THE LAW OF DOUBLE CONSONANTS IN INUKTITUT

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ABSTRACT

In this article we examine a number of properties having to do with Schneider's Law in Inuktitut, also referred to as the Law of Double Consonants. This phonological rule simplifies a consonant cluster from two to one when there is an immediately preceding consonant cluster. We argue that although the rule is often characterized as targeting mixed clusters, consonant assimilation in Labrador Inuttut results in the fact that it only targets geminate clusters. The same is true in Northern Quebec dialects (Massenet 1986). This description of the rule shows eastern dialects (Labrador and Northern Quebec) to be similar to Siglit, a western dialect without extensive consonant assimilation, where the rule targets only geminates and not mixed clusters (Lowe 1985). We review a number of possible explanations of Schneider's Law, and propose an account based on syllable government of codas.

1 INTRODUCTION[1]

In certain dialects of Inuktitut there is a rule of consonant cluster simplification, variously called the Law of Double Consonants or Schneider's Law (henceforth SL, after Father Lucien Schneider who first discussed it—see for example, Schneider 1972). This rule is found in the closely related dialects of Arctic Quebec and Labrador. The rule prevents two sequences of consonant clusters from following one another by deleting one consonant from the second cluster. Since in Inuktitut there can be at most two consonants in a cluster, this produces the sequence CC followed by C, as shown in (1):

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(1) Schneider's Law in Arctic Quebec (Dorais 1988)

                                1 2
a. tusar-tuŋa → tusartuŋa 'I hear'
hear-I

                                1 2
b. aullar-tuŋa → aullatuŋa 'I go away'
go away-I

In the example in (1a), the sequence /rt/ is retained because the preceding syllable contains only a single consonant /s/. In contrast, in (1b), the first cluster /ll/ triggers a simplification of the following cluster /rt/, resulting in the single consonant /t/.

The rule is iterative left to right, so that the same sequence of clusters will come out differently depending on whether they are preceded by a cluster or not, as shown in (2a) and (2b):[2]

(2) Schneider's Law in Labrador (Smith 1977a)

                                1 2 3 4
a. nanu-ŋŋua(k)-kqaa-lluni → nanuŋŋuaqaalluni
bear-toy-do first-by 'by first killing a toy bear'

                                1 2 3 4
b. tuttu-ŋŋua(k)-kqaa-lluni → tuttuŋuakqaaluni
caribou-toy-do first-by 'by first killing a toy caribou'

In (2a), the stem-medial single /n/ in position 1 does not trigger simplification of the following geminate velar nasal. However, this geminate triggers simplification of the following cluster /kq/ in position 3; the intervening *k* in parentheses is a consonant that is deleted by affixation. The cluster /kq/ which has now been simplified to /q/ does not trigger simplification of the following geminate /ll/. Compare now the example in (2b) which is similar in all respects except that the stem contains a medial cluster /tt/ in position 1. This cluster triggers a simplification of the geminate velar nasal in position 2; as position 2 is now occupied by a single consonant, it is no longer able to trigger simplification of the following sequence /kq/; this sequence in turn triggers simplification of the lateral geminate /ll/ in position 4.

All descriptions in the literature, e.g., Dorais (1988), Fortescue (1983), Smith (1975; 1978), and so on, characterize SL in Arctic Quebec and

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[2] Throughout this article we use either phonetic symbols or a standard phonological representation for Labrador words. The Labrador Inuit Standardized Spelling System differs as follows: K = q; e = ii; o = uu; â = aa. As well, the symbols ŋ and ɬ are not used, ng and tl being used in their place.

Labrador as a rule which operates over sequences of closed syllables, or sequences of consonant clusters, as shown in (3):

(3) Schneider's Law (Smith 1978)

$$V\,C\,C\,V\,(V)\,C1\,C2\,V \rightarrow V\,C\,C\,V\,(V)\,C2\,V$$

The rule in (3) indicates that any consonant cluster will trigger the deletion of the first consonant of an immediately following cluster. The clusters involved may consist of a mixed cluster or a geminate. Note also that vowel length is irrelevant to the process. That this is so can be seen in (2b), where simplification of the geminate in position 4 applies across the long vowel /aa/. Similarly, in (2a), the vowel sequence /ua/ is no impediment to the operation of SL in position 3.

