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The Pueblo Region as a Linguistic Area: Diffusion Among the Indigenous Languages of the Southwest United States.

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THE PUEBLO REGION AS A LINGUISTIC AREA:
DIFFUSION AMONG THE INDIGENOUS LANGUAGES OF THE
SOUTHWEST UNITED STATES

A Dissertation

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Louisiana State University and
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in

The Interdepartmental Program in Linguistics

by
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ABSTRACT

The goal of this dissertation is to investigate whether the Pueblo region of the Southwest United States is a legitimate linguistic area (LA). The Pueblo region has long been recognized as a cohesive culture area, but an in-depth examination of the Pueblo region as a linguistic area has not previously been done. Because a linguistic area is by definition an area in which linguistic features have spread through diffusion, traits which are widespread for other reasons (e.g., genetic inheritance or independent parallel development) must be eliminated as evidence for a Pueblo LA. The methodological approach which I adopt emphasizes the historical aspect of diffusion; therefore, whenever possible I identify the source and recipient languages of diffused traits.

Through a detailed analysis of the available data on the Pueblo languages, I demonstrate that the Pueblo region is a linguistic area. Furthermore, while the origin of the Pueblo LA most likely predates the arrival of the Navajo in the Southwest (approximately 500-600 years ago), the Navajo have played an important role in the development of the Pueblo LA. Four traits in particular are widespread among the Pueblo languages, and are likely to have been borrowed in one or more of the Pueblo languages, but do not occur in neighboring languages; therefore, these traits strongly support the Pueblo linguistic area. Many examples of localized diffusion provide additional evidence. Other traits which extend beyond the Pueblo region, but show evidence of being diffused in some of the Pueblo languages, suggest that the Pueblos are linked by linguistic diffusion to surrounding areas, such as the Great Basin, the Great Plains, and the non-Pueblo Southwest.

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Pueblo areal traits have important implications for several aspects of linguistic theory. A number of Pueblo areal traits are counterexamples to proposed linguistic universals, and the occurrence of structural diffusion with relatively little lexical diffusion has repercussions for theories of contact-induced language change. Diffusion among the Pueblo languages also has consequences for theories of Kiowa-Tanoan subgrouping and prehistory, as well as for the proposed Aztec-Tanoan language family.
CHAPTER 1 - A FRAMEWORK FOR AREAL LINGUISTICS

1.1 Introduction

The goal of this dissertation is to examine areal linguistic phenomena in the Pueblo region (see Map 1, the plus signs mark the location of the actual Pueblos) of the Southwest United States and to determine whether the indigenous languages of that region have influenced one another to such an extent that the region may be termed a linguistic area (LA).

Areal linguistics involves the exploration and identification of structural features which have diffused among languages. For the greater part of the twentieth century, areal phenomena received little attention in North America, but recently there has been a resurgence of interest in language contact and language change. This is a welcome development, as areal linguistics is an integral part of historical linguistic investigation; a comprehensive account of linguistic history can only be accomplished if both genetic and areal factors are both taken into consideration.

Although areal phenomena in different parts of North America have been explored to varying extents, the Pueblo region as a LA has not received thorough examination, and diffusion in general among the Pueblo languages has been relatively neglected. A thorough investigation of such diffusion illuminates not only the linguistic history of the area, but also the prehistory of the Pueblo people.

In Chapter 1, I discuss areal linguistics in general; that is, the history of the field and the methodology involved in identifying linguistic areas. I also discuss some of the more important or better-known previously identified
linguistic areas, in order to compare the Pueblo region with them to see how it measures up as a LA.

I treat the Pueblo region in Chapter 2 -- the languages involved, evidence for contact among speakers of the various languages, and previous work done on areal phenomena in the region.

The greater part of Chapter 3 is devoted to the presentation of data; i.e., to traits that are shared among two or more of the languages of the
Pueblo region. In Chapter 4, I evaluate these traits in order to identify which provide evidence for a linguistic area. I also compare the evidence for a Pueblo linguistic area to that offered in support of previously identified linguistic areas to determine whether the Pueblo region is a legitimate LA. Finally, I address the question of whether the Pueblo region is part of a larger LA, or part of a network of linguistic areas that stretches across the western United States.

In chapter 5, I examine the implications of areal phenomena in the Pueblo region for typology and universals, for proposed long-distance genetic relationships and subgrouping, and for the identity of prehistoric peoples in the Southwest.

Through a detailed analysis of the available data on the Pueblo languages, I argue that the Pueblo region is a linguistic area, defined by a small number of more encompassing isoglosses, and a great deal of localized diffusion. Also, Navajo has played an active role in the formation of the Pueblo LA, although the origin of the LA most likely predates the arrival of the Navajo in the Southwest. While the Pueblos display cultural unity, they are not isolated culturally, but have maintained contact with surrounding tribes (e.g., the Yuman groups of Western Arizona, the Numic speakers of the Great Basin, the Great Plains tribes, etc.). In light of this fact, it is not surprising that the Pueblos are connected by linguistic diffusion with neighboring groups, and represent a link in a chain of linguistic areas.

1 While close linguistic relatives of Navajo (i.e., the various Apachean languages/dialects) exist in the Southwest, the Navajo people had more intimate contact with the Pueblo people than did other Apachean groups because Navajo territory was surrounded by Pueblos. The Navajo adopted many cultural traits from the Pueblos (Kroeber 1939), and intermarriage and bilingualism between the Navajo and the Pueblos was common (Kroskrity 1982, Ford 1983). For this reason I compare Navajo in particular with the Pueblo languages.
Diffused traits in the Pueblos, while interesting in and of themselves, are important for other reasons as well. The identification of areal traits can contribute to our knowledge of linguistic universals and their exceptions, theories of language change, genetic relationships among languages and linguistic prehistory. Pueblo areal features, in particular, have consequences for several proposed linguistic universals, including universals which involve the distribution of phonological contrasts (voicing contrasts), tone, pronominal systems and syntactic processes (noun incorporation). Areal phenomena in the Pueblos also shed light on Kiowa-Tanoan subgrouping and prehistory, and the proposed Aztec-Tanoan language family. Finally, the nature of linguistic diffusion in the Pueblos (i.e., the occurrence of structural diffusion with relatively little lexical diffusion) has implications for hierarchies of linguistic borrowing.

1.2 Areal linguistics: a brief history

Areal linguistics can be defined as the study of “the results of the diffusion of structural features across linguistic boundaries” (Campbell, Kaufman and Smith-Stark 1986:530). This section gives an overview of the development of the role of diffusion in theories of language change throughout the twentieth century.

---

2 I base my definition of ‘diffusion’ on Thomason and Kaufman’s (1988:37) definition of ‘borrowing’. Diffusion is the incorporation of foreign linguistic features into a group’s native language by speakers of that language, resulting from contact between the two groups of speakers. This is not to be confused with ‘convergence’, which Hock (1986:492) defines as “the increasing agreement of languages not only in terms of vocabulary..., but especially in regard to features of their overall structure.” I do not choose to use the term ‘convergence’ because my goal is to illuminate the history of particular changes by identifying the source and recipient of diffused traits, whenever possible, rather than merely cataloging “agreement” among neighboring languages.
1.2.1 The early twentieth century: Boas and Sapir

In the Americas, the controversy over what role diffusion plays in language change burgeoned in the beginning of the twentieth century with the on-going debate between Boas and Sapir. Boas (1940[1917, 1920, 1929]) came to question proposals of remote genetic relationships, arguing that, contrary to the prevailing belief, extensive structural borrowing among languages is possible and that the difficulty of distinguishing inherited from diffused material in distantly related languages makes proposals of remote relationships suspect:

On the basis of Indo-European experience, we should be inclined to seek for a common origin for all those languages that have a far-reaching morphological similarity; but it must be acknowledged that when the results of classifications based on different linguistic phenomena conflict, we must recognize the possibility of the occurrence of morphological assimilation. (Boas 1940[1917]:204)

Boas questioned his own genetic proposals, as well as those of others:

Of late years, largely through the influence of Dr. Edward Sapir, the attempts have been revived to compare, on the basis of vocabularies, languages which apparently are very distinct, and Drs. Sapir, Kroeber, Dixon, and particularly Radin, have attempted to prove far-reaching relationships......as early as 1893 I pointed out that the study of the grammar of American languages has demonstrated the occurrence of a number of striking morphological similarities between neighboring stocks which, however, are not accompanied by appreciable similarities in vocabulary. At that time I was inclined to consider these similarities as a proof of relationship......I doubt whether the interpretation given at that time was tenable. (1940[1920]:211-12)

Ultimately, Boas suggested that some languages may undergo so much change through diffusion that their genetic affiliation can no longer be demonstrated:

The whole history of American languages must not be treated on the assumption that all languages which show similarities must be
considered as branches of the same linguistic family...we should have to reckon with the tendency of languages to absorb so many foreign traits that we can no longer speak of a single origin....in other words, the whole theory of an "Ursprache" for every group of modern languages must be held in abeyance until we can prove that these languages go back to a single stock and that they have not originated, to a large extent, by the process of acculturation.

(1940[1920]:217)

Sapir, while he did not deny the existence of areal influence (Darnell and Sherzer 1971), believed that a "deeper kernel" of language -- the morphological component -- is relatively impervious to change, and therefore similarities of this sort are evidence of genetic relationship (Sapir 1921, 1925). Sapir's (1929) classification of the languages of North America into six superstocks rested partly on broad typological traits, but he also believed that similarity in "submerged" grammatical features will reveal remote genetic relationships among languages:

The most important grammatical features of a given language and perhaps the bulk of what is conventionally called its grammar are of little value for the remoter comparison, which may rest largely on submerged features that are of only minor interest to a descriptive analysis. (Sapir 1925:491)

Boas' caveats went largely unheard in America, as did Sapir's characterization of his own classification as tentative (Campbell and Mithun 1979, Darnell and Sherzer 1971). Linguists followed Sapir's lead in "lumping" together language families into "superstocks" (cf. Sapir 1921, Whorf 1943, Trager 1945, Haas 1958, Swadesh 1954, Voegelin and Voeglin 1965).

Boas' cautionary remarks about the widespread nature of diffusion were heeded, however, in Europe, and areal linguistics took root in the Prague School (Trubetzkoy 1928, 1931; Jakobson 1931a, 1962[1931b], 1944). Trubetzkoy (1928) coined the term Sprachbund ('union of
languages'). This concept was taken up in the work of Jakobson (1931a, 1944) and later came to be employed in the United States by Velten (1943), who translated Sprachbund as ‘linguistic area’, and in particular by Emeneau (1980[1956]).

While investigation into linguistic areas progressed (Bloch 1934, Sandfeld 1938, 1968[1930]), the belief that certain subsystems of language resist external influences has not died. For example, Sapir’s contention that morphology remains relatively stable has been maintained by scholars -- including, among others, Meillet (1921), Hoijer (1948), Hymes (1955, 1956) and Hancock (1980) -- up until the present day (Thomason and Kaufman 1988:6). Others (e.g., Greenberg 1953, Swadesh 1954, Weinreich 1958) have argued that “basic vocabulary” is essentially immune to borrowing.

1.2.2 The present: the importance of diffusion

Today it is widely (if not universally) recognized that diffusion can affect virtually all aspects of language (Anttila 1989, Emeneau 1980, Campbell 1985, Hock 1986, Thomason and Kaufman 1988). Scholars who have researched linguistic areas emphasize the importance of contact in language change and underscore the fact that all aspects of language are open to external influence:

Contact may in fact be the most powerful catalyst of all in the process of the development of new linguistic variants in the speech community. (Hinton 1991:154-55)

And:

If in the past the picture was not clear enough to deny doubts, today it is absolutely certain that “grammar” can be borrowed, that all levels of syntactic structure are subject to foreign influence and borrowing. (Campbell 1985:46)
In this section, I present evidence that all subsystems of language are open to diffusion; therefore, LAs have the potential to exhibit shared, diffused traits of all types.\(^3\)

Examples of borrowed sounds include the diffusion of clicks from the so-called Khoisan languages into some Southern Bantu languages (Westphal 1963), the diffusion of glottalic consonants from neighboring Caucasian languages into Eastern Armenian and Ossetic (Vogt 1954, Bielmeier 1977), and the diffusion of retroflexed dentals into Lake Miwok (Callaghan 1964, Haas 1978). Phonological rules may be borrowed as well. For example, a rule palatalizing velar stops before a vowel followed by a uvular consonant was borrowed from Mamean into K’ichean (Campbell 1977); Asia Minor Greek borrowed vowel-harmony from Turkish (Dawkins 1916); and the Albanian of San Marzano borrowed a rule of consonant gemination from Italian (Hamp 1968, cf. Campbell 1985 for more examples).

Morphosyntactic borrowing is also well-attested; for example, the borrowing of a passive construction and relative construction from Sanskrit into literary Dravidian (Sridhar 1978), the diffusion of an analytic possessive construction and verb-final subordinate clauses from German into Estonian (Weinreich 1953), and borrowing of morphosyntactic elements (e.g., the Balkan periphrastic future, a Rumanian plural suffix, and Balto-Slavic prefixes) in various dialects of Romani (Comrie 1981, Kaufman 1973, cf. Thomason and Kaufman 1988 for numerous examples).

Heath (1978:105) proposes a set of factors which favors the diffusibility of morphemes: 1. Syllabicity -- a bound morpheme is more easily diffused if it is independently pronounceable. An example from the Pueblos is the

\[\text{\textsuperscript{3}}\] As Boas maintained, the fact that diffusion has the potential to affect the structure of a language has implications for the proposal of genetic relationships. Such implications are discussed in detail in chapter 5.
inchoative morpheme -ti, which probably diffused from Hopi into Zuni. It is pronounceable in isolation, because it consists of an entire syllable, not only of a consonant. 2. Sharpness of boundaries -- if a morpheme contrasts with zero, it is more easily diffused. The inchoative -ti contrasts with zero; e.g., Hopi maana wuupa 'the girl is tall', versus maana wuupa-ti 'the girl got tall', 3. Unifunctionality -- morphemes which have a single function are more easily diffused. For example, an affix that marks only ergative case would be more easily diffused than one that marks both ergative case and plural. 4. Categorial clarity -- morphemes which can be labeled without referring to other affixes or particles are more easily diffused. For example, an affix that by itself marks past tense would be more easily diffused than one that can be specified as 'past negative' only through examination of the entire verb complex and the presence or absence of a negative morpheme.

5. Analogical freedom -- morphemes which are free from analogical pressure from other morphemes are more easily diffused. For example, bound pronominals would not be easily diffused because they are under analogical pressure from independent pronouns. Case suffixes, on the other hand, are relatively analogically free, and are more open to diffusion.

These factors allow Heath to account for why certain types of morphemes have diffused among the languages of Arnhem Land, while others (e.g. independent pronouns, bound pronominals, inflectional affixes, etc.) have not. It is an empirical question whether these factors will account for ease of diffusibility in other contact situations.

While basic vocabulary does tend to resist borrowing, it is not immune to outside influence. Examples of diffused basic vocabulary can be found in English; for example, 'they', 'their', 'them', 'give', 'sky', and 'skin' are borrowings from Scandinavian (Baugh 1978:96-101).
The semantic structure of basic vocabulary may also be open to diffusion. Emeneau (1980) gives an example involving the set of words for limbs of the body in South Asian languages. Unlike European languages, South Asian languages tend to have one word for the entire upper limb of the body (from shoulder to fingertips) and one word for the entire lower limb (from hip to toes); that is, ‘arm’ and ‘hand’ are not discriminated linguistically, nor are ‘leg’ and ‘foot’. Of course it is possible to refer to various sections of the limbs through the use of compound words; e.g. Kota (Dravidian) ka:1 ‘lower limb’, ka:1 verl ‘toes’. Emeneau suggests that there has been an “Indianization” of the semantic structure of the words for limbs in the Indo-Aryan languages, but cautions that more descriptive and historical research is necessary to confirm this.

Another example of semantic diffusion is that of the semantic calques, or loan translations, which are widespread in Mesoamerica (Campbell, Kaufman and Smith-Stark 1986); for example, ‘knee: head of leg’, ‘wrist: neck of hand’, and ‘thumb: mother of hand’ (cf. 1.4.3). Weinreich (1953) gives many examples of loan translations; e.g., French gratte-ciel and German Wolkenkratzer (literally, ‘cloud scraper’) are based on English ‘skyscraper’, Florida Spanish poner a dormir ‘put to sleep’ is based on the English expression (standard Spanish hacer dormir, adormecer) (Weinreich 1953:50-51). Some loan translations are only partial, consisting of a borrowed morpheme and a native morpheme in combination; e.g., Pennsylvania German fleš pai ‘meat pie’, Florida Spanish pelota de fly ‘fly ball’, and Italian canabuldogga ‘bulldog’ (Weinreich 1953:52).

Finally, diffused features related to the ethnography of communication may help to characterize LAs as well. I use the term ‘ethnolinguistic’ to refer to such features, although they are sometimes called ‘Sprechbund’ features
(Campbell, Kaufman and Smith-Stark 1986, originally coined by Dell Hymes). The use of such features is not governed solely by formal aspects of grammar, but rather is determined by sociocultural norms of appropriate linguistic behavior. A few examples of areal ethnolinguistic traits include ritual language with paired couplets in Mesoamerica (Campbell, Kaufman and Smith-Stark 1986), linguistic “status structures” in South Asia (Emeneau 1980, see also 1.4.2 below), and male and female speech in the Pueblo area (Kroskrity 1983).

1.2.3 The importance of social factors for diffusion

Thomason and Kaufman (1988) argue that social factors are stronger than linguistic factors in determining the extent of borrowing in contact situations. In other words, proposed linguistic constraints on borrowing -- e.g., those based on typologies of the languages involved, naturalness, or implicational universals -- fail to hold up as fully as predicted when contact between speakers of different languages is intense and sustained over a considerable period of time:

Two crucial parameters of intensity of contact in a borrowing situation are time and the level of bilingualism: long-term contact with widespread bilingualism among borrowing language speakers is a prerequisite for extensive structural borrowing. A high level of bilingualism in turn reflects the more nebulous factor of cultural pressure: a population that is under great cultural pressure is likely to be largely bilingual in the language of that community. (Thomason and Kaufman 1988:67)

Thomason and Kaufman assign a secondary role to typological distance as a determining factor in diffusion:

---

4 Gumperz (1972:205) defines communicative competence as “his [the speaker’s] ability to select, from the totality of grammatically correct expressions available to him, forms which appropriately reflect the social norms governing behavior in specific encounters.” The appropriate use of ethnolinguistic features rests on communicative competence.

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Typological distance does not appear to have an effect on the linguistic results of the most intense borrowing situation, i.e., those involving heavy to extreme borrowing; but in slight to moderate borrowing, source-language features that fit well typologically with functionally analogous features in the borrowing language tend to be borrowed first. (1988:72)

In situations of strong cultural pressure, the constraint of typological fit may be overridden. Thomason and Kaufman (1988:91-94) give several examples of diffused features which do not fit well typologically in the borrowing language; I mention some of these.

1. Through contact with Tibetan, Wutun (a Chinese language) has developed rigid verb-final word order, postpositional ordering, a causative suffix, and several cases (Li 1983).

2. The Dravidian language Brahui has borrowed a subordinating conjunction and an aspectual verbal prefix from Balochi, and has developed pronominal possessive suffixes and a derivational verbal prefix system through contact with Balochi (Emeneau 1962).

3. Asia Minor Greek has borrowed copiously from Turkish: morphophonemic rules, syntax of the copula, word order, and the definite/indefinite distinction, among other things (Dawkins 1916).

1.3 Defining a linguistic area

As mentioned in 1.2.1, the term 'linguistic area' comes from a translation of Trubetzkoy's Sprachbund. Velten (1943:271), who investigated the languages of the Northwest Coast, characterized a linguistic area as “a group of languages which share certain characteristics, not because of a common heritage, but owing to a geographical contiguity during an extensive period in their history.”

Emeneau (1980[1956]), in his earlier research on India as a linguistic area, defined a LA as follows:
This term 'linguistic area' may be defined as meaning an area which includes languages belonging to more than one family but showing traits in common which are found not to belong to the other members of (at least) one of the families. (Emeneau 1980[1956]:124).

Sherzer (1973:132) elaborates in his definition.

A linguistic area is defined here as an area in which several linguistic traits are shared by the languages of the area and furthermore, there is evidence (linguistic and non-linguistic) that contact between speakers of the languages contributed to the spread and/or retention of these traits and thereby to a certain degree of linguistic uniformity within the area. It is important to remember that languages which are unrelated or distantly related may very well and probably do disagree with regard to many traits and yet still be in the same linguistic area according to the above definition, since they share several traits (which one might want to call diagnostic traits). What is significant, then, is that linguistic structure, usually impervious to influences coming from outside its own internal mechanism, has been affected by linguistic contact.

1.3.1 Number of shared traits

The question arises, how many shared traits\(^5\) are necessary to identify a region as a LA? Some scholars (Jakobson 1944, Weinreich 1958, Winter 1973) -- making an analogy between dialectology and areal linguistics -- have suggested that isogloss bundling characterizes LAs. That is, there should exist several traits which are shared throughout the area but do not extend outside of the area. However, as in traditional dialectology, LAs which exhibit isogloss bundling are rare (Campbell 1985). Partly for this reason, some linguists have concluded that a LA may be based on as few as only one shared trait (Masica 1976, Bright and Sherzer 1976, Shaul and Andressen 1989). It is certainly possible to consider one trait as diagnostic of an LA;

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\(^5\) By 'trait', I mean a structural feature of a language, such as a phonological or morphosyntactic feature. I discuss which structural features are most important in defining a linguistic area below, in section 1.3.2.
however, LAs which are identified on the basis of only one trait are less satisfying than those based on several shared traits. Instead of selecting an arbitrary number of features necessary to define a LA, it is more useful to consider LAs as falling along a continuum, where strong LAs share several traits (possibly with "bundling"), while weaker LAs may share few traits, as few as only one (Campbell 1985).

1.3.2 Nature of shared traits

The presence of several shared traits in an area is diagnostic of a "strong" LA. However, not all shared traits are of equal value for defining or defending a LA. Some linguists (Sherzer 1976, Bright and Sherzer 1976, Masica 1976) have proposed the existence of LAs without adequately investigating the various factors which may have played a role in the distribution of widespread traits. Their methodology consists, for the most part, of listing features which are shared by languages within a certain area. Campbell (1985) terms this type of methodology the "circumstantialist" approach.

For example, Sherzer (1976) lists shared traits among the languages of the culture areas of North America -- areas of shared culture traits defined by anthropologists -- as evidence for their status as linguistic areas as well, assuming that culture areas and linguistic areas will coincide. This assumption has serious shortcomings, however. Since linguistic change does not necessarily take place at the same rate as does non-linguistic culture change, the fact that a culture area forms in a region does not entail that a LA forms in the area as well. That is, because linguistic traits are not as easily diffused as non-linguistic cultural traits, linguistic convergence proceeds more slowly than cultural convergence (Bright and Sherzer 1976, Campbell 1985). Also, while widespread bilingualism is a prerequisite for structural borrowing, it is
not necessary to cultural diffusion. Therefore, groups of people in contact may influence one another culturally, without necessarily having any significant linguistic impact on each other’s languages.

Boas (1963[1933]) recognized that there is lack of agreement among linguistic, cultural, and racial classifications of humans. That is, there is no necessary or direct correlation between particular cultures, particular races and particular languages. Boas gave several examples (1) of peoples who have changed linguistically and culturally, but have not changed in physical type (Afro-Americans, the Ainu of Japan, the Veddah of Ceylon), (2) of people who have changed culturally and physically (through intermarriage), but not linguistically (Athapaskans), and (3) of peoples who have changed culturally, but have not changed in physical type nor in language (native Californians, peoples along the coast of New Guinea). Change in one of these sectors does not entail change in another:

Thus we must recognize that the essential object in comparing different types of man must be the reconstruction of the history of the development of their types, their languages, and their cultures. The history of each of these various traits is subject to a distinct set of modifying causes. (Boas 1963[1933]:9)

While ethnic groups within LAs typically share cultural traits as well as their languages sharing linguistic traits, areal linguists cannot operate with the assumption that an area that happens to be unified culturally will necessarily form a LA. It is therefore acceptable in the beginning of an areal investigation to entertain the possibility that a culture area and LA may correspond; nevertheless, this possibility must be investigated and demonstrated satisfactorily in each individual case.

What, then, does it mean to demonstrate a LA satisfactorily? By definition, a LA is an area in which linguistic traits have spread through
diffusion. Therefore, only traits which are spread within an area because of borrowing constitute strong evidence in support of a LA. The methodological approach in which areal traits are shown to be products of diffusion can be termed the "historical" approach (Campbell 1985), because historical evidence is employed to identify traits which have arisen through contact (and therefore may constitute stronger support for a LA), and to separate those from traits which are shared for some other reason, such as accident, parallel but independent innovation, or even undetected, more remote genetic relationship among the languages involved. The compilation of historical evidence to be used in order to isolate areal traits involves tracing the historical development of the languages in the area. That is, comparative evidence from related languages must be examined in order to determine if a trait has been inherited from an ancestral proto language. If this is the case, the trait is not likely to be a diffused trait in that language. Conceivably a language could lose an inherited trait and then redevelop it through areal pressure; however, this is an unlikely situation in the absence of strong evidence to the contrary. On the other hand, if a shared trait is innovative (not inherited from a proto language) in a particular language, then it is a likely candidate for an areal trait. For example, verb-initial word order, relational nouns, and nominal possession of the form 'his-noun₁ (the) noun₂' (meaning '(the) noun₂'s noun₁') are plausibly diffused traits in Nahuatl, because comparative evidence shows that these features are not found in Uto-Aztecan languages outside the Mesoamerican area, and cannot be reconstructed for Proto-Uto-Aztecan. They are therefore innovative in Nahuatl (Campbell, Kaufman and Smith-Stark 1986).
Many scholars (Emeneau, Hamp, Jacobs, Jacobsen, Heath) recognize that historical information is invaluable, if not essential, in the identification of areal phenomena and LAs:

The obvious way of making further progress in these matters...is to go beyond a mere cataloging of the presence or absence of a category in a language to a study of the actual means used for its expression and to a reliance upon the findings of historical linguistics as applied to the several languages and families. (Jacobsen 1980:2)

Heath (1978) notes that just a cataloging of similarities among the languages of Arnhem Land, Australia, would lead to incorrect hypotheses concerning the direction of areal influence. A cursory examination of shared phonological traits would suggest that Nunggubuyu was greatly influenced by Ritharngu, because both languages have interdental consonants and a three-vowel system with a vowel-length distinction. However, interdental consonants in Nunggubuyu probably resulted from early diffusion from Proto-Yuulngu into Proto-Ngandi-Nunggubuyu, since interdental consonants are reconstructible for Proto-Yuulngu, but are unknown in languages related to Ngandi and Nunggubuyu. The change in Nunggubuyu from a five-vowel system to a three-vowel system has more likely resulted from contact with Warndarang rather than with Ritharngu, since Warndarang has had the greatest influence on Nunggubuyu. Various historical factors, such as consonant deletion and the incorporation of loanwords with long vowels (mostly from Ritharngu), led to the genesis of the vowel-length distinction in Nunggubuyu (cf. 1.4.5 for a more detailed discussion of diffusion in Arnhem Land).

