

NOTES ON SHAPE-CLASSIFICATION IN KWAKW'ALA

JUDITH BERMAN

UNIVERSITY OF PENNSYLVANIA

1. INTRODUCTION.

Though it has never been discussed in any systematic fashion, shape classification is an important process in Kwakw'ala. According to Allan's (1977) typology of languages in which shape class is an overt grammatical category, Kwakw'ala is most readily characterized as a numeral-classifier language: shape classifiers are obligatory whenever a nominal is being counted or otherwise quantified. However, shape classification is a more complex and far-reaching process in Kwakw'ala. The usage of a number of Kwakw'ala stems and locative suffixes is governed by shape class, and the central position of these elements in the language makes it impossible to ignore them in any treatment of shape classification. Overall, Kwakw'ala differs in some respects from generalizations various writers (e.g. Denny 1979, Allan 1977, Lucy 1988) have offered about classifying languages.

There have been no full descriptions of shape classification in any of the Wakashan languages, though the glosses provided in Lincoln and Rath's Northern Wakashan root list (1980), and studies of lexical suffixes in Southern Wakashan languages (e.g. Swadesh 1939) suggest that it is a family-wide phenomenon. Boas' Kwakw'ala glossaries, grammar and dictionary (1911, 1947, n.d.) show he was aware of the problem, but he nowhere describes its nature and extent. The present essay does not adequately address the need for a full and systematic treatment. It is instead a preliminary exploration of the ground such a study must cover.

The sources of the data for this exploration are Boas' Kwakw'ala grammar and dictionary, and the many volumes of Kwakw'ala texts written down by George Hunt (Boas 1921, 1935-43, Boas and Hunt 1905, etc.). It

therefore applies to turn-of-the-century rather than modern usage; the latter appears to differ in some respects.

2. NUMERAL CLASSIFIERS.

Shape classification is obligatory in nearly all Kwakw'ala expressions of quantity which involve a nominal. (In some cases it is possible to express notions of quantity through verbal constructions.) The numeral classifier phrase is usually built up of Q-C-D N, where Q is a quantifier stem, C a classifying suffix, D a demonstrative suffix and N a nominal. Other possible forms are N Q-C-D, Q-C N-D, N-D Q-C, and, elliptically, Q-C-D.

1.

1.a. *musgami miḡat* "four seals"

(mu- "four," -sgam "bulky object (classifier)," -i "demonstrative," *miḡat* "seal")

1.b. *muḡi bibaḡanam* "four men"

(mu- "four," =uḡ "human (classifier)," -i "demonstrative," *bibaḡanam* "men (plural form of *baḡanam* 'man')")

1.c. *muḡaqi haʔanaḡam* "four arrows"

(mu- "four," -ḡaq "long object (classifier)," -i "demonstrative," *haʔanaḡam* "arrows (plural form of *hanaḡam* 'arrow,')")

1.d. *mawixḡe ḡaiḡeliḡ* "four house-dishes (i.e. dishes that are property of the chiefly line)"

(mu- "four," -[ə]xḡa "hollow object (classifier)," -i "demonstrative," *ḡaiḡeliḡ* "house-dishes (plural form of *ḡeliḡ* 'house-dish')")

Kwakw'ala numeral classifiers fall into two classes, sortal (expressing shape-class) and mensural (expressing measurements of distance, time, price, etc.; cf. Lyons 1977). The examples above show only

sortal classifiers. In all there are about twenty classifiers, though the use of some is very limited.

The main sortal classifiers are =uŋ "human," -sgam "bulky object," -čaq "long object," -xsa "flat object," -xša "hollow, dish-shaped object," and -zaq "hole." Of these, the classifier -sgam "bulky object" has the widest application; it is used for all quadrupeds, stones, objects which have hollow interiors but are covered (e.g. houses, boxes, and covered baskets), abstract notions (e.g. words), and anything very large, sometimes including fat humans. The classifier =uŋ "human" is used generally when human beings are counted. The classifier -xša "hollow, dish-shaped object," accompanies dishes, spoons, ladles, cradles, and buckets, but not canoes; -čaq "long object," is used for canoes, sticks, poles, arrows, trees (?), beams, and ropes (?); and -xsa "flat object" for fish, blankets, leaves, mats, and boards. Finally, -zaq "hole" is used for holes through boards, etc., as well as holes in the ground.

Denny (1979) has presented a series of semantic features which in one or another combinations, he argues, structure most classifier systems. Of these, the features of "dimensionality" and "interioricity" seem to apply to Kwakw'ala classifiers, together with two other dimensions which I will call "humanness" and "superficiency." Dimensionality, in Denny's terminology, refers to the dimension in which the object-class is physically extended.¹ Thus, a long object is extended in one dimension, a flat object (a plane) in two dimensions, and a bulky object in three. Interioricity, again from Denny, refers to whether something has an internal surface; in Kwakw'ala classifiers but not shape locatives, the internal surface must be open, exposed. Humanness or the lack of it needs little explanation; superficiality refers to possession by an object of an external surface.

