

Cognitive Configurations in Lushootseed.

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Introduction In this paper I will describe a cognitive system of categorizing spatial percepts that underlies the organization of Lushootseed culture, texts and language. By cognitive system I mean a set of organizing principles in terms of which the world is differentially perceived and classified. I will be presenting ethnographic, textual and linguistic data in order to show that the same underlying principles of differentiation and categorization operate in each of these areas. I will also discuss the significance of semiotic theory, particularly the work C.S. Peirce, for an analysis of this kind.

The Lushootseed cognitive system that I will be describing is one which differentiates configurations. A configuration is the arrangement of the parts or elements of something (including individual objects, groups of objects, trajectories of actions) or the outline determined by such an arrangement. The Lushootseed cognitive system differentiates three configurations. One is an encompassed configuration which consists of a central point and an encompassing periphery. The second, a transitional configuration, consists of two distinct parts or areas, separated by some kind of demarcating boundary. The third is an extended configuration, consisting of the extension, in time or space.

In a paper presented in the 1982 Salishan Conference (Galin 1982) I discussed two aspects of this cognitive system of configurational categorization. First, I showed that Lushootseed terms of orientation and location divide the natural and social world into three spatially contrastive frames of reference. To recapitulate briefly, one set of terms specifies orientation towards or away from the center in an encompassed or circumscribed space. A second set of terms is used for orientation within an area defined by the contrastive regions of land and water separated by the shoreline boundary. Within this transitional frame of reference two of the terms the movement from one region to another (land to water, or vice versa) and two refer to movement to the shoreline itself, starting either from land or from water. A third set of terms, which refer to movement and location in relation to the flow of the current in rivers or streams, orients the speaker within an

extended frame of reference. In this paper I will point out that the three spatially defined frames of reference also delimit distinct cultural domains of interaction. That is, each of the three configured areas within which speakers oriented themselves was occupied by people linked by different types of socio-cultural relations.

In the earlier paper I also showed that many, if not most, Lushootseed lexical morphemes with the same initial consonant phonemes form semantically related categories based on the spatial characteristics of their denotata. The most salient of these spatial characteristics is configuration, and the same three configurations, encompassed, transitional and extended, are differentiated. Examples are given in Appendix I. In this paper I will further show that the phonemes that are in initial position in those lexical morphemes that share the same semantic feature of configuration are systematically related to one another on the basis of their mode and position of articulation.

I will also show that the structure of Lushootseed myths further suggests that these three types of configuration form a tri-partite cognitive system of configurational categorization. In many traditional stories Lushootseed narrators create a kind of aesthetic coherence or unity by articulating the three configurational categories underlying cultural and linguistic organization by presenting them as elements of a structured whole.

Thus a relation of structural isomorphism obtains between several different organizational levels, cultural, textual and linguistic, which share the same principles of configurational categorization. In the conclusion of this paper I will discuss the significance of this type of cognitive system for semiotic theory.

The Cultural Domains. Villages throughout the Puget Sound area maintained ties with one another by means of the region's many waterways. These ties were created by a pattern of village exogamy in which the women married out, often into remote villages. These alliances enabled the exchange of people and other regional specialties, seafood on the coast, game upriver, as well as such wealth items as baskets and blankets. These alliances also mitigated against inter-village hostilities, which took the form of slave raiding and warfare. Members of allied villages joined together at various competitive events:

potlatches in the winter, games and contests in the summer. Thus an extended cultural domain was delimited spatially by the entire area included in the system of waterways, and socially by the affinal ties between villages.

Each village occupied an area delimited by a transitional frame of reference. Village territory was marked out along a stretch of shoreline, and included the water and land demarcated by this boundary. The villages consisted of distinct social categories immediately juxtaposed to one another. Some villages developed a division of 'high class' and 'low class' families, and the population of all villages was made up of a group of related men who were native to the village and in-married women who were often perceived as bringing in alien customs, and who also often spoke a different dialect of Lushootseed. Socially and spatially the village community could be described as a transitional cultural domain which, like a transitional spatial configuration, consists of different parts juxtaposed to one another.

