occurs in words that would correspond to both nouns and verbs in other languages.

(12) Tsamosan: Upper Chehalis: Kinkade (1963, p. 34)

a. *ʔáls* 'chief' *ʔama* if *ʔáls-čn*. . . chief-1SG.COMPL
'If I were chief . . .'

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b.	*q'ʷal'an*	*Yáṡ*	*q'ʷalán-č.*
	'ear'	nothing.but	ear-2SG.CONT
		'You are nothing but ears.'	
c.	*sq'ʷét'w-n*	*Sq'ʷét'w-n.*	
	burn-3SG.CONT	burn-3SG.CONT	
	'fire'	'It is burning'	

Much of the morphology provides little basis for distinguishing nouns and verbs. Upper Chehalis aspectual distinctions, for example, occur with roots and larger stems both in words that function as predicates and in words that function as arguments. The Stative prefix *ʔac-* occurs not only in ***ʔac-****táčǩč'* '(he) is sick' and ***ʔac-****qáxaʔ* '(he) has a dog' (*qáxaʔ* 'dog'), but also in ***ʔac-****t'éqł* 'prisoner' (*t'éqł* 'tie up, arrest') (Kinkade, 1963: 63).

The syntactic functions of words can be distinguished formally by their position within the clause, which is generally strongly predicate-initial, and co-occurrence with such markers as articles, demonstratives, and prepositions. But the same words can fill a variety of syntactic roles: predicates, subjects, objects, locations, times, etc.

(13) Tsamosan: Upper Chehalis: Kinkade (1963, p. 36)

a. Subject
Sq'ʷóxʷetn tet ***sq'ʷét'wn***.
'The **fire** is smoking.'

b. Object
ʔet t'aq'áwstaqn tat ***sq'ʷét'wn.***
'He stirred the **fire**.'

c. Object of preposition
Tat kʷétasłoł we ʔcł tet ***sq'ʷét'wn***.
'The kettle is on the **fire**.'

d. Predicate and object of preposition
Tet sx̣ʷá:č'p we ***sq'ʷét'wn*** *ʔał tet* ***sq'ʷét'wn***.
'The wood **is burning** in the **fire**.'

Similar examples are cited by Vogt for Kalispel, a Southern Interior Salish language that, with Flathead and Spokan, is part of a dialect continuum originally stretching across eastern Washington, Northern Idaho, and western Montana.

(14) Interior Salish: Kalispel: Vogt (1940, p. 24)

a.	*Čin=iləmíxum*	*Qeʔ=iləmíxum*	
	1SG=chief	1PL=chief	
	'I am chief', 'my chief'	'We are chiefs', 'our chief'	
b.	*Kʷ=iləmíxum*	*P=iləmíxum*	
	2SG=chief	2PL=chief	
	'You are chief', 'your chief'	'You are chiefs', 'you all, your chiefs'	
c.	*Iləmíxum*		
	chief		
	'He is chief', 'his chief', 'They are chiefs', 'their chiefs'		

One morphological process with cognates throughout the family comes close to distinguishing a class of nouns. The nominalizer prefix *s-* can be reconstructed for Proto-Salishan, their common parent. Its function is quite general: it simply derives stems that tend to refer to entities.

(15) Bella Coola nominalizer *s-*: Nater (1984, p. 101–102)

t's	'to be salty'	*s-t's*	'salt'
ʔnʎ'	'to be dark, obscure'	*s-nʎ'*	'darkness' = 'night'
q'ɬkʷ	'to fix up something'	*s-q'ɬkʷ*	'tools'
kits'	'to wash something'	*s-kits'*	'laundry'
pus	'to grow'	*s-pus*	'growth' = 'leaf'
ʔaʎ'a	'to build a canoe'	*s-aʎ'a*	'canoe'
tskʷ	'be heavy'	*s-tskʷ*	'weight'
x̣ɬaɬh	'be hungry'	*s-x̣ɬhaɬh*	'hunger'

Though it is usually attached to bases denoting events and states, as above, the *s-* nominalizer is also prefixed to some bases denoting entities. In some cases, bases to which the nominalizer is attached no longer survive in the language on their own. Even when they do not, the prefixal status of an initial *s-* can be seen in reduplicative processes which target just the root. An example is the Bella Coola *stan* 'mother', and *s-tantan-mts* 'one's mothers of mother' = 'one's mother + maternal grandmother + maternal grandmother's mother, etc.' (Nater, 1990: 115).

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Cognates of the *s-* nominalizer can be seen in other branches of the family as well.

(16) Upper Chehalis nominalizer *s-*: Kinkade (1963, p. 113)

ʔéln	'to sing'	*s-eln*	'song'
ʔéłn	'to eat'	*s-éłn*	'food'
kʷ'ácł	'to be named'	*s-kʷácł*	'name'
k'ʷápmł	'to straighten'	*s-k'ʷápmł*	'court (of law)'
láxʷɬ	'to laugh'	*s-áxʷ*	'laughter'
łáčeyq	'wind to blow'	*s-łáčeyq*	'wind'
pósł	'to swell up'	*s-pós*	'a swelling'
xẹ́óqʷmł	'to gather'	*s-xʷóqʷ*	'crowd'

(17) Kalispel: Vogt (1940, p. 49)

aímt	'he gets mad'	*s-aímt*	'anger'
mén'xʷ	'he smokes'	*s-əmén'xʷ*	'tobacco'
ʔíłn	'he eats'	*s-ʔíłn*	'food'
č'elúxʷ	'it becomes evening'	*s-č'elúxʷ*	'evening'
néʔut	'the wind blows'	*s-əneut*	'wind'
nelč'é/us	'he has a girdle on'	*s-ənelč'éʔus*	'girdle'
qʷəllúʔmt	'he tells a story'	*s-qʷəllú(ʔmt)*	'story'
**t'i:pəmétkʷ*	'water falls'	*s-t'i:pəmétkʷ*	'waterfall'

Overall, morphology provides surprisingly sparse criteria for distinguishing lexical categories across the Salishan family, apart from the nominalizer *s-* and certain patterns in individual languages. Conversion is so productive at all levels of structure that most roots, bases, stems, and words can be exploited for syntactic use as predicates or arguments.

