Reduplication, Quantification, and Aspect in Straits Salish*

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Introduction. Our goal in this note is to identify the morphological process of reduplication in Salish as exemplifying "A-Quantification", as defined in Partee et al (1987), and the relevance of this fact to the question of a noun/verb contrast in Straits. In a great many of the world's languages, including those of the Salish family, we see reduplication marking a family of semantic features having to do with measure along a scale of augmentation: plurality and collectivity, intensity, and iterative, continuative and related aspectual contrasts. These semantic notions are more or less directly related to the quantificational component of the grammar: quantification over individuals, events, states, processes and qualities. Plurality and collectivity measure sets of individuals -- events or participants; augmentation or intensity measures actions or processes along a scale marking strength or completeness. Important work by Tenny (1987) shows that aspect determines the delimitedness or temporal boundedness of an event, and that aspectual features, along with objects, play a role "measuring out" the event or process described in the verb over time. We propose that the interpretation of the quantificational features marked by the process of reduplication in Straits is constrained by both the argument structure of the clause and the lexical semantic features of the root and predicate, and that the morphological process of reduplication does not provide a basis for a noun/verb contrast at the lexical level in Straits (Kuipers 1968; Kinkade 1983; Demers and Jelinek 1984). We do not see reduplication confined to a particular lexical class of items; rather, we see it applying freely to roots with a great range of semantic features, producing a range of interpretations.

Partee et al (1987) and Bach et al (1995) identify a major typological contrast across languages: "A-Quantification" vs. "D-Quantification". A-quantification refers primarily to unselective adverbial quantification (Lewis 1975), but includes affixes and other morphological processes; D-Quantification is Determiner Quantification, a feature typical of both "strong" (*all, each, every*) and "weak" (*two, many, few*) quantifiers in English. Bach et al 1995 claim that all languages possess "A-Quantification", while only some languages have "D-Quantification". Jelinek (1988, 1995) and Jelinek and Demers (1994) show that Lummi lacks Determiner quantification entirely; strong quantifiers are adverbial, with a specialized syntax involving a LINK particle, while weak quantifiers share the syntax of ordinary first-order predicates. This appears to be true of the other Straits languages as well; cf. Montler (1986) on Saanich, Efrat (1969) on Sooke, and Thompson and Thompson on Clallam (1978). However, there are many Salish languages that do not have the LINK syntax for strong quantifiers, and it has been argued that there are Salish languages that have Determiner Quantification; see discussion in van Eijk (1985) and Matthewson (1996).

Reduplication is a process that operates on lexemes, and falls into the class of A-quantifiers. Languages that rely heavily on A-quantification might be expected to show more reduplication than languages with Determiner Quantification. However, reduplication is not confined to languages without Determiner quantifiers; for example, Yaqui, a Uto-Aztecan language with D-quantification, is rich in reduplication (Escalante 1991; Jelinek ms.). In Yaqui, reduplication can mark plurality of events or individuals, iterative or frequentive aspect, etc. Reduplication is simply one of the varieties of A-Quantification that a language may select.[1] Reduplication most commonly marks "weak" quantification, including collectivity; "strong" quantificational notion such as universal or generic *all, always* are much less common.

1. Varieties of reduplication in Salish. A number of works documenting reduplication processes in individual Salish languages have appeared. Some examples include: Kuipers (1967, 1974, 1989, and elsewhere; Thompson and Thompson (1971, 1992 and elsewhere); van Eijk (1981, 1985, 1990); Kinkade (1985) and elsewhere; Efrat 1969; Galloway (1984); Montler (1986); Carlson and Bates (1990); and Watanabe (1994). These reports provide analyses of the morphology and semantics of reduplication in particular Salish languages, and show certain cross-language similarities that are evidence of historical

connections. In general, the same range of semantic features appears, allowing for differences in terminology. For example, "Usitative" or "frequentive" aspect is sometimes identified as marking a characteristic property, or a propensity; "he usually does X, (therefore) tends or is prone to do X", etc.).