The social group occupying the encompassed frame of reference, the house, with its central fire and encompassing walls, was a couple and their unmarried children. They constituted the encompassed cultural domain, a socially and spatially encompassed or individually delimited group. The relations between an individual and his or her spirit powers also characterized the encompassed cultural domain. These relations created an individuated social unit, the person, and were conceptualized, spatially, in terms of an encompassed configuration. All of an individual's abilities, skills and strengths were attributed to his or her relations with a spiritual counterpart or power. An individual thus was not a full social person apart from this spiritual partnership. Spirits were acquired in isolation and their identity, manifest only in songs and dances, was kept secret from others. Real spiritual power was believed to create a solid impermeable core in the possessor's body, and a person was said to master that power by "making a home for it" (Amoss 1977:148).

The Texts. Traditional Lushootseed myths are told according to certain principles of narrative organization so that each text has a finely differentiated narrative structure. Three is the most important pattern number for this narrative structure: texts divide into three major parts

and narrators usually maintain their focus for three verb-centered units and then shift perspective.

Each of the three major parts of a text is organized in terms of one of the three configurational categories, encompassed, transitional or extended, so that the text as a whole might be said to have a configurational structure. This configurational structure is realized at several different levels. Dramatically important objects, entities and action trajectories have analogous spatial configurations in one major part. Often the setting of the actions and the relations between the characters are those characteristic of a similarly configured cultural domain. In addition, the configurational structure of traditional narratives provides a point of articulation between the linguistic and non-linguistic manifestations of the Lushootseed cognitive system of configurational categorization. The tripartite system of configurational categorization also informs the structure of Lushootseed grammar and semantics. In each of the major parts of a myth linguistic items from one of the three conceptual categories predominate. Thus the narrators of Lushootseed myths articulate the fundamental conceptual categories that inform both linguistic and non-linguistic cultural organization and present them as part of a structured whole.

I would like at this point, to briefly illustrate the configurational structure of one myth, "How Daylight Was Stolen" narrated by Harry Moses (Hess and Hilbert 1977). The first part of the story is characterized by images of encompassed configurations. The story begins at the time before there was daylight. Mink and Raven are chosen by their people to go upstream and capture daylight from the people that own it. First they bathe in order to prepare themselves spiritually. By bathing, being encompassed by water, the body was believed to be transformed into a pure receptacle that the spirit could enter. After they prepare themselves spiritually by bathing, Mink and Raven prepare themselves physically. Again the narrator uses encompassing images. They line up overturned canoes, and jump over them in increasing numbers. The outline of the overturned canoes creates an encompassing arc-like configuration that is reiterated by the trajectories of their jumps. They go upstream towards the source of the daylight and become

enveloped, or encompassed by light. Then they devise a plan to steal the daylight. Mink is chosen to go after the daylight disguised as an old man, while Raven stays confined to a single spot awaiting Mink's return.

In the second part of the story transitional images predominate. Mink arrives at the village of the people who have daylight, disguised as a poor old man. He is a stranger, a member of a contrastive social group, and he asks to be taken in, to cross the boundary from one group to another. In disguise Mink is now a kind of transitional entity—a helpless old man on the outside and a conniving Mink on the inside.

The nobleman takes Mink in, and offers him a place to sleep in the back, with the others. Mink, however, asks to be given a place by the door, because, being old, he has to 'go outside' (that is, to urinate) frequently at night. Mink is given this transitional position in the doorway so that he can make the transition from inside to outside—all of him and then part of him.

A series of transitional images based on coverings and uncoverings follow. From his position in the doorway Mink watches what happens to the daylight: at night its face gets squeezed shut, tied up in a bag. Mink tries to reach out for the daylight, but fails, and tries to cover up his attempt by blowing on the ashes. He hides himself in the soot as he jumps back in bed. The ashes he has scattered make the daylight appear to be blinking—a rapid transition from covered to uncovered. Finally, Mink manages to capture daylight, moves it and himself out of alien territory, and joins Raven.

In the third part the narrator uses a series of images of extended configurations. Mink and Raven run through space with the daylight, pursued by Wolf and Cougar. They also throw the daylight through space to one another. Raven elongates his body by twisting and turning so that he can fly faster. Mink's actions delineate vertical and horizontal extensions as he runs along, jumping over and under logs. They finally increase their distance from their pursuers enough to escape when Mink locates his spirit power and brings down a fog. They travel downstream, and bring light to their people. Not only do they bring light, but they bring a means of reckoning temporal extension, by the alternation of day and night. Raven keeps on letting daylight out of its bag, so that

temporal extension consists of short intervals of darkness, and the people get little sleep. Mink, having watched what is done with daylight, has greater control. He creates long intervals of darkness. Of course the seasons in the Pacific Northwest vary dramatically in terms of the relative lengths of night and day. Raven's management of daylight corresponds to the summer months, when days are long, while Mink's management of daylight corresponds to the winter months when nights are long.