2. Extension of nominalization

As seen in papers throughout this volume, processes of categorial shift can develop gradually over time, spreading through the lexicon, increasing in productivity, and affecting more and more categorial features. They can also spread across levels of structure, from morphology into syntax and beyond. Perhaps the most common type of categorial shift is nominalization. It is also the most frequently extended to higher levels of structure. In this section, the extension of three kinds of nominalization are described: the extension of a locative nominalizer in Mohawk, the extension of a participant nominalizer in Yup'ik, and the extension of a general nominalizer in Salishan languages.

2.1. Extension of locative nominalizer: Mohawk

As seen earlier, Iroquoian roots, bases, stems, and words fall into clear noun and verb classes on the basis of morphological structure, but there is extensive conversion at the word level, whereby morphological verbs become lexicalized as labels for entities.

The languages are strongly head marking: grammatical relations are specified within verbs by pronominal prefixes referring to the core arguments of the clause. Referents may be further identified by additional words in the clause, but these carry no marking of grammatical role. In the passage below, neither 'the old lady' nor 'the big ones' is marked for syntactic function. The roles of their referents are clear from the pronominal prefixes within the predicates.

(18) Mohawk clause structure: Mae Niioronhià:'a Montour, speaker p.c.

*Thi**hshakotii**é:ron'*	*ne*	*akokstèn:ha.*
thi-**hshakotii**-ieron-'	ne	ako-ktsten=ha
CONTR=**3PL > F.INDF**-tease-PFV	the.afmt	F.PAT-be.old=DIM
they teased **her**	the	she is old
'They teased the old lady.		

*Wa'**on**te'nién:ten'*
wa'-**e**-ate-'nienten-'
FACT-**F.INDF.AGT**-MID-try-PFV
she tried
She tried

*a**honwati**ié:na'*	*ne*	*ratikowá:nen's*
aa-**honwati**-iena-'	ne	rati-kowan-en-'s
IRR-**F.INDF > M.PL**-catch-PFV	the.afmt	M.PL-be.big-ST-DISTR
she would catch **them**	the	they are each big
to catch the bigger ones,		

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nek	*ki'*	*tsi*	*Sótsi'te**hotì**:ka.*
nek	ki'	tsi	sotsi'te-**hoti**-'ka
but	just	how	too DV-**M.PL.PAT**-be.fast.ST
but	just	how	too **they** are fast

but they were too fast.'

Grammatical relations are specified only on the predicate of each clause: 'they teased her', 'she tried', 'she would catch them', and 'they were fast'. The arguments 'old lady' and 'big ones' are both the products of conversion, morphological verbs used as referring expressions.

Conversion also occurs at the phrase level in Mohawk. A particle *tsi* nominalizes clauses (which may consist of simply a verb) to form locative, temporal, manner, degree, and reason nominalizations. In (19), it forms a term for a place with the verb 'our house stands'.

(19) Mohawk *tsi* nominalization: Margaret Edwards, speaker p.c.

a.

Kiótkon	*teionkwaweienharà:'on*	***tsi***	***ionkwanónhsote'.***
tiotkon	te-ionkwa-weienhara'-on	tsi	ionkwa-nonhs-ot-e-'
always	DV-1PL.PAT-be.busy-ST	at	1PL.PAT-house-stand-EP-ST
always	we are busy	at	our house stands

'We were always busy **at our house**.'

In (20), it forms a temporal nominalization.

(20) Mohawk *tsi* time nominalization: Charlotte Bush, speaker p.c.

b.

Né:	*ki'*	*sénha*	*ion'wé:sen*	*ni'*
ne:	ki'	senha	io-on'wes-en	ohni'
that	in.fact	more	N.PAT-be.pleasant-ST	also

'And it's more pleasant too

tsi	***iorahkotáhsion***.
tsi	io-rahkw-ot-a-hsi-on
as	N.PAT-sun-stand-LK-REV-ST

now that the sun is out.'

In (21), it forms manner nominalizations.

(21) Mohawk manner: Josephine Kaieríthon Horne, speaker p.c.

Wahaterénnaien
wa-ha-ate-renn-a-ien-'
FACT-M.SG.AGT-MID-prayer-LK-lay-PFV
he prayed
'He prayed

tsi	***nihotiianerenhserò:ten***
tsi	ni-hoti-ianer-enhser-o't-en
as	PRT-M.PL.PAT-be.right-NMLZ-be.a.kind.of-ST
as	such kind is their law

the way they do in their tradition,

tsi	***nihatiiérha'.***
tsi	ni-hati-ier-ha'
as	PRT-M.PL.AGT-do-HAB
as	so they do it

according to their custom.'

It should be noted that the particle *tsi* does not specify a syntactic role. *Tsi* constructions often serve adverbial functions because they designate place, times, manners, etc., but they can also serve as core arguments of clauses.

The nominalizing function of such *tsi* constructions has been extended into the syntax. It forms dependent clauses in certain complement constructions.

(22) Mohawk *tsi* complement: Watshenní:ne Sawyer, speaker p.c.

ló:ken
io-ken
N.PAT-see.ST
it is seen
'You can see

tsi	***wattókha'.***
tsi	w-at-tok-ha'
how	F.SG.AGT-MID-notice-HAB

that she is intelligent.'

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The *tsi* clause in (23) is a manner complement, but it also has an intensifier connotation.

(23) Mohawk *tsi* manner complement: Mae Niioronhà:'a Montour, speaker p.c.

Wa'akonehrá:ko'				
wa'-ako-nehrako-'				
FACT-F.PAT-surprise-PFV				
'She was surprised				
tsi	*niwatié:sen'*			
tsi	ni-w-atiesen-'			
how	PRT-N.AGT-easy-ST			
how easy it was				
tsi	*ní:*	*tsi*	*í:ien'.*	
tsi	ni-io-ht	tsi	i-ie-e-'	
so	PRT-N.PAT-be.so	as	PROTHETIC-F.INDF.AGT-go-ST	
to walk.'				

Tsi clauses now also appear as independent sentences on their own, in exclamative constructions.

(24) Mohawk exclamative: Josephine Kaieríthon Horne, speaker p.c.

Hátskwi'	*ni:*	*tsi*	*sakawístohte'*	*kí:ken.*
hatski	onen ni	tsi	sa-ka-wisto-ht-e-'	kiken
gee	now too	how	REP.FACT-N.AGT-be.cold-CAUS-EP-PFV	this
say	now	how	it made it cold again	this

'Say, it's turned much cooler.' = 'How cool it's become!'