It so happens that these two dialects are also characterized by a high degree of assimilation. Massenet (1986) argues that there are no genuine mixed clusters in Arctic Quebec, and that the only clusters consist of geminates. Further, he argues for a special connection between gemination and SL. Before considering his arguments, we will show that all consonant clusters in the Labrador dialect are phonological geminates.

2. CONSONANT CLUSTERS IN LABRADOR

It is well known that the Labrador dialect has extensive assimilation of consonant clusters. It can be shown that assimilation is in fact total, and that a rule of complete regressive assimilation applies to all consonant clusters. This generalization is obscured on the one hand by orthographic conventions, which are sometimes based on the underlying forms of morphemes, and on the other, by surface phonetics. Thus, although Smith (1977a) lists some mixed clusters in Labrador, a look at the chart in (4), reconstructed from his account, reveals that when the single consonants are matched against the geminates, the mixed clusters always fill a gap where there is a missing geminate. Italicized forms in parentheses are orthographic representations. The other forms are phonetic. Forms separated by a slant line are variants.

A simple account of the Labrador consonant system can be obtained if it is assumed that all surface consonant clusters, both geminates and apparent mixed clusters, are derived from the single consonants via regressive assimilation, as in (5):

(4) **Labrador Consonants and Groups (based on Smith 1977a)**

	LABIAL	CORONAL	VELAR / UVULAR	
voiceless stops	p	t	k/q	*(k)*
	pp	tt	kk/qq	*(kk)*
voiceless fricatives		s ł	X .	*(q)*
		ts łł/tł	kx/qX	*(kq)*
voiced fricatives	v/β	l	γ	*(g)*
	ff *(pv)*	ll	XX/xx	*(qq)*
nasals	m	n	ŋ	*(ng)*
	m m	n n	ŋŋ/NN	*(nng)*
glides		j		
		dž *(tj)*		

(5) Regressive Assimilation:

$$\begin{array}{ccccc} X & X & & X & X \\ | & | & \rightarrow & \backslash & / \\ C1 & C2 & & \multicolumn{2}{c}{C2} \end{array}$$

This rule must be followed by certain other rules to derive the surface forms in some cases. Row by row in (4), the analysis proceeds as follows:

•The voiceless stops are straightforward: any cluster whose second element is *p, t,* or *k* (which varies with *q*), surfaces as *pp, tt,* and *kk* (or *qq*), respectively.

•Skipping two rows, we see that the nasals are also unproblematic. Again, the velar varies with the uvular.

•Returning to the voiceless fricatives: clusters whose second member is *s, X,* and optionally voiceless *l,* are realized as affricates: *ss* becomes [ts], and the velar or uvular *XX* becomes [qX], which Smith writes as *kq*. *łł* can be realized as [tł] or [łł]. Thus, the initial stop part of the derived cluster is not the reflex of the original first consonant of the cluster. Hence, Labrador [tł] can correspond to many different consonant-*ł* clusters in other dialects: for example, Western Arctic *akła* 'bear' becomes *atłak* in Labrador. Also, /t/ does not resist assimilation, so /tp/ becomes [pp], and so on. Rather, these forms are most simply derived via Regressive Assimilation, which produces geminates /ss/, /XX/, /ll/; these geminates are then affricated by the rule given informally in (6):

(6) Affrication:

Voiceless spirant geminates are affricated.

•Turning now to the voiced fricatives: clusters of the form C*v* and C*g* devoice to [ff] and [XX] (~[xx]). For various reasons, Smith writes these as *pv, qg* or *qq;* evidently, the devoicing is variable, and has something of the character of a phonetic implementation rule:

(7) Devoicing:

Voiced obstruent geminates devoice.

•Finally, the geminate counterpart of the glide /y/ *(j)* is [dž], by a rule of palatal affrication:

(8) Palatal Affrication:

Geminate j becomes dž

Sample derivations of the various types of clusters are given in (9):

(9) **Labrador Geminates:**

Underlying	/Cp/	/Cv/	/Cs/	/Cγ/	/CX/	/Cj/
Regressive Assimilation	pp	v v	ss	γγ	XX	j j
(Palatal) Affrication			ts		qX	dž
Devoicing		ff		XX		
Surface	[pp]	[ff]	[ts]	[XX]	[qX]	[dž]

The character of the first consonant of any cluster is obliterated by Regressive Assimilation. Devoicing must follow Affrication: otherwise, voiced and voiceless fricatives would fall together as affricates (C*g* > *gg* > *XX* > **qX*).