It is only by actually reconstructing the historical development of the languages, combining the usual comparative reconstruction with a study of diffusional influences and distinguishing various
historical periods, that we can appreciate the nature of the 
historical processes which have operated. (Heath 1978:46)

The historical approach is not new. Jacobs (1954) emphasized that 
diffusional processes in the Northwest Coast cannot be identified with any 
certainty in the absence of historical reconstruction of the languages of the 
area. Emeneau (1980) outlined the methodology which has formed the basis 
of his research into the South Asian LA since the 1950's (see 1.4.2). He 
identifies two steps in establishing a LA: (1) determining that the relevant 
features are confined to the area in question, and (2) pinpointing the origin 
and direction of diffusion of those features. Unfortunately, many arealists 
have not followed his example. For example, in contrast to Emeneau, Masica 
(1976:6), who also wrote on the South Asian LA, specifically eschews 
historical perspective on traits which he considers:

The clear areal definition of zones of convergence, if it is possible, 
would have a bearing on some of the historical questions 
regarding such zones. Distributional information is a valuable 
kind of documentation. Meanwhile, such purely synchronic 
study defers for the moment the controversies regarding 
direction of borrowing and the precise nature of the evolution of 
various features that have occupied so much attention heretofore.

He argues that historical concerns should not be allowed to complicate his 
areal study:

Both the suggestions of Emeneau and the rich assemblage of data 
in Subrahmanyam are animated by a concern for the historical 
aspects of the problem -- the reconstruction or hypothesization of 
basic forms and categories for Dravidian as a whole or for its 
various branches and languages, and the history of various 
morphemes. That, of course, is not our concern here, and it is 
important for our purposes that we try to separate this from the 
synchronic descriptive facts. (Masica 1976:72)

Areal linguistics belongs properly to the field of historical linguistics -- 
in investigating LAs, we are interested in uncovering some of the history of
languages which have been in contact. Merely cataloging all features that are common to a group of languages does little to illuminate such history:

While the comparative method is unquestionably a historical study, the field of areal linguistics is no less so; for it too is occupied with analyzing the result of specific, if multiple, linguistic events of the past. Both the comparative method and areal linguistics are historical disciplines -- twin faces of diachronic linguistics, if you will. (Hamp 1977:279)

1.3.3 A set of criteria for defining a linguistic area

Since only features which are shared because of diffusion can demonstrate that a region does indeed form a linguistic area, features which are shared for other reasons must be eliminated. Also, shared traits which can be determined to have been diffused must be evaluated, too; that is, some diffused features are better evidence for a LA than are other features. I adopt the following set of criteria to establish the types of diffused features that best lend support to a LA. This list consists of (1) the types of shared traits that cannot be considered to be evidence of a LA (listed first), (2) the traits that are the best evidence for a LA (listed second), and (3) the traits that are not as strong but nevertheless constitute supporting evidence for a LA (listed last). The criteria are:

1. Features that are very common cross-linguistically, or features that tend to develop independently in language, do not provide strong evidence for a linguistic area, as their presence may be explained by factors other than diffusion.

2. The presence of a shared feature among some languages in a geographical region may also be due to genetic factors. This possible explanation becomes quite strong if the feature is also found in related languages outside the area. In such an event, the trait is very plausibly a family trait, rather than diffused.
3. Shared features which occur throughout the languages of an area will constitute the best evidence that it is a LA. However, most LAs exhibit a great deal of localized diffusion with a few examples of widespread diffused features covering the whole area. I will consider such local diffusion as additional support for a LA, as is typical of areal linguistic studies.

4. While structural features of language typically make up the evidence for LAs, LAs may also exhibit shared ethnolinguistic features. Some examples from Mesoamerica (Campbell, Kaufman, and Smith-Stark 1986) include ritual language with paired couplets; whistle speech, and polite vs. familiar address for second person address (cf. 1.4.3). While such ethnolinguistic features may have a strong cultural component, they are also clearly linguistic phenomena and should not be ignored as potential indicators of an LA. However, a “strong” LA should not rest solely, or even predominantly, upon such traits, because, as others (Emeneau 1980, Sims and Valiquette 1990) have noted, it is often difficult to determine whether the areal nature of some ethnolinguistic traits has resulted from linguistic diffusion, or from other sociocultural diffusion, which triggered independent linguistic change in several languages:

Linguistic status structures, then, parallel social status structures in this very large area, and it may be suggested that the divergent linguistic patterns have developed independently as super-structures on the social systems. (Emeneau 1980:13)

5. In addition to the adoption of new features, language contact can lead to the loss of linguistic features. This kind of shared trait (i.e., the absence of a trait due to loss) does not appear as convincing as an areal trait as does the presence of a highly marked feature in several languages because the loss of a category can often be attributed to internal factors rather than to diffusion. However, if several languages that have been in contact lack a
feature which is itself very common cross-linguistically, or relatively resistant to loss, diffusion may be the best explanation. For example, certain languages of a subarea of the Northwest Coast lack nasals (Haas 1969, Kinkade 1985, Thompson and Kinkade 1990). The absence of this trait is highly marked (i.e., almost all of the world’s languages have nasals, Maddieson 1984:60); therefore, it is more likely that the loss of nasals spread through contact than that several languages which just happened to be in contact independently lost nasals. Another such example is the lack of labial obstruents among languages of the Northern Northwest Coast (cf. 1.4.7).

The absence of a feature among the languages of a LA may also be significant if the feature is present in abundance in the languages surrounding the area. For example, Campbell, Kaufman and Smith-Stark (1986) consider the absence of SOV word order to be an areal trait of Mesoamerica.6 The absence of SOV basic word order cannot be called marked; however, it is meaningful that while most of the languages surrounding Mesoamerica have basic SOV word order, none of the languages within the area does. Also, it can be demonstrated that some languages within Mesoamerica have changed to conform to neighboring languages in the realm of word order.

6. A shared feature found in languages beyond the borders of the area in question may in fact be diffused, but if the trait is not confined to the languages within this area then it is not strong evidence in favor of a LA. However, such traits may provide additional or supplementary support for a LA, and also may be evidence that the particular area in question may have linguistic connections with other areas.

6 This areal trait can be restated so that it does not refer to the absence of a feature; i.e., the languages of Mesoamerica can be said to share basic word orders in which the verb precedes the object (e.g., VSO, VOS, and SVO).
7. Thomason and Kaufman (1988:58) suggest that even lack of change may be due to language contact:

Similarly interference through shift\(^7\) in particular may even be responsible sometimes for lack of change. This means that, since retention as well as innovation may be externally motivated, the presence of inherited features is not always adequately explained once one determines their genetic origin. For example, the elaborate systems of noun inflection in most Balto-Slavic languages resemble reconstructed proto-Indo-European in a number of striking ways. The possibility should at least be considered that the Balto-Slavic case systems were retained under the conserving influence of a Uralic substratum.

Another example is that of the preservation of \(I^r\) in Andean Spanish. This sound has merged with \(y\) in most of the rest of Latin American Spanish, but was preserved in Andean Spanish due to contact with Quechua and Aymara, which also have \(I^r\) (Lapesa 1981, Campbell 1985). While I do not disagree in principle with the claim that lack of change can be attributed to areal influence, I do not use retained features as primary evidence because of the difficulty in establishing external motivation.

1.3.4 Other factors in identifying diffused features

It is not always clear if a feature has diffused into a language, or has developed through internal change within the language. Frequently, competing explanations for the origin of a change exist, with some scholars arguing for diffusion, while others cite internal factors. A well-known controversy involving competing explanations for change is that concerning the origin of retroflexed consonants in Indo-Aryan. The presence of

\(^7\) Thomason and Kaufman (1988) use the term ‘interference’ to include the incorporation of foreign features into a group’s native language by speakers of that language, and the incorporation of features from a group of second language learners’ native language into the target language to which they are shifting. Thomason and Kaufman term the first type of interference ‘borrowing’ and the second type ‘interference through shift’. I use the term ‘diffusion’ in the sense of Thomason and Kaufman’s ‘borrowing’. 

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retroflexed consonants in Indo-Aryan has been attributed to Dravidian influence; however, others have countered that the impetus for this development lay within Indo-European, evidenced by the fact that similar processes took place in Iranian and Slavic, with slightly different outcomes (Hock 1975).

An example from a different part of the world is word order in Nahuatl. Classical Nahuatl exhibits basic VSO word order, a change from the verb-final word order of Uto-Aztecan. Steele (1976) invokes internal factors in explaining this change, while Campbell, Kaufman and Smith-Stark (1986) attribute it to external pressure from the surrounding non-verb-final languages of Mesoamerica.

The possibility of multiple causation must also be taken into account. Campbell (1985) argues that various factors -- both external and internal -- may come together in the inception of linguistic change. In other words, the existence of a plausible internal explanation for a change does not necessarily preclude that areal factors also played a role. For example, internal factors may have facilitated the word order change in Classical Nahuatl, with external influence also providing impetus for the change.

Thomason and Kaufman (1988) argue that external explanations should not be viewed as a last resort, only to be accepted when no internal explanation is available. That is, although a certain change may have come about via purely internal mechanisms in one language, the same change may be better explained through external factors in another situation. So-called natural changes -- those which occur frequently in language -- may be externally-motivated as well as internally-motivated. Thomason and Kaufman (1988:63) answer the question, "When is an external explanation appropriate?":

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An external change is appropriate, either alone or in conjunction with an internal motivation, when a source language and a source structure in that language can be identified. The identification of a source language requires the establishment of present or past contact of sufficient intensity between the proposed source language and the recipient language. The proposed source-language structures need not be, and frequently are not, identical to the innovated structures in the recipient language, but a successful claim of influence must of course provide a reasonable account of any reinterpretation or generalization that has occurred as a result of the interference.

I agree whole-heartedly that "natural" changes may come about through external influence. However, I will adhere to the principle stated in (2), namely, that more unusual changes, those encountered less frequently in languages from around the world and therefore less expected to take place independently, represent the best evidence for an LA. Cross-linguistically common changes may, of course, be considered as additional supporting evidence after a LA has been established.

As mentioned in the above quote, a feature does not have to pattern in exactly the same way in both languages in order for it to be considered equivalent and therefore a possible areal feature that spread through diffusion. Thomason and Kaufman (1988:62) point out that diffused traits often exhibit differences in patterning in the source and borrowing languages:

Many interference features will in fact not be exactly the same as the source language features that motivated the innovations. Lack of "point-by-point identity" must therefore not be taken to mean that an innovation is not due to foreign influence.

Thomason and Kaufman give the following example of a diffused feature which underwent reinterpretation in the borrowing language. As Hungarian speakers shifted to Serbo-Croatian, they transferred the pattern of fixed stress from their native language to Serbo-Croatian (which has phonemic stress). However, while stress is fixed on the initial syllable in Hungarian, the shifting
speakers employed fixed stress on the penultimate mora in Serbo-Croatian. This feature was then adopted by native speakers of Serbo-Croatian and spread throughout their dialect (Thomason and Kaufman 1988:62).

1.3.5 How to determine direction of diffusion

If a suspected diffused trait is present in two or more languages, the donor language and recipient language(s) should be identified, whenever possible. The concept of “degree of installation” (Jacobsen 1980) has been employed to determine the direction of diffusion in borrowing situations (cf. also Hinton 1991). If a trait is “well-installed” in one language -- that is, if it has an integrated interrelation with a higher number of categories and structures of the language (Campbell 1985) -- and is marginal in another language which has been in contact with the former language, then the former language is likely to have been the donor language. Campbell (1985) points out that this method has been demonstrated to be unreliable in identifying the direction of diffusion. For example, Sinhala has borrowed a focus construction from Dravidian, which has become highly integrated into Sinhala “participating in its rule structures and even, as in this case, serving as a model for further internal change” (Gair 1980:39).

A method which Heath (1978) employs to determine the origin of diffused morphemes is internal reconstruction. He lists the following indicators of antiquity of a morpheme: allomorphic specialization, functional specialization, and penetration. If a morpheme exhibits these characteristics in one language, it is likely to have time depth in that language and, therefore, a greater likelihood of having originated in that language. The criterion of “penetration” is essentially equivalent to “installation” and is not always reliable for the reasons mentioned above.
A traditional technique to determine direction of diffusion involves comparison of the distribution of shared traits in related languages outside of the linguistic area. If a shared trait is a family trait of one language within the area, then its presence in that language is a result of genetic inheritance, not diffusion. Therefore, it can only be the source language, not the recipient language. If the same trait is not a family trait of the other language(s) in the area, then its presence in those languages cannot result from genetic inheritance, but rather is likely due to diffusion. This is a classic method for determining the source of loanwords as well. If a borrowed word has cognates in the related languages of one language and can be reconstructed for that language family, but does not have cognates in the related languages of the other language, then the language which has cognates is the donor language. For example, Kroeskropy (1993) identifies Arizona Tewa ka:káhá ‘older sister’ as a borrowing of Hopi qööqa ‘older sister’. Hopi is likely to be the source of this loanword because the Hopi form has cognates in other Uto-Aztecan languages (Miller 1967:66), such as Serrano -qör ‘older sister’ and Huichol ne-kuruři ‘my older sister’ (Miller reconstructs PUA *ko). The other Tanoan languages do not have cognates to Arizona Tewa ka:káhá, on the other hand.

Emeneau (1980) frequently uses this criterion to determine the origin of diffused traits within South Asia. For example, he attributes the presence of retroflexed consonants in Indo-Aryan to diffusion from Dravidian, because retroflexed consonants are present throughout the Dravidian family and can be reconstructed for Proto-Dravidian. On the other hand, retroflexed consonants are not characteristic of Indo-European languages outside of India. Therefore, Dravidian can be assumed to have been the source of the diffusion of retroflexed consonants (Emeneau 1980[1956]), if in fact they are diffused
(see Hock 1975 for arguments that retroflexed consonants in Indo-European result from internal development rather than diffusion).

Hinton (1991) also uses this method for determining direction of diffusion. She argues that the source of the kʷ/qʷ distinction in Southern California is the Yuman languages because such a contrast can be reconstructed to Proto-Yuman, while Luiseño is the recipient language because the contrast is not present in other Takic languages, nor in other northern Uto-Aztecan languages, and cannot be reconstructed for Proto-Uto-Aztecan.

I consider all of the above factors when determining the origin of diffused traits, but I place most weight on the final criterion, because it has a long history as a reliable method for identifying direction of diffusion and has been employed by a wide range of scholars (Emeneau 1980, Heath 1978, Hinton 1991, Campbell, Kaufman and Smith-Stark 1986). However, because comparative information from related languages is not always available (e.g., in the case of language isolates), a variety of methods for determining the direction of diffusion must be employed.

1.4 Previous work on linguistic areas

In this section, I discuss several previously-identified linguistic areas from around the world in order to exemplify the range of criteria and how they have been used in defining a LA. In Chapter 4, I compare the evidence for a Pueblo LA to that of the LAs discussed here, in order to determine whether the Pueblo region is a strong or weak LA. Because I evaluate the following LAs in Chapter 4, in this section I primarily describe their characteristic features; however, in the course of the discussion, I criticize some of the evidence given.
1.4.1 The Balkans

The Balkan area consists of Rumanian, Bulgarian, Macedonian, Albanian, Greek and Serbo-Croatian. The Balkan area is often characterized as consisting of "core" languages, which share most of the relevant features, and a "periphery" of the languages possessing fewer Balkan characteristics. Some of the principal features adduced as evidence for the Balkan area include the following:

1. A central vowel, either $o$ or $i$, is found in all the languages except Greek and Macedonian.
2. Vowel harmony is widespread throughout the area, but the specific vowels which undergo vowel harmony differ from language to language, as do the conditioning environments for the rule (Campbell, Kaufman and Smith-Stark 1986:559).
3. In all the languages except Serbo-Croatian, the dative and genitive have syncretized, becoming identical in form and function.
4. Except for Greek, the Balkan languages have a postposed article.
5. Balkan languages have a periphrastic future, with an auxiliary verb corresponding to 'want' or 'have'.
6. Except for Bulgarian, the Balkan languages have a periphrastic perfect, with an auxiliary verb corresponding to 'have'.
7. To varying extents, the Balkan languages have lost the infinitive.

Macedonian, Greek and Bulgarian essentially lack this category, the original

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infinitive has been replaced in Albanian, while the infinitive is a restricted
category in Daco-Rumanian.

8. Pleonastic personal pronouns are used with animate objects; i.e., the object
is marked twice -- for example, Rumanian I-am scris lui Ion 'I wrote to John',
literally 'to-him I wrote him John'.

9. The numbers 11-19 are composed of forms which literally are 'one over
ten' for 'eleven', 'two over ten' for 'twelve', etc.

10. Locative and directional expressions have merged in Greek, Rumanian
and Bulgarian; for example, Greek stin eláda 'in(to) Greece'.

Most of the above features are not distributed so that they occur in all
Balkan languages (e.g., the postposed article, the presence of a central vowel,
vowel harmony, dative/genitive merger). Also, language contact has been de­
emphasized as the primary factor in the spread of certain of these features
(e.g., the loss of the infinitive, the dative/locative merger, the periphrastic
perfect) because of the dissimilarity of distribution and function of these traits
in the various Balkan languages (Joseph 1983:240-41). While diffusion has
clearly taken place within the Balkans, the Balkan area is not characterized by
bundling isoglosses.

1.4.2 South Asia

South Asia, more commonly known as the Indian subcontinent,
contains many hundreds of languages from three main language families:
Indo-European, Dravidian, and Munda. South Asia, like the Balkans, has
been described as consisting of a core and periphery. There is a great deal of
localized diffusion (traits which do not extend broadly throughout the
languages of the area), as well as traits found throughout the India
subcontinent but which also extend far beyond, throughout Asia. Much of
the work done on this area has been done by Emeneau, in a series of articles
which are compiled in Emeneau (1980). As noted above, Emeneau has always incorporated the historical orientation into his research, addressing such issues as direction of borrowing. Masica (1976) investigated morphosyntactic features which are characteristic of South Asia. He also appended to his book a list of proposed Indian areal features from various sources. The principal traits which have been used as evidence for a South Asian LA include the following:

1. Emeneau (1980[1956]:110) identifies retroflexed consonants as a pan-Indian trait. Such sounds can be reconstructed to Proto-Dravidian, but not to Proto-Indo-European; therefore, it is likely that retroflexed consonants are an ‘Indianization’ of Indo-Aryan, diffusing from Dravidian. However, retroflexed consonants have spread to Iranian languages as well, so that the isogloss for this trait does not enclose India alone, but rather “runs north and south through Afghanistan and Baluchistan” (Emeneau 1980[1965]:129, cf. also Henderson 1965).

2. Emeneau (1980[1965]:130) also characterizes the use of non-finite verb forms in strings before a predication-closing finite verb form as pan-Indic, but also notes that “it may be almost universal in Eurasia, except for Semitic and Indo-European, exclusive of Indo-Aryan,” and that Indo-Aryan languages on the border of Iran lack the trait, suggesting that Iranian influence “has presumably caused loss of an otherwise pan-Indian feature and pushed the line back into Indo-Aryan territory.”

3. A third trait, classificatory systems, which is Indo-Aryan in origin, has been borrowed into Dravidian and Munda languages, with Indo-Aryan classifier morphemes and numerals often borrowed as well. For example, the

9 Other sources on the South Asian linguistic area include Kuiper (1967), Burrow (1971), and Sridhar (1978).
Dravidian language Malto borrowed numerals from three on from Indo-Aryan Bengali or Bihari, and also borrowed classifiers such as jen (used for persons),gota (used for certain non-persons), and kada (for tendril-shaped things). The word order of noun phrases is innovative in Malto, however — classifier + numeral + noun, in contrast to the order noun + numeral + classifier that occurs in other Indian languages. This isogloss does not enclose the Indian subcontinent:

Though this isogloss is an excellent one in demonstrating that the trait is shared by parts of the major families of India, it fails lamentably in demonstrating that India is a linguistic area and may be interpreted as showing that there are linguistic traits that occur in common in India and the rest of Asia. (Emeneau 1980[1965]:131)

4. Emeneau (1980[1956]:111) identifies another trait, which is phonological -- the distribution of affricates (ts and dz before back vowels, and tš and dž before front vowels), in Indo-Aryan and Dravidian. The direction of borrowing cannot be determined. This trait is of limited distribution, however, and is found only in languages in central India.

5. In the “echo-word construction,” first identified by Bloch (1934), the initial CV syllable of a word is replaced by another syllable (e.g., gi-, u-, m-) with the meaning ‘and the like’; e.g. puli gili ‘tigers and the like’. This feature is shared by all three language families, and has a non-Indo-European origin (Emeneau 1980[1956]:114).

6. Emeneau (1980:7) uses the term ‘expressives’ for “a form class with semantic symbolism and distinct morphosyntactic properties,” which may refer to sounds, other perceptions, and feelings. Because onomatopoetic forms may easily arise independently in separate languages, hypothesizing about their origin -- either genetic or areal -- can be problematic. Emeneau,
however, defends his claim that these onomatopoetics in South Asia are an areal feature:

If several contiguous languages of different families have an onomatopoetic system and a fairly large number of onomatopoetics in common, diffusion rather than independent development would seem the probable explanation; the more divergence between their phonological systems, the more probable this explanation. (Emeneau 1980[1969]:265)

He suggests that onomatopoetic words were first borrowed from Dravidian into Indo-Aryan and then the pattern of initial reduplication was borrowed, after which independent creation of such forms took place in Indo-Aryan. Unfortunately, Emeneau could not comment on this structure in Munda, due to lack of descriptive materials. Also, this pattern of initial reduplication is found not only the languages of India but also in Vietnamese and Thai, Chinese, Korean, Turkish and possibly Iranian. It is unclear in what way onomatopoeics of the Indian subcontinent differ from those of Southeast Asia.

7. Linguistic “status structures,” that is, honorific distinctions in second and third person reference, are also widely represented throughout Asia (e.g., Vietnamese, Thai, Burmese, Mandarin Chinese, and the elaborate honorific systems of Japanese and Korean). Emeneau (1980:13) suggests that the Indian linguistic area displays something “idiosyncratic” in its manifestation of both expressives and linguistic status structures which renders it distinct from the rest of Asia. That is, in India paired terms for male and female members of different castes occur throughout Dravidian and Indo-Aryan, with the exception of some of the central Dravidian tribes (Emeneau 1980[1974]:219). For example, in the Toda (Dravidian) language the term for a male member of the Badaga caste is maf, while the term for a female member of the Badaga caste is madty. It is unclear whether this trait occurs in Munda as well.
8. Another trait borrowed from Dravidian into Indo-Aryan is a calque of the usages of Dravidian *-um onto Sanskrit api (Emeneau 1980[1974]:199), which is used to mean: (1) 'also', (2) 'and', (3) 'even', (4) "totalizing" function, indicating that all members of a group participate in a statement, and (5) 'all who', with an interrogative pronominal form.

The two forms can be demonstrated to have overlapped in three of their five meanings in the earliest recorded texts. The last two uses, however, can be reconstructed to proto-Dravidian, but only appear later, in the classical period, in Sanskrit.

9. Emeneau (1980) treats the semantics of 'arm' and 'leg' as an areal feature of South Asia: in many of the languages of India, there is one term which includes the entire upper limb -- from shoulder to fingers -- and one term which includes the entire lower limb - from hip to toes. As Emeneau notes, however, the information on Indo-Aryan is incomplete, as is information on the semantics of these items in pre-Indo-Aryan; therefore, this areal feature needs more investigation.

10. Masica identifies SOV word order and its correlate word order features (e.g., noun-postposition, etc.) as an Indian-defining trait. However, SOV basic word order is so common cross-linguistically that it may well be only coincidental that South Asian languages share this feature. The isogloss on Masica's map (1976:29) demonstrates that SOV word order extends over most of Asia (excluding major parts of China). It also appears from this map that the correlate features of SOV do not separate India from the so-called Altaic languages to the north in Central Asia.

11. Masica also lists the existence of a morphological causative as evidence for a South Asian LA. Again, this trait is very common across the world's languages, as Masica (1976:55) notes:
Of the various expressional devices noted above, the one characteristic of English, namely, purely syntactic relations (the verb otherwise remaining the same) is, surprisingly, one of the rarest. Morphologically marked causative stems, on the other hand, seem to be found in most of the world’s languages at least vestigially. (italics in original)

Also, there is no Indian-defining morphological causative isogloss (Masica 1976:57); rather, the isogloss for the first type of causative (causative from intransitive or transitive) encompasses almost all of Asia and East Africa, as well. The isogloss for the second type of causative (causative from causative) connects India with the Uralic and so-called Altaic languages to the north.

12. Conjunctive participles -- nonfinite verb forms which subordinate clauses -- are characteristic of all three language families in South Asia (Masica 1976). Once again, however, this trait extends throughout northeast Asia into the so-called Altaic languages.

13. Explicator compound verbs -- a sequence of two verbs in which the first verb carries the primary semantic content and the second verb is grammaticalized -- characterizes all three language families of South Asia. Examples from Hindi include kho baithnaa ‘to lose’ (literally, ‘lose and sit’), le jaanaa ‘to take away’ (literally, ‘take and go’), and likh deena ‘write down for somebody’ (literally, ‘write and give’). Often the grammaticalized second verb is derived from a verb of motion or position and denotes directionality (Masica 1976:142-43). Although this feature did not appear in Indo-Aryan until post-Vedic times, Masica suggests that the fact that the trait is more developed in Indo-Aryan than in Dravidian precludes the possibility of borrowing from Dravidian into Indo-Aryan. However, as mentioned above, degree of installation is not always accurate for determining direction of borrowing. In any event, as with the above features, this trait characterizes the languages of Central Asia as well as those of South Asia.
14. The last areal trait which Masica (1976) discusses is the dative construction in which the experiencer is put in the dative case and the experience itself is the grammatical subject. In (a), \textit{mujhe} is the dative singular first person -- `to me'.

(a) Hindi-Urdu \quad mujhe pasand hai

I like it

This construction is characteristic of all three language families in India, and Masica asserts that it is most developed in Dravidian and least developed in Munda. It is also the only feature that he discusses which is not shared by the so-called Altaic languages to the north, nor by Tibeto-Burman. The isogloss for the dative construction encloses only South Asia (Masica 1976:166).

In summary, only two of the fourteen traits discussed above can be demonstrated to occur throughout India but not beyond its borders -- the echo-word construction and the dative construction. While the dative construction does not characterize the languages surrounding the Indian subcontinent, it is quite common among the world's languages and is therefore not a very strong areal trait.