Van Eijk (1981, 1985, 1987, 1990) provides extensive documentation of reduplication and related aspectual inflection in Salish. His Lillooet grammar includes a detailed treatment of the process, from both a morphological and semantic perspective. He recognizes four basic morphological types: 1) 'Initial', 2) 'Final', 3) 'Consonant' and 4) 'Total' reduplication. These categories fall into various subtypes, and may also cooccur, producing a fifth type. The processes affect vowel and syllable structure. We do not attempt to repeat van Eijk's analysis here, but give some of his examples, which show the semantic range of each process. A suggested classification of the semantic force of reduplication in these examples is given in brackets.

1) Initial Reduplication

    a. kl'ax^W "muskrat"; kə-kl'áx^W "muskrats"   [Plural]

    b. x^{W}ítən "whistle"; x^{W}í-x^{W}itən' "keep on whistling"   [Persistent]

    c. q^{W}al'út "speak, deliver a speech"; q^{W}ə-q^{W}al'út "talk loudly, bawl people out"   [Augmentative]

2) Final Reduplication

    a. pála' "one"; pálla' "to get together [unify] (people, two streams, etc.)"   [Collective]

    b. ƛ'əɬ "shiver"; ƛ'əɬəɬɬ "keep on shivering"   [Persistent]

    c. 'aw't "be late"; 'áw'w'ət "in a state of being too late"   [Augmentative]

3) Consonant Reduplication

    a. x^{W}əm "fast, quick"; x^{W}míml'əx "to hurry up" [Transitivized]   [Augmentative]

    b. sqlaw' "beaver"; sqlə́ɬlaw' "little beaver"   [Diminutive]

    c. x̌zum "big"; x̌ə́zəm' "a little bit bigger"   [Dimin. Augment]

4) Total Reduplication

    a. s-núk^{W}a' "friend, relative"; s-nək^W-núk^{W}a' "friends, relatives"   [Plural/Collective]

    b. ɬəsp "rash"; ɬəsɬsəp "rash (on skin) all over"   [Aug./Complete]

    c. p'an'án "to fold, bend s.t."; p'ən'-p'an'án "to fold s.t. up"   [Completive]

    d. ləx "clear"; lə́x-ləx "smart, well educated"   [Intensive]

    e. məcxál "write"; məc-məcxál "write a lot"   [Intens./Augment]

Van Eijk includes an analysis of morphological subtypes in each category. He employs the following semantic terms:

5) Type 1: plurality, collectivity; repetitiveness, continuity;
   Type 2: ongoing process, bound to lead to an expected result; continuation, intensification;
   Type 3: in most cases, diminutiveness; with words denoting a quality, a weakening of that quality;
   Type 4: collectivity, plurality; increased intensity, continuity; to go [continue] along a location
       (shore, beach).

One of the subtypes, (1b), is not productive. Some forms are clearly lexicalized, showing semantic drift. Sometimes reduplication combines with other derivational elements to produce contrasts in the scope of the adverbial quantifier. In (6c) it is the prefix *n-* which marks "people".

6) a. cuk^W "quit, be finished"

   b. cək^W-cúk^W "be all finished"   [Completive]

   c. n-cúk^W-cək^W "several people are finished"   [Collective]

The feature of diminutiveness is apparently marked via reduplication in most if not all the Salish languages. The diminutive is also quantificational or scalar, representing the opposite end of the scale from the more commonly seen augmentative. Reduplication also appears in some lexicalized items, including forms that lack corresponding simplex words.