Thus in each of the major parts of the myth a sense of configuration is established through a series of spatial images. In addition, in each of these units of configurational structure the narrator uses certain linguistic forms with greater frequency than others. In part I lexical morphemes which encode the encompassed semantic feature predominate, in part II those which encode the transitional semantic feature predominate, while in part III those which encode the extended feature predominate. The narrator thus creates a configurational structure in the text by foregrounding semantic categories.

#### Phonological Symbolism

Larry Thompson wrote that

as the semantic system of Salishan languages are more deeply plumbed one is struck by the importance of shape in connection with many roots... (1979:746).

I have shown that a tri-partite system of configurational categorization informs the semantic structure of Lushootseed lexical morphemes (Galín 1982;1983). Appendix I briefly illustrates these findings. I would like to discuss the relationships between the phonemes that are in initial position in the lexical morphemes which encode the same value of the semantic feature configuration. There appears to be a partially non-arbitrary relation between the semantic value of the feature configuration associated with the lexical morpheme and certain articulatory features of the phoneme in initial position. That is, certain phonological processes of sound production are differentiated from each other according to the same set of organizing principles that underlie the semantic system of configurational differentiation, or, more generally, the cognitive system of configurational categorization. Kinesthetic differentials in sound production are associated with the

primarily visual differentials in the perception of spatial properties, so that a kind of synesthetic relation exists between sound production and visual image. The chart in Appendix II illustrates this correspondence.

The first group of phonemes listed on the chart consists of obstruents, produced by blocking the flow of air. Those obstruents produced furthest from the bodily center are those that are in initial position in lexical morphemes which encode the extended semantic feature. Those that are produced furthest back in the mouth, closest to the bodily center, are those that are in initial position in the lexical morphemes which encode the encompassed semantic feature. Those that are produced in mid-range are in initial position in the lexical morphemes that encode the transitional semantic feature. In addition, all phonemes, both obstruents and sonorants, that are produced with lateral articulation are associated with the transitional semantic feature. When sounds are articulated laterally the tongue forms a kind of barrier and the air is forced out on both sides of the mouth. The speaker's kinesthetic experience of the two sides of the mouth, demarcated by the boundary formed by the tongue, is analogous to a transitional spatial configuration in which two distinct parts are demarcated by a dividing line or area.

For the sonorants, the second group listed on the chart, the transitional value is, as mentioned, associated with lateral production. The nasals listed on the chart are the historic forms of the stops /b/ and /d/ that are associated with the encompassed semantic feature. Nasals are produced by air resonating inside the nasal cavity, and thus convey a kinesthetic sense of encompassment. The glides are produced with a rapid gliding movement towards or away from neighboring vowels, and are associated with the extended semantic feature.

Thus there appears to be a relation of structural isomorphism in Lushootseed that obtains between certain aspects of the content system of language, the system of semantic features, and certain aspects of the expression system of language, the system of phonological articulation. This relation of structural isomorphism also obtains between linguistic and non-linguistic levels of cultural organization. I have suggested that these relations of structural isomorphism can be accounted for by

positing a cognitive system which categorizes configurations that operates at and informs the structure of these different phenomenal levels.

The Semiotic Perspective I would now like to indicate briefly how semiotic theory might shed some light on the nature and function of such a cognitive system. The advantage of a semiotic perspective is that the principles involved are intended to apply to both linguistic and non-linguistic sign systems, creating a single framework for analysing certain aspects of language and culture. I have found that the semiotic perspective most relevant to this kind of analysis is that of C.S. Peirce, particularly the recent applications of his theories to linguistics which can be found in the writings of Michael Shapiro (Shapiro 1983).

A Peircean semiosis has three constituents, sign, object and interpretant, a sign being, in Peirce's words "anything which represents something else, its object, to any mind that can interpret it so." The interpretant, which has a purely conceptual status, enables such acts of interpretation to take place (Peirce 1932).

Two aspects of Peirce's semiotic are relevant for this analysis: the relation between sign and object, which contributes to an understanding of the extensive networks of sound symbolism in Lushootseed and the role of the interpretant of both linguistic and non-linguistic signs. I suggest that what I have been calling a cognitive system of conceptual categorization might be considered, from a semiotic perspective, as a kind of interpretant.