This last-named feature is necessary to distinguish between a hollow object and a hole. To distinguish between comparable categories in other classifier languages, Denny proposes a contrast between complete or

¹ Denny argues that extendedness of an object is a primary variable in classifying systems. However, since there is no contrast in Kwakw'ala classifiers between something extended and something not extended, this variable need not be considered here.

incomplete "perforation," but the category "hole" in Kwakw'ala does not necessarily refer to perforations. The classifier -zaq "hole" often refers to holes in the ground. Such a hole is distinct from the interior space of a hollow object not because it perforates anything but because it lacks an external surface. Note that in Kwakw'ala verbs of handling, there are typically forms for all shape categories except that of "hole." One can handle a hollow object, for instance a dish, but one cannot handle a hole, because a hole has no external surface by which to handle it.

Table 1. Primary sortal numeral classifiers.

dimensions: 1	=uŋ "human"	+S, -I, +H
	-čaq "long"	+S, -I, -H
2	-xsa "flat"	+S, -I, -H
3	-sgam "bulky"	+S, -I, -H
	-xša "hollow"	+S, +I, -H
	-zaq "hole"	-S, +I, -H

S = superficiality, I = interioricity, H = humanness

The shape classes which are extended primarily in one dimension include "long objects" and "humans." The justification for treating humans as "extended in one dimension" derives from the close relationship between elements expressing "long" and "human" in other parts of the language. For example, with shape-locative suffixes, the "human" and "long" classes are conflated.

It perhaps needs to be emphasized that "dimension" as a semantic feature does not mean dimension in any absolute, geometrical sense. All Kwakw'ala shape classes refer to three-dimensional objects. "Dimension" means relative extendedness. The primary shape class is "bulky." The basic

topological notion underlying "long objects" and "humans" seems to be a cylinder rather than a line; that is, something three-dimensional which has been elongated. Similarly, the basic notion of "flat objects" seems to be something either bulky or cylindrical which has been flattened.

A better way to represent "dimension" might be to treat "bulky objects" as having relative extension in 0 dimensions (see Figure 1). "Long objects" would be extended in +1 dimensions (elongated on either the x or y axes), and "flat objects" extended in -1 dimensions (flattened on the x or z axes). This analysis also has the virtue of describing the vertical vs. horizontal contrast we see with flat, long and human classes in the shape stems and locative suffixes. However, the place of "hollow objects" and "holes" in it is not yet clear; note that "hollow objects" are also subdivided in terms of orientation in the stems of location (see section 4 below).

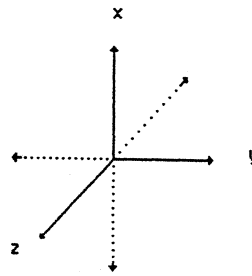


Figure 1. Axes of relative extension

Another perspective on Kwakw'ala numeral classifiers is afforded by the contrast between three terms for measureable dimensions.

2.

wa- "size of something"

wazeq "depth of hole in ground, diameter of hole in board, inside width of hollow object, etc."

wazu "width across of flat surface"

wasgam "length, thickness of solid object"

These terms are derived from various suffixes which express shape. Wasgam "height, width, length" derives from -sgam "bulky object (classifier)," and is used for all measurements between external surfaces of both long and bulky objects. Wasgam is also used for length and, where applicable, thickness of flat objects (e.g. boards). However, wazu "width (across) of flat object," from the shape locative -zu "on surface of flat object," applies to measurements across a flat object. Measurements between internal surfaces -- of both holes and hollow objects -- take wazaq "diameter of hole," from -zaq "hole (classifier)" (references to usage in texts appear in Boas n.d.: 73-4).

Secondary sortal classifiers include -[x]sayuk "bundle," -sgamak "tribe," -[x]zaķala "layer," -čaxsta "movement along path," -xs? "(number of) pieces of unit," and -xiu "string of fish." All secondary sortal classifiers are relatively rare.

Two are derived from the six basic classifiers above: -čaxsta "movement along path" from -čaq "long object" and probably -[x]sta "on ground-level, down to ground-level"; and -sgamak "tribe" from -sgam "bulky object." "Tribe" is in fact classified in other grammatical contexts as "bulky": e.g. makami? "head tribe," from mak- "bulky object is somewhere," and -gami? "first, in front" (Boas 1921: 758).

The secondary sortal classifier -[x]zaķala "layers" is related to a mensural classifier -[x]zaķala "number of directions (of motion)," and perhaps belongs with it. Although the meaning of the element -[x]zaķ is not immediately apparent, -ala and -ala are suffixes meaning "continued position" and "continued motion," respectively. The two could be glossed "number of positions," and "number of directions (of motion)."