Kinkade (1985), reports on an unusual interpretation of reduplication in Upper Chehalis. There are one or more reduplicative processes in the language involving a repetition of the stressed vowel and following consonant; the associated meaning is that "the action indicated by the stem occurs slowly or gradually." The number of examples is small, and mostly drawn from Boas' 1927 field notebooks. Kinkade provides a classification of reduplication processes in Upper Chehalis from the perspective of both meaning and form. He identifies nine classes according to meaning:

7) 1. slow, gradual; the most frequently given glosses for -VC reduplication in Upper Chehalis
   2. superlative (of qualities)
   3. persistent, frequent; applies to states, actions; can be adverbial "always"
   4. while going
   5. become a color; includes scalar notions such as "bluish", "become very dark"
   6. by oneself; applies only to forms glossed as pronouns in English
   7. counting forms; Kinkade suggests that this is a pluralizing device when used with numeral stems
   8. plural (of the lexical suffix =*alwas*)
   9. residual

In slow reduplication, vowel deletion may operate, leaving only a final C copied. Examples of "slow" reduplication given by Kinkade include (The + sign substitutes here for the bullet sign which MDK uses to mark the border of the reduplication):

8) 1. s/ʕá'š[+ aš]aq-n   "it is snowing slowly"

   2. s/típ[+ ip]i-w-n   "it gets dark gradually"

   3. /ƛiš-áw + aw-m   "it got cold slowly"

   4. /at[+ t]mn   "he died slowly" (MDK fieldnotes)

   5. 'yáƛ'+ aƛ'   "he went home slowly"

"Slowly" is a scalar notion that is the opposite of "rapidly", a more commonly seen Intensive notion associated with reduplication. Comparable to the diminutive/augmentative, slow/rapid are the ends of a scale. This scale measures the speed of a change of state, or of an action, related to the weakness/intensity scale of an action. This unusual semantic property of -VC reduplication in Upper Chehalis demonstrates semantic drift.

The "by oneself" forms in Upper Chehalis are of equal interest. It seems plausible that they also should be classed as a kind of Intensive.[2] These person-deictic roots are inherently emphatic forms in many Salish languages, and they refer simply to individual definite persons, not to events, states or qualities of any kind.

9) /inim + amu' "we by ourselves"

What these readings have in common is that they all are more or less directly related to the semantic field of quantification or measure. The underlying root or predicate, the argument structure of the clause, and any other derivational or inflectional material all combine to place certain constraints on the interpretation, determining whether it is events, states, processes, or individuals that are being quantified over.

Thompson and Thompson (1992) note that in Thompson "Augmentation (AUG) is accomplished by means of a full reduplicating prefix which inserts directly before the stem a copy of its first syllable...with regular phonological developments". Augmentative forms refer to intransitive subjects, usually objects in transitives; this appears to be true elsewhere in Salish. Some examples:

10) a. ƛ'ən' + /ƛ'én'i "ears"   [Plural]

    b. x^{W}əl + x^{W}él-=qs "it pops up from time to time"   [Iterative]

    c. ƛ'əm' + ƛ'm'=épe-e-s "he chops all (the trees) down"   [Collective]

Thompson and Thompson identify other semantic features associated with this reduplication pattern: Repetition/persistence, Increase, and Generalizing reference. They identify also the pattern //+ CVC// marking Characteristic, and //[+ CV]// marking the Diminutive. Concerning the semantics of the Diminutive, they observe (p. 89):

> "The basic meaning is 'small(er) size or amount or reduced force', but specialized nuances are extremely common....Extended meanings include affection, endearment, modesty, and various specializations."

Montler (1986) identifies six reduplication patterns in Saanich. He recognizes the semantic unity of these processes, and comments (p. 94):

> "These processes are felicitously grouped together in Saanich for several reasons. First, they all seem to indicate an allied set of notions: diminutive, collective, distributive, repetitive, continuative, etc. Taking Comrie's (1976) definition of aspect referring to 'the internal temporal constituency of a situation', and the fact that all Saanich stems are basically verb-like, we can see that all of the radical morphological processes mark various aspects in a broad sense."