Peirce differentiates three types of signs in terms of their relations to an object: icon, index and symbol. In a symbol this relation is arbitrary, governed by law or convention. For indexes and icons this relationship is non-arbitrary or motivated. All linguistic signs are symbols, but they may have indexical or iconic elements which predominate over the symbolic one. For indexical signs motivation is based on contextual contiguity of sign and object. In an iconic sign motivation is based on resemblance between sign and object.

Peirce further differentiates two types of iconic signs: the image and the diagram. In images (or imagic icons) sign and object share the same qualities. Photographs or onomatopoeic words are examples of

imagic icons, although they do depend on conventional cultural rules for their interpretation.

A sign which is a diagrammatic icon does not share the same qualities as its object, but rather, both share corresponding relations. That is, the relations in the object are represented by corresponding relations in the sign, as in, for example, the blueprint of a house or the graph of a mathematical formula. Both house and blueprint realize the same set of architectural or engineering principles. Examples of diagrammatic iconicity in language include such phenomena as reduplication, to indicate plurality or distribution, the correspondence of morphologically longer units with notions of plurality; the semantically restricted class of grammatical morphemes represented by a restricted class of sounds or the presentation of events or participants in a sentence or a piece of discourse in an order which corresponds to their actual or felt importance. (see Jakobson 1965). Another example is the relation in most Lushootseed lexical morphemes between certain articulatory configurations in the expression system and features of semantic configuration in the content system.

Shapiro (1983) points out that relations of diagrammatic iconicity between the content and expression systems of language are even more pervasive or fundamental than these examples suggest. While content and expression are unified in linguistic signs, they belong to very different kinds of sign systems. In the expression system phonological signs differentiate units of meaning but do not, for the most part, have positive meaning. The signs of the content system do have a positive meaning, but they require the signs of the expression system in order to be realized. There is thus a fundamental disjunction between content and expression systems that is overcome in the production of linguistic signs. Shapiro suggests that in order to understand fully how this disjunction is overcome we must examine the relations of the interpretants of these two distinct sign systems (ibid.).

The interpretants of both content and expression signs consist of the same set of underlying organizing principles which allows for correspondence and cohesion to obtain between these two structural levels. These organizing principles provide the conceptual means for evaluating and interpreting both content and expression signs as a

single system. Shapiro further notes that markedness oppositions can be seen as the interpretants of signs at all levels of linguistic structure-phonological, grammatical and semantic (ibid.). In a markedness opposition a sign is evaluated as being either the marked or unmarked member of an asymmetric opposition. The asymmetry results from the fact that the marked member of the opposition has a narrower field of reference. That is, markedness carries with it the notion of restriction and specification of reference.

Markedness is a formal organizational principle which applies to all levels of linguistic structure-phonological, grammatical and lexical. The systems of markedness oppositions create a relation of diagrammatic iconicity obtains between these different levels. Language can thus be interpreted as a unitary structure, one in which different levels of organization are isomorphic in respect to their organizing principles. Markedness oppositions, as formal features of conceptual organization are not limited to linguistic signs, so that just as markedness, as a kind of interpretant accounts for the relations of diagrammatic iconicity within linguistic structure, so too can it account for relations of diagrammatic iconicity (or structural isomorphism) between linguistic and non-linguistic levels of cultural organization.

I would like to suggest that the basic conceptual distinctions operating in the Lushootseed cognitive system of categorizing configurations can be seen as a hierarchical projection of a single markedness opposition, as a system of markedness values. That is, what I have been calling a cognitive system can also be understood as a kind of schematic realization of the interpretant of a semiotic system inclusive of linguistic and non-linguistic cultural signs.

The marked member of an opposition is conceptually restricted in relation to the unmarked member. Configurations, generally, can be thought of as resulting from the perception of a restricting, configuring boundary, and thus are marked (restricted) in relation to non-configured phenomena (colors, perhaps, or odors). Within the range of phenomena that have configuring boundaries, the notion of restriction, or of a restricting boundary can be present to a greater or lesser extent. Thus what I have been calling an extended configuration is unmarked (unrestricted) by the presence of a restricting boundary in

relation to the other two configurations, although it is marked as a configuration in relation to other phenomena.

The category of configuration that is marked in relation to the unmarked, unrestricted extended category can itself be divided into a marked and unmarked opposition based on the same criterion—presence of a restricting configurational boundary. Transitional configurations have demarcating or differentiating boundaries, not delimiting restrictive ones.