Because Regressive Assimilation applies so widely in Labrador, converting every cluster into a geminate, there is an ambiguity in the formulation of SL. On the one hand we can say, following many standard accounts, that it applies to any consonant cluster in Labrador. Smith (1977b) argues for this on the basis of the sequences in (10):

(10) Schneider's Law and 'Mixed Clusters' (Smith 1977b)

a.	pisu(k)+kqaa+vuk	→	pisukqaavuk	'he walks first'
b.	ikqa+kqaa+vuk	→	ikqaqaavuk	'he remembers first'
c.	inu(k)-atsuk	→	inuatsuk	'lovable inuk'
d.	inni(k)-atsuk	→	inniasuk	'loveable son'

In (10a, c), the stem-final consonants indicated in parentheses are truncated by the suffix, and the suffix clusters appear. In (10b, d), the context for SL is met, and the suffix clusters are simplified. It should be borne in mind, however, that the cluster written *kq* is actually affricated [kx] or [qX], derived from /XX/; similarly, *ts* is derived from /ss/. Therefore, the derivations in (11) would yield the correct results. In (11), SL applies only to geminates; there are thus no arguments showing that SL must apply to unassimilated clusters.

(11) **Schneider's Law and 'Mixed Clusters': Sample Derivations**

Underlying	/iXXa+XXaa+vuk/	/inni(k)+assuk/
Truncation		inniassuk
Schneider's Law	iXXaXaavuk	inniasuk
Affrication	iqXaXaavuk	
Surface	[iqXaXaavuk]	[inniasuk]
Smith 1977b	*ikqaqaavuk*	*inniasuk*

3. CONSONANT CLUSTERS IN ARCTIC QUEBEC

Let us turn now to Quebec dialects, which also exhibit Schneider's Law. In Quebec, assimilation of clusters is not as advanced as it is in Labrador, and many accounts indicate the presence of what appear to be mixed clusters. For example, Dorais (1976; 1977; 1986) and Dorais & Lowe (1982) write that place assimilation affects all consonants but uvulars. Thus, we find many clusters written *qp, rt,* and so on—see for example (1a) for *rt*.

Massenet (1986) argues that Regressive Assimilation applies freely in Quebec dialects. We give in (12) his surface consonantal inventory for the Port Harrison dialect:

(12) **Quebec (Port Harrison) Surface Consonants (Massenet 1986:49)**[3]

Simple					**Geminate**					**Pharyngealized**		
p	t	s	k	q/X	pp	tt	ts	kk	qq	^{r}pp	^{r}tt	^{r}ts
v	l	j	ɣ	r	pp′	ll	ts′	kk′	qq′	^{r}pp′	^{r}ll	^{r}ts′
m	n		ŋ	N	mm	nn		ŋŋ	NN	^{r}mm	^{r}nn	

As in Labrador, every simple consonant corresponds to a geminate, although the details of the phonetic realization differ somewhat. Thus, corresponding to the voiced fricatives, where Labrador has voiceless fricatives *ff, XX,* etc., Massenet observes voiceless glottalized geminates *pp′*, *qq′*, etc. The major difference between Quebec and Labrador as far as we are concerned is the presence of pharyngealized geminates: these derive from clusters whose first member is uvular *q* or *r*. Massenet comments that in a cluster like *rp* (or *qp*), the bilabial occlusion has the length of a geminate, and the syllable division is not between the uvular and the labial, but

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[3] Massenet writes *ts* as *cȼ* and *ts′* as *cc′*.

in the middle of the labial. Thus, the cluster is phonologically a pharyngealized geminate, and not a mixed cluster.

Massenet observes as well that the geminates are not only longer than nongeminates: they are also extremely tense. Noting that SL occurs in dialects with tense geminates, he proposes that SL is a consequence of geminate tension: tension built up in articulating a geminate cluster results in an explosive release of air which is incompatible with forming another tense consonant immediately after. He formulates SL as a rule that deletes a word-internal coda consonant if the onset is tense:

(13) Schneider's Law (Massenet 1986)

Delete a word-internal coda consonant
in a syllable with a tense onset.