1.4.3 Mesoamerica

Campbell, Kaufman and Smith-Stark (1986) identify Mesoamerica -- from roughly central Mexico through northern Central America -- as a LA. This area includes languages from several language families, for example, Otomanguean, Uto-Aztecan, Totonacan, Mixe-Zoquean, Mayan, etc.

Mesoamerica (MA) is in fact a particularly well-defined LA with five isoglosses essentially bundling at the borders of the MA area. Five traits occur throughout the MA area but do not extend beyond. These are the following:
1. Nominal possession takes the form ‘his-noun₁ (the) noun₂’, meaning ‘(the) noun₂’s noun₁’; e.g., K’iche u-ts’i:? le: ačih ‘the man’s dog’, literally ‘his-dog the man’.

2. Relational nouns express locative and directional notions that are typically indicated by prepositions in English. Relational nouns consist of a noun root with a prefixed possessive pronoun; e.g., Kaqchikel -nu-šeʔ ‘under me’ (nu-‘my’, šeʔ ‘root’).

3. Vigesimal numeral systems -- counting systems based on twenty -- are present in all languages in the MA area, and in a few nearby languages beyond the borders.

4. All languages in the MA area have non-verb-final basic word order and the absence of switch-reference, while most of the languages surrounding the area are SOV.

5. Semantic calques, such as ‘egg: stone of bird’ and ‘town: water-mountain’, are widespread throughout the MA area. Campbell, Kaufman and Smith-Stark (1988) list thirteen examples.

Supplementary evidence includes ethnolinguistic features (e.g., ritual language with semantic couplets, whistle speech, and polite vs. familiar contrast in second person address), features which are shared by only some of the languages in MA (localized diffusion), and features which extend beyond the area (e.g., directional verb affixes, body-part incorporation), as well as an abundance of loanwords.

1.4.4 The Northwest Coast

In prehistoric times, several language families (and language isolates) co-existed on the Northwest Coast (NWC), including Salishan, Wakashan, Chimakuan, and many others. Extensive trade and intermarriage among the peoples of the NWC, as well as diffusion of folktales (Sherzer 1976:233),
suggests widespread multilingualism and therefore, a fertile area for linguistic diffusion.

Sherzer (1976) lists several traits shared among the languages of the NWC. I will only repeat the most striking traits here, and evaluate their status as areal traits.

1. All languages of the NWC have a glottalized stop series, which is also a family trait of many of the languages within the area. Sherzer (1976:60) suggests that "multiple multilingual pressure probably contributed to the retention of this trait in the languages of the area."

2. Sherzer also attributes the presence of the several lateral sounds (\( l, \lambda, \tilde{\lambda}, \) and \( \tilde{\lambda}' \), with some languages, such as Clallam, Nootka and Tlingit, lacking the voiced approximant \( l \), cf. Thompson and Kinkade 1990) and the multiple oppositions in the back of the mouth (\( q, k^*, x^*, x^* \) and \( q^* \)) in languages of the NWC to areal pressure. Not all of these sounds occur in every language of the NWC, but they are widespread.

3. Glottalized nasals are found in Haida, Tsimshian, Kwakiutl, Nootka, Bella Coola, Squamish, Twana and Tolowa. Glottalized semivowels are found in the same languages, with the exception of Tolowa.

4. Numeral classifiers and evidential markers occur in many languages of the NWC; like the phonological traits mentioned above, they are also family traits of most of the languages involved.

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\(^{10}\) Sherzer (1976) lists only five language families present on the Northwest Coast; however, he accepts, without comment, controversial genetic units such as Na-Dene and Penutian (cf. Campbell and Mithun 1979 for critique of such remote comparisons). His use of undemonstrated long-distance genetic classifications may obscure true areal relationships. For example, he may classify a trait in a so-called Na-Dene language as inherited, based on its presence in other so-called Na-Dene languages, which may very well not be related at all. Therefore, some of his family traits may actually be diffused traits, as is frequently asserted of traits in these languages.
Sherzer considers nominal and verbal reduplication an important areal trait that was retained in the NWC through the pressure of language contact. However, such reduplication (e.g., to signal distributive, plural, diminutive, repetition) is so common throughout the Americas (and elsewhere) that it is difficult to attribute its presence to areal factors.

Haas (1969) considered the above phonological traits as indicative of a NWC language area, and also included negative traits; i.e., the lack of labials in the northern NWC and the absence of nasals in Quileute, Nitinat, Snohomish, and some others in her inventory of areal features. Haas (1969) also suggested that the classificatory verb system found in the Athapaskan languages of the area, as well as in Klamath and Takelma, may be another areal feature.

Many of the traits that are widespread in this LA are inherited traits in the languages involved, so that diffusion cannot be demonstrated to have played a role in their distribution; for example, glottalized stops, multiple lateral sounds, labialized velars, and velar fricatives are reconstructed for Proto-Athapaskan-Eyak (Cook and Rice 1989), Proto-Wakashan (Jacobsen 1979a:771), Proto-Chimakuan (Jacobsen 1979b:794), and Proto-Salish (Thompson 1979). Therefore, Sherzer (1976) must rely heavily on shared retention as support for a Northwest Coast LA. Other traits are demonstrably diffused, but are limited in distribution; e.g., lack of nasals (Haas 1969, Thompson 1972, Kinkade 1985), the change of k to č (Jacobsen 1979a), numeral classifiers, classificatory verbs (Haas 1969, Thompson and Kinkade 1990), palatalized velars (Jacobs 1954), tonal contrasts (Thompson and Kinkade 1990), interdental fricatives θ and θ′ (Thompson and Kinkade 1990), and glottalized resonants.
The NWC is a solid LA because of the widespread nature of cross-linguistically uncommon traits; however, these are exactly the traits that cannot be demonstrated to have diffused within the NWC. Therefore, although the NWC is inarguably a LA, it is difficult to support the most widespread traits with historical evidence.

1.4.5 Arnhem Land

Heath (1978) examined diffusion within Arnhem Land, Australia among four languages: Ritharngu (Ri), Nunggubuyu (Nu), Ngandi (Ng) and Warndarang (Wa). The latter three languages, which Heath terms ‘prefixing languages’, are reasonably closely genetically related, while Ritharngu is a Yuulngu language. Heath demonstrates that speakers of these languages traditionally had cultural contact with one another, resulting in intermarriage and multilingualism, so that pre-European-contact linguistic diffusion is probable and plausible.

Examples of phonological diffusion include the following:

1. Through the influence of Ngandi, Ritharngu developed morpheme-final glottal stops.
2. A fortis/lenis distinction in stops is present in Ritharngu, Ngandi, and Nunggubuyu. This distinction is unknown in related languages, and therefore is a likely diffused trait in Arnhem Land, although the origin of the development is undetermined.
3. Interdentals spread from Yuulngu into Proto-Ngandi-Nunggubuyu through lexical borrowing.
4. Under the influence of Warndarang, fortis stops shifted to lenis stops in Nunggubuyu, which led to a chain shift in which old lenis stops became continuants.
5. The sporadic change of glottal stop to Ø, g, and j in Nunggubuyu can also be attributed to influence from Warndarang.

6. Again through contact with Warndarang, the five-vowel Ngandi-Nunggubuyu proto system collapsed into a three-vowel system in Nunggubuyu. Internal developments, coupled with the incorporation of Ritharngu loanwords, led to a length distinction in Nunggubuyu vowels as well.

Heath rejects the notion that phonological rules are diffused, arguing that the few phonological processes which are shared among languages in Arnhem Land can be explained through the diffusion of surface patterning. Examples include the diffusion of Warndarang d-insertion into Nunggubuyu and constraints against nasal + fortis stop clusters and vowel clusters.

A plethora of bound morphemes have been borrowed within Arnhem Land: ergative-instrumental -du from Ri into Ng, instrumental -miri from Ri into Nu, ablative -wala from Nu into Wa, genitive-dative-purposive -ku from Ri into Ng, noun class prefixes from Nu into Wa, kin-term dyadic dual suffix -ko? from Ng into Ri, inchoative -ti- from Ri into Ng, thematising augment -du from Ri into PNGNu, comitative bata and ray from PNGNu into Ri, -?waŋŋi? ‘like’ from PNGNu into Ri, negative -?may? from PNGNu into Ri, and -bugi? ‘only’ from PNGNu into Ri and Wa.

Lastly, Heath examines “indirect” morphosyntactic diffusion, in which “one language rearranges its inherited words and morphemes under the

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11 This view is not universally accepted. Others (Campbell 1976, Campbell 1985, Thomason and Kaufman 1988) argue that phonological rules can indeed be diffused, and give several examples (cf. 1.2 for examples of borrowed phonological rules). Campbell (1976:185) argues that even if it is surface patterning that is borrowed in such cases, such borrowing results in new rules in the borrowing language which are identical to those of the donor language.
influence of a foreign model, so that structural convergences results” (1978: 119). Some examples of this phenomena which he cites include obligatory pronouns in Ri (under the influence of Ng and Nu); a subordinating suffix in Ri (under the influence of Ng); the diffusion of a verbal category system in Ri similar to that of Ng; the development of a originative case suffix in Ng (borrowed from Ri); an increase in the number of case suffixes in Nu (under influence from Wa); and the development of an absolute suffix in Wa (under the influence of Nu).

Isoglosses of diffused traits do not bundle around Arnhem Land; rather, there has been a good deal of localized diffusion within its borders — primarily from Ri into Ng and from Nu into Wa.

1.4.6 Southern California

Hinton (1991) examines phonological convergence between languages of the Takic branch of the Uto-Aztecan family and Yuman languages of Southern California. Proto-Uto-Aztecan (PUA) cannot be shown to have been in contact with Proto-Yuman (PY), as the phonological traits which occur in both PUA and PY are very common cross-linguistically. Hinton compares Proto-Yuman and the extant Takic languages to arrive at the conclusion that Yuman influenced the Cupan branch of Takic (which includes the languages Luiseño, Cahuilla, and Cupeño). There are eight PY traits that do not occur in Proto-Takic (PT) that do occur in some of the modern Takic languages:

1. a kʷ/qʷ contrast in Luiseño
2. a s/s contrast in Takic
3. xʷ in Cupan
4. ŋ in Cahuilla-Cupeño and Serrano
5. p in Cahuilla-Cupeño and Serrano
6. an r/l distinction in all of Takic except Gabrielino
7. a small vowel inventory in Cahuilla-Cupeño
8. consonantal sound symbolism in Cupan

Dieguesño, the only modern Yuman language which is in contact with Cupan, does not exhibit the shared traits; therefore, diffusion must be attributed to prehistoric times. The River language branch of Yuman shows the most similarity to Cupan, and from this Hinton suggests that a group of languages like River influenced Cupan -- through widespread bilingualism resulting from Cupan occupation and exogamy -- as River speakers were displaced by Cupan speakers.

Hinton also asserts that Dieguesño has recently begun to influence Cupan. Three phonological traits which occur in Dieguesño are also found in Takic:
1. Ɂ, the voiceless lateral, in Cahuilla
2. ɁɁ, the voiceless palatal lateral, in Cahuilla
3. a t /t distinction in Luiseno and Cupeno

Hinton suggests that as these traits are only marginally installed in Takic (that is, they are allophonic) diffusion must have been relatively recent.

Hinton (1991:133-34) argues that these languages, rather than forming a linguistic area, form part of a network of “complex chains of mutually-influencing languages”:

We will see that California Yuman and the Cupan branch of Takic (which is a subfamily of Uto-Aztecan) have converged to be very similar phonologically; but these two groups can also be demonstrated to be part of an older network that has ties to the languages of the South Coast Ranges (Chumash, Salinan, and Esselen)...part of another, different network that includes Yokuts and some Uto-Aztecan languages. And Yuman itself interacts in different directions with different groups of Uto-Aztecan languages. The Arizona Pai branch of Yuman can be shown to be in a network with the Numic branch of Uto-Aztecan, and
some of the River Yuman languages with the Sonoran branch of Uto-Aztecan (Shaul and Andressen 1989).

1.4.7 The Northern Northwest Coast

Leer (1991) argues for the existence of a Northern Northwest Coast (NNWC) LA, which includes Haida, Eyak, and Aleut, Tlingit peripherally, but not Eskimo. He discusses two traits in detail. The first of these is promiscuous number marking, in which the number of pronouns is marked discontinuously; that is, the number marker occurs on the verb. It is termed ‘promiscuous’ because the marker is free to associate with pronouns in various syntactic roles. In clause-promiscuous number marking, the number marker can associate with any pronoun within the clause, whether a direct argument of the verb, or a daughter of such an argument. In verb-promiscuous number marking -- a weaker form of the phenomena -- the number marker can associate with any direct argument of the verb. This strategy for number marking contrasts with a different strategy employed in Northwest Coast languages (Athapaskan, Eyak, Haida, Tlingit, Tsimshian, and languages further south), in which there are pairs of singular and plural verb stems that function ergatively.

In Haida and Eyak, number marking is clause-promiscuous. In Haida, a verbal suffix can mark any pronoun within the clause as plural, while in Eyak, there are a singular and a plural enclitic which mark pronominal number. In Tlingit, promiscuous number is of the weaker form. A clitic has can mark either direct argument of the verb as plural. The same clitic is attached directly to possessive phrases and postpositional phrases to mark plurality.

In Aleut, all third person pronominal reference is marked through inflectional suffixes on the verb; that is, there are no overt third person
pronouns. The number of the subject is indicated by a one-party suffix, while third person pronominal objects are marked for number by a two-party suffix, which indicates the number of both the subject and the empty NP. If there are two empty NPs with two different numbers, the suffix can mark only one of them -- the plural, which is the more marked form. Furthermore, if there is a full noun phrase and an empty noun phrase (Ø), it is always the empty noun phrase which is marked for number; marking the empty NP takes precedence over subject-verb agreement. This holds true whether the empty NP is the object of the verb, the possessor of the subject, or the possessor of the object. Leer enumerates the changes that have taken place from Proto-Eskimo-Aleut to Aleut: (1) the two-party suffixes now indicate specifically the number of a third person pronominal object, rather than the broader category of third person definite object, (2) the two-party suffixes indicate the number of any empty NP within the predicate and the one-party suffixes indicate the number of any empty NP within the subject, (3) the number of only one empty NP can be marked on the verb. He notes that these changes do not seem plausible from the viewpoint of the history of Eskimo-Aleut, but do make sense from an areal perspective:

> These changes seem enigmatically obfuscatory from the viewpoint of comparative Eskimo-Aleut per se, but make sense under the assumption that they were effected in the process of adapting the NNWC phenomenon of promiscuous number marking to an earlier, more Eskimo-like system. (Leer 1991:176)

The Aleut system is closest to that of Eyak (rather than Haida and Tlingit) because each number is positively indicated; that is, both singular and plural are marked by a suffix.

A second areal feature which Leer discusses is the periphrastic possessive constructions in Haida and Eyak. In Alaskan Haida, there exist
attributive pronouns which occupy initial-position in the “extended verb complex,” indicating “the logical possessor of some definite NP in the clause” (Leer 1991:177). Like number marking, attributive pronouns are “promiscuous”; they can associate semantically with any definite NP in the clause. In Eyak the periphrastic possessor forms a syntactic constituent with the possessed noun. Leer hypothesizes that the periphrastic possessive originated as a postpositional phrase (PP), the object of which could be interpreted as the possessor of some NP in the clause. In Eyak, this PP became syntactically reanalyzed as forming a constituent with the preceding possessed NP. In Haida, the PP became restricted to a certain position -- preceding the verb complex. Leer (1991:185) suggests the following scenario:

Under the influence of Haida (or some intervening NNWC language with a similar periphrastic possessive construction), Eyak develops the periphrastic construction ... as a preferred alternative to the original possessed noun; at some point the latter is entirely abandoned. Finally, after Tlingit joins the NNWC language area, separating Eyak from Haida, the Eyak periphrastic construction is syntactically reinterpreted so that the possessum and postpositional phrase together form an NP, as do possessor and possessum in Tlingit. In Haida, too, the attributive pronoun similarly begins to be reinterpreted as a possessive determiner.

Leer argues that promiscuous number marking and the periphrastic possessive construction are especially strong evidence for a NNWC area, because these both are typologically rare and “deep” grammatical traits. The lack of labial obstruents in this area also supports a LA, since most languages have such sounds (Maddieson 1984:32). Supplementary evidence includes: head-final syntax, an agentive/patientive pronominal system, the presence of glottalized sonorants, and number marking for human third person only. The final trait is so common cross-linguistically that I would exclude it as evidence.
Like many of the other LAs discussed, most of the areal traits of the NNWC are present in some, but not all, of the languages of the area.

1.5 Summary

The attention that areal linguistic phenomena has received in the United States has varied a great deal over the course of the last century. Happily, in recent years there has been a resurgence of interest in areal linguistics. The investigation of linguistic diffusion in the Pueblo area in particular is important for several reasons. First, while the Pueblo region has long been recognized as a culture area, and while there has been some evidence put forward that is suggestive of a Pueblo linguistic area, a detailed analysis of the Pueblo region as a linguistic area based on the "historical" approach (cf. section 1.3 above) has not been done before. Second, the identification of traits that have diffused among the Pueblo languages helps to reveal the history of these languages; that is, linguistic developments that have resulted from language contact are as crucial to the illumination of linguistic prehistory as are internal developments from a proto language. Finally, Pueblo areal traits have important implications for proposed linguistic universals, theories of language change, posited long-range genetic relationships, and Native American prehistory.

In the next chapter I give a linguistic and cultural overview of the Pueblo area. I list the languages that are present in Pueblo area, giving the geographic location, the number of speakers, and the genetic affiliation and history of classification of each language. I present evidence for cultural contact among the Pueblo ethnic groups and give brief sketches of the Pueblo languages. Finally, I review the literature dealing with areal phenomena in the Pueblo area.
CHAPTER 2 - THE PUEBLO REGION

2.1 Introduction

In this chapter I give an overview of the Pueblo region, both linguistically and culturally. I provide evidence for cultural contact among the Pueblo peoples, which is necessary to support proposals of structural linguistic diffusion. Descriptions of the geographic location and brief characterizations of the structure of the Pueblo languages will facilitate understanding of the analysis of the data in chapter 3. Also, the genetic relationships of those languages which are not isolates are discussed because related languages outside of the Pueblo area are important for determining whether shared features are inherited, rather than diffused, in certain languages.

2.2 The Pueblo languages

The modern Pueblo peoples are located in the states of New Mexico and Arizona (cf. Map 1, chapter 1). The name Pueblo (Spanish for 'town') was given by the Spanish upon their arrival from Mexico to the Native Americans who occupied towns of this region built of stone and earth (Underhill 1991[1946]). The people who still occupy the Pueblos speak languages from four different language families.

2.2.1 Hopi

Hopi is spoken at the three Hopi mesas in Arizona. The term hopi, meaning 'good, peaceful' is applied by the Hopi people to themselves (Connelly 1979). Originally the Hopi called themselves mółki, but because the Spanish pronunciation of this (móki) sounded similar to the Hopi word for 'dies, is dead', they adopted a new name. Linguists of the Summer Institute of Linguistics (Grimes 1984) estimate that in 1977 there were 5000 speakers of Hopi. Hopi is the only Uto-Aztecan language in the Pueblo region. It is
related to Nahuatl, to the Numic languages (Shoshoni, Southern Paiute, etc.)
in the Great Basin, to the Takic languages (Serrano, Luiseno, Cupeno,
Cahuilla, etc.) in California, to Cora, Huichol, Yaqui and Tarahumara of
Mexico, and to Papago and Tepehuan, located on either side of the Arizona-
Mexico border (cf. Table 1, based on Langacker 1977).

<table>
<thead>
<tr>
<th>Table 1</th>
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<tbody>
<tr>
<td><strong>Classification of the Uto-Aztecan languages</strong></td>
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<tr>
<td>I. Numic</td>
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<tr>
<td>A. Western Numic</td>
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<tr>
<td>1. Northern Paiute</td>
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<tr>
<td>2. Mono</td>
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<tr>
<td>B. Central Numic</td>
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<tr>
<td>1. Shoshoni</td>
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<td>2. Comanche</td>
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<tr>
<td>3. Panamint (Tümpisa Shoshone)</td>
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<tr>
<td>C. Southern Numic</td>
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<tr>
<td>1. Southern Paiute</td>
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<tr>
<td>2. Kawaiisu</td>
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<tr>
<td>II. Tübatulabal</td>
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<td>III. Hopi</td>
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<td>IV. Takic</td>
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<tr>
<td>A. Serrano</td>
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<tr>
<td>B. Cupan</td>
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<tr>
<td>1. Cahuilla-Cupeño</td>
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<td>2. Luiseno</td>
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<td>V. Pimic</td>
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<td>A. Papago</td>
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<td>B. Northern Tepehuan</td>
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<tr>
<td>C. Tepecano</td>
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<tr>
<td>VI. Taracahitic</td>
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<tr>
<td>A. Tarahumara</td>
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<tr>
<td>B. Yaqui</td>
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<tr>
<td>VII. Cora-Huichol</td>
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<tr>
<td>A. Cora</td>
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<tr>
<td>B. Huichol</td>
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<tr>
<td>VIII. Aztecan</td>
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<tr>
<td>A. Pochutla</td>
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<tr>
<td>B. Nahuatl</td>
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</tbody>
</table>
The unity of the Uto-Aztecan family was recognized by Gatschet (1879) and Brinton (1891), but Powell (1891) chose not to relate Aztecan to the Northern Uto-Aztecan languages. However, later work (Sapir 1913-1914) demonstrated the genetic relationship among these languages.

The internal classification of the Uto-Aztecan languages is still open to debate. Later classifications have both separated and united these subgroups. Some scholars (Kroeber 1934, Whorf 1935, Lamb 1958, 1964, Miller 1966) advocated a schema consisting of eight coordinate subgroups -- Takic, Numic, Tibbatulabal, Hopi, Pimic, Taracahitic, Cora-Huichol, and Aztecan (cf. Table 1). Others (Heath 1977, Kaufman and Campbell 1981) propose two large subgroups -- Northern Uto-Aztecan (which includes I through IV in Table 1) and Southern Uto-Aztecan (which includes V through VIII in Table 1). The traditional classification (Brinton 1891) consisted of three subgroups -- Shoshonean (equivalent to Northern Uto-Aztecan), Sonoran (Pimic, Taracahitic, and Cora-Huichol) and Aztecan. Hale and Harris (1979:171) propose that the time-depth of Uto-Aztecan diversification is no greater than five millennia.12

2.2.2 Zuni

The Zuni language is spoken at the Zuni Pueblo, in New Mexico near the Arizona border. The name Zuni comes from the Spanish word Zufii which derives from the Keresan name si:ni 'Zuni Indian'. In the Zuni language, the Zunis call themselves si:wi and their home, the Zuni Pueblo,  

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12 Hale and Harris (1979:171) defines ‘time-depth’ as “the temporal distance separating the present from the beginnings of diversification.” There is no precise method for determining time-depth, as glottochronology, a method in which the date of divergence of a language family is calculated by comparing the basic vocabulary of the daughter languages and assuming the rate of lexical retention is 81% per millenium, has been widely discredited for various reasons (cf. Anttila 1972). Therefore, dates given for the breakup of a proto language are estimates with a wide range of error.
siwin'a which means 'Zuni place' (Eggan and Pandey 1979). It is estimated that in 1977 there were 5000 speakers of Zuni (Grimes 1984). Like Hopi, Zuni is fully viable.

Zuni is considered a language isolate, since it has not been demonstrated to be related to any other language. A number of long-distance genetic relationships, however, have been proposed. Sapir (1929) tentatively included it with the proposed Aztec-Tanoan group; Trager also thought it related to Kiowa-Tanoan (1951, 1967); and Swadesh (1967) tried to relate Zuni to Mixe-Tanoan, but this was met with absolutely no acceptance. Finally, Newman (1964) attempted to demonstrate a relationship with Penutian, based on some 123 proposed, but mostly doubtful, cognates as evidence, and while Zuni-Penutian is not accepted as a valid genetic grouping, Newman's paper is frequently cited in the linguistic literature. None of these proposals has been demonstrated satisfactorily.

2.2.3 Keresan

Keresan languages are spoken at the Acoma, Laguna, Zia, Santa Ana, Cochiti, Santo Domingo and San Felipe Pueblos in northwestern New Mexico. Grimes (1984) estimated that in 1977 there were 4500 speakers of the Western Keresan dialects and 4000 speakers of the Eastern Keresan dialects. Most of the Eastern dialects are fully viable, but Acoma and Laguna are endangered. The name Keresan comes from Spanish Queres, which perhaps comes from Jemez kil'is (Eggan 1979). The varieties of Keresan are so closely related that they can be regarded as dialects of a single language that form a chain in which geographically contiguous varieties are mutually intelligible. Davis (1959) proposes a division between the Western and Eastern dialects of Keresan (Table 2).
Table 2

<table>
<thead>
<tr>
<th>Classification of the Keresan dialects</th>
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</thead>
<tbody>
<tr>
<td>I. Western Keresan</td>
</tr>
<tr>
<td>A. Acoma</td>
</tr>
<tr>
<td>B. Laguna</td>
</tr>
<tr>
<td>II. Eastern Keresan</td>
</tr>
<tr>
<td>A. Zia and Santa Ana</td>
</tr>
<tr>
<td>B. San Felipe and Santo Domingo</td>
</tr>
<tr>
<td>C. Cochiti</td>
</tr>
</tbody>
</table>

Keresan has no known linguistic relatives, although several relationships have been proposed. Powell (1891) and Swadesh (1967) unsuccessfully attempted to relate Keresan to Zuni, while Harrington put forth some evidence that Keresan is part of the Aztec-Tanoan stock (which is itself not unequivocally accepted). Sapir (1929) placed Keresan in the now defunct Hokan-Siouan phylum. Swadesh (1967) also suggested the relationship of Keresan to Caddoan (cf. also Rood 1973). There is insufficient evidence to demonstrate any of these long-distance relationships. Davis (1959) argues that the time-depth of Keresan is only 500 years.

2.2.4 Tanoan

The remainder of the Pueblo peoples speak Tanoan languages. The Tanoan languages, which are Tiwa (Isleta, Picuris, Sandia, Taos), Tewa (Hano, Nambe, San Juan, San Ildefonso, Santa Clara, Pojoaque, Tesuque) and Towa (Jemez), are all spoken in New Mexico, with the exception of Arizona Tewa (the Arizona Tewa are sometimes called Hopi-Tewa, or Hano Tewa), which is spoken on the First Mesa of the Hopi Reservation, in the village of Hano. In 1977 (Grimes 1984) there were 1800 speakers of Jemez, 3000
speakers of Tewa, 1800 speakers of Northern Tiwa, and 2500 speakers of Southern Tiwa. The use of the native language is vigorous at Taos, Isleta, and Jemez, but confined to adults in the remainder of the pueblos.