Of the Saanich diminutive, Montler notes: (p. 98): "The reference of stems with this pattern is always to something less in size, number, or frequency than the reference of the stem without it." Concerning the pattern marking the 'characteristic', he observes (p. 96) that this process marks a "characteristic trait, tendency, or disposition. A number of animal names involve this pattern." We have suggested a link

between these "dispositional" meanings and Iteration or Persistent aspect. It is tempting to draw a parallel between the use of the "characteristic" in animal names in Salish and the use of the agentive suffix -er in animal names in English: "warbler", or "side-winder" describe characteristic behavior of these animals. Examples of Lummi "natural kind" terms built on a characteristic traits:

11) a. təq^w "hard"; tə́q^wtəq^w "red snapper" (a firm fleshed fish)

   b. c'ix_w [imitation of call]; c'ix_wc'əx_w "osprey"

Kuipers (1967) gives an analysis of reduplication in Squamish, and identifies four primary classes: Total, Partial, Final, and Residual reduplication. On the semantics of these forms, he comments (p. 98):

> "As a living grammatical procedure, total reduplication serves to express plurality or collectiveness in nouns, iteration, intensity, or distributiveness in verbs, and reference to persons in numerals. Partial (initial) reduplication expresses continuousness in verbs, reference to animals in numerals, and -- with /i/ in the reduplication syllable, diminutiveness in nouns and verbs.....Besides these productive cases, reduplicative forms are found in most color designations and in some other quality words, in many animal names (total and partial), and in a large number of individual stems....."

In later work (1968) Kuipers questions the validity of a noun/verb contrast in Squamish and argues that the crucial contrast across predicates found in Salish syntax is between intransitive vs. transitive. If that is the case, then the differences in the interpretation of reduplicated forms lies in the inherent lexical semantic properties of roots, the argument structure of predicates built on these roots, and any other morphological material under the scope of the A-quantifier marked by the reduplicative process.

Examples of reduplication in Lummi marking plurality of events or individuals (Demers' fieldnotes):

12) a. k^wíntəl "to fight"; k^wik^wəntəl "a bunch are fighting'

   b. c'k^we-t-sən "I washed it"; c'ec'ək^w-t-sən "I did a bunch of washing"

   c. čənəs "tooth"; ččinəs "teeth"

Lummi also marks the diminutive via reduplication.

13) spčo "basket"; sppočə "small basket" [with metathesis]

2. Other aspectual or plurality markings. In addition to aspectual suffixes, there are other root-internal means of marking plurality or aspectual contrasts in Salish that may occur independently of reduplication, or may cooccur with it. Van Eijk (1985) identifies interior glottalization, marking inchoative aspect. This interior glottalization can be preserved in total reduplication.

14) a. nu'q^w "to get warm"; nú'ən'uq^w "to get warmed up (about a person)"

   b. x̌ə's "tired, aching from exercise"; x̌ə́'x̌'as "aching all over"

Thompson and Thompson (1992) record this infix for the Inchoative in Thompson, and Montler (1986) records it for Saanich, marking Actual aspect.

A widely attested process marking plurality is the infix -l. Montler records it for Saanich, and it is common in Lummi (Charles, Demers and Bowman, 1978).

15) c'istən "antler"; c'əlístən "antlers"

Examples from Demers' field notebooks show the same semantic range that we see with reduplication.

16) a. təq "to close, shut up"; təltəq "they're closing in (on us)"

   b. sk^wsé' "island"; sk^wəlsk^wsé' "islands"

The root təq "close" also appears reduplicated without the -l infix, describing the chacteristic of an artifact:

17) təqtəq "duck net"

3. Closing remarks. Demers and Jelinek (1984) and Jelinek and Demers (1994) briefly discuss reduplication in Lummi in connection with the question of lexical categories in the language. We note that the same morphological process can apply freely with different root classes, but produces different readings across these classes. The final reading of a reduplicated form is compositional, incorporating the lexical semantic features of the root and other morphological material present. If the predicate refers to an event, then reduplication can mark iteration, for example; or it may mark plurality/collectivity of an argument. If the predicate refers to an entity, then reduplication marks plurality. We recognize that semantic extensions and lexicalizations also occur. We are in general accord with the conclusions presented by Kuipers (1967) and Kinkade (1983), as well as by Montler (1986) on the semantic features associated with reduplication in Saanich.