What originated as a nominalizer *tsi* now marks a specific kind of independent sentence: exclamatives. We can trace the likely trajectory of development. The particle *tsi* originally created nominalizations referring to places, then to times and manners. It was then extended to form dependent clauses in certain kinds of complement constructions, such as 'It is surprising [that . . .]' or 'It is extremely [that . . .]'. These still persist in the language. At a certain point, speakers began omitting the matrix, presumably maintaining the prosody. They often follow an exclamatory particle like *hátskwi* above. This last step is the familiar process termed *insubordination* by Evans (2007) whereby formally dependent clauses come to be used as independent sentences. The development of *tsi* constructions is described in further detail in Mithun (2016b). Oher recent work on insubordination can be found in Biezma (2007), Cable (2011), Verstraete et al. (2012), D'Hertefelt and Verstraete (2014), Gras and Sansiñena (2015), Sansineña (2015), Sansiñena et al. (2015a), Sansiñena et al. (2015b), Comrie et al. (2016), Cristofaro (2016), Evans and Watanabe (2016), Gras (2016), Heine et al. (2016), Narrog 2016, Schwenter (2016), Verstraete & D'Hertefelt (2016), Watanabe (2016), and Mithun (to appear).

2.2. Extension of participant nominalizer: Yup'ik

A common category-shifting suffix in Yup'ik is *-lria*, which can be added to intransitive verb stems to form participant nominalizations.

(25) Yup'ik nominalizer: Elizabeth Charles Ali, speaker p.c.

Ukut	***elitnaulriit****,*
uku-t	elitnaur-**lria**-t
this-ABS.PL	study-**NMLZ**.PL
'The **students**	
apqauratuatnga	. . .
apqara-tu-a-atnga	
ask.about-CONT-CUST-TR.IND-3PL>1SG	
are always asking me about something.'	

A counterpart *-ke* is added to transitive stems to form nouns referring to the agents of transitive events.

The resulting nominalizations can serve not only as arguments on their own, but also as appositives to other nouns, adding supplementary information.

(26) Yup'ik participial: Elena Charles, speaker p.c.

['What are those fish?']

Neqpiayagat	*qatel**lriit***	. . .
neqe-piaq-yagaq-t	qater-**lria**-t	
fish-real-little-PL	be.white-**NMLZ**-PL	
little fish	white ones	
'Little **white** fish.'		

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This nominalization construction has been extended from the domain of word formation to that of syntax, where it nominalizes clauses. The resulting dependent clauses are termed participials in the Yup'ik literature. These, too, add supplementary information.

(27) Yup'ik participial: Elena Charles, speaker p.c.
Anngacayan tua-i, ayayuinani
'Your older brother, he doesn't leave,

*maantaurla**lria**.*
maante-aur-lar-**lria**
be.here-CONT-HAB-**INTR.PARTICIPIAL.3SG**
continuing to stay here.'

(28) Yup'ik participial: Elizabeth Charles Ali, speaker, p.c.
Tauna nasaurluq yualuni cakneq
'The girl walked very fast,

avavet	*avatmun*	*aya**lria**,*
ava-vet	ava-tmun	ayag-**lria**
there-ALL	there-TRMN	go-**INTR.PARTICIPIAL.3SG**

going this way and that way,

apaurluni payugcarturluku.
bringing food to her dear grandfather.'

This Nominalizer turned Participial has been extended still further, from the domain of the sentence into discourse. Autonomous participial sentences are pervasive in narrative, adding supplementary information off the event line, setting the scene and providing background information, parenthetical comments, and explanation. Their status as independent sentences is clear from their prosody and the fact that they are not necessarily associated with a specific matrix clause. Their use can be seen in the passage below. Each line is a clause; blank lines separate sentences. As the speaker built up her story, nearly all of her sentences were Participials, marked here PTCP. (Clauses marked SUB are in another mood, the Subordinative.)

(29) Yup'ik participial sentences in discourse: Elizabeth Charles Ali, speaker p.c.

*Tauna-gguq, angukara'urluq, kipusvigtellini**lria**, Mamterillermi, nunamni.*	**PTCP**
'That dear little old man apparently went to the store in Bethel, in my village.	
*Tua-i-llu-gguq tauna angukara'urluq, kiputellini**lria**,im'umek, levaamek.*	**PTCP**
And then that dear old man bought this motor.	
*Tua-i-llu-gguq tauna levaaq, angyaminun elliqallini**kii**.*	**PTCP**
And then that motor, he quickly placed on his boat.	
Ellirrarluku-llu-gguq,	SUB
*aya**lria**.*	**PTCP**
And after he put it on,	
he travelled.	
Kuigkun anelrarluni,	SUB
Kusquqvamun ayagluni,	SUB
*tua-i-ll' ayaumallini**lria**,*	**PTCP**
ayakcaaraluni.	SUB
He went downriver,	
went towards the Kuskokwim River,	
and then he traveled for a very long time,	
traveling with pleasure.	
*Tua-i-llu-gguq, tauna massiinaq, arulairrlini**lria**.*	**PTCP**
And then, they say, that motor stopped.'	

The story continued with the man getting angry, hitting the motor, and finally rowing back to Bethel to complain that the shopkeeper had sold him a bad motor. It turned out that he had simply run out of gas. Further discussion of the extension of Yup'ik dependent clause structures into discourse is in Mithun (2008).

2.3. Extension of general nominalizer: Salishan

The Salish nominalizer *s-* was described in Section 2.3, with examples like the Bella Coola *t'ɛ́s* 'to be salty', ***s**-t'ɛ́s* 'salt' and *ʔnʌ́'* 'to be dark, obscure', *s-nʌ́'* 'darkness', 'night' in (17). This nominalizer has also been extended from the domain of morphology into syntax. It has developed in different directions and to different extents in the individual languages, however.

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It is perhaps the most pervasive in Bella Coola. Here, as in many of the other languages, *s-* nominalized clauses are used as both subject and object complements. (Textual references here give author, date of publication, page, and sentence number.)

(30) Bella Coola subject complement: Davis and Saunders (1980, 12.80)
Qa:xatsxi-s-ts'
tickle-it-PFV
'It tickled

***s-** ʔaƛ-q'ʷatsa-yu:ɬ-i:-t-im*	*tu=maka-s-txʷ.*
NMLZ-RES-shake-round-DIM-TR-PASS	PL.REM=testicle-3SG-DIST

[**to have his testicles shaken**].'