He proposes (p. 131) that the rules of Assimilation, Tension, and SL apply on a syllable cycle, from left to right. Derivations proceed as in (14):

(14) **Geminate Tension and SL (Massenet 1986)**

Underlying Representation	/niu-viq-vik-mut/
1st Cycle	niu.viq
(No rules apply)	
2nd Cycle	niuviq.vik
Regressive Assimilation	niuvi^{r}v.vik
Tension	niuvi^{r}p.p'ik
Schneider's Law	niuvi^{r}p.p'i
3rd Cycle	niuvi^{r}p.p'i.mut

4. SCHNEIDER'S LAW IN SIGLIT

A recent account of the Siglit dialect by Dorais and Lowe (1982) and Lowe (1984; 1985) sheds new light on the connection between SL and gemination. Unlike Quebec and Labrador, Siglit, spoken in the Western Arctic, has a large number of unassimilated mixed clusters. It differs from its neighbouring dialects in a number of respects, one of them being that it has a version of SL. As (15) indicates, any cluster can trigger SL in Siglit, but only geminates are targets of the rule:

(15) Schneider's Law in Siglit (Lowe 1984)

V C C V (V) Ci Ci V → V C C V (V) Ci V

The operation of SL is illustrated in (16): a geminate is simplified if it follows either a mixed cluster (a), or another geminate (b); a mixed cluster, however, is not affected, whether preceded by a mixed cluster (c), or by a geminate (d):

(16) Siglit (Lowe 1984)

a.	taktu-kkun	→	taktukun	'through the fog'
b.	qimmi(q)-kkun	→	qimmikun	'through the dog'
c.	imiq-taq-tuaq			'he fetched water'
d.	aullaq-tuaq			'he left'

It is often said that Siglit has a restricted version of SL as compared to the Labrador and Arctic Quebec dialects, since it affects only geminates in Siglit but all clusters in the eastern dialects. As we have seen, however, all clusters in the eastern dialects are geminates, and the formulation of SL given in (15) holds equally well for those dialects as well. These facts show that Massenet was correct in claiming that geminates have some special connection to SL. However, his proposed explanation for the process—that the cause of SL is geminate tension—does not extend to Siglit: for if all clusters in Siglit are tense, then we would expect SL to apply to all clusters. If, on the other hand, only geminates are tense, then Massenet's proposed mechanism predicts the inverse of what we find in Siglit, i.e., geminates ought to trigger simplification of only a following cluster. Since it is desirable to maintain a unified version of SL that applies equally to all dialects in which it is found, we must abandon the tension explanation, not just for Siglit, but also for Arctic Quebec and Labrador.

5. SOME NOTES ON REPRESENTATION

It is time now to make more precise the phonological rules and representations required for our analysis. Like Massenet (1986), we believe that a central role is played by Regressive Assimilation. This rule has a slightly different form in the three dialects we have been considering, forming a continuum of assimilation (Creider 1981), as in (17):

(17) Continuum of Regressive Assimilation

Siglit:	Manner		
Quebec:	Manner	Primary Place	
Labrador:	Manner	Primary Place	Secondary Place