The secondary sortal classifier -[x]sayuk "bundle" seems to refer to discrete bunches of multiple objects, perhaps of more than one class. It has not yet been determined if any of the classifiers functions as the "unmarked" form, to be used when the class of object is not known or for

some other reason not specified. Given its wide range of use, the best candidate is probably -sgam "bulky object."

Though we will not discuss mensural numeral classifiers, a list follows:

Table 2. Mensural numeral classifiers.

-dan	"fingerwidth"
-pānk	"armspan, fathom"
-lu?x	"amount of price"
-xas	"day"
-xsa	"day, flat object"
-lanx	"year"
-pan[a]	"(number of) times (an action occurs)"
-lāmka	"(number) at a time"
-[x]zəḱəla	"(number of) directions"
-x?idəta	"(number of) kinds"
-uḱəna	"pairs"
-[x]suḱ	"five pairs, i.e. tens"

Lucy (1988) has suggested that numeral classifiers are an integral part of the plural-marking systems of the languages in which they are found. Lucy compares nouns in numeral classifier languages with the English mass noun, which to be counted requires "unitization" -- the specification of some topological unit -- resulting in constructions like "a hunk of cheese," "three slices of bread." The noun in classifier languages similarly requires unitization, but uses only a limited group of classifiers to do so. Lucy has predicted that in languages which have both overt plural-marking and numeral classifiers, the two types of noun phrase will be in complementary distribution. Such a situation would be comparable, again, to the contrast

between English count nouns, which can be pluralized, and mass nouns, which cannot and must instead take classifier-like constructions.

While this argument is intuitively appealing, it is not wholly applicable to Kwakw'ala. Kwakw'ala has both plural nominal forms and numeral-classifier constructions, but the plural-marking system is complex, and the role of numeral classifiers in it is not immediately apparent. To begin with, numeral classifiers are not in complementary distribution with overt plural marking. Plural nominals frequently appear in numeral-classifier phrases.

3.

lakasi ?adaḱə Məlnasəmaḱi qutix?ica muḱaqi ?əwo xaxəḱəna luḱasa muḱi
ḱəḱəḱəwa luḱasa ḱəḱə gigəlasgam ḱəənḱ?ənaḱə "Lord Məlnasəmi? gave
as a marriage gift four large canoes and four slaves and six grizzly-
bear blankets" (Boas 1921: 887).

(la- "auxiliary," -kas "emphatic," -i "3rd person subject (prenominal case marker)," ?ada "lord," -i "demonstrative," qutix- "to give as marriage gift," -[x]id "past tense," -sa "3rd person oblique (prenominal case marker)," mu- "four," -ḱaq "long object (classifier)," -i "demonstrative," ?əwo "large (plural)," xaxəḱəna "canoe (plural form of xaxəḱə)," lu- "conjunction," -kas "emphatic," -sa "3rd person oblique (prenominal case marker)," mu- "four," -uḱ "human (classifier)," -i "demonstrative," ḱəḱəḱə "slave (plural of ḱəḱə)," -ə "demonstrative," lu- "conjunction," -kas "emphatic," -sa "3rd person oblique (prenominal case marker)," ḱəḱə "six," gigəla- "grizzly bear (plural of gəla)," -sgam "bulky object (locative suffix)," ḱəənḱ?əni? "blankets (plural of ḱəḱə?əni?)," -ə "demonstrative")

In example above, numeral classifier constructions occur with the plural forms xaxəḱəna "canoes," ḱəḱəḱə "slaves" and gigəlasgam ḱəənḱ?əni? "grizzly-bear blankets."

Generally, Kwakw'ala nominals receive plural forms if they refer to humans or to things owned by humans. The plural forms are given regardless

of whether or not the nominal is being counted in a numeral classifier construction. Nominals also receive plural forms when they express the spatial distribution of objects, or some other kind of severality. Though formally identical, the regular plural and the distributive "plural" of nominals are functionally distinct, as is shown by the fact that numerals have "plural" forms (e.g. sisaka- "plural" of saka- 'five'). Numeral "singulars" express commonality, spatial grouping; "plurals" express severality or spatial distribution:

4.

la maimatcamgilaḵ laxa ḥaḥamukī bibaḡanama "two balls [of herring spawn] are made for each man" (Boas 1921: 424).

(la- "auxiliary," maimaḥḥ- "distributive of maḥḥ 'two,'" -sgam "bulky object (classifier)," -gilaḵ "something made," laxa "introduces indirect object phrase," ḥaḥam- "plural" of ḥam- 'one,'" -uḵ "human (classifier)," -i "demonstrative," bibaḡanam "plural" of baḡanam 'man')

The interesting distributional question is not how numeral classifier phrases are patterned vis-à-vis plural forms, but rather what it means when (as occasionally happens) nominals are quantified without classifiers. The most common nominal construction without classifiers uses ḡanam "many (nominal)," derived from ḡi- "many" and -nam "nominalizer." Compare the following examples with ḡi-, "many," the first without classifier and the second with:

5.