(31) Bella Coola object complement: Davis and Saunders (1980, 16.116)
Xʷin-nimut
discover-CAUS.REFL
'He discovered

***s**-nix-ay-a:q-nix-i:-t-im*	*x-tx.*
NMLZ-more-do-behind-LIM.CONTROL-DIM-TR-PASS	OBL=3SG

[**that he was being gained upon by him**].'

The complement constructions are also used to specify epistemic, aspectual, manner, and quantificational distinctions. As in a number of languages of North America, it is the matrix that specifies these distinctions. The matrix in (32) indicates certainty, and that in (33) adds inceptive meaning.

(32) Bella Coola epistemic matrix: Davis and Saunders (1980, 19.146)
Ts'χmayx-k'ʷ-i-lu-ts'i-k
true-HRS-CONTR-EXPV-PFV
'He was actually

***s**-ʔaɬ-ʔawɬ-im*	*t'ayx*	*ʔal=a=ats*	*ʔuɬ=tu=suɬ=txʷ.*
NMLZ-RES-follow-PASS	this.one	OBL=PROX=here	OBL=PL.REM=house=DIST

[followed here to his house.']

(33) Bella Coola aspectual matrix: Davis and Saunders (1980, 15.111)

ƛ'ap-kʷ-ts'n	*t'ax*
go-HRS-IPFV	that.one

'He began

***s**-ka-ƛ'ikm-s*	*al=a=ats.*
NMLZ-IRR-run-3SG	OBL=PROX=here

[to run here].'

The matrix in (34) specifies manner.

(34) Bella Coola manner matrix: Nater (1984, p. 102)
ƛ'yuts-ɬ-iɬ
be.fast-PERF-1PL

*[ta=**s**-ʔaɬps-ɬ-iɬ].*
NON.F.REM=NMLZ-eat-PERF-1PL
'We ate fast.'

The matrix in (35) serves to quantify.

(35) Bella Coola Quantifier matrix: Davis and Saunders (1980, 37.93)
Wa=tsay-kʷ-x'
PROX=all-HRS-PFV
'Every

*[**s**-papink-u:s-i:-naw*	*wa-stntn-i:].*
NMLZ-snake-face-DIM-3PL	PL.PROX-tree.RDP-DIM

[stick was the likeness of a snake's face].'

Clauses nominalized with the *s-* prefix also function much like participles in other languages to describe associated events and states.

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(36) Bella Coola associated action: Davis and Saunders (1980, 18.138)
K'ʷp-u:s-timut-kʷ-ts' *ta=satix-s=tx̣*
right-face-CAUS.REFL-HRS-PFV NON.F.REM=close.friend-3SG=DIST
'His friend was facing the right way,

***s*-ał-k'x-s** *u:ɬ-xɬ.*
NMLZ-RES-see-3SG OBL=upriver
[**watching upriver**].'

(37) Bella Coola associated action: Davis and Saunders (1980, 10.63)
Yaya:twi-ma-lu-ts' *ʔałˀ=txʷ*
be.happy-DUB-EXPV-PFV OBL=then
'Maybe he was having fun then

***s*-aƛ-ʔay-s-tsk** *x=txʷ.*
NMLZ-RES-do-3SG-INFER.DUB OBL=them
[**doing those things like that**].'

They are used much like temporal adverbial constructions in other languages. Often the dependent clause has the same subject as the matrix.

(38) Bella Coola temporal construction Davis and Saunders (1980, 18.145)
Ts'x̣mayx *ta=ka-s-tuin-s* *ta=ƛ'msta-tx̣*
true NON.F.REM=IRR-NMLZ-show-3SG NON.F.REM=person=DIST
'The person was hardly recognizable

x=a-six
OBL=PROX=blood
from the blood

***s*-ts'kt-s** *uɬ=tx̣ʷ.*
NMLZ-reach-he OBL=them
[**when he reached them**].'

(39) Bella Coola temporal clause: Davis and Saunders (1980, 6.17)
Ninits-tum-kʷ *t'ayx* ***s*-q'aw-im.**
alive.RDP-CAUS.PASS-HRS this **NMLZ**-put.away-PASS
'He was alive [**when he was buried**].'

But the subjects may be different.

(40) Bella Coola temporal construction: Davis and Saunders (1980, 46.31)
ƛ'ap-a-kʷ-ts'
go-3PL-HRS-PFV
'They had gone then

[ał-txʷ ***s*-tsay-uts-s** ***s*-qa:x̣la-s].**
at-then **NMLZ**-finish-mouth-3SG **NMLZ**-drink-3SG
[when he finished drinking].'

The same *s*-marked dependent clause construction is also used for sequential events, particularly where the first clause contains a verb of motion which positions the actor for a following event.

(41) Bella Coola sequential events: Davis and Saunders (1980, 12.77)
Puƛʼ-a-kʷ-ts' *ta=qi:qpi:=txʷ*
come-they-HRS-PFV PL.REM=little.RDP=DIST
'The little ones came

***s*-ka-ʔaƛ-q'ʷatsa-u:ɬ-i:-t-it-kʷ-k'ʷ**
NMLZ-IRR-RES-shake-round-DIM-TR-3PL>3SG-HRS-USIT
[and bounced

tu=maka-s *t'ax.*
PL.REM=testicle-3SG that
his testicles up and down in their hands].'

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Not surprisingly, this construction can indicate purpose.

(42) Bella Coola purpose: Davis and Saunders (1980, 15.123)

ƛ'ap-s-kʷ-ma-k'ʷu	*ta=sniniq'*	***s**-ka-nukłm-s-tu-ts'*
go-3SG-HRS-DUB-USIT	NON.F.REM=sniniq'	NMLZ-IRR-cross-3SG-CONF-PFV

'The sniniq' [monster] would go across

***s**-ka-ał-awł-is-tu-ts'*	*ʔał=tx̣ʷ.*
NMLZ-IRR-RES-follow-3SG>3SG-CONF-PFV	OBL=then

[**to follow him again then**].'

Reason clauses are formed with the verb 'be' and an *s*-nominalized clause.