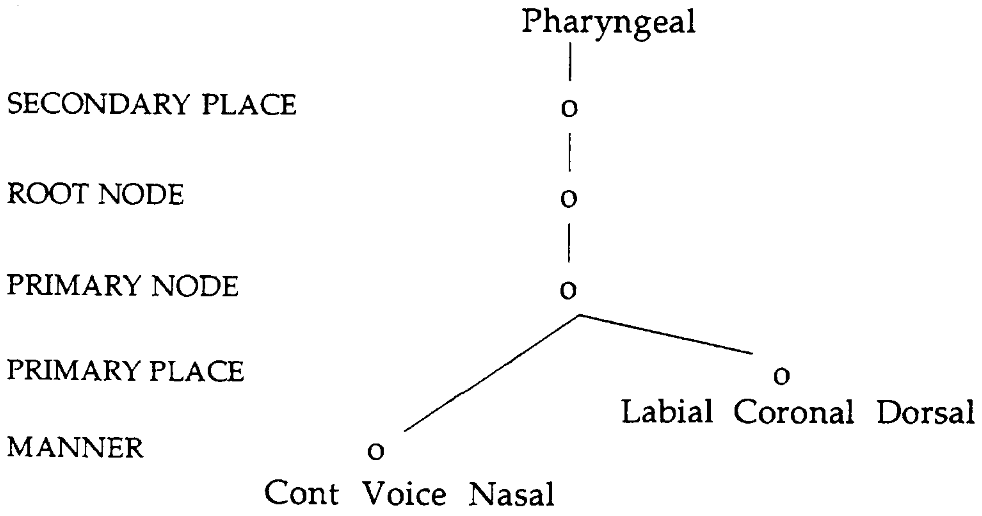
In Siglit, place is not assimilated, but all other features are, including voice, nasal, and continuant. Since they act in concert, we might suppose that they are grouped under one node, which we will call Manner. In Arctic Quebec, assimilation extends to the place features as well. The only exception involves the so-called *r*-clusters, an example of which is given in (1) and elsewhere. We have noted that Arctic Quebec clusters written *rt, rp,* etc., actually represent pharyngealized coronal or labial geminates. Following Massenet, we hypothesize that these clusters must be geminates at the time they undergo SL; however, when they do undergo it, the outcome is a plain consonant, not a pharyngealized one, as shown in (18):

(18) **'*R*-Clusters' in Arctic Quebec**

Underlying	/aullar+tuŋa/
Regressive Assimilation	aulla^{r}ttuŋa
Schneider's Law	aullatuŋa
Surface	aullatuŋa (*aulla^{r}tuŋa)

We observe that Regressive Assimilation does not wipe out the pharyngeal element contributed by *r*. We thus require a representation which makes it possible to spread all other features together. As pharyngealization is a secondary articulation, it follows that we need to group Manner together with Primary Place under one node. We will call this the Primary Node, as illustrated in (19):

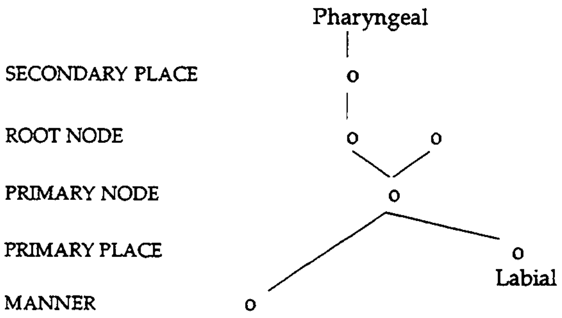
(19) Gross Feature Geometry:



While Regressive Assimilation in Siglit spreads the Manner node, in Quebec it spreads the Primary node. In support of this architecture, which makes secondary articulations relatively independent of the other features, we observe that pharyngealized segments have effects on preceding vowels, causing retraction of the tongue root. Therefore, the pharyngeal element not only escapes Regressive Assimilation, but spreads independently to preceding vowels, unlike other features in the dialects we are considering. Finally, at the extreme of the continuum is Labrador, which is characterized by total regressive assimilation.

Since the Secondary Place node is not affected by assimilation in Quebec dialects, it follows from (19) that pharyngealized geminates must have two Root nodes, as in (20). For consistency, we will suppose that all geminates have two root nodes, as proposed by Selkirk (1988). For the purposes of SL, then, 'geminate' means having the same primary place of articulation. Since all such geminates also share manner specifications, we will say that 'geminate' means linked at the Primary node:

(20) Pharyngealized Geminates (e.g., ʳ**pp**)



In Labrador, the merger of velars and uvulars means there is no longer a distinctive pharyngeal secondary place. Hence, spread of the Primary node results in total assimilation.

6. WHY SCHNEIDER'S LAW?

Having now determined that SL is a rule that deletes the left root node of a place geminate when it follows a consonant cluster, the question arises as to what sort of rule SL is. The motivation for SL remains obscure. We will show first that various plausible-looking suggestions as to the role of SL in Inuktitut phonology cannot be supported. After disposing of the more obvious candidates, we will consider what explanations are left.