The name Tanoan comes perhaps from Sandia taháno, while Tewa comes from tēwa (the Tewa name for themselves). Tiwa comes from tıwan ‘Southern Tiwas’, and Towa from a coinage by Harrington based on what he thought was the Jemez word for ‘home’ (tōwa) (Eggan 1979).

The Tanoan languages are related to Kiowa, the language of a Plains Indian tribe currently living in southwestern Oklahoma. Harrington (1910c) first proposed this relationship. Miller (1959) and Trager and Trager (1959) later published evidence to support it, and Hale (1967) provided sound correspondences and reconstructions which demonstrated that Kiowa and Tanoan indeed form a closely-related language family.

The internal subgrouping of Tanoan is more problematic. Some researchers have considered the Tanoan languages to form a subgroup, viewing Kiowa as the most divergent member of the family (Davis 1959, Trager 1967). More recently, others (Hale and Harris 1979, Watkins 1984) have placed Kiowa on the same level as Tiwa, Tewa, and Towa (Table 3), suggesting that Kiowa-Tanoan split directly into four branches.

Dialectal variation exists among the Tiwa and Tewa. Tiwa is generally divided into Northern and Southern Tiwa, while Arizona Tewa exhibits several differences from the Rio Grande Tewa dialects (Davis 1979). Towa is represented solely by Jemez. I use the term Jemez when referring to the modern Pueblo language, and the term Towa when referring to Kiowa-Tanoan subgroups, or to the ancestors of the Jemez. The language of the Pecos Pueblo, which was abandoned in 1838, may have been Towa as well (Davis 1979); however, others (Trager 1967) have cast doubt on the
### Table 3

**Classification of the Kiowa-Tanoan languages**

<table>
<thead>
<tr>
<th>I. Kiowa</th>
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<tbody>
<tr>
<td>II. Tiwa</td>
</tr>
<tr>
<td>A. Northern Tiwa</td>
</tr>
<tr>
<td>1. Taos</td>
</tr>
<tr>
<td>2. Picuris</td>
</tr>
<tr>
<td>B. Southern Tiwa</td>
</tr>
<tr>
<td>1. Isleta</td>
</tr>
<tr>
<td>2. Sandia</td>
</tr>
<tr>
<td>III. Tewa</td>
</tr>
<tr>
<td>A. Rio Grande Tewa</td>
</tr>
<tr>
<td>1. San Juan</td>
</tr>
<tr>
<td>2. San Ildefonso</td>
</tr>
<tr>
<td>3. Santa Clara</td>
</tr>
<tr>
<td>4. Pojoaque</td>
</tr>
<tr>
<td>5. Tesuque</td>
</tr>
<tr>
<td>B. Arizona Tewa</td>
</tr>
<tr>
<td>IV. Towa</td>
</tr>
<tr>
<td>A. Jemez</td>
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<tr>
<td>B. Pecos (?)</td>
</tr>
</tbody>
</table>

Assumption that the language of the Pecos was even Tanoan. Among the Tanoan languages Tiwa and Tewa are slightly more closely related to each other than either one is to Jemez (Hale and Harris 1979:171). Hale and Harris (1979:171) suggest that the time-depth of Kiowa-Tanoan is about three millennia.
2.2.5 Navajo

Navajo is an Athapaskan language, related to languages that range from Alaska and northwest Canada to the northwest coast of the United States and on to the southwestern United States and Texas, and even into northern Mexico. There were 130,000 speakers of Navajo in 1977 (Grimes 1984), and the language is fully viable. The name Navajo derives from Tewa navahu: (nava ‘field’ + hu: ‘wide arroyo’) (Brugge 1983). While close linguistic relatives of Navajo (i.e., the various Apachean languages/dialects) exist in the Southwest, the Navajo people had more intimate contact with the Pueblo people than did other Apachean groups because Navajo territory was surrounded by Pueblos. The Navajo adopted many cultural traits from the Pueblos (Kroeber 1939), and intermarriage and bilingualism between the Navajo and the Pueblos was common (Kroskrity 1982, Ford 1983). For this reason I compare Navajo in particular with the Pueblo languages. Also, very little documentation of Apachean languages other than Navajo exists.

The unity of the Athapaskan family was recognized by Powell (1891). Sapir (1921, 1929) links Athapaskan to Tlingit and Haida in his Na-Dene phylum. However, while Krauss (1964, 1965) demonstrates that Eyak is related to Athapaskan, and Krauss and Leer (1981) provide evidence that suggests a relationship of Athapaskan with Tlingit, the evidence for a Haida-Athapaskan relationship is unconvincing (Krauss 1979, Krauss and Golla 1981, Levine 1979).

Athapaskan consists of three subgroups -- Northern Athapaskan, Pacific Coast Athapaskan, and Southern Athapaskan (see Table 4, based on Krauss 1979). Hoijer (1938, 1946b) placed Navajo, together with San Carlos Apache, Mescalero Apache and Chiricahua Apache, in a Western Apachean division of the Southern Athapaskan subgroup of the Athapaskan family, and
### Table 4

**Classification of the Athapaskan languages**

<table>
<thead>
<tr>
<th>I. Northern Athapaskan</th>
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<tbody>
<tr>
<td>A. Ahtna</td>
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<tr>
<td>B. Tanaina</td>
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</tr>
<tr>
<td>C. Ingalik</td>
<td></td>
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<tr>
<td>D. Holikachuk</td>
<td></td>
</tr>
<tr>
<td>E. Koyukon</td>
<td></td>
</tr>
<tr>
<td>F. Upper Kuskokwim</td>
<td></td>
</tr>
<tr>
<td>G. Tanana</td>
<td></td>
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<tr>
<td>H. Tanacross</td>
<td></td>
</tr>
<tr>
<td>I. Upper Tanana</td>
<td></td>
</tr>
<tr>
<td>J. Han</td>
<td></td>
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<tr>
<td>K. Kutchin</td>
<td></td>
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<tr>
<td>L. Tutchone</td>
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<tr>
<td>M. Tagish</td>
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<tr>
<td>N. Kaska</td>
<td></td>
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<tr>
<td>O. Tahltan</td>
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<tr>
<td>P. Hare</td>
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<tr>
<td>Q. Bearlake</td>
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<tr>
<td>R. Mountain</td>
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<tr>
<td>S. Dogrib</td>
<td></td>
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<tr>
<td>T. Slave</td>
<td></td>
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<tr>
<td>U. Chipewyan</td>
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<tr>
<td>V. Beaver</td>
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<tr>
<td>W. Sekani</td>
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<tr>
<td>X. Sarcee</td>
<td></td>
</tr>
<tr>
<td>Y. Carrier-Chilcotin</td>
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<tr>
<td>Z. Babine-Hagwilgate</td>
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<table>
<thead>
<tr>
<th>II. Pacific Coast Athapaskan</th>
<th></th>
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<tbody>
<tr>
<td>A. Oregon</td>
<td></td>
</tr>
<tr>
<td>1. Tolowa-Chetco-Tututni-Chasta-Costa-Coquille</td>
<td></td>
</tr>
<tr>
<td>2. Umpqua</td>
<td></td>
</tr>
<tr>
<td>B. California</td>
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</tr>
<tr>
<td>1. Hupa</td>
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<table>
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<tr>
<th>III. Apachean</th>
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</thead>
<tbody>
<tr>
<td>A. Kiowa Apache</td>
<td></td>
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<tr>
<td>B. Western Apache</td>
<td></td>
</tr>
<tr>
<td>1. Navajo-San Carlos Apache-Chiricahua Apache-Mescalero Apache-Jicarilla Apache-Lipan Apache</td>
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</tbody>
</table>
placed Jicarilla Apache, Lipan Apache and Kiowa Apache in an Eastern
Apachean subgroup. However, he later revised his position to include
Navajo, San Carlos Apache, Mescalero Apache and Chiricahua Apache as
dialects of a single language (Hoijer 1971). Kiowa Apache, on the other
hand, is a separate language. Krauss (1979:874) suggests that reducing
Navajo, San Carlos, Chiricahua, Mescalero, Jicarilla, and Lipan to dialects of
one language is "radical," but agrees that Kiowa Apache is the most
divergent of the Apachean languages.

The Navajo people are not a Pueblo tribe (Underhill 1991[1946],
Parsons 1939), although they live in Pueblo territory -- the Hopi reservation is
located within the Navajo reservation. The Navajo arrived relatively late in
the Southwest. Archaeological evidence for the date of the southerly
migration of the Apachean people include the Beehive and Irvine sites, which
places Athapaskan people in Wyoming in the sixth and seventh centuries
A.D., and the Murray and Scratching Deer sites, which place them in
northern Colorado from A.D. 500 to 1000 (Perry 1991). The Navajo may
have entered the upper San Juan drainage as early as A.D. 1450 (Hogan
1989). Perry (1991) argues that the linguistic, ethnographic and historic
evidence suggests that the Navajo were the last of the Apachean groups to
arrive in the Southwest, perhaps migrating southward along the western face
of the Rockies.

Because of the shallow time depth of Navajo presence in the Southwest
(500-600 years), extensive linguistic diffusion among Navajo and the Pueblo
languages is not expected. However, Kroskry (1982) demonstrates that
considerable diffusion did occur; specifically, Navajo has influenced Arizona
Tewa. Kroskry explains that extensive interaction (through trade fairs,
military alliances, etc.) existed between Apacheans and Pueblo Indians and
that linguistic diffusion between the two groups is therefore historically plausible (cf. also 2.3.2). Because there is evidence of Navajo involvement in cross-linguistic diffusion among the Pueblos, I include Navajo in this study.

2.3 The Pueblos: a history of cultural contact

As discussed in the previous chapter, a cultural area will not necessarily coincide with a linguistic area. However, in order for two or more groups to influence one another linguistically, the groups must have contact. Furthermore, in order for structural diffusion to take place, a certain degree of bilingualism must exist. In this section I demonstrate that the sociocultural conditions necessary to the formation of a linguistic area were present in the Pueblo region. Specifically, two ingredients common to LAs existed in the Pueblo region: intermarriage and bilingualism.

2.3.1 Inter-Pueblo contact

It has long been recognized that the Pueblo peoples exhibit a cultural unity that renders them distinct from neighboring groups. Kroeber (1939:35) characterizes Pueblo culture as “localized and self-contained.” Traits which set apart the Pueblo area from surrounding cultures include masonry, clustered houses, the kiva13 ceremonial chamber, altars and sand or meal paintings, masks and ancestor impersonation, priestly offices, elaborate ritual, pottery with a whitish ground, and polychrome or glazed painting (Kroeber 1939:32-33). Other characteristics which unite the Pueblos include ritual aimed at weather control, curing, warfare, control of wild game animals, the maintenance of intrapueblo harmony, an origin myth involving emergence from an underworld, and a common “world view” (Dozier 1983).

---

13 Dozier (1983:213) defines ‘kiva’ as “a Pueblo ceremonial structure used for ceremonies, as a men’s workshop and among the Western Pueblos as a man’s dormitory. In some pueblos it is wholly or partly underground; it is either circular or rectangular in shape.”
While the Pueblo region is a distinct cultural entity, diversity does exist within it. Eggan (1950, 1983) proposes a cultural division between the Western and Eastern Pueblos, with a gradual shift from west to east. Characteristics of the Western Pueblos (Hopi, Arizona Tewa, Zuni, Acoma, Laguna) include matrilineal exogamous clans, matrilocal residences, importance of women in the ownership of houses and land, emphasis on the kachina cult\textsuperscript{14}, and religious preoccupation with weather control, a “Crow type” kinship system, and clan-based ceremonial organization (Dozier 1983). Ceremonies at Hopi concentrate on rain-making, while the ceremonies of the Pueblos to the east (Acoma, Laguna) are primarily curing ceremonies. Both types of ceremonies are common among the Arizona Tewa and the Zuni (Dozier 1983:141).

The Keresan kinship system is similar to that of the Western Pueblos, but exhibits some important differences. Dozier (1983) suggests that the breakdown of the clan in Keresan society has led to the modification of the kinship system, perhaps under Tewa influence. While clans still perform some functions (e.g. marriage control), for the most part medicine societies control government, religion and ceremonies. Every member of Keresan society belongs to one of two divisions, or ‘moieties’, which are ceremonial organizations associated with the kachina cult. Other associations include the clown associations, the warriors’ association and the hunters’ association.

\textsuperscript{14} Dozier (1983:213) defines the ‘kachina cult’ as “an association, distinctively Indian, that usually comprises all male members of a pueblo and in some villages female members as well, above ages 6-9. The cult is concerned with supernatural beings somewhat vaguely connected with ancestral spirits and believed to have the power to bring rain. In spectacular ceremonies, male members of the cult impersonate the kachina by donning masks and colorful costumes.”
The Tanoan kinship system is bilateral. Tanoan society is divided into two moieties, which control ceremonial activities and village maintenance. Among Tanoans, there is a greater emphasis on hunting and war than there is in the other pueblos (Dozier 1983). Dozier (1983) suggests that the clown associations, the medicine associations, and the kachina cult were borrowed by the Tanoans from the Keresans, the kachina cult perhaps originating ultimately with the Zuni (Anderson 1960:377). Jemez has borrowed the most from the Keresans, because of geographical proximity and a high degree of intermarriage. In fact, Jemez is closer in social and ceremonial organization to the Keresans than to other Tanoan groups.

Ford (1983) discusses trade among the Pueblos. The archaeological record affirms that trade was ubiquitous in prehistoric times, and included the importation of obsidian, saltwater shells, cotton textiles, pottery, turquoise, copper, and macaws into the Pueblo region (Shepard 1965, Warren 1969). Early historic observations confirm that trade played an important role in Pueblo life:

Explorers to the Southwest were impressed by the amount of trade they witnessed and the distances walked by Indian traders...it appears that some Indian traders traveled the breadth of the Southwest from Pecos to the Colorado River and often down into Mexico. (Ford 1983:712)

The Tewa Pueblos traded chili peppers to the Northern Tiwa, all of the Pueblos traded maize with one another when crops failed, Taos and Picuris traded tobacco leaves (N. attenuata) to the southern Rio Grande Pueblos, buckskin was traded to the Zuni and Hopi from the northern Tiwa and Tewa, Cochiti drums were found in all the Pueblos, and macaws from Mesoamerica reached the northern Rio Grande pueblos via Zuni traders (Ford 1983).

---

15 A bilateral kinship system reckons relationships from both the father's and the mother's side (Dozier 1983:213).
Saint's day fiestas provided opportunities for traders from many Pueblos to come together (Ford 1983:717).

The Hopi received silver from the Eastern Pueblos and Zuni, turquoise from Zuni, the Keresans, Jemez, and Sandia, maize from Isleta, Santo Domingo and San Felipe, and tools from the Eastern Pueblos. In return the Hopi traded everything from maize, to baskets, to red ocher. The Hopi preferred traders to come to their villages, but did occasionally travel to other Pueblos, sometimes making the six-day trip to Acoma (Beaglehole 1937:84).

Marriage partners from other villages introduced new songs, dances and societies; for example, the Ant society was brought to Santo Domingo by a Zuni, and spread to other Eastern Keresan pueblos (Ford 1983:715). Also, ceremonial dancers and ritualists commonly participated in ceremonies in other villages; for example, Zuni dancers performed at the Hopi First Mesa, and the Arizona Tewa and First Mesa Hopi assisted in each other’s ceremonies.

Ford (1983:720) reports that in historic times Navajo and Spanish were the most common trade languages, and that “the stimulus to exchange resulted in extensive bilingualism, which aided information processing, thus establishing trust and reducing possible chicanery.” However, other means of communication must have existed before the arrival of the Navajo and Spanish.

Parsons (1939) discusses in detail ceremonial borrowing among the Pueblos. Zuni immigrants introduced Koyemshi masks and a Zuni kachina prayer-stick into Laguna, the Laguna brought medicine society rituals and the back-shield dance to Isleta, the Arizona Tewa introduced clowns and the Shumaikoli curing society to Hopi, and the Hopi first learned kachina dancing from the Zuni (Parsons 1939:970-71). Zuni borrowed the Snake-Medicine
society and other curing societies from Acoma, while traits such as the kachina cult, the six-kiva system, and the kick-stick race diffused from Zuni to Acoma (Parsons 1939:980). Hopi influence is apparent in the Western Keresan Pueblos and the Rio Grande Pueblos. Laguna possesses a Hopi lineage, and demonstrates Hopi-like clan associations with ceremonialism, and visiting relations between the Hopi and Isletans led to diffusion of infant-naming ceremonies from Hopi to Isleta (Parsons 1939:984-85). The Tewa and Isletans borrowed the Flint and Fire societies, as well as the kachina cult, from the Keresans, while the Keresans borrowed the two-kiva system with patrilineal membership and clown organization based on the moiety principle from the Tewa (Parsons 1939:985-86).

Parsons (1939) documents many instances of intermarriage between Pueblo groups, for example, Hopi marrying into Zuni (p. 646), San Felipe marrying into Zuni (p. 740), Keresans marrying into Hopi and Hopi marrying into Laguna (p. 888), Santo Domingo marrying into Zuni (p. 895), intermarriage between Hopi and the Arizona Tewa (p. 916-17), Laguna marrying into Zuni (p. 945), the Arizona Tewa marrying into Santa Clara (p. 975), and Hopi marrying into San Juan (p. 975).

The Arizona Tewa have resided in Hopi territory for about 300 years. They migrated from the New Mexico, following the second Pueblo revolt against the Spanish in 1696. The Arizona Tewa have borrowed several Hopi cultural features (Kroskrity 1993), such as a kinship system with matrilineal descent and matrilocal residence and clans. The two groups also intermarry; however, while almost all Arizona Tewa speak Hopi, the Hopi do not speak Tewa (Kroskrity 1993:12).
2.3.2 Pueblo-Navajo contact

The Navajo traded actively with the Pueblos, receiving goods such as piñon nuts and cotton from the Hopi and gourds from Zuni and Laguna, and giving firewood, jet and coiled baskets in return (Ford 1983:712-13). The Navajo also exchanged cures with the Arizona Tewa, and dances with Cochiti (Ford 1983:715). As mentioned above, Navajo was frequently used as a trade language, and was known by a few people at Jemez and Zia and was spoken fluently by many Arizona Tewas, Hopis and Zunis (Ford 1983:720).

Interruption between Navajos and Pueblo peoples was quite common. Bandelier (1890-1892:262-63) gives several examples of Navajo marrying into various Pueblos, such as Jemez. Also, the Pueblo revolt in the late 1600's led to Pueblo people taking refuge among Navajos and intermarriage between the two groups (Kroskrity 1982). Pueblo cultural features adopted by the Navajo include agriculture, the creation myth, matrilineal clans, public female puberty ceremonies, and aversion to fish (Perry 1991), as well as the Keresan Snake-Antelope dance, clowning Black Ears from Jemez, and the Naakhai mask dance from Zuni or Hopi (Parsons 1939:1044-45). Conversely, the Pueblos borrowed ceremonial rituals from the Navajo: the Isletans borrowed Navajo war paraphernalia, sandpainting diffused from the Navajo to the Hopi, and divination and feats of jugglery spread from the Navajo to the Zuni (Parsons 1939:1046-53). Fear of the dead may also have intensified among the Pueblos under influence of the Navajo (Parsons 1939:1056).

2.3.3 Beyond the Pueblo region

Trade goods reached the Pueblos from other parts of the Southwest, from the Great Basin, from the Plains, and from as far away as Mexico (Ford
Map 2
The Pueblos and surrounding languages

Key

1. The Pueblos
2. Walapai (Yuman)
3. Havasupai (Yuman)
4. Yavasupai (Yuman)
5. Papago (Uto-Aztecan)
6. Western Apache (Athapaskan)
7. Chiricahua Apache (Athapaskan)
8. Mescalero Apache (Athapaskan)
9. Jicarilla Apache (Athapaskan)
10. Southern Paiute (Uto-Aztecan)
11. Ute (Uto-Aztecan)
12. Western Shoshone (Uto-Aztecan)
13. Northern Paiute (Uto-Aztecan)
14. Washo (isolate)
15. Comanche (Uto-Aztecan)
16. Tonkawa (isolate)
17. Wichita (Caddoan)
18. Caddo (Caddoan)
19. Kiowa Apache (Athapaskan)
20. Kiowa (Kiowa-Tanoan)
21. Arapaho (Algonquian)
22. Cheyenne (Algonquian)
They include parrot and macaw feathers from Mexico, buffalo hides and pemmican from the Plains, dried mescal from the Upland Yumans, buckskin from the Utes, storage jars from the Papago, and saltwater shells from coastal Californians (see Map 2 for location of some of the languages which surround the Pueblos). Ute cures and dances also were adopted by some of the Pueblos. While traders did sometimes travel great distances, many goods reached their destination through a trade-chain:

An impressive network of trails linked the Plains, Great Basin, Sonora, and California with all areas of the Southwest. Although individual traders did go considerable distances along them, mostly the trails were maintained by a trade-chain linking one group to the next. To illustrate, Hopi blankets reached the Quechan [Yuman] through exchange from the Havasupai, Walapai, and Mohave. (Ford 1983:718)

Ancient trade routes, marked by shrines, petroglyphs and debris, reached from as far away as Los Angeles and Guasave, Mexico to the Pueblos (Ford 1983:717-18). The transition from hunting-and-gathering subsistence to agriculture-based subsistence in the Pueblo region stems from cultural influence from Mexico (Eggan 1979:224).

In historic times, summer fairs at Taos provided an opportunity for contact among Pueblo and Plains tribes (Lange 1979). Lange (1979) argues that the northern Pueblos exhibit Plains genetic traits as well as Plains cultural traits, resulting from intermarriage of Plains people, such as Comanches, into the Pueblos. Lange also argues, however, that cultural exchange among tribes of the Plains, Great Basin and Pueblos never reached the level of intensity of exchange within those groups (1979:205).

2.4 The Pueblo languages: structure

In this section I give a brief sketch of the phonology and morphosyntax of each of the Pueblo languages in order to give the reader an idea of what
these languages are like, and also to make more comprehensible the comparison of the structure of the languages in Chapter 3. I use the phonetic symbols given in Table 5 throughout the remainder of the text.

Table 5

<table>
<thead>
<tr>
<th>Symbols</th>
<th>Consonants</th>
<th>Vowels</th>
<th>Diacritics</th>
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</thead>
<tbody>
<tr>
<td><strong>Consonants</strong></td>
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<tr>
<td><strong>stops</strong></td>
<td>p, b, t, d</td>
<td>t, d</td>
<td>c, k, g, q, ?</td>
</tr>
<tr>
<td><strong>fricatives</strong></td>
<td>s, z</td>
<td>s, z</td>
<td>x, y, h</td>
</tr>
<tr>
<td><strong>affricates</strong></td>
<td>ts, dz</td>
<td>tʃ</td>
<td>č, ğ</td>
</tr>
<tr>
<td><strong>nasals</strong></td>
<td>m, n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td><strong>liquids</strong></td>
<td>l</td>
<td></td>
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<tr>
<td><strong>glides</strong></td>
<td>w</td>
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<table>
<thead>
<tr>
<th><strong>Vowels</strong></th>
<th></th>
<th>back</th>
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<tbody>
<tr>
<td><strong>front</strong></td>
<td></td>
<td>back</td>
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<tr>
<td>high</td>
<td>i</td>
<td>u</td>
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<td>mid</td>
<td>e, ò</td>
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<tr>
<td>low</td>
<td>æ</td>
<td>a</td>
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<table>
<thead>
<tr>
<th><strong>Diacritics</strong></th>
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<tbody>
<tr>
<td>Voiceless</td>
<td>a</td>
</tr>
<tr>
<td>Aspirated</td>
<td>pʰ</td>
</tr>
<tr>
<td>Glottalized</td>
<td>p'</td>
</tr>
<tr>
<td>Labialized</td>
<td>&quot; k&quot;</td>
</tr>
<tr>
<td>Palatalized</td>
<td>' t'</td>
</tr>
<tr>
<td>Nasalized</td>
<td>a</td>
</tr>
<tr>
<td>Long</td>
<td>: æ</td>
</tr>
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</table>

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2.4.1 Hopi and Uto-Aztecan

The Hopi phonological inventory is as follows (Kalectaca 1978):

\begin{align*}
\text{p} & \quad \text{t} & \quad \text{k} & \quad \text{k}^w & \quad \text{k}^y & \quad \text{q} & \quad \text{q}^w & \quad ? \\
\text{ts} & \\
\text{v} & \quad \text{s} & \quad \text{s} & \quad \text{h} & \quad \eta & \quad \eta^w & \quad \eta^y & \\
\text{w} & \quad \text{l} & \quad \text{y} & \\
\text{i} & \quad \text{u} & \\
\text{e} & \quad \ddot{\text{o}} & \quad \text{o} & \\
\text{a} & 
\end{align*}

Hopi is a prototypical SOV language, with postpositions, prenominal genitives and adjectives, tense-mode-aspect suffixes, standard of comparison followed by comparative adjective, with optionally preposed relative clauses (Kalectaca 1978, Langacker 1977).\(^{16}\) It is a nominative-accusative language.

Langacker (1977) reconstructs the Proto-Uto-Aztecan (PUA) phonological system as follows:

\begin{align*}
\text{p} & \quad \text{t} & \quad \text{k} & \quad \text{k}^w & \quad ? \\
\text{ts} & \\
\text{s} & \quad \text{h} & \\
\text{m} & \quad \text{n} & \\
\text{l} & \\
\text{w} & \quad \text{y} & 
\end{align*}

\(^{16}\) See Greenberg (1966), Lehmann (1973), Vennemann (1972), Comrie (1989), Hawkins (1983), and Givón (1984) for discussion of the correlation of dependent word order parameters with basic word order.
Kaufman and Campbell (1981) also reconstruct *ŋ for PUA, arguing that no conditioning environment can be found to derive ŋ in the daughter languages from another sound. In Hopi, *l > n and *k > q before non-high vowels. Also, *o > ò and *u > o.

Basic SOV (subject-object-verb) word order can be reconstructed for PUA (Langacker 1977), along with concomitant verb-final features. The genitive precedes the noun, with a pronominal copy and the possibility of inversion. Postpositions can be reconstructed with certainty as well. Some tentative reconstructed postpositions include *-mi ‘to’, *-ma ‘on’, and *-man ‘with’. The most likely candidate for the comparative marker in PUA is the postposition *-pa ‘on’, which is attached to the noun or pronoun which designates the standard of comparison. Suffixation predominates over prefixation in UA for TMA (tense-mood-aspect) morphology and several such suffixes may be reconstructed for PUA. The relative clause may be headless, or may precede or follow the noun. Adjectives may precede or follow the modified noun. Nominative-accusative alignment can be reconstructed for PUA.17 In terms of word order, Hopi has changed little from the reconstructed proto language.

2.4.2 Zuni

The phonological inventory of Zuni is made up of sixteen consonants and ten vowels (Newman 1965).