5.a. ḡinami ḡualḡa "many dishes"

(ḡi- "many," -nam "nominalizer," -i "demonstrative," ḡualḡi? "dishes (plural form of ḡuḡi? 'dish')," -a "demonstrative")

5.b. ḡiḡaḡa ḡualḡa "many dishes"

(ḡi- "many," -ḡaḡa "hollow object (classifier)," ḡualḡi? "dishes (plural form of ḡuḡi? 'dish')," -a "demonstrative")

Example 5.a. above follows the standard form for a nominal phrase with two nominals: the "adjectival" nominal comes first, followed a demonstrative suffix and then the head nominal (N^A-D N^M). This is quite similar to the most common form of the numeral-classifier phrase, Q-C-D N. Essentially, the Q-C combination is treated as an adjectival nominal, which is given a demonstrative suffix so it can fit in the same syntactic slot with the head nominal.

A second instance where classifiers are absent from nominal phrases of quantity is in a certain type of numeral-classifier phrase with two nominals (two in addition to the Q-C combination). Overall, two types of two-nominal numeral-classifier phrases have been identified so far. In the first -- which is apparently the more common -- the classifier and the demonstrative are simply repeated on the first, adjectival nominal, in the form Q-C-D N^A-C-D N^M. The N^A and the N^M belong to the same shape class.

6.

maimatacama lualḡsami ḡaḡant "two (distributive) balls of herring spawn"

(cf. Boas 1921: 424)

(maimatacama- "distributive of maḥḥ 'two,'" -sgam "bulky object (classifier)," -a "demonstrative," lualḡ- "distributive of luḡ- 'ball, bunch, group'" -sgam "bulky object (classifier)," -i "demonstrative," ḡaḡant "herring spawn")

Compare example 6 with the numeral phrase ḡaḡa ḡigalasgam ḡaanḡḡanaḡa "six grizzly-bear blankets" (from example 3 above). In the latter, the first nominal ḡigalasgam is formed of ḡigala- "grizzly bears" and -sgam, which at first glance appears to be the classifier "bulky object." However, this suffix -sgam is actually functioning as a shape-locative

meaning "surface of a bulky object." As a shape locative the suffix has a special derivational use with the various kinds of blankets, robes, and skins. The pattern of the numeral phrase is probably Q NH NA-D, possibly Q NA NH-D, lacking a classifier in both versions. (We would expect either nominal to be classified with -xsa "flat object.")

These examples suggest that at least one part of Lucy's argument is applicable to Kwakw'ala. In both types of two-nominal numeral-classifier phrases, the function of NA is to specify the shape of NH with greater precision. The situation is indeed comparable to such constructions in English as "a hunk of cheese" which use "unitized" mass nouns. In the Kwakw'ala examples, the topological units being specified are "balls" of herring spawn and "blankets" of grizzly-bear surfaces. Apparently, in some circumstances the topological adjective can replace the classifier, becoming its functional equivalent. Two-nominal numeral phrases without any classifier (Q NA NH-D) seem to be restricted to the counting of various kinds of blankets, robes, and skins, but this question needs further investigation.

3. SHAPE CLASSIFICATION IN LOCATIVE SUFFIXES.

A second area where shape classification occurs in Kwakw'ala is in the locative suffixes. There are approximately hundred and thirty locative suffixes, which are the primary means of expressing topological and locative notions in Kwakw'ala. Many locative suffixes are extremely concrete and refer to specific natural and constructed features of the landscape, such as house, hearth, beach, riverbank, canoe, etc, as well as to human and animal body parts.

As a whole, the locative suffixes are divided into three interconnected but distinct subsystems, which I will term "geographical locatives," "somatic (body part) locatives," and "shape locatives." An animate/ inanimate distinction divides the somatic and geographical

locatives; though many somatic suffixes can be used to describe geographical features, the reverse is not true.¹

Of the the three subgroups, the shape locatives are the smallest, numbering around a dozen. While the distinction between somatic locatives and geographical locatives is one of animacy versus inanimacy, shape locatives are organized in terms of the shape of the object, and most can refer to either animate and inanimate objects. In the classifiers, "humans" are distinguished from "long objects," but in shape locatives this contrast is not expressed. In general, for locative relations involving human beings, either shape locatives or somatic suffixes can be used.

Table 3. Shape locatives.

	* of	onto surface, into	on surface, inside	out of, off from	side of, beside	at top/ end/edge
HUMAN-V	=uŕ	-[k]!ən	-[k]!ən	--	=nus	-[x]to
HUMAN-H	=uŕ	-[k]!ən	-[k]!ən	--	=nus	-bə (?)
LONG-V	-čəq	-[k]!ən	-[k]!ən	--	=nus	-[x]to
LONG-H	-čəq	-[k]!ən	-[k]!ən	--	=nus	-bə
FLAT-V	-xsa	-zu	-zu	-welzu	-as	-[s]xe (?)
FLAT-H	-xsa	-zu	-zu	-welzu	-as	-[ə]nx
BULKY	-sgam	-sgam	-sgam	--	-nu	=xŕe
HOLLOW	-xŕa	-[g]əga, -čū	-čū	-wə!čū	-[g]eq	-[g]eq (?)
HOLE	-zəq	-bəto	-[x]so	--	--	--

V = vertical, H = horizontal

¹ With a couple of exceptions; for example the geographical suffix =iŕ "into an enclosure" can be used with geographical locatives. By itself =iŕ usually means "into an enclosure on land, i.e. house or room of house," but sometimes means "into inlet." With the somatic suffix -!xu "neck" it means "into mouth."