Encompassed configurations are marked by the presence of a restricting boundary in relation to both transitional and extended configurations. The boundary of an encompassing configuration is restricting and delimiting, creating a center-periphery relationship.

Such a markedness opposition characterizes, for example, both the kinesthetic qualities of sound production and the semantic features associated with them. For the phonological feature 'front' (associated with the semantic feature extended) not only is the area of the mouth larger, but it includes the more restricted areas towards the back. Phonemes produced in mid-range are restricted in comparison with the more fronted ones, unrestricted compared with the more backed ones. Laterally produced consonants are shaped by a demarcating rather than a restrictive tongue position. Phonemes produced in the restricted back of the mouth are associated with the lexical morphemes marked for a restrictive configuring boundary, the encompassed semantic feature.

This reconsideration of what I have called a cognitive system of categorizing configurations as the hierarchical realization of markedness values can also perhaps shed some light on the status of the initial consonant phonemes in Lushootseed lexical morphemes. These linguistic signs do not seem to belong exclusively to either the content or expression systems of the language. While they seem to encode semantic information, they are not true morphological units. The sum of the semantic information in separate phonological components does not add up to the meaning of the word. In most cases the initial phonemes cannot be severed from the rest of the linguistic sign and leave anything that could be termed a morphological unit. One clue to their status perhaps lies in the kind of semantic information that is encoded submorphemically. This information consists of a set of abstract,

organizing principles which are similar in their content to the kinds of formal distinctions between members of a markedness opposition (unrestricted vs. restricted). Thus, at this structurally marginal, interstitial level, at this sub-morphemic level, formal, structural principles are realized as positive semantic values.

In summary I have suggested that a cognitive system which categorizes configurations informs certain aspects of Lushootseed cultural, textual and linguistic organization, so that a commonality of patterning or structural isomorphism relates several distinct levels in a single system. I have further suggested that such a cognitive system can be understood in terms of general semiotic principles. From a semiotic perspective such a cognitive system corresponds to the interpretant of a sign, or system of signs. The function of such an interpretant is to evaluate perceptual and conceptual signs in terms of a system of markedness oppositions (unrestricted vs. restricted). The hierarchical projection of this markedness opposition is realized as cognitive system with three distinct constituents. Thus certain aspects of Lushootseed culture, texts and language can be considered as a single semiotic system, and might be thought of as constituting that culture's fashion of speaking.

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## Appendix I

A. The left column lists those phonemes which are in initial position in lexical morphemes which encode the three configurations, encompassed, transitional and extended. The right column gives a few examples of these morphemes.

## 1. Encompassed

b-	<u>bəʃ</u> 'full'; <u>bəq</u> 'put in the mouth'; <u>bəkʷ</u> 'ball'
d-	<u>dəkʷ</u> 'put inside small confining space'; <u>dəxʷ</u> -'place of'
q-	<u>qəbəlɪc</u> 'roll it up'; <u>qit</u> 'circle around something'
q̣-	<u>q̣əp</u> 'gather into a lump'; <u>q̣əltəd</u> 'clout, diaper'
qʷ-	<u>qʷulu</u> 'encircle'; <u>qʷəlc</u> 'boiling'
č-	<u>čəxʷucɪd</u> 'cover'; <u>čəbəʔ</u> 'backpack'
ʃ-	<u>ʃəq</u> 'wrap around'; <u>ʃəc</u> 'cover'; <u>ʃəʃ</u> 'bite'
ʃʷ-	<u>ʃʷəqʷ</u> 'bind'; <u>ʃʷəʃ</u> 'outer layer of fat'

## 2. Transitional

t-	<u>tukʷ</u> 'immerse'; <u>tədZil</u> 'go to bed'
č-	<u>čəbəʔ</u> 'fall into water'; <u>čəq</u> 'adhere'
kʷ-	<u>kʷit</u> 'go down to water's edge'; <u>kʷəl</u> 'pour, spill'
č-	<u>čəl</u> 'obstruct the view'; <u>čək</u> 'decapitate'; <u>čiqʷ</u> 'split'
xʷ-	<u>xʷəʃ</u> 'urinate'; <u>xʷəʃ</u> 'break in two'
š-	<u>šikʷ</u> 'emerge from water'; <u>šədZəl</u> 'go outside'
l-	<u>ləliʔ</u> 'different'; <u>luxʷus</u> 'pry bark off'
ɬ-	<u>ɬəl</u> 'go ashore'; <u>ɬid</u> 'tie'; <u>ɬikʷ</u> 'hook'
h-	<u>hɪq</u> 'emerge'; <u>həkʷ</u> 'stitch together'; <u>hɪw</u> 'escape'