(43) Bella Coola Reason nominalization: Davis and Saunders (1980, 49.60)

Nu-tsupts-i:-t-i-t-kʷ-ts'	*tu=sq'usa=tx̣ʷ*
inside-caulk-DIM-TR-3OBJ-HRS-PFV	PL.REM=knothole=DIST

'They caulked the knotholes

wix-kʷ
be-HRS
because

*[**s**-pa:x̣u-naw*	*ał-tx̣ʷ].*
NMLZ-fear-3PL	at-then

[**they were afraid then**.]'

S-nominalized clauses also appear in a construction that functions much like a pseudo-cleft. It consists of an initial predicate based on a root 'do', followed by a nominalized clause.

(44) Bella Coola cleft Davis and Saunders (1980, 20.165)

ʔay-naw	*x=tx̣ʷ*	***s**-ʔawq'aw-cut-aw*	*tu=apsuł=tx̣ʷ.*
do-3PL	OBL=then	**NMLZ**-put.away.RDP-REFL-3PL	PL.REM=live=DIST

'What the villagers did then was [to pack up].'

S-nominalized clauses appear in content questions, in which the question word is focused with an initial predicate: 'It is when [that we will see each other again]?'; 'It is why [that you aren't coming]?'

(45) Bella Coola time question: Nater (1984, p. 103)

Paxʷli=tuts'
when=again
'When

*[**s**-ka=k'x-tmaxʷ-iɬ]?*	
NMLZ=IRR-see-RECIP-1PL	

[our seeing each other]
will we see each other again?'

(46) Bella Coola reason question: Nater (1984, p. 103)

ʔalatsixwʔiks
'Why

*[**s**-ʔaxʷ*	*puƛ'-nu]?*
NMLZ-not	come-2SG

[your not coming]
aren't you coming?'

The same construction appears in embedded questions.

(47) Bella Coola embedded question: Davis and Saunders (1980, 6.18)

ʔanayk-aw	*s-namapxʷ-it*
want-they	NMLZ-find.out-they>it

'They wanted to find out

stam	***s**-ka-umat-ayx-aw*
what	**NMLZ**-IRR-get-to-LIM.CONTROL.RES-3PL

what was becoming of those

a=q'aw=tim	*ʔał=tx̣ʷ*	*wa=ʔat'ma.*
PROX.PL=put.away-PASS	OBL=then	PROX.PL=die

dead ones who were buried then.'

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Though Bella Coola nominalized clauses function in many ways like lexical nouns, they do not show all of their properties. Lexical arguments are set off by determiner clitics which distinguish gender (female vs non-female), number (singular versus plural), and proximity. The clitics can be seen with the word 'knotholes' in (43) above, for example, repeated below. The determiner *tu-* is plural remote. (Gender is not distinguished for plurals.) The stem *sq'usa* 'knothole' appears to be derived with the initial nominalizer *s-*, but the root apparently no longer survives in the language independently.

(43) Bella Coola Reason nominalization: Davis and Saunders (1980, 49.60)

Nu-tsupts-i:-t-i-t-kʷ-ts'	***tu***=*sq'usa*=***tx̣ʷ*** . . .
inside-caulk-DIM-TR-3OBJ-HRS-PFV	PL.REM=knothole=DISTAL
'They caulked the knotholes . . .'	

Participant nominalizations are set off with the same set of determiners, like 'the one who died' in (48) below, but event nominalizations are not, like 'their burying the dead'.

(48) Bella Coola nominalizations: Davis and Saunders (1980, 5.8)

ƛ'ap-aw	***s***-*q'a-mut-aw*	***ti***=***s***-*ʔat'mn-alst-aw.*
go-they	NMLZ-put.away-REFL-3PL	NON.F.PROX=NMLZ-die-PRT-3PL
'They went [to bury [**the one of them who had died]]**.'		

This is not the end of the story, however. The *s-* nominalizer has been extended further, into discourse. Davis and Saunders (1997) describe its use in conversation. The sentences in (49) constitute fully grammatical turns on their own, though they are formally dependent. The dependency here pertains to the larger discourse context, indicating that the speakers' contributions are pertinent to the general discussion.

(49) Bella Coola interaction: Davis and Saunders (1997, p. 138)

Someone has asserted that an event occurred at a distance of two days' walk.

a. ***S***-*ʔiɬm-s?*
NMLZ-steep-3SG
'Is it steep?'

b. ***S***-*ʔi:xʷ-s?*
NMLZ-distant-3SG
'Was it as far as you say?'

The extension of *s-*nominalization first to clauses and then on to sentences in Bella Coola has resulted in an extraordinarily rich inventory of complex syntactic and discourse constructions. The development of the nominalizer is far from uniform across the family, however.

The Interior Salish language Kalispel also contains *s-* nominalized clauses, but they are apparently much less frequent than in Bella Coola. Vogt, who collected extensive lexical, grammatical, and text material in 1937, describes just a small set of constructions with *s-*nominalizations. Most important is negation.

(50) Kalispel negation: Vogt (1940, p. 41)

a.	*Čin*=*xʷíst.*	*Tá*	*či*=***s***-*xʷíst*
	1SG.SBJ=walk	NEG	1SG.SBJ=NMLZ-walk
	'I walk.'	'I don't walk.'	
b.	*Kʷ*=*kúpəm.*	*Ta*	*kʷ*=***s***-*kúpəm.*
	2SG.SBJ=push	NEG	2SG.SBJ=NMLZ-push
	'You push.'	'You don't push.'	
c.	*Púlst-s.*	*Ta*	***s***-*púlst-s.*
	kill-3SG.ERG	NEG	NMLZ-kill-3SG.ERG
	'He kills him.'	'He does not kill him.'	

Interestingly, this is one function not served by *s-* nominalized clauses in Bella Coola, where negation is indicated with just a particle.

Kalispel *s-* nominalized clauses also occur in an aspectual construction formed with the prefix *wí-*, derived from the verbal stem *wi-* 'finish'. This construction can co-occur with negation.

(51) Kalispel 'finish' constructions: Vogt 1940: 41.

a. *Čin*=*wí-****s***-*súst.*
1SG.SBJ=finish-NMLZ-drink
'I finish drinking, I have drunk.'

b.

Tá	*či*=***s***-*wi-****s***-*súst.*
NEG	1SG.SBJ=NMLZ-finish-NMLZ-drink
'I have not finished drinking.'	