---

17 Accusative suffixes reconstructible for PUA include *-či, *-čv, and *-a (Langacker 1977).
Zuni is primarily suffixing, with a few derivational prefixes. The basic word order is SOV, with modifiers and complements generally preceding the verb and noun modifiers exhibiting variability of position. Particles and enclitics perform relater functions (directional, locative, etc.). Enclitics are loosely postposed to complete words, which is consistent with the verb-final nature of the language. Newman (1965) mentions that particles may mark notions such as direction and location ('in', 'on', 'with'), but does not make clear whether particles are postposed or preposed to the noun. Independent pronouns display nominative-accusative alignment.

2.4.3 Keresan

The phonological inventory of Acoma (a dialect of Keresan spoken 60 miles west of Albuquerque) is as follows (Miller 1965):
The basic word order of Keresan is SOV. Person and mode are marked through prefixes, while number and aspect are marked through suffixes. The genitive precedes the possessed noun, locative and directional relations appear to be expressed by both prepositional and postpositional forms. It is unclear whether relative clauses prepose or postpose the modified noun. Miller’s (1965) grammatical sketch suggests that Keresan possesses both OV and VO characteristics.

2.4.4 Tanoan and Kiowa-Tanoan

Tanoan consists of several languages; I will present the information available for Taos as representative of Tanoan. Trager (1946) discusses the
structure of the Tiwa language spoken in Taos. He gives the following phonemic inventory.

\[
\begin{array}{ccc}
p & t & k \\
p' & t' & k' \\
p^h & t^h & k^w \\
b & d & g \\
ts & ts & s \\
ts' & ts' & s \\
x & x & h \\
x^w & x^w \\
\hat{i} & l & r \\
m & n & m \\
w & y & w \\
i & u & \bar{i} & \check{u} \\
e & \check{o} & o & \check{e} & \check{o} \\
a & \check{a} & a \\
\end{array}
\]

Both tone and stress are phonemic. Taos nouns are inflected for inanimate and animate gender (noun class) and singular and plural number. Tense, aspect and mood are indicated primarily through suffixation. Person prefixes are attached to nouns and verbs. The language of Taos is SOV and postpositions mark locative and directional notions.

Hale (1967) reconstructs the Proto-Kiowa-Tanoan (PKT) consonant inventory, based on correspondences in initial position:
Hale also reconstructs for PKT morphophonemic ablaut patterns in which voiced stops alternate with voiceless stops, glottalized stops alternate with plain stops, *h alternates with *k^h, and *ʔ alternates with *k. The morphosyntactic patterns which trigger the alternation include verb compounding, nominalization, and detransitivization.

2.4.5 Navajo and Athapaskan

Young and Morgan (1980) give the following phonological inventory for Navajo:

\[
\begin{align*}
p & \quad t & \quad \text{ts} & \quad k & \quad \text{k}^w \\
p' & \quad t' & \quad \text{ts} & \quad k' & \quad \text{k'}^w \\
p^h & \quad t^h & \quad \text{ts}^h & \quad \text{k}^h & \quad \text{k}^w \\
b & \quad d & \quad \text{dz} & \quad g & \quad \text{g}^w \\
m & \quad n & \quad & \text{} & \text{} \\
s & \quad \text{} & \quad & \text{} & \text{} \\
\text{ʔ} & \quad & \text{} & \quad & \text{} \\
h & \quad & \text{} & \quad & \text{} \\

w
\end{align*}
\]
Tone is phonemic is Navajo. The verb shape is characterized by eighteen prefix positions (Young and Morgan 1980). Navajo is an SOV language, with typical SOV features, such as postpositions and prenominal genitives and adjectives.

The Proto-Athapaskan (PA) phonological inventory (Krauss and Leer 1976) is:

- t  tl  ts  tš  tš*  k  q  ?
- tʰ  tlʰ  tsʰ  tšʰ  tšʰ  kʰ  qʰ
- t’  tl’  ts’  tš’  tš’  k’  q’
-  s  š  š̃  ̃s  x  x  h
- z  ź  ź̃  ź̃̃  ỹ  ỹ
- l
- y  w
- ſ  n  ſ
- i  u
- e [æ]  o  u
- a [ø]  a

*nasalization, *length
Krauss and Leer treat vowel constriction (the co-articulation of a vowel and glottal stop) and vowel nasalization as phonemic; Cook and Rice (1989) point out that this leads to a highly marked vowel system, and suggest that both vowel constriction and vowel nasalization are predictable in PA. The development of high tone in some Athapaskan languages and low tone in others has been attributed to the feature of vowel constriction (Cook and Rice 1989). The Athapaskan languages exhibit the following characteristics (Cook and Rice 1989): a large number of verb prefix slots, classificatory verbs, tone, SOV word order and postpositions.

2.5 Previous work on Pueblo areal linguistics

Surprisingly little concentrated work concerning Southwestern areal linguistics appears in the literature. Sherzer (1973, 1976) compares languages within each of the culture areas of North America to determine whether these culture areas are linguistic areas as well. He uses a pre-selected trait list and searches for matches among the languages of each area, so that there is a good possibility that he misses possible areal traits. Sherzer concludes (1973) that the Southwest as a whole (which covers the larger region in which Yuman languages, Coahuilteco, and Papago, as well as the languages discussed in 2.2, are spoken) does not form a clearly defined linguistic area. He does find some evidence, consisting of the ten following traits, for setting up a Pueblo linguistic area (1973:784):

1. A 2-2-1 vowel system\(^{18}\) in Zuni, Keresan and some Tanoan
2. Voiceless vowels, nasals and semivowels in Hopi, Keresan, and Zuni
3. Phonemic pitch in Keresan, Tanoan and Apachean
4. The sound \(k^*\) in Hopi, Zuni, Tanoan and Navajo

\(^{18}\) A 2-2-1 vowel system consists of the vowels i, e, a, o, and u.
5. Pronominal dual in Zuni, Tanoan, Keresan, and Apachean
6. Nominal plural suffix in Hopi, Zuni, Keresan, and Tanoan
7. Noun incorporation in Hopi, Zuni, Keresan, and Tanoan
8. Different verb stems for nouns of different number in Zuni, Keresan, Tanoan, and Apachean
9. Absence of locative-directional markers
10. Switch reference in Hopi and Zuni

I discuss and evaluate most of these traits in the following section. It should be noted that Sherzer has been criticized for taking a “circumstantialist” approach in determining linguistic areas (cf. Campbell, Kaufman and Smith-Stark 1986); that is, Sherzer simply presents lists of shared linguistic traits in preconceived culture areas without demonstrating whether or not the similarities are due to diffusion. Although Sherzer does not rigorously appraise his “areal” traits, he does caution that the above traits, in his estimation, provide only weak evidence for setting up the Pueblo region as a linguistic area. While it is not inevitable that the Pueblo culture area coincides with a linguistic area, the evidence that I present in the following chapters substantiates just such a correlation.

Kroskrity (1982, 1993) investigated the influence of several languages, both Native American and European, on Arizona Tewa. Although Hopi and Arizona Tewa speakers have been in contact for several centuries and share many cultural traits, Kroskrity finds little diffusion from Hopi into Arizona Tewa. On the other hand, he finds four traits in Arizona Tewa that have likely been borrowed from Navajo (Kroskrity uses the terms Apachean and Navajo interchangeably, but his examples are from Navajo):
1. The occurrence of passive prefixes and the semantic foregrounding of Patient-Subjects in passive constructions
2. The use of an anaphor as a relativizer morpheme
3. The development of a containerized class in the classificatory verb system
4. Certain borrowed grammatical morphemes such as the possessive postposition /-bi/ and a numeral suffix /-di/

The first three traits do not occur in any of the Kiowa-Tanoan languages other than Arizona Tewa and cannot be attributed to genetic inheritance nor to language universals.

Kroskrity (1983) reports on an ethnolinguistic feature -- male and female speech -- that is characteristic of the Pueblo languages, except for Zuni (Table 6).

<table>
<thead>
<tr>
<th>Table 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male and female speech in the Pueblos</strong></td>
</tr>
<tr>
<td>Hopi</td>
</tr>
<tr>
<td>'thank you'</td>
</tr>
<tr>
<td>male</td>
</tr>
<tr>
<td>female</td>
</tr>
<tr>
<td>'it's beautiful'</td>
</tr>
<tr>
<td>male</td>
</tr>
<tr>
<td>female</td>
</tr>
<tr>
<td>'yes'</td>
</tr>
<tr>
<td>male</td>
</tr>
<tr>
<td>female</td>
</tr>
</tbody>
</table>

Several lexical items in Hopi, Keresan, Tiwa and Tewa differ depending on the gender of the person that is speaking. Kinship terminology also exhibits differences based on the sex of Ego. Kroskrity argues that the distinction between male and female speech is lexical and does not display patterned phonological differences. He identifies this phenomenon as areal because the
languages involved are not genetically related and because the forms which exhibit the difference are very similar in meaning; therefore, he eliminates common inheritance and chance as possible reasons for the presence of this shared trait.

Sims and Valiquette (1990) give examples from Laguna Keresan in which there is a patterned phonological difference in vowel length between men's and women's speech. They challenge the notion that the difference between men's and women's speech in the Pueblo languages spread through linguistic diffusion, arguing that the presence of a phonologically-based distinction in Laguna Keresan is evidence against the areal account. As mentioned in Chapter 1, borrowed linguistic traits are not always realized in exactly the same way in the borrowing language as in the donor language, so that the presence of both lexical and phonological differences in male and female speech does not invalidate diffusion as a possible reason for the widespread nature of this trait. However, Sims and Valiquette's point that such sociolinguistic traits may arise through cultural diffusion rather than linguistic diffusion is well-taken (see 1.4.2 for a comparable South Asian example, cf. linguistic status structures).

It has been suggested that the Southwest as a whole is a LA (cf. Newman 1967:5). However, Sherzer (1976) found little evidence for a Southwest LA, but did find evidence to support a Pueblo LA. In this dissertation, I examine the Pueblo region in greater depth; however, the Pueblos may be linked to neighboring LAs as well, in a few instances of diffused linguistic material (cf. Chapter 4).

2.6 Summary

I consider languages from five families in my examination of the Pueblo region as a linguistic area -- Hopi, Zuni, the Tanoan languages, and
the dialects of Keresan, as well as Navajo, an Athapaskan language. The sociocultural conditions necessary for the diffusion of linguistic traits characterize the Pueblo area; that is, cultural contact which typically leads to a certain level of bilingualism occurred in the Pueblo area. Trade has been an important component of Pueblo culture since antiquity, and intermarriage and migration among the various Pueblo peoples, as well as between the Pueblos and the Navajo, have also been documented. Bilingualism has been reported as well. These factors no doubt have contributed to the origin and formation of the Pueblo linguistic area. Having established that the Pueblo area is a plausible candidate for a LA, in the next chapter I examine the available data to determine if it is in fact a LA.
3.1 Introduction

In the previous two chapters I outlined my methodological approach to identifying and defining a linguistic area, I presented the evidence adduced in support of previously-identified linguistic areas, and I briefly characterized the Pueblos, both linguistically and culturally. In this chapter I examine in detail the available data on the Pueblo languages, with the goal of identifying areal traits that support a Pueblo LA. Strong areal traits are those features which are likely to be shared among languages because of linguistic diffusion, rather than because of genetic inheritance or independent parallel development. Therefore, inherited traits must be eliminated as areal features, while traits that arise frequently cross-linguistically are weaker areal features than those that are uncommon across languages. Areal traits which are widespread throughout the Pueblos, but not beyond, constitute the best evidence for a Pueblo LA; however, features which have been locally diffused within the Pueblos are considered as additional support for a Pueblo LA.

I primarily examine shared grammatical features, including phonological traits, verb and noun morphology, and word order characteristics. I also look at shared ethnolinguistic features; that is, those linguistic traits with a strong cultural component. An in-depth investigation of loan words is beyond the scope of this study; however, the nature of lexical diffusion among the Pueblos is important to the characterization of the Pueblo area as a LA, as well as to theories of linguistic diffusion in general.

The methodological approach for defining linguistic areas that I advocate (cf. Chapter 1) requires detailed descriptive and historical information. Unfortunately, such data is often unavailable or very limited in
scope for many of the languages of the world, including the Pueblo languages. The Pueblo peoples, to varying extents, have adopted a policy of secrecy in response to historical suppression of their native religion and customs. They often apply this policy to native languages as well as to religious practices, and:

The patterns of secrecy that were established to preserve native religion have also been extended to the study of individual languages, so that knowledge of Pueblo languages is in many ways not adequate by modern standards. (Eggan 1979:227)

This of course has consequences for an areal study. First, some areal traits may not be identifiable, simply because they have not been described for the particular languages. Secondly, evaluation of shared features as areal traits and identification of the direction of diffusion may be made difficult in the absence of historical information. This type of situation has characterized other areal studies, as well. For example, the absence of descriptive and historical information often complicated Emeneau’s study of the South Asian LA (Emeneau 1956[1980], 1965[1980], 1980).

However, basic descriptive information is available for the Pueblo languages, as is comparative and historical information for those languages with relatives outside the Pueblo region (Hopi, Tanoan, and Navajo). Therefore, an areal study which emphasizes the “historical” approach is possible. In this dissertation, shared traits that are difficult to evaluate as areal traits due to inadequate historical data are identified as such. Eggan (1979) foresees that the Pueblo people will become less secretive in the future. If this comes to pass, a more complete picture of areal phenomena in the Pueblo region will be possible. As Eggan (1979:234) says:

In the effort to regain full control of Blue Lake, their most sacred region, the Taos elders were ultimately persuaded to disclose some aspects of their religious practices, particularly with
reference to initiations, and their successful results may allay some of their anxieties with regard to possible suppression of their rituals. But Cochiti is more open, and their experiment with the development of a residence and resort area in connection with Cochiti Lake may encourage changed attitudes on the part of their neighbors. There is no longer the danger of suppression for their ceremonial activities, such as occurred in the early decades of the twentieth century, and greater openness will lead to a better understanding of Pueblo problems.

In the following sections, I examine phonological, morphosyntactic, semantic and ethnolinguistic traits which are common to the Pueblo languages. I assess the status of these traits as areal features and determine whether their widespread nature in the Pueblo region is due to diffusion, to independent development, or to genetic inheritance, to the extent that this is possible.

To determine if shared features are genetic traits, I compare Hopi to Proto-Uto-Aztecan, Tanoan to Proto-Kiowa-Tanoan (or to Kiowa), and Navajo to Proto-Athapaskan. As Zuni and Keresan are language isolates, they cannot be compared to related languages outside of the Pueblo region; however, individual Keresan phonological traits can be compared to Proto-Keresan (Miller and Davis 1963).

To determine if shared traits are limited to the Pueblo region, I use the surrounding languages -- Upland Yuman (Havasupai, Yavapai, and Walapai) to the west, Arapaho, Cheyenne, Caddo, Wichita, and Tonkawa to the east, and the Great Basin languages to the north -- as control languages (see Map 2, chapter 2, for geographical location of control languages). If a trait is widespread throughout the Pueblos, but also occurs in languages beyond the

---

19 The data in the following sections are taken primarily from the following sources: Hopi (Kalectaca 1978), Zuni (Newman 1965), Keresan (Miller 1965), Tanoan (Hale 1967, Trager 1946), Navajo (Young and Morgan 1980), Proto-Kiowa-Tanoan (Hale 1967), and Proto-Athapaskan (Krauss and Leer 1976). Data that are taken from other sources will be noted.
Pueblos, then it cannot be considered to be diagnostic of a Pueblo LA. However, traits which extend beyond the Pueblos may still have been borrowed among languages within the Pueblo region, and can therefore be used as examples of localized diffusion. Also, traits which occur outside the Pueblos may be evidence that the Pueblo region is part of a larger LA, or part of a network of LAs, if there is evidence that contact played a role in their widespread distribution.

Finally, I evaluate the possibility of shared traits having developed independently by examining the cross-linguistic distribution of the traits identified. That is, shared traits which are very common among the world’s languages are as likely to have developed through independent parallel development as through linguistic diffusion, and therefore are not strong evidence for a linguistic area. I rely heavily on Maddieson (1984) to identify the cross-linguistic distribution of phonological traits.

3.2 Phonological traits

In this section I compare and contrast phonological traits among the Pueblo languages, including the phonological inventories and phonological rules of the languages.

3.2.1 Consonants

Table 7 exhibits the consonant inventory of each of the Pueblo languages and the distribution of the various consonants among the Pueblo languages. The sounds in parentheses represent phonemes that are found only in certain dialects. Those features marked with superscript 1 are present only in Santa Clara Tewa, while those marked with superscript 2 are found only in Arizona Tewa (see Appendix for key to abbreviations).

(1) The following consonants are present in all of the Pueblo languages: p, t, k, ?, s, h, m, n, w, ts. The majority of these sounds are
not potential areal traits since they are very common cross-linguistically. Over 90% of the world’s languages have a plain voiceless stop series (p, t, and k), 46.1% have ?, 83% have dental or alveolar s, 63% have h, 99.68% have an n, 94.32% have an m, and 75.7% have w. Only ? occurs in less than half of

<table>
<thead>
<tr>
<th>Table 7: Consonant inventory of the Pueblo languages</th>
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<tbody>
<tr>
<td>Hopi</td>
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<tr>
<td>-------</td>
</tr>
<tr>
<td>unasps.stops</td>
</tr>
<tr>
<td>labialized stops</td>
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<tr>
<td>palatalized stops</td>
</tr>
<tr>
<td>aspirated stops</td>
</tr>
<tr>
<td>voiced stops</td>
</tr>
<tr>
<td>glottalized stops</td>
</tr>
<tr>
<td>glot. lab. stops</td>
</tr>
<tr>
<td>voiceless fric.</td>
</tr>
<tr>
<td>sibilants</td>
</tr>
<tr>
<td>lab. fricatives</td>
</tr>
<tr>
<td>voiced fricatives</td>
</tr>
<tr>
<td>glot. fricatives</td>
</tr>
<tr>
<td>affricates</td>
</tr>
<tr>
<td>asp. affricates</td>
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<tr>
<td>glot. affricates</td>
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<td>nasals</td>
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<td>glot. nasals</td>
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<td>liquids</td>
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<td>glot. liquids</td>
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<tr>
<td>glides</td>
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<tr>
<td>glot. glides</td>
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</tbody>
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the world's languages; however, this sound is an inherited trait in Hopi, Tanoan, and Navajo, and is very common in the Americas. Only about 10% of Maddieson's (1984) representative North American languages do not have glottal stops; therefore, glottal stop cannot be used to define a Pueblo area. The sound ts is a potential areal trait, because it occurs in only 30% of the world's languages. It is an inherited trait in Hopi, Tanoan, and Navajo, but may be a diffused trait in Zuni and Keresan. In Keresan, however, there exists a whole set of dental affricates, which may suggest that ts is a native sound. Also, the sound is reconstructed for Proto-Keresan (Miller and Davis 1963). In Zuni, ts is always aspirated. This sound (tsʰ) is quite rare cross-linguistically, occurring in only 10% of Maddieson's (1984:38) sample. However, rather than attributing the presence of the sound itself in Zuni to diffusion, I propose that the aspiration results from diffusion (see 2 below).

(2) Aspirated consonants are present in the Tanoan languages, Acoma, Navajo, and Zuni. Their presence in Navajo and Tanoan most likely is due to genetic factors, as aspirated consonants are reconstructed for Proto-Athapaskan (Krauss and Leer 1976) and Proto-Kiowa-Tanoan (Hale 1967). Zuni doesn't possess a full series of aspirated stops, nor a full series of unaspirated stops; that is, the velar stops are aspirated (kʰ and kʰʰ), without corresponding unaspirated velar stops, while p and t are unaspirated, without corresponding pʰ and tʰ. The presence of aspirated stops in Zuni may therefore be due to diffusion. The aspirated stops and affricates in Zuni (kʰ, kʰʰ, tsʰ, čʰ) are also found in Navajo. However, neighboring Acoma also possesses a full set of aspirated affricates, so that contact with Acoma may be partly responsible for the aspiration of the affricates in Zuni. Finally, the Toreva dialect of Hopi (Whorf 1946) has a full set of phonemic preaspirated stops, so that all languages within the Pueblo area exhibit some type of
aspirated stops, except for Jemez, in which aspirated stops were lost. It is perhaps significant that the present location of Jemez, somewhat in the center of Pueblo territory, is probably not their prehistoric location. Ford, Schroeder and Peckham (1972) place the Towa in the upper San Juan River Basin, on the northeast fringes of the Pueblo area. The loss of aspirated stops in Jemez may therefore have taken place when the Towa occupied the borders of the Pueblo region and had greater contacts with non-Puebloans (cf. chapter 5 for further discussion of the shift of aspirated stops in Tanoan).

Aspirated consonants do not occur with great frequency cross-linguistically (an aspirated stop series is present in 28.7% of Maddieson’s 1984 surveyed languages), so independent parallel development is not a likely explanation for the presence of aspirated sounds throughout the Pueblo region. The particular aspirated sounds which are found in Zuni are even rarer: kʰ occurs in 25% of Maddieson’s (1984) sample, čʰ in 14%, tsʰ in 10%, and kʷʰ in 5%.

Aspirated consonants do serve to define a Pueblo area, since they are not present phonemically in the Great Basin languages, Arapaho, Cheyenne, Caddoan, Tonkawa, nor in Yuman.

(3) Glottalized consonants are present in all Tanoan languages in the Pueblo area, in Keresan, and in Navajo. Newman (1965) analyzes stop + glottal sequences in Zuni as consonant clusters, not phonemic units; however, phonetically this type of sound is a glottalized consonant. Glottalized consonants are reconstructed for both Proto-Kiowa-Tanoan and Proto-Athapaskan; therefore, their presence in Tanoan and in Navajo are apparently due to genetic factors. As Zuni possesses only a partial series of glottalized stops and affricates (k’, kʷ’, ts’, č’), in contrast to Keresan and Tanoan, their presence in Zuni may be from diffusion (cf. also Shaul 1982).
Glottalized nasals and glides are present in Acoma and in Navajo, and Sherzer (1976) has suggested that Navajo developed glottalized nasals and semivowels as a result of contact with Acoma. Glottalized nasals and sonorants are not underlying in Navajo, but rather result from a morphophonemic process called the D-effect (Young and Morgan 1980:349). This glottalization takes place when a D-class verb beginning with m, n, or y is preceded by a prefix which ends in a consonant (Sapir & Hoijer 1967:49, see also Table 9). While the D-effect occurs throughout Athapaskan, it is only in Navajo that glottalized sonorants result (Howren 1971). Since glottalized nasals and semivowels are allophonic in Navajo, but are phonemic in Keresan and are also reconstructed for Proto-Keresan (Miller and Davis 1963), their presence in Navajo may be due to diffusion from Keresan, especially in light of the fact that glottalized sonorants are extremely rare (Maddieson 1984:116).

Since glottalized consonants in some Pueblo languages have probably resulted from contact with other Pueblo languages and since glottalized consonants are relatively rare in the world’s languages (present in only 16.4% of Maddieson’s 1984 surveyed languages) and not likely to have arisen through independent parallel development, this feature lends support to a Pueblo linguistic area. The surrounding Yuman languages lack glottalized consonants, as do most of the Great Basin languages, except for Washo (Jacobsen 1958). Tonkawa (Hoijer 1933) and Caddo (Chafe 1979) do have glottalized consonants, however, so that the trait is not strongly diagnostic of a Pueblo LA.

(4) The sound kʷ is present in all Pueblo languages, except for Keresan. The sound is a retained trait in Hopi and in Tanoan, as kʷ is reconstructed in Proto-Uto-Aztecan and in Proto-Kiowa-Tanoan. It is possible that kʷ was
borrowed into Navajo, as the segment is absent in both the reconstructed proto-language (Krauss and Leer 1976)\textsuperscript{20} and in several other Apachean languages, such as Chiricahua Apache (Hoijer 1946a) and Mescalero Apache (Opler 1983).

The sound $k^*$ is rare cross-linguistically, occurring in only 12% of Maddieson's (1984:213) sample. However, the Yuman languages also possess $k^*$, as do Tonkawa and some of the Great Basin languages; therefore, the feature may be insignificant or it may be diagnostic of a linguistic area which extends beyond the borders of the Pueblo region (cf. chapter 4).

The labialized velar fricative ($x^*$) in Navajo is also innovative. It is not reconstructed for Proto-Athapaskan (Krauss and Leer 1976), nor is it present in Chiricahua Apache (Hoijer 1946a), nor Mescalero Apache (Opler 1983). This sound may have developed as a result of contact as well, in this case with Rio Grande Tewa or Taos, both of which possess this sound. The voiced counterpart of this sound ($y^*$) is present in Navajo, but not in other Pueblo languages. This may be a case of a diffused sound triggering internal developments in the borrowing language, which fit the phonological patterns of that language. That is, diffusion of a voiceless labialized velar fricative into Navajo led to the development of a voiced counterpart, creating greater symmetry in the Navajo system, which possesses both a voiced and voiceless plain velar fricative. Both of these sounds ($x^*$ and $y^*$) are very rare, occurring in less than 6% of Maddieson's (1984:232) sample.

\textsuperscript{20} Reconstructions of Proto-Athapaskan phonology have sometimes included a labialized velar series (Krauss and Golla 1981), but Cook and Rice (1989:50) argue that "from Krauss (1973) and elsewhere it is clear that the $*k^*$ series was for PAE (Proto-Athapsakan-Eyak), which developed into the PA $ts^*$ series."
(5) The voiceless lateral fricative ɬ occurs in Taos, in Zuni and in Navajo. This sound is reconstructible for Proto-Athapaskan (Krauss and Leer 1976) and is therefore a retained genetic trait in Navajo. As the segment is absent in Tewa, Jemez and Kiowa, and as it is not common across languages (present in about 9% of Maddieson’s 1984 sample), its development in Taos may very well be due to diffusion from either Zuni or Apachean. While ɬ also occurs in some Yuman languages, it does not occur in the Upland Yuman languages which border the Pueblo area (Kendall 1976), nor does it occur in Tonkawa (Hoijer 1946c). Therefore, ɬ is a trait restricted to the Pueblo area.

(6) The sound tɿ is present in Keresan and Jemez. It is also present in a few kinship terms in Santa Clara Tewa. It is not reconstructed for Proto-Kiowa-Tanoan, so it is not a genetic trait in Jemez, nor Tewa. Palatalized consonants are rare cross-linguistically, with palatalized dentals occurring in only 6% of the languages in Maddieson’s (1984:38) database. This trait is therefore a likely diffused trait in Jemez and in Santa Clara Tewa. It is absent in languages surrounding the Pueblo area, such as Tonkawa, Upland Yuman, and the Great Basin languages (Tümpisa Shoshone, Dayley 1989, Chemehuevi, Press 1979).