The semantic force of reduplication is not always aspectual. Reduplication is a morphological process that is used to mark various semantic features including aspect; these semantic features are quantificational in nature. Aspect is a semantic domain that can be marked by formal devices other than reduplication. Reduplication and other means of marking aspect and collectivity can be defined as "A-quantification" as defined by Partee et al (1987); the "A" stands for "adverbial, affixal" etc., that is, non-determiner kinds of quantifiers. Jelinek and Demers (1994) note that it is possible for some reduplicated forms to have more than one interpretation; that is, there may be ambiguity in quantifier scope.

18) a. nəq-ŋ "dive"

   b. nəq-nəq-ŋ "dive repeatedly; many persons diving; many persons dive repeatedly"

This ambiguity is comparable to the variable scope seen in the interpretation of the unselective adverbial "strong" quantifiers in Lummi.

19) mək'^w=∅ 'əw' pəq'
    all=3NOM LINK white
    a. All of them are white.
    b. They are (each) completely white (not parti-colored).   (Jelinek 1986 fieldnotes)

In (19a) the universal quantifier mək^w has scope over the subject argument ("how many"); in (17b) it has scope over the completeness of the state ("how much"). The second reading (19b) was originally volunteered by Lena Daniels. The question arises as to what extent the A-quantification marked via reduplication may also be unselective, as in (18), or perhaps in (6c), where the prefix n- ("person") constrains the scope. Texts are rich in reduplicated forms, but even if ambiguity in quantifier scope is possible, the reading is typically fixed in context. In the process of text analysis with consultants, it may be possible to explore further the question of unselectivity with the A-quantifier represented by reduplication.

Morphologists recognize long-standing problems of analysis in connection with reduplication, which often cannot be integrated satisfactorily into generalizations referring to either derivation or inflection. LeSourd (1995) provides an interesting discussion of problems of this kind in the analysis of reduplication marking the diminutive in Passamaquoddy. In Passamaquoddy, diminutive reduplication applies across lexical categories, appearing on both nouns and verbs. These problems can be resolved when we recognize that canonical reduplication is neither derivation nor inflection, but a third phenomenon, A-quantification, which can apply to either predicates or arguments. Reduplicated forms can then be employed as natural kind terms, etc.

As Montler (cited above) observes concerning the diminutive: "The reference of stems with this pattern is always to something less in size, number, or frequency than the reference of the stem without it." While particular reduplication patterns may mark particular quantitative notions, these patterns are not confined to a particular root class, but produce a reading constrained by the lexical semantic properties of the root, and other morphological material present. We conclude that the morphological process of reduplication does not sort roots (or words) into nouns vs. verbs in Straits.

Notes

*We apologize to our fellow Salishanists if we have inadvertently overlooked any of their publications on reduplication. We are indebted particularly to the late Al Charles and Victor Underwood, as well as Lena Daniels, for instruction in Lummi and Straits Salish. This note forms part of a larger investigation of the quantificational features associated with reduplication and other aspectual marking in universal grammar (Jelinek ms.).

1 Another kind of A-quantification that appears in Salish (and English as well) has been called "rhetorical lengthening". In this process, a vowel may be given a higher intonation pitch and an extra long length to mark notions such as persistence or augmentation, as in these English examples:

1) a. Well, he wa...lked, and he wa...lked, and finally he came to a little cottage.
   b. An eno....rmous rhinoceros charged out of the brush.

Rhetorical lengthening has been recorded for Clallam (Thompson and Thompson 1971); the Thompson language (Thompson and Thompson 1992); Lillooet (van Eijk 1985); Lummi (Jelinek 1995) and elsewhere.

2 The Choctaw adverbial quantifier *baanoh* has a similar range of interpretations. When occurring with emphatic pronouns, it adds the reading "by (one's) self", elsewhere it can be glossed "completely" (Jelinek 1990 fieldnotes).

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