The placement of some shape locatives in the table above is somewhat tentative, and further work needs to be done in this area. For example, $-(k)lən$ seems to have a more general meaning of "surface of bulky, long or human body," which suggests a lack of contrast with $-sgəm$ "surface of bulky object." However, $-(k)lən$ is probably just the unmarked form of the pair: $-(k)lən$ and $-sgəm$ do contrast in some contexts, for example in $ʔuʔəniʔ$ "surface of human body," $ʔusgəmiʔ$ "surface of bulky object" (Boas 1943: 190, 193); note also the specific meaning of "surface of long object" in such forms as $wəʔʔəniʔ$ "thick (substance) on surface of long body = thick bark on tree."

The "negative" forms in the table above, with the meanings "off from, out of" are created with a suffix $-wə-$. This suffix is productive with many locative suffixes. Forms could no doubt be made for "off from surface of long object," "off from surface of bulky object," but no examples have yet been found.

The most common meaning of $=xʔə$ is "top of (human) head," but a head is classed as a bulky object, and we do find this suffix with the meaning "top of bulky object," as in $hanxʔə$ "canoe on wavetop, canoe on top of island" ($han-$ "hollow object is somewhere"). It is difficult to guess whether $=xʔə$ originated as a somatic locative or as a shape locative.

There are additional suffixes which appear to express notions of shape but do not fit into the above table.

Table 4. Additional shape suffixes.

- $-p̃iq$ "vertical long object (refers to whole thing)"
- $=(ə)ənu$ "long object stretched out and attached (e.g. rope)"
- $-gəʔən$ "along line or rope"
- $=xʔu$ "ends of tree branches; leaves; animal fur"
- $=əci$ "hollow object for some activity" (e.g. $həməʔəci$ "food dish," $həm-$ "food, to eat")

- $-(x)so$ "through a hole or enclosed space" (also, "inside a hole"; see table above)
- $-štu$ "round opening of hole or enclosed space"

Some of these suffixes have links to other classes of locatives and may belong there. For example, the suffix $-štu$ also has the meanings of "door" and "eye." Others suffixes may properly belong with non-locative suffixes. For example, $=əci$ "hollow object for some activity" probably belongs with a group of derivational suffixes which broadly mean "place where some object is found or some activity occurs." The suffix $=əci$ "hollow object for some activity" differs from $-ču$ "inside hollow object" in that with the former, the stem denotes the thing which contains, while with the latter, the stem denotes the thing which is contained.

Again, shape-locative suffixes, and locative suffixes in general, are very productive, with up to three locative suffixes on a stem:

- 7.
- 7.a. $lačugəliʔ$ "to go into room ($la-$ "to go, $-ču$ "into hollow object," $-gəli$ "determinate motion" $-iʔ$ "in house")"
- 7.b. $baṅkutəxstuʔi$ "lower eyelid" ($baṅ-$ "lower, to go lower," $-kut$ "one of two sides," $-(g)əq$ "side, rim of hollow object," $-štu$ "round opening, eye" $-iʔ$ "nominal suffix")
- 7.c. $ʔixbə$ "good at point = sharp" ($ʔik-$ "good, to be good," $-bə$ "end of horizontal long object")
- 7.d. $təmsbəd$ "to call on telephone" ($təms-$ "to drum rhythm," $-bə$ "end of horizontal long object," $-nd$ "inchoative")
- 7.e. $ʔəwəbusxəʔ$ "cutwater of canoe" ($ʔu$ "empty root," $=abu$ "underneath," $-(s)xə$ "edge of vertical flat object ?")

Shape locatives are frequently found with the empty root ?u-. These combinations are frequently used to create topological nominals, for example those describing geographical features:

8.
 8.a. ?ubəčəni? "branching river delta, branching mountain ridges" (?u-, -bə "end of vertical long object, -čəna "hand")
 8.b. ?uğəxtə?i "headwaters of river" (?u-, -(g)əq "side of hollow object, riverbank," -[x]to "end of vertical long object"
 8.c. ?ukʰənalɪs "sand bar in river" (?u-, -[k]lən "surface of long object," -alɪs "open space on land or in water")
 8.d. ?ustəyɪ "round opening, door = Seymour Narrows" (?u-, -sto "round opening, door, etc.).