6.1. Schenider's Law is not metrical

The alternating character of SL makes it appear at first to be a metrical phenomenon. There are a number of ways of trying to implement a metrical solution. We might suppose first that an abstract alternating pattern of strong and weak syllables is set up from left to right, and that syllables in weak positions undergo SL. That this does not work is evident from the fact that SL is sensitive only to the preceding syllable, and not to overall position in a word. Refer back to the forms in (2), for example: in (2a), we cannot set up a pattern S W S W, because it is the cluster in position 3 that is simplified; a W S W S... pattern, however, does not work in (2b), where the even-numbered clusters are affected. Moreover, any pattern that we begin can be disrupted by the intervention of an open syllable. If there is a metrical explanation to SL, it requires a metrical system that locates heavy syllables wherever they are.

We might then propose to assign a stress to every closed syllable, as in (21a). The context for SL is met when two heavy syllables are adjacent, or alternatively, when two stresses are adjacent. SL has the effect of making a heavy syllable light, causing it to lose its stress. Or alternatively, we could make it a stress-deletion rule which in turn causes the destressed syllable to become light. The result in either case is (21b), a more rhythmic grid pattern:

(21) Schneider's Law as a Metrical Rule

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a.   *         *         *         *    b.  *                  *
     *         *         *         *      ( *           * )  ( *           * )
     m   m     m   m     m   m    m   m     m   m       m      m   m       m
    CV   C    CV   C    CV   C   CV   C    CV   C      CV     CV   C      CV
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The problem with this approach is that syllables with long vowels also undergo SL, as we have seen in example (2) and elsewhere. Although the facts of stress in Inuktitut tend to be elusive, on most accounts syllables with long vowels or vowel clusters have some degree of stress: typically, they have the most stress. So it is unlikely they would be metrically weak. In any case, removing the coda from a syllable with a long vowel will not suffice to make it a short syllable. Furthermore, just as vowels do not affect SL, they are never affected by it either. Thus, there is no vowel shortening in the context of SL. Our conclusion is that any metrical solution would require metrical patterns that are quite different from any that can be independently motivated or have been seen, either in Inuktitut, or elsewhere. The motivation for SL is thus not to be found there.

6.2. Consonant Gradation and Compensatory Lengthening

There have been a number of cryptic and veiled suggestions in the literature that SL might possibly be related to a process variously called consonant gradation or compensatory lengthening. As this process does involve alternations between geminates and nongeminates, it is worth looking at in connection with SL. However, we will show that there is no discernible connection between the two.

Ulving (1953) proposed that Inuktitut has, or once had, a rule of consonant gradation. He showed that, in all dialects, consonants situated at the boundary between the ultimate and penultimate syllables of the stem undergo characteristic alternations associated with the affixation of certain morphological categories such as dual and plural. Ulving attributed these alternations to the effects of stress accent on the medial consonant, similar to the gradation patterns found in Uralic; examples are given in (22). An original *k* is weakened to *g*, as in *putuguq*, when it precedes the main stress and does not immediately follow a stress. *k* is preserved in *nukaq* because it immediately follows a secondary stress. In *nukkat*, the plural of *nukaq*, Ulving proposes that the plural suffix was associated with a stress shift which moved the main stress back a syllable, resulting in strengthening, i.e., gemination of *k*. An original voiced spirant like *g* deletes in weak grade and geminates in strong grade, in the same accentual conditions:

(22) **Consonant Gradation (Ulving 1953)**

Original	**Weak Grade**		**Strong Grade**
k	pùtugúq	nùkáq	núkkat
	'big toe'	'younger sibling'	'younger siblings'
g		puuq (<*puguq)	púggut
		'bag'	'bags'

Rischel (1974) observes that such a system may have obtained in early Eskimo; however, he rejects a stress-based explanation for this phenomenon in modern dialects, at least in Greenlandic, arguing that stress has no well-defined status in Greenlandic phonology, so that it cannot be the basis of an explanation for a phonological rule. Rischel, instead, believes that gemination comes about as a compensatory lengthening of a consonant to make up for the loss of syllabic material on its right. Though the details of his analysis are not entirely clear to us, the derivation in (23) is one version of an account along the lines he suggests:

(23) **Compensatory Lengthening in West Greenlandic (Rischel 1974)**

	a.		**b.**		**c.**	
Underlying	/qulirutaq+Vt/		/kumak+Vt/		/nuta aq+Vt/	
Moras	1 2 3 4	5	1 2	3	1 2 3	4
Syncope (qV > q)	qulirutaq	0t			nuta aq	0t
Truncation	quliruta	t	kuma	Vt	nuta a	t
Compensation	quliruttat				nuta a	t
	1 2 3m4	0			1 2 3	0
Surface	[quliruttat]		[kumaat]		[nutaat]	
Gloss	'hairy edges on boot'		'lice'		'new (pl.)'	

The underlying forms in (23) represent plurals, which have the suffix V*t*, where V is some vowel. Moras are indicated underneath. Apparently, stem-final /q/ provokes the syncope of the suffix vowel in (a) and (c), resulting in the loss of a mora, which must be compensated for if possible. The form in (b) has stem-final /k/, which does not cause syncope. The stem-final consonants themselves are also lost, via Truncation, though this does not affect the mora count. In (23a), the lost mora is compensated for by gemination, appearing one mora to the left of the one that was lost. That is, the lost mora was to the right of mora number 4, and the new one is to the left of 4. In (23b) no mora is lost, so there is no compensation and the resulting form is *kumaat*. In (23c), the effect of inserting a mora to the left of the one that was lost, i.e., between mora 2 and 3, would be to further lengthen the vowel, which is not allowed. Nor can gemination apply more than two moras from the original deletion site. Therefore, no compensation can occur in this form.

It is not obvious how this process might be connected to SL. One might try to locate the connection in the fact that Compensatory Gemination results in alternations where a geminate appears before a single mora, as in (23a), while a nongeminate appears before 2 moras, as in (23b, c). This trade-off of moras between successive syllables is reminiscent of SL. A closer look, however, reveals significant differences. First, compensatory lengthening is affected by vowel length, as we would expect in a mora-based system; SL is not. Second, compensatory gemination is noniterative, while SL is iterative. Third, compensatory lengthening is morphologically conditioned, SL is not. The two processes are thus quite dissimilar, to the extent where it is difficult to see how SL might have arisen as some sort of extension or modification of the other.

If any more proof were needed that these two rules have no synchronic connection, consider the data in (24) from Siglit. Siglit, like Greenlandic, has a process of morphologically conditioned gradation, found in the dual, among other forms. A clear example is (24a), where dual formation is accompanied by gemination. The form in (b) shows an alternation between zero (the old weak grade) and geminate /jj/, which is later affricated to [dž]. Now consider the form *upkuaq* in (c). Here, as noted by Lowe (1985), we find in the dual a single consonant /j/, showing that while gradation has taken place, SL has undone some of its effects by simplification of the geminate. Again in (d), SL undoes the effects of gemination following the cluster written *djr*. In (e), a voiced fricative /g/ strengthens to a geminate /kk/ in the dual; in (f), where a cluster precedes, SL simplifies the geminate to single /k/.

(24) **Gemination and Schneider's Law in Siglit (Lowe 1985)**

	a.	b.	c.
Singular	igaliq	quaq	upkuaq
Dual Formation	igallak	qujjak	upkujjak
Schneider's Law			upkujak
Affication		qudžak	
Dual	igallak	qudžak	upkujak
Gloss = dual of:	'window'	'frozen meat'	'door'

	d.	e.	f.
Singular	iqidjralik	itigaq	sulukpaugaq
Dual Formation	iqidjrallak	itikkak	sulukpaukkak
Schneider's Law	iqidjralak		sulukpaukak
Affrication			
Dual	iqidjralak	itikkak	sulukpaukak
Gloss = dual of:	'square'	'foot'	'grayling'

In all these cases it is evident that gradation applies, insensitive to the existence of a preceding cluster; then SL applies in the same context, unmindful of the need to compensate for a lost mora. Thus there is no doubt that in Siglit, gradation (or compensatory lengthening) and SL are independent processes, the one operating on the output of the other.