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The *s-* forms are also used after *ém* 'in vain' and in a construction with *ʔ'é* 'now' meaning 'go and do something.'

(52) Kalispel nominalized clauses: Vogt (1940, p. 41)

a. *Ém* *ku=**s**-qʷəlqʷélst-s.*
in.vain 2SG.OBJ=**NMLZ**-talk.RDP-3SG.ERG
'He talked to me in vain.'

b. *Xúi-š* *ʔ'é* ***s**-kupənt.*
go-2SG.IMP now **NMLZ**-push-2SG
'Go and push it!'

There is, finally, still another Salishan language with even less *s-* nominalization. It appears that Tillamook, spoken earlier in Oregon, shows no *s*-nominalization at all (Kroeber, 1999: 100, 249).

3. Grammatical consequences

The preceding section showed that categorial shift constructions can be extended into higher levels of structure. But these developments can also further impact grammar. This section provides a sample of the effects of category shifts on inventories of nominalizers, mood systems, and pronominal systems.

3.1. New nominalizers: Mohawk

The verb morphology of Iroquoian languages contains a set of derivational causative and applicative suffixes. Causatives add an agent to the clause, and applicatives add a grammatical patient. Several of the suffixes serve both functions. The most common are *-'t, -ht, -hst*, and *-hkw.*

(53) Mohawk derivational suffixes

a. *Io'taríhen.* *Sa'taríha**'t**!*
io-a'tarih-en s-a'tarih-a-'**t**
N.PAT-be.hot-ST 2SG.AGT-be.hot-LK-**CAUS**
'It is hot.' 'Heat it up!'

b. *Kewístos.* *Kewistó**ht**ha'.*
ke-wisto-s ke-wisto-**ht**-ha'
1SG.AGT-cold-HAB 1SG.AGT-cold-**CAUS**-HAB
'I'm cold.' 'I chill it.'

c. *Teiótson.* *Teki'tsón**hst**ha'.*
te-io-itsion te-k-i'tsion-**hst**-ha'
DV-N.PAT-be.dirty DV-1SG.AGT-be.dirty-**CAUS**-HAB
'It's dirty.' 'I got it dirty.'

d. *Kérha'.* *Kerá**hk**h**w**a'.*
ke-r-ha' ke-r-a-**hkw**-ha'
1SG.AGT-insert-HAB 1SG.AGT-insert-LK-**INS.APPL**-HAB
'I put (it/things) in.' 'I put (it/things) in with it'
= 'I use it as a container.'

Intriguingly, there is a set of nominalizers with exactly the same shapes: *-'t, -ht, -hst*, and *-hkw.*

(54) Mohawk nominalizers

VERB	NOUN
Sáhsow!	*ohsó**hkw**a'*
s-ahsow	o-ahsow-**hkw**-a'
2SG.AGT-to.color	N-to.color-**NMLZ**-NS
'Paint it!', 'Color it!'	'color, dye, paint'

In modern Mohawk, a number of nouns formed with these nominalizers have been shortened and are now pronounced without the nominalizer and noun suffix, but they are still present in cognates in other Iroquoian languages: Mohawk *kà:sere-ht-a'* (ka-'sere-ht-a' N.AGT-drag-NMLZ-NS) is now pronounced simply *kà:sere* 'car', but related languages still have the full form, like the Cayuga *k'atréhta'* 'car' (ka-'tre-ht-a'). The nominalizers are always present when the noun stems are incorporated into verbs.

(55) Mohawk incorporated derived nouns

a. *Ka'sere**ht**í:io.*
ka-'sere-**ht**-iio
N.AGT-drag-**NMLZ**-be.good
'It's a nice car.'

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b. *Wahso**hkw**i:io.*
w-ahso-hkw-iio
N.AGT-to.color-**NMLZ**-be.good
'It's a nice color.'

c. *Kahseriie**'t**í:io*
ka-hseriie-**'t**-iio
N.AGT-thread-**NMLZ**-be.good
'It's good thread.'

The resemblances between the causative/instrumentals and the nominalizers are no accident. The development of the nominalizers was apparently facilitated by the pervasive verb -> noun conversion at the word level. Iroquoian terms for entities are often formed as morphological verbs which describe the entity in some way, often in terms of its appearance or function.

(56) Some Mohawk morphological verbs

a. *iera'wistohtshià**:t**ha'*
ie-ra'wist-ohtshi-a-**'t**-ha'
INDF.AGT-peeling-remove-LK-**INS.APPL**-HAB
'one removes peels with it' = 'potato peeler'

b. *kawistó**ht**ha'*
ka-wisto-**ht**-ha'
N.AGT-cold-**CAUS**-HAB
'it causes (things) to be cold' = 'it chills' = 'refrigerator'

c. *ie'tarakarhathó**hst**ha'*
ie-'tar-a-karhat-ho-**hst**-ha'
INDF.AGT-clay-LK-turn-REV-**INS.APPL**-HAB
'one turns over clay with it' = 'plow'

d. *ieksará**hk**h**w**a'*
ie-ks-a-r-a-**hkw**-ha'
INDF.AGT-dish-LK-be.in-LK-**INS.APPL**-HAB
'one inserts dishes with it' = 'china closet'

It appears that the pervasiveness of the causative/instrumental suffixes in terms for entities set the stage for their reanalysis as nominalizers.

3.2. New inflectional moods: Yup'ik

As seen in Section 2.2, two Yup'ik nominalizers have been extended from the domain of word formation into that of syntax and beyond. The markers are now used to form participial clauses, which function not only as syntactically dependent clauses in sentences, but also as pragmatically dependent sentences in discourse. The participant nominalizer *-lria* 'the one who/that' is applied to intransitive stems, and *-ke* is applied to transitives. The extension of these suffixes has resulted in a certain reorganization of the grammar.

As seen in Section 1.2, Yup'ik nouns and verbs consist of an initial root, any number of derivational suffixes, and an inflectional ending. As derivational nominalizers, the suffixes occupy a position within the *derivational* suffix block. Their descendants, the Participial mood suffixes, are now part of the *inflectional* suffix complex on verbs, taking their place within the paradigm of mood markers: Indicative, Interrogative, Optative, Subordinative, Participial, and the various Connective moods.