## 3. Extended

p-	<u>pəkə</u> 'scatter'; <u>pəqʷ</u> 'smoke of a fire'; <u>pəʃ</u> 'spread'
p̣-	<u>p̣il</u> 'flat'; <u>p̣əqʷ</u> 'drift along in the water'
ç-	<u>çəq</u> 'jab'; <u>çəkʷ</u> 'straight'; <u>çkʷusəd</u> 'cane'; <u>çqʷuɪ</u> 'post'
č-	<u>čəxʷuʔ</u> 'add more to what one has'; <u>čədZ</u> 'stalk (someone)'
ʔ-	<u>ʔəb</u> 'reach, extend'; <u>ʔəʃ</u> 'come' <u>ʔibəʃ</u> 'walk, travel'
qʷ-	<u>qʷəxʷ</u> 'more than one go for a walk'; <u>qʷədəʔkʷ</u>
s-	<u>səqʷ</u> 'fly'; <u>səsəd</u> 'blow nose'
dZ-	<u>dZikʷ</u> 'travel, wander'; <u>dZubu</u> 'kick'; <u>dZəlɪxʷ</u> 'creek'
ɣ-	<u>ɣəlyəlab</u> 'ancestors'; <u>ɣəhəw</u> 'proceed'

B. The following give more extensive examples of three sets of lexical morphemes which encode each of the semantic features of configuration.

## 1. Encompassed: b-

<u>bəʃ</u>	<u>bəkʷ</u>	<u>bələqʷ</u>	<u>bədəʔ</u>
'full of'	'ball'	'navel'	'child'
food/drink'			
<u>bəq</u>	<u>bəcuʔəb</u>	<u>buʔləc</u>	<u>bad</u>
'put in'	'hoop'	'spring of'	
the mouth'		water'	'father'
<u>bɪʔləʔil</u>	<u>bəcəc</u>	<u>baləwəb</u>	<u>-bəʃ</u>
'get more'	'snake'	'bubbling'	'possession of'
then enough'		up'	territory'
<u>bəʃ</u>		<u>bələqʷɪqəb</u>	<u>-bəʃ</u>
'cure by shaman'		'somersault'	'people of'

## 2. Transitional: č

<u>čəq</u>	'patch' (connects edges of surface)
<u>čəq</u>	'adhere' (connection between two layers)
<u>čəbʷ</u>	'braid'
<u>čəd</u>	'in a row, lined up'
<u>čəxʷəsəd</u>	'rainbow'; <u>stəxʷəsəd</u> 'root'
<u>čəsəd</u>	'bullet, arrow'
<u>čucu</u>	'shoot'

## 3. Extended: p

pile-like distributions	scattered distributions
<u>pəkʷəb</u> 'pile'	<u>pəkə</u> 'scatter, distribute'
<u>-pəkʷ</u> 'lie with hind end up'	<u>pəʃ</u> 'spread'
<u>spəkʷ</u> 'boil' (swelling)	<u>pəxʷcut</u> 'spouting of a whale'
<u>pəʃit</u> 'thick'	<u>pəd</u> 'dust, soil, dirt, bury'
<u>puxʷu</u> 'add to, increase'	<u>puʔəd</u> 'blow, wind'
	<u>pus</u> 'project through air'

Appendix IICorrelation Between Configuration(s) and Articulatory Mode and Position

<u>Mode</u>	<u>Position</u>			
	alveo-			
	<u>bilabial</u>	<u>alveolar</u>	<u>palatal</u>	<u>velar</u>
			<u>uvular</u>	<u>glottal</u>
<u>obstruents</u>				
stops				
-gl	ext.	trans.		trans. enc.
*gl	ext.	trans.		trans. enc. (ext.)
fricatives				
ext.	ext.	trans.		trans. enc. enc.
lateral		trans.		
affricates				
plain				
-voice		ext.		enc.
*voice		ext.		
glottalized				
lateral		trans.	(ext.)	
		trans.		
<u>sonorants</u>				
nasal				
			*enc.	
lateral liquid				
			trans.	
glide				
		ext.		*ext.

What happens when sounds change?