Many important aspects of shape locatives, and in fact all lexical suffixes, are still poorly understood. An area which especially needs work is how they work in relation to the overall syntax of the sentence (cf. Swadesh 1939).

4. SHAPE CLASSIFICATION IN STEMS.

The third area where shape classification is important in Kwakw'əla is in stems of location and handling. A full range of nominals and verbals are derived from these stems; they are both productive and fairly common. At present not enough is known to do more than guess at the full extent of shape classification in stems. There are undoubtedly more of categories of shape stems than are presented here.

Of all the shape stems, stems of location are the most frequently used in Boas' texts, and because of this the relationships among them are clearer. The stems of location are so called because they require locative suffixes.

Table 5. Stems of location.

	neither vert. nor horiz.	vertical	vertical plural	horizontal
HUMAN	--	ləx-	qə-	kal-
LONG	--	lə-	qə-	kat-
FLAT	--	kuk-	xəx- (?)	pəɬq- (on front) (?) həx- (on back)
BULKY	məx-	--	--	--
HOLLOW	--	hən-*	məx-*	qəp-*
HOLE	kəx-	--	--	--

*For hollow objects, column two is "rightside up," column three "rightside up plural," and column four "upside down."

As can be seen in the table above, the dimension of "orientation" is important for all categories except bulky objects and holes. All the "upright" (vertical, rightside up) stems have a singular and an optional (?) plural form. Furthermore, flat objects are elaborated for a second dimension of orientation, front side up vs. front side down. (This prone/supine contrast also appears in verbs of posture.) The following examples show stems of location in use:

9.

9.a. ləx- "vertical human is somewhere":

lələi nənəxməyə həmuɬi bəḡənəmxə ləwənuziləx yəqəosə nəxəgəməyɪ "one man replied, standing alongside the place where Day Hunter lay dead" (Boas 1935-43: 207).

(lələ- "auxiliary," -i "3rd person subject (case marker)," nənəxm- "to reply," həm- "one," -uɬ "human (classifier)," -i "demonstrative," bəḡənəx- "man," -xə "apposition," ləx- "vertical person is somewhere," -nə "side of long thing or person," -i? "nominalizer," -lɪt "in house," -əx "3rd person object"

yaq- "person lies dead," -la "on rock," -as "place of," -a "demonstrative,"
Naʔagami? "Day Hunter," -i "demonstrative").

9.b. han- "hollow object is somewhere":

laʔai Niʔiʔagami? siʔʔid qaʔ laʔ hangaaʔi laʔ ʔuʔsizaʔas ʔactais "Night
Hunter paddled until he reached the foot of ʔactais [a mountain] (Boas
1943: 191).

(laʔai "auxiliary," Niʔiʔagami? "Night Hunter," -i "demonstrative," siʔʔid "to
paddle," qaʔ "purpose," laʔ "auxiliary," han- "hollow object is somewhere,"
-gaʔ "to arrive," =ʔi "stationary on water," laʔ introduces indirect object,
ʔu- "empty root," -[x]sis "foot," -iʔ "nominalizer," -as "possessive")

9.c. mək- "bulky object is somewhere":

la nixamuʔtuxa miʔati qa himis məkamstalisa damsxi wapa "he pulls
the hair-seals out of the canoe so that they are in shallow water"
(Boas 1921: 451).

(la "auxiliary," nix- "to pull (on rope)," -am- "plural of locative
construction," -wəto "out of canoe," -d "inchoative," -ʔa "3rd person
object," miʔat "hair seal," -i "demonstrative," qa "purpose," himis
"auxiliary," mək- "bulky object is somewhere," -am- "plural of locative
construction," -sta "in the water," =is "in open space on land or in water," -a
"demonstrative," damsx- "salty, saltwater," -i "demonstrative," wapa
"water," -a "demonstrative")

Stems of handling include many kinds of activity, including carrying,
throwing, putting down, pushing, and breaking or tearing. The stems for
different kinds of activity are structured with respect to shape class of the
object being handled. In general, any stem of location can be used to indicate
the notion of handling by use of the "transitivizing" suffix -a. However, the
stems of handling express more specific notions of handling, and especially
also the notion of moving an object.

These stems are yet not well understood, and the placement of some
of the stems in the tables below is tentative. There are also many gaps. Note

that with stems of handling, the "hole" class is not represented, presumably
because this class has no external surface which could be handled.

Table 6. Stems of handling.

	carrying (on shoulders)	carrying (in arms, hands)	putting (down)	breaking/ tearing
PERSON	hamt-	qəʔ-	ʔ	--
LONG	wik-, ʔaɪk-	kəp- (V?) ləx- (H)	kat- (H?-lengthwise?) gəʔ- (H-crosswise)	kuq-
FLAT	ʔaɪk-	ʔ	kut- (V) pəq- (H)	qəp-
BULKY	tix-	ʔ	teq-	wək-
HOLLOW	ʔ	kə- (small?)	hən-	ʔ

V = vertical, H= horizontal

	use for an activity	to make something...	pushing	throwing
PERSON	--	--	ʔəl-	--
LONG	ləx-	ʔ	ʔanq-	səb-
FLAT	səp-	pəs-	ʔ	kəʔ-
BULKY	ʔ	kəlx-	ʔ	nəp-
HOLLOW	xəms-	ʔiq-	ʔ	ʔ

With stems of handling, whether a long object is held lengthwise or
crosswise seems to be important.