3.3. Reshaped pronominal paradigms: Bella Coola

In the Salishan languages, arguments are identified by pronominals in every clause, but the forms of the pronouns vary across the languages. (Singular third persons are often zero.) Of interest here is the intransitive subject paradigm. Kroeber has reconstructed the Proto-Salish pronominal suffixes as in (57).

(57) Proto-Salish pronominal suffixes: Kroeber (1999, pp. 14, 15)

	Intransitive Subjects	Possessors
1SG	*-an	*n-
2SG	*-axʷ	*ʔən-
1PL	*-at	*-iɬ
2PL	*-ap	*-alap/-mp
3	* Ø	*-s

Bella Coola has developed a number of innovations in the pronominal paradigms, each of which has an interesting story, but one of the most striking is the nearly perfect match between the intransitive subject and possessive suffixes.

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(58) Bella Coola pronominal suffixes: Nater (1984, p. 35)

	Intransitive Subjects	Possessors
1SG	*-ts*	*-ts*
2SG	*-nu*	*-nu*
3SG	*-s/Ø*	*-s*
1PL	*-(i)ɬ*	*-(i)ɬ*
2PL	*-(n)ap*	*-(n)ap*
3PL	*-(n)aw*	*-(n)aw*

An example can be seen in (59).

(59) Bella Coola pronominal suffixes: Davis and Saunders (1980, 35.74)
*Ks-i-**s**-kʷ-ts'*
pull-3SG.OBJ-**3SG.SUBJECT**-HRS-PFV
'**He** pulled

t'ayx — this.one
*ta=mila-**s**=tx.* — NON.F.REM=cane-**3SG.POSSESSOR**=DIST
his cane out.'

A likely explanation behind the remodeling of the intransitive subject paradigm is easy to imagine. Constructions involving nominalized clauses with intransitive subjects are extremely frequent in Bella Coola connected speech. Of the first 1000 sentences in the text collection in Davis and Saunders (1980), over half (558) contain clauses nominalized with *s-*. Already in Proto- Salish the subjects of intransitive nominalized clauses were expressed as possessors, a pattern that continued robustly into Bella Coola. In (60), the third person plural subject suffix *-aw* of '**they** would bury' matches the third person plural possessive suffix on '**their** dead'.

(60) Bella Coola: Davis and Saunders (1980, 5.8)
ƛ'ap-aw
go-3PL
they went
'They went

*s-q'a-mut-**aw*** — NMLZ-put.away-REFL-**3PL**
their putting their own away
*ti=s-at'mn-alst-**aw.*** — PROX=NMLZ-die-PARTITIVE-**3PL**
their dead one
to bury the one of them who had died.'

The frequency of intransitive subjects coded as possessors may have been heightened by certain discourse tendencies. The texts indicate that Bella Coola speakers strongly control the voice of clauses in connected speech so that the most topical referent is usually cast as subject. The passage below is from a tale about a man who was captured by a monster and dragged to the monster's house. The scene involves intense, direct interaction between the two characters, but the monster was never expressed as a core argument. The protagonist, the man, was cast as the subject throughout, often via passivization. (Third person singular subjects are generally zero.)

(61) Bella Coola: Davis and Saunders 1980: 13-15

Ts'kt-nix-im — reach-LIM.CONTROL-PASS
t'ayx — this.one
ʔal=a=ats. — OBL=PROX-here
'He was finally gotten there.

Xʷp-a:x-ik-m-im — take.off-bottom-inside-MID-PASS
ʔał=ta=as=uts-x — OBL=REM=LOC-edge-3SG
tu-suł-txʷ. — REM=house-DIST
He was unpacked at the front of the house.

Sq'ʷ-u:ł-im — untie-body-PASS
t'ayx — this.one
ʔal=a=ats — OBL=PROX=here
tu-łkʷ-m-uts-ta=txʷ. — REM=pick.up-MID-edge-INS=DIST
The body was unlaced here.

[The monster's children came and played with his testicles, which tickled.
making the man want to laugh. The monster told his children to be quiet.]

ʔay . . . — ay
ƛ'ap-ak-m-im-kʷ — go-hand-MID-PASS-HRS
t'ayx — this.one
al=a=ats — OBL=PROX=here
s-ka-istux-im. — NMLZ-IRR-skin-PASS
Ay, he began to be worked on here so that he could be skinned.

ʔapsuw-i:xʷ-im-kʷ — blow-top-PASS-HRS
ta=ʔuq'u:ni-s — REM=throad-3SG
t'aẋ. — that.one
His throat was blown upon.

ʔapsuw-im-kʷ *si-ʔał-ʔay-tum* *ti=nanmk'=tx* *s-istux-im.*

blow-PASS-HRS NMLZ-RES-do-CAUS.PASS PROX=animal=PROX NMLZ-skin-PASS.
He was blown upon the way an animal is when it is skinned.

ʔaa *sqʼ-al-tuxʷ-alu* *tx*
ah cut-hand-2SG>3-CONATIVE it
"Ah, let you try to cut it,"

s=la=mimi=tsut-ik-s-kʷ-tsʼ *ał=tx̣ʷ.*
NMLZ-IRR- internal.RDP-say-internal-3SG-HRS-PFV OBL=then
is what he was thinking then.

ʔanu-mus-iːk-im-kʷ-luː-kʼʷu *tʼax* *x=tx*
CONT-feel-stomach-PASS-HRS-PERSIST-USIT that.one OBL=3
He kept on having his stomach felt by him

wix *s-ka-łunłupt-s.*
be.it NMLZ-IRR-breathe.RDP-3SG
in case he was breathing.'
[During that time the good-winded person didn't breathe.]

ʔaa *ʔał-ʔay-s-kʷ-tu-tu-ku* *ał=tx̣ʷ*
ah RES-do-3SG-HRS-CONF-CONF-MIR OBL=then
Ah, he did exactly as planned then

s-sqʼak-tun.
NMLZ-scratch-hand-CAUS.PASS
when he was scratched.

Sqʼ-iː-s *ʔał=ta=anukalałłni-s* *ta=ƛʼmsta=tx.*
scratch-DIM-3SG OBL=REM-centerline.of.throat-3SG NON.F.REM=person=DISTAL
The person was scratched on the middle of his throat.

Ka-istux-im-tsʼn *tʼayx* *x=ats.*
IRR-skin-PASS-IPFV this.one OBL=now.
He's going to be skinned now.'