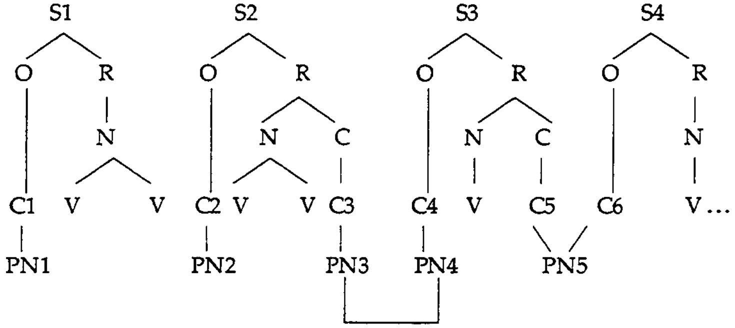
A different version of consonant gradation is found in the dialects of Inupiaq spoken on the Seward Peninsula. Both Dorais (1986) and Kaplan (1985) point out that this phenomenon resembles SL. According to Kaplan, Seward Peninsula Consonant Gradation (SPCG) is characterized by the strengthening and weakening of consonants to form an alternating pattern of weak and strong syllables. The first syllable of the word determines the patterning: if it is closed or has a long vowel, the pattern begins with a strong syllable; if it is open with a short vowel, the pattern starts with a weak syllable. The pattern is interrupted by syllables with long vowels, which are always strong. Examples are *tuttuttuq* → *tuttutuq* 'He killed a caribou', and *katittuq* → *katittuq* 'He got married'.

While the rule has additional complications, it does resemble SL somewhat, in that it is an iterative process, applying to its own output and producing C-CC or CC-C sequences. But these similarities are again superficial. Again, SPCG is sensitive to vowel length, while SL is not. As well, SPCG is a prosodic process, in that it organizes material into a rhythmic pattern. SL is not an organizational process of this sort. If a word were to consist only of CV sequences, SL would remain inactive. Moreover, as we argue, if a word were to contain a string of mixed clusters which are not identical in place, SL again would remain inactive. It is only when a cluster is followed by a geminate that SL is brought into play.[4]

6.3. Schneider's Law and Syllable Government

We observe, then, that SL involves consonants only, in particular, consonants in contact, where the kind of contact allowed at the edge of one syllable is influenced by the contact at the edge of the previous syllable. There have been a number of proposals for how to characterize the relation between a coda consonant and a following onset. Consider (25):

(25) Scheider's Law and Syllable Government



We will adopt the general approach of Kaye, Lowenstamm and Vergnaud (1988), and Bures (1989), and think of this relation in terms of a notion of trans-syllable government, whereby a consonant in coda position must be governed by a following onset consonant. We need to make some further extensions and distinctions. We propose that government extends to the syllables involved: a syllable with a coda is governed by the following syllable. When the coda consonant is a geminate, we will say that government is direct; otherwise it is indirect. The first syllable has no coda, so there is no relation of government between it and syllable 2. Syllable 3 governs syllable 2 indirectly, and is itself directly governed by syllable 4. SL prohibits a governing syllable from being directly governed. The general interest of this process is that it provides an example of a government relation that is not strictly local at the segmental level, and hence cannot be handled by a theory of local filters as proposed by Itô (1986). Thus, these

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[4] The Rigolet dialect spoken in Labrador (see Dresher & Johns to appear) provides an interesting test case for this hypothesis, since it is phonologically conservative and has some version of Schneider's Law. The results, so far, are inconclusive.

facts point to a more extended role for the notion of government than we have observed to here.

7. CONCLUSION

To conclude, we might ask why some dialects have SL while others do not. Fortescue (1983), in a survey of intonation contours across Inuit dialects, observes that the contours in the eastern dialects fall into two sets which can be derived from sets found in the west: Greenlandic from Barrow and Copper in one set, and Quebec from Siglit in the other. These sets, according to Fortescue, reflect the known route of population migration. Since Quebec and Siglit both have SL, we might think at first that it was brought to Quebec by Siglit speakers. But it is believed that SL is a relatively new development in Quebec and Labrador, occurring perhaps at the end of the last century, well after the migration from the west. Therefore, there may be something in the intonational systems of these dialects which makes them susceptible to a rule like SL. Another possibility is that SL is older than generally believed, and that there is indeed a historical connection between the western and eastern versions of the rule—but we must leave this as a speculation.

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