The following excerpts from texts show stems of handling in use:

10.

10.a. han- "to put hollow object somewhere" and teq- "to put bulky object somewhere":

le hanansasa luqi laxa wapi qas titeqbandaq qa wansatayus "he puts the hollow object [dish] into the water, and puts bulky objects [stones] on the ends to weight it down" (Boas 1921: 493)

(le "auxiliary," han- "to put hollow object somewhere," =ansa "under water," -sa "3rd person oblique (case marker)," luq- "dish," -i "demonstrative," laxa, introduces indirect object, wap- "water," -i "demonstrative," qas "purpose," titeq- distributive of teq- "to put bulky object somewhere," -ba "on end of horizontal long object," -nd "inchoative," -q "3rd person object," qa "purpose," wans- "to sink," -ata "continued position," -ayu "instrument," -s "3rd person oblique (case marker)")

10.b. kut- "to put flat object vertical somewhere" and paq- "to put flat object horizontal somewhere":

We, le kutalsaq qas kam?idix ?apsanxayus qa naqalis. We, galmisi gatax lai paxalsaq... "Well, he stands it [the board] on edge to adze one edge to make it straight. Well, when that is done he puts it flat..." (Boas 1921: 62).

(we "particle," le "auxiliary," kut- "to put flat object vertical somewhere," -als "on ground outside," -a "transivizer," -q "3rd person object," qas "purpose," kam- "to adze," -[x]?id "inchoative," -x "3rd person object (case marker)," ?aps- "one side," -lanx "edge of horizontal flat object," -i? "nominalizer," -as ?, qa "purpose," naq- "straight," -galis "moving in open space on land or water," galmisi "auxiliary," gata "to finish," -xs "subordinating suffix," lai "temporal subordination," paq- "to put flat object horizontal somewhere," -als "on ground outside," -a "transivizer," -q "3rd person object")

10.c. hamt- "to carry person on shoulders":

lalai hamtalida ?ixsu?i cadaqxa babagam "the pretty woman carried the boy" (Boas and Hunt 1905: 70)

(lalai "auxiliary," hamt- "to carry person on shoulders," -ala "continuative," -ida "3rd person subject (case marker)," ?ixsu?i "pretty, beautiful," -i "demonstrative," cadaq "woman," -xa "3rd person object (case marker)," babagam "little boy," -i "demonstrative")

10.d. yelk- "to carry long or flat object on shoulder":

lai yelx?atataqaxs lai neha?i laxis guki "he carries them [the boards] out as he is returning to his house" (Boas 1921: 62)

(lai "auxiliary," yelk- "to carry long or flat object on shoulder," -wata "out of house" -q "3rd person object," -xs "subordinating suffix," lai "auxiliary, temporal subordination," neha?i "return," lax- introduces indirect object, -is "3rd person possessive, subject of sentence," guk- "house," -i "demonstrative")

There are no doubt further types of handling which need to be explored further. For example:

Table 7. Additional stems of handling.

nap-	"to fall into hole"
?up	"to push into hole"
ta-	"vertical long object falls"
xit-	"to raise vertical long object"
lax-	"to strike with round object"
kix-	"to strike with long object"
yelx-	"to hang up round object"
ga?x-	"to hang up long object"

There are stems for both location and handling which express no specification of shape. The "empty root" of location is ?u-, which always

takes at least one locative suffix. The stem *da-* "to take (anything) in hand" perhaps fills a similar function with stems of handling.

5. DISCUSSION.

Although shape classification is overt only in nominal expressions of quantification, it is nevertheless pervasive in Kwakw'ala. On the basis of overt classification, Allan has divided classifying languages into four mutually exclusive categories. The first category contains those languages in which the classifiers are obligatory in expressions of quantity. Thai and Yucatec (Maya) are examples of numeral-classifier languages. In the second category are languages like those of the Bantu family which use concordial classifiers, where the classifying elements are affixed to nouns, plus their modifiers, predicates and proforms; and the third category consists of languages, like the Athapaskan ones, where the classifying elements are found in the predicate. Allan could only find three languages, Toba, a South American language, Dyirbal from Australia, and Eskimo which belong to the fourth type, intralocative classifier languages; in these languages, classifying elements are embedded in the locative expressions which must accompany nouns in most environments.