The remodeling of the Bella Coola intransitive subject paradigm on the model of the possessive paradigm is not quite complete. Kroeber reconstructs the Proto-Salish third person possessors as *-s, and intransitive subjects as zero. The Bella Coola possessive suffix continues the original form *-s*, but the subject suffix still shows an alternation between zero and *-s*.

(62) Pronominal suffixes: Kroeber (1999), Nater (1984)

	Proto-Salish		Bella Coola	
	Intr Subjects	Poss	Intr Subjects	Poss
1SG	*-an	*n-	-ts	-ts
2SG	*-axʷ	*ʔən-	-nu	-nu
3SG	* Ø	*-s	**Ø/-s**	-s
1PL	*-at	*-ił	-ił	-ił
2PL	*-ap	*-alap/-mp	-(n)ap	-(n)ap
3PL	* Ø	*-s	-(n)aw	-(n)aw

Nater explains the difference in use of the two third person forms. 'Zero forms introduce a new topic, chapter, or piece of information, while *-s* links topics and chapters'. (1984, p. 37).

(63) Bella Coola third person: Nater (1984, p. 37)

a. *Smsmayamkits tiqʷaxʷtx̣ ʔn titʼukatx̣.*
'I will tell about Raven and Mink.

*ʔałʔay-**Ø**-kʷsu* *tatʼukatx̣ ʔalakułuːts.*
Mink was walking on a beach.' (**Ø** on 'walking')

b. *Łkʼʷmim-**Ø** taqiqtiːtx̣* *tstaƛʼmstatx̣*
'The little boy was loved by the man, (**Ø** on 'loved')

*ʔałʔay-**s**=tuː* *taqiqtiːs**ł**kʼʷmis taƛʼmstatx̣*
and he (the little boy) loved the man too.' (***-s*** on 'loved')

c. *"Tsqmna", tsut-**Ø**=kʷʔitsʼik tʼayx̣*
"Open your mouth", he said, (**Ø** on 'said')

*tsqm-**s**-kʷtutuː tx̣.*
and indeed, he did open his mouth.' (***-s*** on 'open')

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The modern difference in function appears to reflect the earlier stage where *s*-nominalized clauses with possessive suffixes were used for related events, both simultaneous and sequential.

The Interior language Kalispel, in which *s*- nominalized clauses are much rarer, shows the opposite development. In the examples of nominalized clauses presented by Vogt in his grammatical sketch, subjects are coded with the regular subject clitics used in independent sentences.

(64) Kalispel negation: Vogt (1940, p. 75)

a.	*Čin=kúpəm.*	*Tá*	*či-**s**-kúpəm.*
	1SG.SBJ=push	NEG	1SG.SBJ-**NMLZ**-push
	'I push.'	'I do not push.'	
b.	*Čin=x̣ést.*	*Tá*	*či=**s**-x̣est.*
	1SG.SBJ=good	NEG	1SG.SBJ-**NMLZ**-good
	'I am good.'	'I am not good.'	

In a special section on negation, however, Vogt mentions what he terms some 'aberrant forms' in the texts. He accounts for them as follows.

> The fact that verbs are nominalized when negated suggests an explanation of the aberrant forms: *iqsptáp* 'I'll not boil' instead of **ta čiqsptáp; tá isənté* 'I don't think so' instead of **tá čisənté; tá iqsai'mt* 'I'll not get made' instead of **tá ciqsai'mt*; *ta iqepłu:lu:lim* 'I won't have any money' for **tá čiqepłu:lu:li'm.*
>
> In these regularly independent forms, the nominal possessive prefixes have taken the place of the personal prefixes. The verbal forms have been totally nominalized, whereas the regular forms *čisənté*, etc. *čiqsənte* < *či-qł-s-nte* are hybrid nominal-verbal forms. (Vogt, 1940, p. 75, p. 75)

Since otherwise throughout the family *s*- nominalized clauses show possessive forms for intransitive subjects, it appears that the aberrant forms noted by Vogt actually represent an earlier form of the construction. The subjects of negative constructions were being remodeled on the basis of the overwhelmingly more frequent independent sentences.

4. Conclusion

Closer investigation of categorial shifts cross-linguistically indicates that there is more variety and complexity than might first appear. Rather than being monolithic, they can vary widely in both the domain in which they operate and in their effects, across languages and within languages over time.

The categories that shift may be roots, bases, stems, words, or even phrases. The criteria according to which these elements are categorized may be morphological or syntactic. A confounding factor may be processes of conversion, whereby elements of one category, at any level, are treated as members of another without overt derivation. And conversion may take place at various levels: roots, bases, stems, words, phrases, and even clauses.

Here categorial shifts are examined in three kinds of languages, all with considerable morphological complexity: Mohawk (Iroquoian), Central Alaskan Yup'ik (Eskimo-Aleut), and languages from the three main branches of the Salishan family, Bella Coola = Nuxalk, Upper Chehalis (Tsamosan), and Kalispel (Interior Salish). First the categories in each are described, along with the criteria underlying their identification. They vary in the kinds of criteria that differentiate the categories, in the robustness of the distinctions, and in the domains in which conversion can occur. Next the extension of the most kind of common categorial shift, nominalization, to higher levels of structure, is discussed. In each of the languages, nominalization processes have been extended into the syntax and beyond into discourse, but from slightly different kinds of sources and with slightly different results. Finally, it is shown how categorial shifts can have consequences beyond the elements shifted, with wider effects on the grammar.

Abbreviations

Abbreviations used in glosses follow the Leipzig Glossing Rules. Additional abbreviations are the following: AGT = grammatical agent; AL = alienable; AMB = ambulative; CLOC = cislocative; COIN = coincident; CONF = confirmative; CONT = continuative; CONTR = contrastive; CUST = customary; DESID = desiderative; DIR = directional; DUB = dubitative; DV = duplicative; EP = epenthetic; EXPV = expectative; FACT = factual; FCL =facilitative; HAB = habtitual; HRS = hearsay; INCH = inchoative; LIM.CONTROL = limited control; LK = linker; MID = middle; MIR = mirative; NON.F.REM = non-feminine remote; NS = noun suffix; PAT = grammatical patient; PRT = partitive; PTCP = participial mood, R = coreferential; RDP = reduplicand; REM = remote; REP = repetitive; REV = reversive; ST = stative; SUB = subordinative mood; TLOC = translocative; TRMN terminalis case; USIT = usitative.

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