The palatalized sound kɿ is present in Arizona Tewa and Hopi. It is not reconstructed for Proto-Uto-Aztecan nor for Proto-Kiowa-Tanoan. Because kɿ is not present in other dialects of Tewa (i.e. Santa Clara Tewa), it is likely that Arizona Tewa developed this sound as a result of contact with Hopi. As Kroskrity (1993) notes, although contact with Hopi initiated the development of a palatalized k in Arizona Tewa, the patterning of the sound took on a Tanoan cast. That is, Arizona Tewa has not only a palatalized k, but also an aspirated and glottalized palatalized k. This three-way contrast is native to
Tanoan. Finally, the sound $k'$ is an allophone of $k$ in Zuni, suggesting the spread of the sound eastward.

The sound $k'$ occurs in the Upland Yuman languages which neighbor Hopi, and may in fact be an areal trait linking the westernmost Pueblos to other areas of the Southwest (see chapter 4). Because $k'$ is not reconstructed for Proto-Uto-Aztecan, but is reconstructed for Proto-Yuman, it likely diffused from Yuman into Hopi. Palatalized velars are very rare cross-linguistically, occurring in only 4.4% of Maddieson's (1984:38) sample, and are therefore a convincing areal trait. However, they do not characterize the entire Pueblo area, but are restricted to the westernmost Pueblo languages.

The sound $\eta'$ in Hopi may have developed as a result of the diffusion of $k'$ from Upland Yuman. That is, although $\eta'$ is not directly diffused from Upland Yuman, the incorporation of a palatalized velar stop in Hopi may have initiated the parallel development of a palatalized velar nasal. This is a very rare sound, which Maddieson (1984:239) lists only for two languages -- Irish and Lakkia.

A third palatalized sound -- $h'$ -- is shared by Arizona Tewa and Navajo. It is phonemic in Arizona Tewa (Kroskrity 1993), but allophonic in Navajo (see Table 9). This sound is not even listed in Maddieson's (1984) inventory of sounds, so that it can be assumed to be extremely rare. While the presence of $h'$ in both Navajo and Arizona Tewa has likely resulted from diffusion, comparative information does not shed light on the source of $h'$. The sound $h'$ is not present in Tanoan languages other than Arizona Tewa. While velar sounds are palatalized in certain phonological environments in Athapaskan languages other than Navajo (e.g. Slave, Rice 1989, Chiricahua Apache, Hoijer 1946a), $h$ is not. Because $h'$ is phonemic in Arizona Tewa,
but allophonic in Navajo, Arizona Tewa is the probable source of the influence for the development of this sound in Navajo.

(7) Non-alveolar sibilants are found throughout the Pueblo area. The sound š is present in Zuni, Keresan, Jemez and Navajo, while ʃ is present in Keresan and ž in Hopi. These sounds are not inherited traits in Hopi nor in Jemez; that is, š is not reconstructible for Proto-Kiowa-Tanoan and ž is not reconstructible for Proto-Uto-Aztecan. It is very possible that these sounds developed in Hopi and Jemez as a result of diffusion. Neither š, ʃ nor ž is very common cross-linguistically, with š occurring in 46% of Maddieson’s (1984) sample, ʃ in 5%, and ž in less than 4%. However, Upland Yuman also has the sound ž (represented by the symbol ‘r’), and may be the influence for the development of the same sound in Hopi, so that retroflex sibilants are not restricted to the Pueblo region.

(8) A sound change which unites the Tanoan languages is the change of *b to m and *d to n, in word-initial position (Tanoan stems beginning with g are very rare, Hale 1967). Kiowa, on the other hand, has maintained a voiced stop series word-initially. The shift of the voiced stop series in initial position varies in extent among the Tanoan languages -- in Taos all initial voiced stops shifted (Trager 1946), while in Tewa and Jemez voiced stops became nasal stops before nasal vowels and remained as voiced stops before oral vowels (Hale 1967). In Picuris, a northern Tiwa language closely related to Taos, there are no voiced stops (Harben Trager 1971). The shift of voiced stops is a likely areal trait, since voiced stops are absent in other Pueblo languages.21

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21 Sherzer (1976) and Maddieson (1984) identify Acoma as having voiced stops; however, Miller and Davis (1963:313) make clear that they use ‘b’, ‘d’, and ‘g’ as symbols for voiceless, unaspirated stops and that voiced stops occur only in borrowed words in Keresan.
The absence of voiced stops is not unusual; however, it is significant that the only change to affect all of the Tanoan languages, but not Kiowa, resulted in the Tanoan languages becoming more like other Pueblo languages. Also, while voiced stop series are not as common cross-linguistically as voiceless stop series are, they do occur in 67% of Maddieson’s (1984:27) sample. Therefore, the shift of voiced stops does not represent the shift of a marked category. Furthermore, while the change itself is not marked (especially the shift of voiced stops to nasals before nasal vowels), the shift of all initial voiced stops led to a marked distribution of the voiced/voiceless contrast in Taos (see chapter 5). The nature of this development has implications for the subgrouping of Kiowa-Tanoan and for Pueblo prehistory (see chapter 5).

While the shift of voiced stops in Tanoan may be an areal trait, the absence of voiced stops does not set the Pueblo area apart from surrounding areas. Tonkawa does not have voiced stops, nor do the Yuman languages, nor most of the Great Basin languages. However, several of the Plains languages which neighbor Kiowa (in which voiced stops did not shift), such as Caddo, Arapaho, Kansa and Omaha-Ponca (Siouan languages), Kiowa Apache and Lipan Apache, do have voiced stops (Chafe 1979, Salzmann 1956, Rood 1979, Young 1983).

Complementary distribution of [b,w,m] and [d,l,n] is a feature of at least some Siouan languages (Rood 1992), so it must be considered that the shift of voiced stops to nasals before nasal vowels and the shift of d to l in Taos arose through Plains influences. While this is a possibility, there is not much evidence of extensive Siouan-Tanoan interaction. In historic times the Pueblos had contact primarily with the Utes, the Comanche, the Apache and the Kiowa (Parsons 1939:1029), with some Siouan goods, such as Osage-
In terms of ritual, the Caddoan-speaking Pawnee and Arikara are most similar to the Pueblos (Parsons 1939:1034-36, Lange 1979:204). In short, direct contact between Siouans and Tanoans is not documented, while, of course, direct contact between Tanoans and other Pueblos is documented. In light of this fact, the shift of voiced stops in Tanoan is more likely to be due to Pueblo influence than to Siouan influence. The total loss of a voiced stop series in Picuris strengthens the claim that the Tanoan languages were under areal pressure from languages without voiced stops.

(9) The sound / is present in Hopi, Zuni, Navajo and Taos, but not in Tewa, Jemez, or Keresan. In Taos / developed as a reflex of word-initial d before oral vowels. I argue above that the loss of initial voiced stops in Tanoan is an areal trait; however, the development of / in particular is not necessarily a result of influence from other Pueblo languages, especially since / is so common cross-linguistically, occurring in almost 99% of Maddieson’s (1984:74) sample. Also, the development of / from d is a common historical change. However, the fact that d changed in all word-initial environments in Taos is good evidence that voiced stops were under areal pressure to shift in Tanoan.

3.2.2 Vowels

The vowel inventories of the Pueblo languages are displayed in Table 8.

(10) Pan-Pueblo vowels include a, e, and i. These cannot be considered as areal traits because of their cross-linguistic frequency -- i is present in 92% of Maddieson’s (1984) sample, and a is present in 88%. The vowel e is quite a bit rarer (present in 37% of the sample), but still common enough to eliminate it as an areal feature, especially since it occurs in many of
the languages which border the Pueblos (e.g. Cheyenne, Tümpisa Shoshone, Yavapai, and Wichita).

Table 8

<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Tiwa</th>
<th>Tewa</th>
<th>Jemez</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>e</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>a</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ò</td>
<td>X</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ø̆</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>o</td>
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<td></td>
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<tr>
<td>ò</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nasal vowels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>long vowels</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>tones</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

(11) The Tanoan languages and Navajo possess phonemic nasalized vowels. Although this feature is not common cross-linguistically, it fails to
define the Pueblo region as a linguistic area. The occurrence of nasalized vowels in both language groups is attributable to genetic factors, as Kiowa also possesses nasalized vowels and the development of nasalized vowels in Athapaskan languages is common (Cook and Rice 1989:10), occurring in all the Apachean languages (Young 1983).

(12) Phonemic long vowels occur in Navajo, Hopi, Acoma, and Zuni. In Hopi, long vowels are probably a trait retained from Proto-Uto-Aztecan (Langacker 1977). Because long vowels easily develop independently in language, this is a relevant but not a convincing areal trait. Furthermore, long vowels are not restricted to the Pueblo area -- they are also present in Tonkawa, Numic, the Upland Yuman languages, Cheyenne and Wichita,

(13) Tonal contrasts (or phonemic pitch) are present in Tanoan, Navajo, and Acoma. In Tanoan, tonal contrast probably results from genetic factors, since Kiowa possesses this feature as well. Tones also are also a common development in Athapaskan languages, arising from constricted vowels (Cook and Rice 1989:11), so that their presence in Navajo likely represents a retained trait. However, the Third Mesa dialect of Hopi also displays the development of a tonal contrast (Jeanne 1982), a feature not present in Proto-Uto-Aztecan and therefore not attributable to genetic factors.

Jeanne (1982) analyzes long vowels with falling tone in Hopi as developing from a preconsonantal vowel-glottal consonant cluster (see Table 11). Such vowels contrast with other long vowels which display a rising tonal contour. The development of tone in Hopi has likely resulted from contact with either Acoma or Navajo, though conceivably it could be an independent development.

As tones have likely diffused into at least one Pueblo language (Hopi) and are present in all other Pueblo languages, with the exception of Zuni,
they provide evidence that the Pueblo region is a linguistic area. However, this trait is not confined to the Pueblos, since tones are present in Arapaho and Cheyenne. The surrounding Yuman languages, most of the Great Basin languages (except for Northern Paiute, Sherzer 1976), and Tonkawa do not possess tonal contrasts.

3.2.3 Phonological rules

In this section I look at phonological rules involving consonants and those involving vowels. As discussed in chapter 1, the notion that phonological rules can be borrowed is not uncontroversial; however, the many examples of rules that are shared among languages in contact support the claim that phonological rules can be diffused.

3.2.3.1 Consonant changes

Consonant allophony in the Pueblo languages is exhibited in Tables 9 and 10.

(14) Consonants are palatalized before front vowels in Picuris, Taos, Tewa, Navajo and Acoma. This cannot be accepted as an areal trait because palatalization before front vowels occurs frequently in language and also because the consonants which undergo palatalization differ considerably from language to language. In Acoma, retroflex consonants are palatalized before front vowels, in Tewa velar stops are palatalized, in Navajo velar consonants, h and t are palatalized, in Taos the alveolar affricates are palatalized, while in Picuris only l is palatalized (Harben Trager 1971). While a palatalization rule as such is not a likely diffused trait in the Pueblo languages, the palatalization of h in Navajo appears to be diffused (see trait 6 above).

(15) The sound kʷ becomes k before back vowels in Taos and Zuni. This phonological process does not represent a strong areal trait, as it is
Table 9
Consonant allophony in Hopi, Zuni, and Navajo

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Navajo&lt;sup&gt;22&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>$z &gt; $ / ___$</td>
<td>$k &gt; +pal/ ___V[-back]$</td>
<td>$k,k^{h},k^{\prime},\gamma,h,t^{h} &gt; +pal/ ___e,i$</td>
</tr>
<tr>
<td>$h &gt; x / ___C$</td>
<td>$k,k^{h},k^{\prime},\gamma,h,t^{h} &gt; +lab/ ___o$</td>
<td></td>
</tr>
<tr>
<td>$y &gt; w / ___ + Ci$</td>
<td>$C &gt; +long / V __V$</td>
<td></td>
</tr>
<tr>
<td>$v &gt; p / ___C$ (Third Mesa)</td>
<td>$k^{\ast} &gt; -lab/ ___y$</td>
<td></td>
</tr>
<tr>
<td>#_</td>
<td>$C[-back]$</td>
<td></td>
</tr>
<tr>
<td>$l &gt; l / ___C[-?,?][-l]$</td>
<td>$s,z,ts&gt;\tilde{s},\tilde{z},\tilde{c} / \tilde{s},\tilde{z},\tilde{c},\tilde{\c}^{b}$</td>
<td></td>
</tr>
<tr>
<td>?a-a-Ø alternants&lt;sup&gt;23&lt;/sup&gt;</td>
<td>In d-class verbs:</td>
<td></td>
</tr>
<tr>
<td>?a-a alternants</td>
<td>$m,n,y &gt; +glot / C + ___$</td>
<td></td>
</tr>
<tr>
<td>-CV,-CCV,-?CV alternants</td>
<td>$y,y, z &gt; t, k, t / C + ___$</td>
<td></td>
</tr>
<tr>
<td>-C?V,-CC?V alternants</td>
<td>$y,z,\tilde{z},l &gt; ts, ts, \tilde{c}, tl/C + ___$</td>
<td></td>
</tr>
<tr>
<td>? &gt; Ø / certain prefixes+___</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n, ? &gt; Ø / ___##</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C &gt; Ø / C___V##C[+glottal]$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C &gt; Ø / ___ + C [-glottal stop]$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C[+son] &gt; -vc/ ___V##C[+glottal]$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C[+son] &gt; -vc / ___C[+glottal]$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$C &gt; Ø / C + ___$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n &gt; a\text{features} / ___ + C[+son]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$m / ___p$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>22</sup>Navajo prefixes often are reduced or contract with other prefixes. The rules of reduction and contraction are too numerous to discuss here. See Sapir and Hoijer (1967) for full discussion of Navajo morphophonemics.

<sup>23</sup> Several Zuni affixes have allomorphs whose distribution is based not on phonological environment, but on verb class.
<table>
<thead>
<tr>
<th>Acoma</th>
<th>Taos</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,M,W,P,Y,T,S,T,S,S → Ø / ___#,C</td>
<td>ts &gt; č / ___V[+high]</td>
</tr>
<tr>
<td>2N,2M &gt; ?V / ___#; ?N,2M &gt; n',m' / ___V</td>
<td>ts' &gt; č' / ___V[+high]</td>
</tr>
<tr>
<td>W &gt; p,u,k,n; W &gt; áu / ___#;C; W &gt; M,W/ ___V</td>
<td>y &gt; features/ C[+son]+___a</td>
</tr>
<tr>
<td>P &gt; k / ___u</td>
<td>y &gt; Ø / C[+stop, +voice] ___a</td>
</tr>
<tr>
<td>K* &gt; p (before vowels),k (before u),ku (elsewhere)</td>
<td>y &gt; ? / a+___</td>
</tr>
<tr>
<td>?p &gt; ?Vp (before vowels),?Vk (before u)</td>
<td>C[+velar] &gt; -labial/ ___u</td>
</tr>
<tr>
<td>?u (before consonants and word juncture)</td>
<td>consonant ablaut25</td>
</tr>
<tr>
<td>T &gt; t' / ___a</td>
<td></td>
</tr>
<tr>
<td>ST &gt; ša / ___#;C (šaN [before -qìityìTS],t)</td>
<td></td>
</tr>
<tr>
<td>TS &gt; k / ___a</td>
<td></td>
</tr>
<tr>
<td>h,? &gt; Ø/ qa___</td>
<td></td>
</tr>
<tr>
<td>C[+son] &gt; +gloth / ź, 'u, 'i, ___V[-long,-tone], ___C[-son]</td>
<td></td>
</tr>
<tr>
<td>V &gt; ts,t' / plural prefix– y' &gt; ts,t',t&quot; / plural prefix—</td>
<td></td>
</tr>
<tr>
<td>C --&gt; +glottal / ___q</td>
<td></td>
</tr>
<tr>
<td>C --&gt; +asp / ___‘</td>
<td></td>
</tr>
<tr>
<td>C --&gt; +pal/ ___i</td>
<td></td>
</tr>
<tr>
<td>C[+cor,-ant] --&gt; +pal/ ___V[+front]</td>
<td></td>
</tr>
<tr>
<td>C[+son] &gt; -gloth / ___'</td>
<td></td>
</tr>
<tr>
<td>C &gt; +asp/ V[+tone]___V#, ___VV[-tone], ___V[-tone] C[-glot]</td>
<td></td>
</tr>
<tr>
<td>C [+son] &gt; -vc / ___V[-tone]#</td>
<td></td>
</tr>
</tbody>
</table>

24 Miller sets up primary "co-articulation" morphemes (q,’, and j) which affect the consonant of the preceding syllable. In Acoma, the ‘q’ is not a uvular stop. The secondary co-articulation morphemes - J, J’, Q, and A -- become primary co-articulation morphemes in various environments. Other capital letters ( N, M, etc.) represent underlying sounds which disappear word-finally.

25 In Taos, initial consonant ablaut signals a distinction between the preterit active and the resultative stative; initial p’, t’, ts’, k’, ?, h, m, w, and y become p, t, ts, k, k, x, p, k., x, and ts, respectively. Internal consonant ablaut signals the third singular negative preterit: b becomes p, d becomes t, y becomes ts, y becomes k, m becomes p, n becomes t, and Ø becomes w or y. Consonant ablaut characterizes Kiowa-Tanoan languages and can be reconstructed for PKT (Hale 1967).
natural for the glide w, which is a back, rounded sound, to be lost before a back, rounded vowel, such as u or o, but not before a.

(16) In Zuni and Acoma the sound n is lost in final position. In Zuni, n is lost at the end of utterances, while in Acoma n is lost at the end of words and before consonants. In Acoma, the loss of n is part of a more general rule in which several consonants are lost at the end of words. The conditions for the loss of n differ in their extent, but because the conditioning factor in Zuni is a subset of the conditions in Acoma, the rule in Zuni may have developed under influence from Acoma. Therefore, the loss of n is a possible, but not a strong, areal trait.

(17) Devoiced sonorants characterize several of the Pueblo languages. I group this trait with devoiced vowels, discussed in the next section.

(18) Acoma and Navajo both have rules for the glottalization of sonorants. The conditioning factors differ considerably between the two languages, however, so that the rules themselves cannot be considered to be diffused. The presence of glottalized sonorants in Navajo at the allophonic level is a plausible areal trait (cf. 3.2.1 above).

3.2.3.2 Vocalic changes

Vocalic allophony in the Pueblo languages is displayed in Tables 11 and 12.

(19) Devoiced vowels and sonorants occur word-finally in Hopi, Acoma, and Zuni. In the Toreva dialect of Hopi, devoiced sonorants are phonemic, but occur only word-finally (Whorf 1946). In Zuni, vowels become devoiced utterance-finally and sonorants often become devoiced when they become word-final after a following vowel is dropped. In Acoma, vowels become voiceless at the end of words and before voiceless consonants, while sonorants are devoiced before voiceless, word-final vowels.
Because this feature is not very common cross-linguistically, it represents a rather convincing areal trait, typical of the Western Pueblos. Furthermore, the vowel i undergoes partial devoicing word-finally in Picuris (Harben Trager 1971), indicating that the trait has spread to the Eastern Pueblos as well.

However, devoicing of vowels and sonorants is not restricted to the Pueblo area. It also characterizes the Numic languages of the Great Basin, such as Tümpisa Shoshone (Dayley 1989), and occurs in Comanche as well (Charney 1993). Devoiced vowels also characterize some of the languages of the Plains, for example, Cheyenne (Petter 1952) and Wichita (Rood 1976). This feature may therefore be diagnostic of a larger linguistic area, not including Upland Yuman nor Tonkawa.

(20) Long vowels are shortened before consonant clusters in Hopi and Zuni. This type of rule is quite common, and not a convincing areal trait.

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>V &gt; Ø/ _# (in minor categories)</td>
<td>V &gt; Ø/ _# (in common particles)</td>
<td>Ci- &gt; Co/ _C[+back]o</td>
</tr>
<tr>
<td>V &gt; +stress/#C[1]o(VC) _C[2]V..#</td>
<td>V &gt; +stress/ _#</td>
<td>Ci- &gt; Ca-/ _C[+back]a</td>
</tr>
<tr>
<td>V&gt; -long/ _CC</td>
<td>V &gt; -long/ _CC[-glottal stop]</td>
<td></td>
</tr>
<tr>
<td>V &gt; Ø / VC _CV</td>
<td>V &gt; +long/ _ # certain suffixes</td>
<td></td>
</tr>
<tr>
<td>vC[+glot] &gt; v/ _C(Third Mesa)</td>
<td>V[-long] &gt; -vc/ _#</td>
<td></td>
</tr>
<tr>
<td></td>
<td>V(?) &gt; Ø / _#C[+glottal]</td>
<td></td>
</tr>
</tbody>
</table>
### Table 12

Vocalic allophony in Acoma and Taos

<table>
<thead>
<tr>
<th>Acoma</th>
<th>Taos</th>
</tr>
</thead>
<tbody>
<tr>
<td>V &gt; -long / V_</td>
<td>V&gt; [+nas] / _C[+nas]</td>
</tr>
<tr>
<td>V &gt; +long / V[+long]</td>
<td>V &gt; Ø / __#, and before certain suffixes</td>
</tr>
<tr>
<td>V[+long] &gt; Ø / V[+long]</td>
<td>a~ i (ablaut)</td>
</tr>
<tr>
<td>V[-long] &gt; Ø / V_</td>
<td></td>
</tr>
</tbody>
</table>

**Thematic Syllable Expansion**

- before plural suffix
  - 'u, 'ú > 'úw’á
  - 'úu > 'úuw’áa
  - 'ui > 'uw’au
  - 'i, 'í > Qá?a
  - Qau > 'úuw’áa

V --> V^1 / __?V^1 (initial syllables)
V --> V^1 / V^1 ?___ (non-initial syllables)
V^1?V^2 > V^1?V^1 V^2

- ?ui --> wíi
- ?iu --> y’uu

iCu --> uCu
V > -long / __#
V --> -long / ã?___
V > -vc / __#, C[-vc]
(21) Hopi, Taos and Zuni have rules of external sandhi, in which word-final vowels are lost. This may be an extension of feature (19), in which devoiced vowels are lost completely. The phonologically conditioned rules of final vowel loss in Zuni and Taos are quite different from one another -- word-final vowels in Zuni are usually lost when the next word begins with an {h} or a ?, while in Taos, the word-final vowels that are usually lost are a and u. However, Hopi and Zuni also share a morphologically-conditioned rule of final vowel deletion, in which ‘minor categories’ often drop the final vowel. These categories include adverbial particles and word-final suffixes in Zuni (Newman 1965:27-28) and word-final suffixes, pronouns, postpositions and modal particles in Hopi (Jeanne 1982:268). Vowel-deletion does not occur when the particle precedes a pause (i.e., when the particle occurs sentence-finally or in isolation); therefore, the full form of such particles in Hopi is called the ‘pausal’ form. This rule is sufficiently similar to suspect that diffusion has played a role in its occurrence in both Zuni and Hopi.

3.2.3.3 Tonal changes

Table 13 exhibits phonological rules involving tones in Acoma, Taos and Navajo.

(22) Acoma and Taos share the feature of tone ablaut in certain suffixes. However, the nature of the tonal changes and the nature of the conditioning factors differ a great deal between the two languages, so that it is unlikely that this trait has diffused from one language to the other.

3.3 Morphological and syntactic traits

In this section I examine affixal morphemes of the Pueblo languages, including both verb and noun morphology, as well as free (unbound) grammatical morphemes, such as independent personal pronouns,
### Table 13

**Tonal changes in the Pueblo languages**

<table>
<thead>
<tr>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V &gt; \hat{v}) / ___ certain affixes (tone ablaut)</td>
<td>(\hat{v} &gt; \text{prefix} / \alpha\text{tone/ prefix}__)</td>
<td>(\hat{v} &gt; \text{prefix} / \alpha\text{tone/ prefix}__)</td>
</tr>
<tr>
<td>(V &gt; \hat{v}V / ___\text{V} ) (before certain affixes)</td>
<td>(\hat{v} &gt; \text{-tone/}___#)</td>
<td>(\hat{v} &gt; \text{prefix} / ___\hat{v})</td>
</tr>
<tr>
<td>(V --&gt; \text{-tone/} / __-\text{si})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(V &gt; \text{-tone, +long/} / __K^*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v} + \hat{v} &gt; \hat{v})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(V [+\text{long}] --&gt; \alpha\text{ tone/} / (C) V[\alpha\text{ tone}])</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(tone on the second syllable is then lost)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(V &gt; ___\text{+tone/} C[V[-\text{tone}])</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(V&gt;\text{-tone/} C[+\text{obs}] +C[+\text{obs}]V[+\text{tone}])</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( __C[+\text{son, +glot}])</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v}\hat{v}&gt; V\hat{v}) (stem-final position, and suffixes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v}V) (the first of two sequences of (\hat{v}\hat{v}))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v}V) (elsewhere)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v}\hat{v}&gt; \hat{v}\hat{v})</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(V\hat{v}\hat{v}&gt; \hat{v}\hat{v}) (initial position)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( _____\text{VV} ) (non-initial position)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v} &gt; _____\text{C}[+\text{son, +glot}])</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v} [+\text{long}] &gt; \hat{v}) (except when following syllable begins with a sonorant, is accented and final)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\hat{v} [+\text{long}] &gt; \hat{v})</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

\(^{26}\) Trager (1946) identifies tone changes in ablauting verbs as non-functioning. Normal tone becomes low tone, high becomes normal and low becomes normal.
Table 14
Subject pronominal prefixes in the Pueblo languages

<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos(^{27})</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(-3)</td>
<td>s</td>
<td>sj-,s'j-</td>
<td>ti-,pi-,ʔo</td>
<td>-ʔ-</td>
<td></td>
</tr>
<tr>
<td>2(-3)</td>
<td>s</td>
<td>ʔo-,ʔi-,ku-</td>
<td>ni-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3(-3)</td>
<td>k-</td>
<td>Ø,ʔi-,ʔu-</td>
<td>Ø</td>
<td></td>
<td></td>
</tr>
<tr>
<td>obviative</td>
<td></td>
<td>kj-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>sa-</td>
<td>ʔa,mapen,mapi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-2</td>
<td>k-iz-</td>
<td>ʔa,man,ma</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-1</td>
<td>t'u-</td>
<td>may</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-1</td>
<td>sku-</td>
<td>ʔo,ʔan,ʔi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1DL(-3)</td>
<td></td>
<td>ʔan,ʔapen,kan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2DL (-3)</td>
<td></td>
<td>man,mapen,man</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3DL(-3)</td>
<td></td>
<td>ʔan,ʔapenʔan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1Pl(-3)</td>
<td></td>
<td>ʔi,ʔipi,kiw</td>
<td>-ii(t)-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2PL(-3)</td>
<td></td>
<td>ma,mapi,maw</td>
<td>-oo(h)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3PL(-3)</td>
<td></td>
<td>ʔi,ʔipi,ʔiw</td>
<td>Ø</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

demonstrative pronouns, and particles. I also look at some syntactic characteristics of the Pueblo languages, such as noun incorporation and word

\(^{27}\)The various markers for each person in Taos are distributed according to the number and gender of the object. For example, ʔi- marks not only first person singular subject, but also third person singular object of genders I or III. Gender I consists of animate nouns, while genders II and III consist of inanimate nouns. What Trager (1946) terms ‘gender’ is usually referred to as noun ‘class’ in Kiowa-Tanoan linguistics (Watkins 1984).
order features. The basic word order and case alignment of the languages are discussed within this section.