Kwakw'ala exhibits some characteristics of three out of the four types. Most obviously, it is a numeral-classifier language, since numeral-classifier constructions are, with rare exceptions, obligatory when counting a nominal. Kwakw'ala also exhibits some characteristics of predicate-classifier languages, except that while shape-classifying stems are common, they are not obligatory in any known context. Finally, Kwakw'ala shows some characteristics of intralocative-classifier languages. Here, there is no context in which shape locatives are obligatory, but in some contexts locative suffixes -- the larger class of which shape locatives are a subgroup -- are required: with stems of location, and possibly also with many stems of handling. To proceed no further than numeral-classifiers in studying Kwakw'ala shape classification is to ignore the full extent of an essential and far-reaching semantic process.

Overall, shape classification in Kwakw'ala exhibits both flexibility and constraint. With numeral classifiers, and to a lesser extent, shape stems there is little variation as to the shape class to which particular nominals are assigned. A few object types are classifier one way with classifiers, another way with shape stems: the most important example of this is the canoe. When counted, canoes receive the numeral classifier for a long object. But with shape stems they are invariably classed as a hollow object. The shape stem *han-* "hollow object is somewhere" is the standard means for elliptical reference to a canoe (e.g. *hanizas* "place of hollow object on beach = where canoe is").

Lucy has contrasted the "combinatorial flexibility" of numeral classifiers with the more rigid class membership found in gender-marking systems of European languages. In European languages, gender is an inherent and unchanging property for the majority of nouns, but in the numeral-classifier languages as he describes them, nouns are not rigidly confined to a single class. A speaker may choose a different classifier to go with a noun in order to emphasize a particular aspect of the referent. For example, in Yucatec, *háʔas* "banana" combines readily with different classifiers, often to produce different meanings: "one long banana" is a banana fruit, "one flat banana" is a banana leaf, "one bulky banana" is a banana fruit again, "one load banana" a banana bunch, and "one planted banana" a banana tree.

Kwakw'ala numeral classifiers do not have this flexibility. With the exceptions noted above, shape class in Kwakw'ala classifiers and stems resembles European gender in that it is an inherent and unchanging aspect of the referent. However, the language is far more flexible in usage of the locative suffixes, allowing the expression of precise and diverse topological notions. For example, in example 10 above, the subject of the sentence puts stones on the ends (*-ba* "end of horizontal long object") of the hollow object. There are many similar examples. Houses and other covered hollow objects, which receive the "bulky" numeral classifier, commonly receive shape-locatives for "hollow objects" when something is put in or someone goes in to them. There is no need for Kwakw'ala numeral classifiers to combine flexibly; the locative suffixes, especially in combination with shape stems, contain a far greater wealth of possibilities.

There is much more to be learned about shape classification in Kwakw'ala. In particular, many questions remain about the full extent of shape classification in stems of handling. Other unknowns include the relation of shape classification in Kwakw'ala to shape classification in other Wakashan languages, and the historical development of the process. It is to be hoped that this area of Wakashan grammar will receive more systematic attention in the future.

REFERENCES.

- Allan, Keith (1977). "Classifiers," Language 53: 285-309.
- Boas, Franz (1911). "Kwakiutl," in Boas, ed., Handbook of American Indian Languages, part I, pp. 423-557. Smithsonian Institution, Bureau of American Ethnology Bulletin 40. Washington, D.C.: Government Printing Office.
- (1921). Ethnology of the Kwakiutl. Bureau of American Ethnology Annual Report 35, parts I and II. Washington, D.C.: Government Printing Office.
- (1935, 1943). Kwakiutl tales, new series. Columbia University Contributions to Anthropology, vol. 26 (part I, translations [1935], part II, texts [1943]. New York: Columbia University Press.
- (1947). Kwakiutl grammar with a glossary of the suffixes. New York: AMS Press.
- (n.d.) Kwakiutl dictionary. Edited by Helene Boas Yampolsky. Unpublished typescript in the Franz Boas Collection of American Indian Linguistics at the American Philosophical Society, Philadelphia, PA.
- Boas, Franz and George Hunt (1905). Kwakiutl texts. The Jesup North Pacific Expedition, Memoir of the American Museum of Natural History, vol. III. New York: Stechert.
- Denny, J. Peter (1979). "The 'extendedness' variable in classifier semantics: Universal features and cultural variation," in Madeleine Mathiot, ed., Ethnolinguistics: Boas, Sapir, and Whorf revisited, pp. 97-119. The Hague: Mouton.

- Lincoln, Neville, and John Rath (1980). Northern Wakashan comparative root list. Mercury series, Canadian Ethnology Service, Paper #68. Ottawa: National Museums of Man.
- Lucy, John (1988). Semantic and pragmatic dimensions of number marking in Yucatec Maya," Paper presented at the XXVII Conference on American Indian Languages: Mayan Languages, at the 87th Annual Meetings of the American Anthropological Association, Phoenix, AZ, November 12, 1988.
- Lyons, John (1977). Semantics. Cambridge: Cambridge University Press.
- Swadesh, M (1939). "Nootka internal syntax," International journal of American linguistics 9: 77-102.