3.3.1 Verbal morphology

In this section I compare verbal affixes among the Pueblo languages to determine which, if any, verbal elements can be considered areal traits. The affixes presented in this section do not comprise an exhaustive list of verbal affixes in the Pueblo languages, but do represent a large proportion of the affixal inventory of the languages in question, including person and number markers and tense-aspect-modality markers.

Table 15

Object pronominal prefixes in the Pueblo languages

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>šি- / nihi (PL)</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>ni- / nihi- (PL)</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>pi-ברה (PL)</td>
</tr>
<tr>
<td>3о́28</td>
<td></td>
<td></td>
<td></td>
<td>yi-</td>
</tr>
<tr>
<td>3а</td>
<td></td>
<td></td>
<td></td>
<td>ha-ה,ho-,h*</td>
</tr>
<tr>
<td>3и</td>
<td></td>
<td></td>
<td></td>
<td>?a-</td>
</tr>
<tr>
<td>reflexive</td>
<td>nāa-</td>
<td>y-/ʔi-</td>
<td>'ʔu-</td>
<td>tа,ʔа,mo</td>
</tr>
<tr>
<td>DL</td>
<td></td>
<td></td>
<td></td>
<td>ᱠנ,ман,ʔаn</td>
</tr>
<tr>
<td>PL</td>
<td></td>
<td></td>
<td></td>
<td>kима,мана,ʔима</td>
</tr>
<tr>
<td>reciprocal</td>
<td>ʔи:w-</td>
<td></td>
<td></td>
<td>ᱠаhi-</td>
</tr>
</tbody>
</table>

28 The 3о prefix in Navajo marks the direct object, and also indicates that the first noun in the sentence is the subject. The 3а prefix refers primarily to humans and personified animals and usually marks the main character in narratives. The 3и prefix refers to indefinite objects ('someone', 'something').
3.3.1.1 Person and number

(23) The Tanoan languages, Acoma and Apache attach pronominal prefixes to the verb (see Table 14). In the Tanoan languages and in Apache, genetic factors are probably responsible for the presence of this feature, as Kiowa possesses pronominal prefixes, and as they are reconstructed for Proto-Athapaskan. The surrounding Yuman languages possess pronominal prefixes as well, as does Tonkawa. Considering these factors, as well as the fact that noun-like affixes tend to precede the verb in verb-final languages (Langacker 1977), this feature does not strongly support a Pueblo linguistic area.

(24) Hopi and Zuni mark arguments of the verb with independent pronouns only. Langacker (1977) argues that the pronominal prefixes which occur in some Uto-Aztecan languages are innovative, so that the absence of them in Hopi is a retained feature. Because Zuni is a language isolate, it is impossible to determine if the absence of pronominal prefixes is a genetic trait for that language. However, the lack of pronominal prefixes does set Hopi and Zuni apart from the rest of the Pueblo region and from the Yuman languages to the west (Kendall 1976). It is therefore a possible, but tentative, diffused trait in Zuni.

(25) Navajo is the only Pueblo language with prefixes which indicate only the person and number of objects (Table 15). Reflexive prefixes, on the other hand, occur in all of the Pueblo languages (Table 15). It is a retained genetic trait in Hopi (Langacker 1977 reconstructs *na for Proto-Uto-Aztecan) and in Tanoan (reflexive prefixes are present in Kiowa, Watkins 1984, also). Reflexive prefixes are very common and are therefore not a likely areal trait. They also occur in Tonkawa (Hoijer 1946c), Central Numic
(Tümpisa Shoshone, Dayley 1989), and Southern Numic (Chemehuevi, Press 1979).

(26) Dual number is distinguished in pronominal prefixes in Tanoan, Acoma, and Navajo (see Tables 14 and 16). It is also distinguished in independent pronouns in Zuni and Navajo (Table 26), and in nouns in Hopi (Table 25). Dual number is present in Kiowa and so is likely a family trait of Tanoan. However, Langacker (1977) does not reconstruct dual number for Proto-Uto-Aztecan; therefore, dual number can be considered as innovative in Hopi. Dual number is present in some other Northern Uto-Aztecan languages, but not in all -- it is absent in the Takic languages, e.g. Luiseño (Kroeber and Grace 1960) -- so that even if a Northern Uto-Aztecan subgroup is accepted, dual number is not necessarily an inherited trait in Hopi. Dual number is not very common cross-linguistically (dual category is present in 30% of the most common types of independent pronoun systems in Ingram's 1978 sample), suggesting that dual number in Hopi is a diffused trait.

Although Zuni cannot be compared with related languages, there is evidence that dual number is a diffused trait in that language as well. That is, dual number is a marginal category in Zuni, distinguished only in third person independent pronouns.

As this feature is likely to have been borrowed in at least one Pueblo language, and as it is present in every Pueblo language, the marking of dual number does characterize the Pueblo region. However, dual number extends beyond the Pueblo region. It is marked in Tonkawa (Hoijer 1946c) in both independent pronouns and pronominal affixes, and is marked in the Numic languages (Dayley 1989, Press 1979) and in Caddoan (Chafe 1979). This
Table 16

Verbal number marking in the Pueblo languages

<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma²⁹</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prefixes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual</td>
<td></td>
<td></td>
<td>aʔa,ʔuʔu</td>
<td>ta-</td>
</tr>
<tr>
<td>Plural</td>
<td>tet-³⁰</td>
<td>ay’ʔa,ʔuʔa</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>?ʔa:ʔw-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Suffixes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual</td>
<td></td>
<td>-ʔa:wa</td>
<td>-ʔiʔuʔTS</td>
<td></td>
</tr>
<tr>
<td>Plural</td>
<td>-ʔa</td>
<td>-ʔa:wa</td>
<td>-ʔeʔTS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ʔiʔa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ʔo-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ʔuʔa</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

category therefore links the Pueblo region to the east and the north. The Upland Yuman languages to the west, however, do not mark dual number.

(27) Sherzer (1973) identifies the use of different verb stems to mark number in Zuni, Keresan, Tanoan and Apachean as a Pueblo areal trait. Hopi also marks number with suppletive verb stems (Kalectaca 1978:74); e.g., tuumoyta ‘eating’, noonova ‘eating (PL)’, wunima ‘dance’, tiiva ‘dance (PL)’. Examples of suppletive verb number from other Pueblo languages includes: Zuni ʔala ‘to sleep (SG subject)’, yatlala ‘to sleep (PL subject)’,

²⁹ Miller does not give basic forms for the dual and plural prefixes; rather, he gives the forms of the number prefixes fused with various thematic syllables. I give a few examples in table 16.

ʔavna ‘to kill (SG object)’, ʃata ‘to kill (PL object)’; Acoma -jaʔats‘iN ‘to arrive (SG subject)’, -ʔaaʔats‘iN ‘to arrive (DL subject)’, -jeʔit‘uʔ ‘to arrive (PL subject)’, -ʔuniiM ‘to know (SG object)’, -ʔitsuuniiM ‘to know (PL object)’; Navajo -u ‘to go (SG subject)’, -ʔaaʔ ‘to go (DL subject)’, -(t)kh ai ‘to go (PL subject)’, -lóoz ‘to lead (SG object)’, -ʔeeʔ ‘to lead (PL object)’. I could not find examples of suppletive verb stems in Tanoan, but Trager (1946:202) states that “in a few verbs dichotomous number is expressed by suppletion, depending on the number of the object of the verb.”

While suppletive verb number is a convincing areal trait, what is perhaps more striking is the ergative patterning of the suppletion. That is, in Zuni, Acoma, and Navajo suppletive verbs mark number of the subject of intransitive verbs and the object of transitive verbs. It appears that suppletive verbs in general are not ergative in Hopi, but mark number only of subjects, although one transitive verb is identified as referring only to an action with a plural object -- ʔōya ‘to kill’ (note that this verb is suppletive in Zuni as well).

In Zuni, not only verb suppletion, but also plural affixes have an ergative basis. The prefix tet- pluralizes subjects of intransitives, while ʔaw- pluralizes subjects of intransitives and objects of transitives. The suffix -na:wa pluralizes subjects of transitives (see Table 16). Acoma verb number prefixes also pattern ergatively, while number suffixes mark subjects of both intransitive and transitive verbs. The Navajo plural marker ta- can mark both subjects and objects of transitive verbs.

Suppletive verb number and ergative verbal number are not restricted to the Pueblos; they are also present in the Numic languages. Available information suggests that these traits are absent from Upland Yuman (Kendall 1976), Cheyenne (Petter 1952), and Wichita (Rood 1976). This may
therefore be an areal trait connecting the Pueblos to the Great Basin (cf. chapter 4).

3.3.1.2 Tense/aspect

(28) Hopi, Taos, Acoma and Zuni mark aspect through suffixes, while only Navajo marks aspect through prefixes (see Tables 17 and 18). Kiowa marks aspect with suffixes and aspectual suffixes are reconstructed for Proto-Uto-Aztecan; therefore, this feature is probably a genetic trait in Taos and in Hopi. Aspectual suffixes are common throughout the whole Southwest and cannot be considered a Pueblo areal trait.

Table 17

Aspect prefixes in the Pueblo languages

<table>
<thead>
<tr>
<th>Zuni</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>iterative</td>
<td>tá-</td>
</tr>
<tr>
<td>inceptive</td>
<td>y-/ʔi-</td>
</tr>
<tr>
<td>semelfactive-punctual</td>
<td>yi-</td>
</tr>
<tr>
<td>progressive</td>
<td>yi-</td>
</tr>
<tr>
<td>perfective (completive)</td>
<td>yi-</td>
</tr>
<tr>
<td>terminative</td>
<td>ni-</td>
</tr>
<tr>
<td>durative-static</td>
<td>si-</td>
</tr>
</tbody>
</table>

(29) One aspectual suffix in particular is a possible areal trait -- the suffix -ti, which indicates the inchoative in Hopi (b) and the inchoative and inceptive in Zuni (c) (see Table 18). The suffix -va may also mark the inchoative in Hopi (d), but more typically marks the inceptive (e). The Hopi
examples are taken from Kalectaca (1978:163) and the Zuni example from Newman (1965:50).

(b) Hopi: puma wuupa-to-ti
    they tall-PL-INC
    they got tall

(c) Zuni: we-ti-ka
    to.be.sick-INC-PST
    he got sick

(d) Hopi: pam wi?-va
    he fat-INC
    he got fat

(e) Hopi: pam tumala?-va
    he work-INC
    he began to work

The difficulty here is determining the direction of diffusion. Although the affix has a wider range of functions in Zuni, comparative evidence suggests that Hopi is the source of this suffix. Inchoative suffixes and inceptive suffixes as such are not reconstructed for PUA by Langacker (1977). However, Langacker (1977) does reconstruct the PUA passive suffix as -ti-wa. The first part of the reconstructed suffix (*ti) means ‘be’. This could be the source for both -ti and -va, as the passive and inchoative are functionally similar; that is, both mean ‘to get...’ (or ‘to become...’). While the passive involves a transitive verb (e.g., ‘he got hit’), the inchoative involves an intransitive verb

31 Some of the Numic languages have inchoative/inceptive suffixes which may also derive from -ti-wa; e.g. Tumpisa Shoshone (Dayley 1989) has an inchoative/inceptive suffix wiah, and Northern Paiute has an inceptive marker -piti (Langacker 1977).
Table 18
Aspect suffixes and particles in the Pueblo languages

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>continuative</td>
<td>-lawu</td>
<td>-ye:</td>
<td>-itaaN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ta</td>
<td></td>
<td>-áayaN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-nta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-wta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ʔta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-kiwta</td>
<td></td>
<td>-ikuyaN</td>
<td></td>
</tr>
<tr>
<td>repetitive</td>
<td>-šle</td>
<td>-si</td>
<td>-K*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-čo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ččo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ela</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-ččla</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-tela</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>habitual</td>
<td>-η̞u</td>
<td>-n’áat’aN</td>
<td>si-n’áat’aN</td>
<td>tleh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-n’áat’aN-si</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>si-n’áat’aN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stative</td>
<td>-na</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inceptive</td>
<td>-va</td>
<td>-ti</td>
<td>-itsaat’aaN</td>
<td></td>
</tr>
<tr>
<td>inchoative</td>
<td>-ti</td>
<td>-ti</td>
<td>-tua(N)</td>
<td></td>
</tr>
<tr>
<td>completive</td>
<td></td>
<td></td>
<td>-qi$\S$</td>
<td></td>
</tr>
<tr>
<td>preterit</td>
<td></td>
<td></td>
<td>-puo (NEG)</td>
<td>-mi,-ti</td>
</tr>
</tbody>
</table>
Table 19
Tense suffixes in the Pueblo languages

<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>past</td>
<td>-ka</td>
<td>-kka</td>
<td>-?ka</td>
<td>-mę?aną</td>
<td>-mę (NEG)</td>
</tr>
<tr>
<td>present</td>
<td>-?a</td>
<td>a</td>
<td>?e?</td>
<td>-hu</td>
<td>-hu</td>
</tr>
<tr>
<td></td>
<td>-ð</td>
<td>-ye</td>
<td>e</td>
<td>-me (NEG)</td>
<td>-me (NEG)</td>
</tr>
<tr>
<td>future</td>
<td>-ni</td>
<td>-?anna</td>
<td>-anna</td>
<td>-yá</td>
<td>-yá</td>
</tr>
<tr>
<td></td>
<td>-kini</td>
<td>-anna</td>
<td>-nna</td>
<td>-pu (NEG)</td>
<td>-pu (NEG)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-uwa</td>
<td>-a</td>
<td>-he</td>
<td>-he</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-k?anna</td>
<td>-a</td>
<td>(impending)</td>
<td>(impending)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-šuk&quot;a (NEG)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(e.g., 'he got sick'). If *ti is in fact the source of the Hopi inchoative suffix, Zuni -t is probably diffused from Hopi.

Navajo has an inceptive prefix ti- (see Table 17), which is identical in form to the Zuni inceptive suffix; however, comparative evidence suggests this is an inherited feature in Navajo. Both Slave (Rice 1989) and Chiricahua...
Apache (Hoijer 1946a) have a similar inceptive prefix -- te- in Slave and ti- in Chiricahua Apache.

(30) Tense suffixes are present in Hopi, Zuni, and the Tanoan languages (see Table 19). They also occur in Kiowa and are reconstructed for Proto-Uto-Aztecan, and are therefore genetic traits of Hopi and Tanoan. Again, tense suffixes are common throughout the whole Southwest and are not diagnostic of the Pueblo area. In many Pueblo languages, tense markers have a strong aspectual component and tense and aspect categories cannot be easily separated; however, this is a common phenomenon in language:

A distinction is normally made between ‘tense’ which refers to the time of an event, and ‘aspect’ which refers to the configuration of an event through time. The conceptual value of this distinction is clear, but in practice it is often difficult to maintain, in UA (Uto-Aztecan) or elsewhere. (Langacker 1977:151)

Therefore, affixes which indicate both tense and aspect are not diagnostic of a Pueblo area.

3.3.1.3 Mood

The Pueblo languages exhibit a mixture of modal suffixes, prefixes, and particles. The Pueblo languages share several modal categories, such as ‘interrogative’, ‘imperative’, and ‘negative’; however, these categories are very common (if not universal) among languages. One particle in particular stands out as a possible diffused trait.

(31) Hopi and Navajo share the particle ?as (see Table 20). In Navajo the particle is glossed as ‘scornful disbelief’ (f,g) (Young and Morgan 1980:59).

(f) Teesk’aaz-?as

‘It’s cold!’ (What do you mean “cold” -- it’s hot!)
Table 20
Modal prefixes and particles in the Pueblo languages

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>expectative</td>
<td></td>
<td>n-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mandative</td>
<td></td>
<td>p-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>desiderative</td>
<td></td>
<td>?-</td>
<td></td>
<td>le?</td>
</tr>
<tr>
<td>optative</td>
<td></td>
<td>-ó-(wó-)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>imperative</td>
<td></td>
<td>?-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>negative</td>
<td>qa</td>
<td>wò-</td>
<td>too...ta</td>
<td>t’áatoo...ta</td>
</tr>
<tr>
<td></td>
<td>ıasta</td>
<td></td>
<td>too....kóó</td>
<td></td>
</tr>
<tr>
<td></td>
<td>so?on</td>
<td></td>
<td></td>
<td>too..-í</td>
</tr>
<tr>
<td>(counterfactual)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>narrative</td>
<td>kus</td>
<td>wi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>comparative</td>
<td></td>
<td>ḋoy-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>interrogative</td>
<td>ya</td>
<td>po-</td>
<td>ta?</td>
<td></td>
</tr>
<tr>
<td>definite</td>
<td></td>
<td></td>
<td>-su-</td>
<td></td>
</tr>
<tr>
<td>disbelief</td>
<td></td>
<td></td>
<td>?as</td>
<td></td>
</tr>
<tr>
<td>evidential</td>
<td>yaw</td>
<td></td>
<td>lá</td>
<td></td>
</tr>
<tr>
<td>dubitative</td>
<td></td>
<td>xu-</td>
<td>ŋ̃</td>
<td></td>
</tr>
<tr>
<td>unachieved intention</td>
<td></td>
<td></td>
<td>?as</td>
<td></td>
</tr>
<tr>
<td>intention</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>emphatic</td>
<td></td>
<td></td>
<td>ka?</td>
<td>ni</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>yee?</td>
</tr>
</tbody>
</table>
(g) Kah xaašžeeh-?as
You’re hunting rabbits! (I thought you were hunting something bigger)

The semantics of ?as in Hopi is more complex. It can mean simply ‘past’ (h), or ‘uncontinued past’ (i), but frequently has a modal component, yielding the meaning ‘unfulfilled intention’ (j,k) (examples taken from Steele 1973:14-15).

(h) pam ?as itsivi?iwta
‘He became angry.’

(i) ?i? sipala ta:voq ?as sik̂awsa; nit pi? pas sipan qöymvi
‘This peach was yellowish yesterday; it seems to have become very black now.’

(j) ni ?as ?ihömiy tiki-ni
‘I intended to cut my hair.’

(k) ni ?as ?imikini?yte? son qa pit ?insawiy nimani
‘If I had had a gun I would certainly have killed that coyote.’

Steele argues that Hopi ?as derives from Proto-Uto-Aztecan *sa, whose semantic content was basically ‘intenive’; therefore, the particle is an inherited trait in Hopi. Other Athapaskan languages, on the other hand, do not appear to have cognates to Navajo ?as, although some have particles which indicate ‘disbelief’ (Keren Rice, personal communication), so the particle is conceivably diffused in Navajo.

The difference in semantic value of Hopi and Navajo ?as must be accounted for if it is to be considered a diffused trait. Steele (1973) relates the various meanings of the reflexes of PUA *sa, which range from ‘future’, to ‘speaker wish’, to ‘inferential’, to ‘question’, to ‘incompletive’. She makes clear that tense-aspect-modality markers have the potential to be historically...
related. The development of an aspectual marker which signals an unachieved intention into a modal marker meaning ‘disbelief’ is not improbable. Unachieved actions are not carried out. It is a small semantic jump from the failure of intended events to occur to disbelief that such unachieved events occurred.

The development of tense/aspect markers into modal markers which express doubt/ surprise are not unknown. Givón (1984:307) notes that “evidentiality markers in general are often associated with TAM (tense-aspect-modal) morphemes, and many of them arise diachronically from erstwhile verbs, much like TAM markers.” Albanian developed an evidential

<table>
<thead>
<tr>
<th>Table 21</th>
<th>Modal suffixes in the Pueblo languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hopi</td>
<td>Zuni</td>
</tr>
<tr>
<td>negative</td>
<td>-?amme</td>
</tr>
<tr>
<td></td>
<td>-na?ma</td>
</tr>
<tr>
<td>imperative</td>
<td>-?v</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>hortatory</td>
<td>-še</td>
</tr>
<tr>
<td>permissive</td>
<td>-tu</td>
</tr>
<tr>
<td>interrogative</td>
<td>-?ši</td>
</tr>
<tr>
<td></td>
<td>-?pi</td>
</tr>
</tbody>
</table>
marker from a tense/aspect marker. The admirative in Albanian is derived from an inverted perfect with a truncated particle (Friedman 1986). It may express surprise, irony, doubt and reportedness (1).

(1) E na i dashka bullgarët...Ai ë! ‘And he (said he) likes us Bulgarians. Him? Hah! (said mockingly).’

3.3.1.4 Subordination

(32) Switch reference is found only in Hopi and Zuni (see Table 22). Switch reference is common in the Northern Uto-Aztecan languages and in other SOV languages of the Southwest, such as Comanche (Charney 1993), Tümpisa Shoshone (Dayley 1989), and Yuman (Jacobsen 1983), so that it is probably an inherited trait in Hopi. As this feature is found in only two Pueblo languages, it cannot be considered diagnostic of the Pueblo area. However, it is possible that switch reference is a diffused trait in Zuni, having developed under the influence of Hopi, especially in light of the fact that Hopi has several switch reference markers (for subordinate clauses, for relative clauses, and for conditionals), while Zuni has only one. Jacobsen (1983:172-73) notes a “striking clustering” of this trait in the languages of the Southwest and Great Basin, and suggests that diffusion may have played a role in its distribution, especially in those languages which are geographically marginal to the region, and in which the category is marginal, including Klamath, Yokuts, Maidu, and Zuni.

(33) Two subordinating markers in particular may be diffused: the subordinate affixes Acoma -iši and Zuni níšši, and the conditional markers Zuni ?anna and Taos ?ana. (see Table 22). I would suggest that Acoma is the source of this affix for two reasons. First -iši has a wider range of functions in Acoma, acting as both a subordinator and relativizer. Second, because there are several subordinators in Zuni, -níšši is likely to be a
<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>subordinate</strong></td>
<td>-nan</td>
<td>-iñį</td>
<td>-ko</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-n (infinitive complement)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-niįį (adverbial)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>purposive</strong></td>
<td>-t</td>
<td>-kan</td>
<td>-qeeY</td>
<td></td>
</tr>
<tr>
<td><strong>preceding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>simultaneous</strong></td>
<td>-k'aaŋ</td>
<td>-a:</td>
<td>-i</td>
<td>-xu (future)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-qą (resultative)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-męgą (past)</td>
</tr>
<tr>
<td><strong>relative</strong></td>
<td>-qa/-qam</td>
<td>-?an</td>
<td>-işi</td>
<td>-?i (present)</td>
</tr>
<tr>
<td></td>
<td>-qe</td>
<td>-kowa? (past)</td>
<td></td>
<td>-męři (past)</td>
</tr>
<tr>
<td></td>
<td>-qat/</td>
<td></td>
<td></td>
<td>-męyari (future)</td>
</tr>
<tr>
<td></td>
<td>-qamuy</td>
<td></td>
<td></td>
<td>-mępu?i (future)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-ne (verbal noun)</td>
</tr>
<tr>
<td><strong>conditional</strong></td>
<td>-e?</td>
<td>-?anna, -anna</td>
<td>-u</td>
<td>-?aną</td>
</tr>
<tr>
<td></td>
<td>-ne?</td>
<td>-uwa,-a</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-k?anna</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-šuk*a (NEG)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>past cond.</strong></td>
<td>-q,-nog</td>
<td>-nka, -?ka (NEG)</td>
<td>-ną</td>
<td></td>
</tr>
</tbody>
</table>

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diffused morpheme added to a native repertoire. In fact, -isi may have been used in addition to the native subordinator -n, yielding the suffix -nissi.

Zuni is probably the recipient of the conditional morpheme as well. Unfortunately, comparative information regarding verbal morphology in other Tanoan languages is scarce. However, both Kiowa and Arizona Tewa have a conditional marker which appears somewhat similar to Taos -?ana, in that they both contain a nasal and a back vowel -- Arizona Tewa -ma (Yegerlehner 1957) and Kiowa - -nò (switch reference) (Watkins 1984).

Again, because Zuni has other conditional markers, it is plausible that -?anna is a diffused addition to a native set of morphemes. This affix in Zuni is also a future marker, so that it has a wider range of functions in Zuni than in Taos, suggesting that it is native to Zuni. It is possible, however, that the use of -?anna as both a conditional marker and future marker results from analogy with the Zuni affix -uwa, which also marks both the conditional and the future. The allomorphy of this affix in Zuni (-?anna-anna-nna) is also based on a native pattern (see Table 9). A better understanding of comparative Kiowa-Tanoan would obviously shed more light on the possible source of this affix, if in fact it is diffused.

3.3.1.5 Voice

(34) Voice suffixes occur in Hopi and Taos (see Table 23). This is a retained genetic trait in Hopi and Tanoan (passive suffixes occur in Kiowa also, Watkins 1984). The passive and middle voices are marked by prefixes in Acoma.

(35) Krookrity (1993) demonstrates that the passive suffix -tili in Hopi (n) has diffused into Arizona Tewa. The passive suffix in AT is -f (m), while in the Rio Grande dialects of Tewa it is -n.
Table 23

Voice affixes in the Pueblo languages

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Acoma</th>
<th>Taos</th>
</tr>
</thead>
<tbody>
<tr>
<td>passive</td>
<td>-ilti</td>
<td>-qja?a-</td>
</tr>
<tr>
<td></td>
<td>-iwa</td>
<td></td>
</tr>
<tr>
<td>middle</td>
<td></td>
<td>-Qa-</td>
</tr>
</tbody>
</table>

3.3.2 Noun morphology

3.3.2.1 Person and number of possessor

(36) Possessive pronominal affixes are prefixed to nouns in Taos, Acoma, Navajo and Hopi, while in Zuni possession is marked solely by independent particles (cf. Table 24). Possessive suffixes are absent in the Pueblo area, except that third person singular and plural possessor are marked by suffixes in Hopi. Langacker (1977) reconstructs the Hopi pattern for Proto-Uto-Aztecan, so this feature is probably a retained genetic trait in Hopi. In Acoma and Taos, the possessive prefixes are identical to the pronominal prefixes on verbs. In Hopi, only nouns are inflected for person. As the patterning of possessive prefixes differs among the languages, and as
possessive prefixes are fairly common among Native American languages, and occur in some of the languages that surround the Pueblos as well, this feature is not very useful in delineating a Pueblo linguistic area.

(37) Inalienably possessed nouns, which do not occur unpossessed, are documented for Hopi, Acoma and Navajo. In all three languages kinship terms are inalienably possessed, and in Acoma and Navajo body part terms are inalienably possessed. This feature occurs widely throughout the Americas (Campbell, Kaufman and Smith-Stark 1986:549) and cannot be considered to be a Pueblo areal trait.

Table 24

<table>
<thead>
<tr>
<th>Possessor markers in the Pueblo languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hopi</td>
</tr>
</tbody>
</table>

**Prefixes**

<table>
<thead>
<tr>
<th>SG</th>
<th>1</th>
<th>i-</th>
<th>sj-</th>
<th>?an</th>
<th>?i-</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>u:-</td>
<td>s-</td>
<td>ka</td>
<td>ni-</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>k-</td>
<td>?a</td>
<td>pi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3o</td>
<td>f</td>
<td>pi-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>t</td>
<td>pi-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3i</td>
<td>sk-</td>
<td>?a-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL</td>
<td>1</td>
<td>kan</td>
<td>nii-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>man</td>
<td>nii-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>kan</td>
<td>nii-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PL</th>
<th>1</th>
<th>ita:-</th>
<th>ki</th>
<th>tanhi-</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>umu:-</td>
<td>ma</td>
<td>tanhi-</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>?i</td>
<td>tapi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3o</td>
<td>?a</td>
<td>tapi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td>taha-taho-</td>
<td>mo-</td>
<td>?a-, ?ati-</td>
<td></td>
</tr>
</tbody>
</table>

**Suffixes**

<table>
<thead>
<tr>
<th>SG</th>
<th>3</th>
<th>?at</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL</td>
<td>3</td>
<td>?am</td>
</tr>
</tbody>
</table>
3.3.2.2 Number

(38) In Acoma and Navajo plural markers on nouns are optional, or are restricted to animate nouns. This trait occurs frequently throughout Native American languages and is not a plausible areal trait. It is perhaps more unusual that Hopi, Zuni and Taos are rather strict in marking all nouns for number. In this respect, Hopi differs from other Northern Uto-Aztecan languages (Tümpisa Shoshone, Dayley 1989; Comanche, Charney 1993) and from Proto-Uto-Aztecan (Langacker 1977:80). It is possible that Hopi changed to become more like Zuni in this regard. The number-based classification of nouns and the obligatory marking of number on nouns in Taos are typical of Kiowa-Tanoan languages (Leap 1970, Watkins 1984).

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos32</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>singular</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-?le?</td>
<td>-na (I)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-nne</td>
<td>-nà, -nemà (II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-mme?</td>
<td>-na (III)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-?e</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>dual</strong></td>
<td>-vit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-t</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>plural</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-m</td>
<td>-nà,-nemà(II)</td>
<td>ta-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-t</td>
<td>-ne (II)</td>
<td>-kèe</td>
<td></td>
</tr>
<tr>
<td>(+initial RDP)</td>
<td></td>
<td>-ne (III)</td>
<td>-(y)66</td>
<td></td>
</tr>
</tbody>
</table>

32 Suppletive affixes mark both number and noun class on nouns in Taos.
Table 26

Pronouns in the Pueblo languages

<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG 1</td>
<td>nu?</td>
<td>ho:to</td>
<td>sìnüm’é</td>
<td>na</td>
<td>sí</td>
</tr>
<tr>
<td>2</td>
<td>um</td>
<td>to:to</td>
<td>hìsùm’é</td>
<td>?é</td>
<td>ni</td>
</tr>
<tr>
<td>3</td>
<td>pam</td>
<td></td>
<td>nàn</td>
<td>?àwàna</td>
<td></td>
</tr>
<tr>
<td>3a</td>
<td></td>
<td></td>
<td>pì</td>
<td></td>
<td>hò</td>
</tr>
<tr>
<td>DL 1</td>
<td></td>
<td></td>
<td>nìnìh</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PL 1</td>
<td>itam</td>
<td>ho:no</td>
<td>sìna</td>
<td></td>
<td>tanihí</td>
</tr>
<tr>
<td>2</td>
<td>uma</td>
<td>to:no</td>
<td>?è</td>
<td></td>
<td>tanihí</td>
</tr>
<tr>
<td>3</td>
<td>puma</td>
<td></td>
<td>?àwàna</td>
<td></td>
<td>taaphí</td>
</tr>
<tr>
<td>3a</td>
<td></td>
<td></td>
<td>taahó</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Object</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG 1</td>
<td>nuy</td>
<td>hom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ùn</td>
<td>tom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>put</td>
<td>?àn</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL 1</td>
<td></td>
<td></td>
<td>ho?na?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>to?na?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>?a:čiya?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PL 1</td>
<td>itamuy</td>
<td>ho?na?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>umuy</td>
<td>to?na?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>pumuy</td>
<td></td>
<td>?à:wan</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interrogative</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>who SG</td>
<td>hak/hakiy</td>
<td>čuwa-pì</td>
<td>háu</td>
<td>p’ù</td>
<td>hái</td>
</tr>
<tr>
<td>PL</td>
<td>hakim/hakimuy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>what SG</td>
<td>himu/hi:ta</td>
<td>ko?-pi</td>
<td>tsì</td>
<td>hili</td>
<td>ha?át’aša?</td>
</tr>
<tr>
<td>PL</td>
<td>hi:tu/hi:ta</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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(39) Hopi is the only Pueblo language to mark dual number on nouns. See (26) above for discussion of dual number in the Pueblo area.

3.3.2.3 Case

Only Hopi marks nominal case -- object nouns take the suffix -t, or -y when the noun is dual in number. Case can be reconstructed for Proto-Uto-Aztecan, and is therefore an inherited trait in Hopi (Langacker 1977:82). Because case is inherited in both Hopi and Yuman, it cannot be used to support an areal link between Hopi and the West, as Sherzer (1973:785) proposes, although other features suggest such a link (cf. chapter 4).

3.3.3 Pronouns

(40) Hopi and Zuni distinguish nominative and accusative case in the pronominal system (Table 26). In Hopi the case distinction is a retained feature (Langacker 1977:125). Zuni does not mark case on nouns as Hopi does, and the development of a case distinction in the pronominal system may have resulted through contact with Hopi. It is possible of course that the case system in Zuni is a native feature and survives only in the pronominal system (a situation similar to that of English). However, the nature of the pronouns supports the hypothesis that the case distinction is diffused; that is, the subjective and objective pronouns share a common part (e.g., ho:- in the first person pronouns, to:- in the second person pronouns, etc.), while a second part indicates the case distinction. Newman (1965:59) notes this aspect of Zuni pronouns: “The paradigm is too lacking in symmetry to permit one to identify the constituent morphemes with any confidence, but the underlying roots of the three persons appear to be *ho: first person, *to: second person, and *?a: third person.” While a morpheme meaning ‘objective case’ cannot be identified, the semi-segmentable nature of the pronouns suggests that an
additional part was added rather recently to the pronouns to mark case, perhaps in response to areal pressure from Hopi.

(41) Indefinite pronouns are identical, or nearly identical, in form to interrogative pronouns in Hopi, Zuni, Acoma and Navajo. This is a feature of Proto-Uto-Aztecan as well, and is therefore a genetic trait of Hopi. It is common for indefinite pronouns, relative pronouns and interrogative pronouns to be historically related cross-linguistically, so this feature is not useful in defining a linguistic area.

Table 27

<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SG</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>this</td>
<td>i?</td>
<td>lukka</td>
<td>tůw'a</td>
<td>yʊna,ʏnemə</td>
<td>tǐi</td>
</tr>
<tr>
<td>that (near)</td>
<td>pam</td>
<td>?uhsi</td>
<td>hēe</td>
<td>yenance, mŋema</td>
<td>?eii, ?eität</td>
</tr>
<tr>
<td>that (near hearer)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>nayāi</td>
</tr>
<tr>
<td>that (far)</td>
<td>mi?</td>
<td>laʔhok'k'a</td>
<td>wēe</td>
<td>wọti, wonemā</td>
<td>?ɛi</td>
</tr>
<tr>
<td>that (invisible)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>?eɪtį</td>
</tr>
<tr>
<td><strong>PL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>this</td>
<td>ima</td>
<td></td>
<td></td>
<td>yʊne</td>
<td></td>
</tr>
<tr>
<td>that</td>
<td>puma</td>
<td></td>
<td></td>
<td>yẽne</td>
<td></td>
</tr>
<tr>
<td>that (far)</td>
<td>mima</td>
<td></td>
<td></td>
<td>wone</td>
<td></td>
</tr>
</tbody>
</table>

3.3.4 Demonstratives

(42) All Pueblo languages, with the exception of Navajo, exhibit a three-way distinction in the demonstrative pronoun system (see Table 27); that is, there is not only a distinction between ‘this’ and ‘that’, but also
between 'that' and 'that yonder'. Hopi *miʔ* is identified as an emphatic demonstrative (Langacker 1977:99), but is also given the definition 'yonder' (Kalectaca 1978:28). This trait extends a bit beyond the Pueblo area -- it also occurs in Tonkawa.

Other languages surrounding the Pueblo area make even more distinctions, however. Yavapai (Kendall 1976) distinguishes between 'this one nearby', 'this one', 'that one', 'that one visible', 'that one distant', 'that one invisible or non-existent'. Northern Uto-Aztecan languages other than Hopi also make distinctions different from those of the Pueblo area. -- Timpisa Shoshone (Dayley 1989) has a four-way distinction, Comanche (Charney 1993) has a five-way distinction, and Chemehuevi (Press 1979) has a visible/invisible distinction. Wichita (Rood 1976) only has two demonstratives, as does Cheyenne (Petter 1952) and Papago (Saxton, Saxton and Enos 1983). The three-way demonstrative system therefore defines the Pueblo area, extending only a bit beyond to Tonkawa.

Langacker (1977:99) reconstructs a proximal/distal distinction for PUA, arguing that other distinctions are secondary. If this is correct, then Hopi has changed to become more like other Pueblo languages, while other Northern Uto-Aztecan languages have developed differently. Kiowa (Watkins 1984:98) only makes a two-way distinction, so it is possible that Taos developed a third demonstrative under areal pressure as well.

### 3.3.5 Word order

(43) The basic word order of several of the Pueblo languages -- Hopi, Acoma, Zuni, and Navajo -- is SOV (see Table 28). In Hopi and Navajo, this is likely a retained genetic trait, as both Proto-Uto-Aztecan and Proto-Athapaskan are reconstructed as SOV languages. As the presence of this
feature in two of the Pueblo languages can be attributed to genetic factors, and as SOV is a very common word order cross-linguistically, this shared feature is not a strongly diagnostic indicator of a linguistic area. As Comrie (1989:12) says:

> It would be quite possible to come up with a sample of languages that would be representative genetically and areally, but where all the languages, or at least an overwhelming majority, would have the basic order subject-object-verb, this being the most frequent basic word order in the world's languages.

Furthermore, SOV languages, such as Yavapai (Kendall 1976), Tonkawa (Hoijer 1946c), Southern Numic (Chemehuevi, Press 1979), and Central Numic (Túmpisa Shoshone, Dayley 1989) surround the Pueblo area, so that the trait is not confined to the Pueblo region.

(44) The Pueblo languages share other word order features, such as postpositions and prenominal genitives; however, because the word order of

---

33 Information is not available as to the order of nouns and relative clauses in Taos. In Arizona Tewa, however, prenominal relative clauses appear to be possible; e.g., ?ávyáʔí sen ‘good man’, literally ‘good-the.one.who man’ (Yegerlehner 1957:11).

---
noun phrases is often dependent on, or at least correlated with, the basic word order of main clauses (Greenberg 1966), such traits cannot be considered as independent shared features. For example, SOV languages typically have postpositions (Comrie 1989:93), so that the combination of verb-final word order and postpositions counts as one feature of a language, rather than two independent features. Furthermore, languages with postpositions almost always have prenominal genitives (Greenberg 1966), and if a language has postpositions and prenominal adjectives then it will definitely have prenominal genitives (Hawkins 1983:67). Vennemann (1972) postulates that VO order will correlate with other "operand-operator" word orders (e.g., Noun + Adjective, Adposition + Noun Phrase, Comparative Adjective + Standard), while OV order will correlate with other "operator-operand" word orders (e.g., Adjective + Noun, Noun Phrase + Adposition, Standard + Comparative Adjective). However, as Comrie (1989) points out, over half of the world's languages do not conform to Vennemann's generalization.

The dependent word-order parameters which the Pueblo languages share are exactly those which are most likely to conform to typological correlations. That is, adposition-noun and genitive-noun order are less likely to violate the norms of word-order correlations than is noun-adjective order (Givón 1984). The position of adjectives and relative clauses is more likely to deviate from typological correlations. The flexibility of adjective placement is common cross-linguistically (Givón 1984), with the variant word orders often signaling pragmatic differences. Hawkins (1983:93) postulates a "Mobility Principle" which states that adjectives, demonstratives and numerals are more mobile than other noun modifiers. Postnominal relative clauses, as well as prenominal relative clauses, are common in SOV languages. Hawkins (1983:90) accounts for this with the "Heaviness Serialization Principle," which
states that “heavy” elements (longer, syntactically complex elements) “exhibit more or equal rightward positioning relative to the head noun across languages.” Hawkins (1983) claims that the Mobility Principle has a syntactic basis, while the Heaviness Principle has a psycholinguistic basis.

In summary, the Pueblo languages exhibit typologically common word order features that need not be accounted for by diffusion. SOV word order is very common across languages. In turn, prenominal genitives and postpositions typically co-occur with verb-final languages. The position of adjectives relative to the modified noun, on the other hand, tends to be flexible cross-linguistically, while relative clauses typically follow the head noun.

3.3.6 Other morphosyntactic features

(45) Reduplication is used in several Pueblo languages to indicate plurality and/or repetitive and durative aspect. In Hopi, reduplication (a common phenomenon in Uto-Aztecan languages) creates plural verbs (nöönösä ‘to eat (PL)’), plural nouns (saasaqa ‘ladders’) and indicates durative aspect (tutku ‘cutting’, umumuta ‘thundering’). Acoma uses reduplication similarly, employing it to mark plural verbs and durative aspect (st’iit’iitsi ‘they are straight’, ts’áp’ip’hits’i ‘it has lots of spots’, ts’aatsaase ‘I am breathing’, pêep’êek’â ‘they kept falling’). In Zuni reduplication is used to mark repetitive aspect. (tomomo-?a ‘the skin drum is being played’). The Tanoan languages are not characterized by reduplication; however, a few reduplicative forms exist in Taos which indicate a repetitive action.

Because reduplication occurs quite frequently in language, its presence in the Pueblo region does not provide significant evidence for a linguistic area. Moravcsik (1978b) notes that the meanings associated with reduplicative forms are very similar cross-linguistically. These meanings are precisely those...
associated with reduplicative forms in the Pueblo area; that is, plurality of referents and repetitive/continuative aspect.

(46) Noun incorporation, in which a nominal object is incorporated into a verb stem, occurs in Hopi, Tanoan and Zuni. This phenomenon occurs frequently cross-linguistically, particularly in the Americas, and is not useful in defining a linguistic area. However, see 3.4.2 for the relationship between obligatory incorporation and noun ranking in Southern Tiwa.

3.4 Semantic Features

In this section I look at two semantic features of the Pueblo languages. The first trait involves the meaning components of certain verbs/verb-forming affixes, while the second trait concerns the syntactic consequences of noun classification based on the presence or absence of the semantic feature ‘animate’.

| Table 29 |
| Classificatory verbs in Navajo |
| nilá | ‘to handle a slender flexible object’ |
| naá?ah | ‘to drop a flat flexible object’ |
| naá?heqě | ‘to fall (a mushy viscous object)’ |
| naá?neʔ | ‘to drop a solid roundish object’ |
| siká | ‘to lie in an open vessel’ |
| naá-nil | ‘to drop (plural objects)’ |

3.4.1 Classificatory verbs

Navajo has a complex system of classificatory verb stems (a few examples are given in Table 29) which express not only a verbal concept
(e.g., 'go', 'fall', 'run', 'sit', 'bring') but also a specific type of object or subject to which the verb may refer (e.g., solid roundish objects, slender stiff objects, animate objects). Classificatory verbs are characteristic of Athapaskan languages (Cook and Rice 1989), and are therefore a genetic trait in Navajo.

Acoma has a small set of classificatory verbs, most of which mean 'to handle' an object with a specific shape (Table 30).

Table 30

<table>
<thead>
<tr>
<th>Classificatory verbs in Acoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>-út' - 'to handle things in a basket'</td>
</tr>
<tr>
<td>-úst'- 'to handle liquid'</td>
</tr>
<tr>
<td>-úist- 'to handle things in a sack or box'</td>
</tr>
<tr>
<td>-áam'áak'ú- 'to handle grainlike or sandlike objects'</td>
</tr>
<tr>
<td>-úišaa- 'to handle meat'</td>
</tr>
<tr>
<td>-áa?P- 'to handle one flexible object'</td>
</tr>
</tbody>
</table>

Zuni has a small set of suffixes which form verbs from nouns (Table 31). These verbs indicate a spatial arrangement or plurality of objects (Newman 1965:47). Classificatory verbs are a probable diffused trait in Acoma and Zuni, having developed as a result of contact with Navajo. Because Acoma and Zuni are language isolates, they cannot be compared with related languages outside the Pueblo area to determine if such verbs are inherited traits. However, the restricted number of classificatory verbs in Acoma and Zuni, in comparison with Navajo, suggests that this is in fact a diffused trait. Also, Miller and Davis (1963) do not include these classificatory verbs in their list of forms which display sound correspondences among the
Table 31

<table>
<thead>
<tr>
<th>Classificatory affixes in Zuni</th>
</tr>
</thead>
<tbody>
<tr>
<td>-la    to be objects growing together on the ground</td>
</tr>
<tr>
<td>-li    to be objects in a shallow container</td>
</tr>
<tr>
<td>-lo    to be buried</td>
</tr>
<tr>
<td>-hi    to be objects in a pile</td>
</tr>
<tr>
<td>-na    to be objects on the surface</td>
</tr>
<tr>
<td>-ppo   to be objects in a deep container</td>
</tr>
<tr>
<td>-tta   to be a growing collectivity of</td>
</tr>
<tr>
<td>-ya    to be a growing mass of</td>
</tr>
<tr>
<td>-pi    to remove objects from a deep container</td>
</tr>
<tr>
<td>-V:ti  to be a pile of</td>
</tr>
</tbody>
</table>

Keresan languages. This suggests that the verbs in Table 30 may be particular to Acoma, and therefore not an inherited trait.

Furthermore, there is evidence that some Navajo forms have been directly borrowed into Zuni. For example, in Navajo 'to remove it from a container' is pii' haasć'aał. The first part of this form pii' means 'on the interior of (an enclosed space such as a box, jar, etc.)' and is very similar in form to Zuni -pi 'to remove it from a deep container'. Also, Navajo verbs meaning 'to be in a pile' have -tl' in in common (vatiitl'in 'to be in a pile', nástl'in 'to be piled in a circle', vištł'in 'to pile them up'). At first glance, this does not look similar to -hi 'to be objects in a pile', but as there is no lateral affricate in Zuni, nor glottalized lateral fricative, -hi is a reasonable Zuni version of the Navajo form -tl'in.

Navajo has also affected the classificatory verb system of Arizona Tewa. Arizona Tewa has developed a containerized class, which does not
exist in other Tanoan languages. Kroskrity (1982) attributes this development to Navajo influence.

Speirs (1974) discusses classificatory verbs in Tewa, and suggests that they may be a feature of Kiowa-Tanoan in general. She identifies five basic noun classes, which may co-occur with different verbs of position. From her description, however, it is clear that the classificatory system in Kiowa-Tanoan is very different from that of Navajo. That is, the verbs themselves do not denote a specific-shaped object. Rather, some nouns can co-occur with a restricted number of verbs of position, so that only some nouns can be said to be 'sitting', while others can only be 'lying', and only some nouns can be 'standing'. Other nouns, such as those referring to people, can assume a variety of positions. It is a subtle distinction, but important, because the consequence is that the classificatory verb system in Kiowa-Tanoan is not nearly as complex as that of Navajo. It is therefore probably Navajo, which has a highly salient classificatory verb system, that stimulated the development of classificatory verbs/affixes in Keresan and Zuni. Available information does not suggest that surrounding languages (e.g., Cheyenne, Wichita, Tonkawa, Numic) have classificatory verbs, so that this trait is confined to the Pueblos and is diagnostic of a Pueblo LA.

3.4.2 Noun ranking

Navajo has a complex noun classification system in which nouns are ranked into categories according to the ability of the referent to control his/her/its environment. Creamer (1974) organizes all Navajo nouns into eight categories (Table 32).

The noun-ranking system has consequences for Navajo syntax. A direct object must be raised to subject position if it is higher on the hierarchy than the subject. For example, (o) is ungrammatical because a
Table 32

<table>
<thead>
<tr>
<th>Group</th>
<th>Navajo noun hierarchy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>human beings and lightning</td>
</tr>
<tr>
<td>Group 2</td>
<td>larger animals</td>
</tr>
<tr>
<td>Group 3</td>
<td>animals of medium size</td>
</tr>
<tr>
<td>Group 4</td>
<td>smaller animals</td>
</tr>
<tr>
<td>Group 5</td>
<td>insects, spiders, worms</td>
</tr>
<tr>
<td>Group 6</td>
<td>natural forces (wind, flood, heat and fire)</td>
</tr>
<tr>
<td>Group 7</td>
<td>plants and inanimate objects</td>
</tr>
<tr>
<td>Group 8</td>
<td>abstractions (hunger, old age, thirst)</td>
</tr>
</tbody>
</table>

A noun from Group 2 (a horse) is in subject position, while a noun from Group 1 (a man) is in object position. Instead, the sentence must be expressed as in (p), which is commonly translated as a passive. Witherspoon (1980) translates (p) as 'the man let himself be kicked by the horse', to emphasize that the noun in subject position possesses intelligence and intent. The object pronoun yi- is replaced by bi-, which indicates that the subject is the recipient of the action expressed by the verb, not the agent.

(o) *hastiin yi-ztal
    horse man it-it-kicked
    the horse kicked the man

(p) hastiin yi? bi-ztal
    man horse it-it-kicked
    the man was kicked by the horse

Witherspoon (1977, 1980) argues that there is a basic division of Navajo nouns into two categories - animate and inanimate. Each of these categories are also divided in two. The animate category consists of speakers and
callers. Speakers can speak a language, while callers can only make non-linguistic sounds (infants are included in the latter category). The inanimate category consists of concrete objects and abstractions.

This Navajo syntactic constraint has parallels in the Tanoan languages. Animate goals are obligatorily raised to subject when the subject is inanimate in Southern Tiwa (Allen and Frantz 1986). The verb prefixes mark the person and number of the raised goal, indicating that the goal has become the subject (q,r). The prefix also indicates the number and class (A,B) of the initial subject.

(q) Im-seuan-wan-ban
1SG/B-man-come-past
the men came to me

(r) Ka-seuan-mi-ban
2SG/A-man-go-past
the man went to you

Goal advancement is obligatory when the initial subject is inanimate and the initial goal is animate (s,t).

(s) In-natufu-wan-ban
1SG/A-letter-come-past
the letter came to me

(t) *∅-natufu-wan-ban na-ʔay
A-letter-come-past 1SG-to
a letter came to me

The animacy hierarchy is also reflected in the obligatory incorporation of inanimate direct objects, even those that are definite, in Southern Tiwa (u,v) (Allen, Gardiner and Frantz 1984).
Plural, animate, non-human nouns must be incorporated, while singular, animate, non-human nouns must be incorporated unless they are modified by a demonstrative or a numeral (w,x,y,z).

Curiously, Harrington (1910a) describes the opposite situation for Taos, in which singular objects must be incorporated, but plural objects are optionally incorporated. However, Harrington merely makes mention of noun incorporation, and does not describe the various possibilities for the incorporation of animate vs. inanimate direct objects.

Complete descriptive material is not available on noun incorporation in all the Tanoan languages, so that the extent of obligatory incorporation among Tanoan cannot be determined. However, while incorporation is a common process in Kiowa, Watkins (1984) does not indicate that it is
obligatory for any type of noun. Thus the relationship between noun animacy and obligatory incorporation is not necessarily an inherited trait in Southern Tiwa. It is very likely that the obligatory incorporation of certain types of nouns in Southern Tiwa has developed as a result of contact with Navajo. The syntactic process itself (i.e., noun incorporation) may be Kiowa-Tanoan in character, but the obligatory nature of the process with specific types of nouns reflects Navajo influence, especially since the human/non-human distinction plays a role in what types of nouns are obligatorily incorporated -- a distinction important in Navajo, but not in Kiowa-Tanoan. This proposal of areal influence is supported by the fact that noun incorporation in Southern Tiwa differs from typical noun incorporation. That is, noun incorporation is almost never obligatory (see also chapter 5 for discussion of the aberrant nature of noun incorporation in Southern Tiwa), and definite nouns are not normally incorporated.

Obligatory raising of goals in Southern Tiwa, on the other hand, is probably not a result of Navajo influence. The importance of “control” for the selection of subjects/agents is present in Kiowa as well (Watkins 1984:142-144), and is likely to be a feature of Kiowa-Tanoan in general (Kroskrity 1982:64). For example, in Kiowa agents must not only be animate, but also must control the action of a transitive verb; that is, the action must not have occurred accidentally (Watkins 1984:112).

3.5 Ethnolinguistic features

The scarcity of documentation of the Pueblo languages becomes more problematical when seeking information on linguistic phenomena outside the traditional area of “grammar.” Data must be gleaned from many sources, and still remains incomplete for several languages.
3.5.1 Kinship terminology

Kinship systems are systems in which culture and language are crucially intertwined. One must of course use language to refer to kin. However, the patterning of kinship terminology depends on social organization. Factors which play a role in kinship terminology systems include generation, sex, affinity, collaterality, bifurcation, relative age, and sex of linking relative (Schultz and Lavenda 1989).

Kinship terms in the Pueblo languages are given in Tables 33 and 34. The Hopi terms are taken from Kalectaca (1978) and Albert and Shaul (1985), the Zuni is taken from Newman (1965), the Acoma from Miller (1965), the Taos from Trager (1946), and the Navajo from Young and Morgan (1980). Information for kinship terminology is obviously not complete for several languages; e.g., Zuni and Acoma. Further insights about diffusion among the Pueblo languages in regard to kinship terminology would be possible if more detailed documentation of the languages were available.

The kinship systems of the Western Pueblos have been characterized as “Crow-type”34 (Eggan 1950:291-92), based on the patterning of kinship terminology. The Tanoan Pueblos, on the other hand, classify kin according to a bilateral pattern, emphasizing generation and age, but ignoring sex distinctions (Dozier 1983:165).

In the Western Pueblos and in the Tanoan Pueblos, kinship terminology reflects kinship behavior. In the Western Pueblos kinship terminology and behavior are based on the lineage principle:

34 "The Crow system distinguishes the two matrilineages that are important to Ego: Ego’s own, and that of Ego’s father...the sex of the linking relative is important, and both parents and their same-sex siblings are grouped together.” (Schultz and Lavenda 1990:277)
The terms are organized primarily in terms of the lineage principle and kinship behavior is consonant with and emphasizes the solidarity and unity of the lineage groups...kinship behavior among the Western Pueblos may be comprehended most easily by a discussion of the extended matrilineal household where an individual receives his first and lasting cultural orientation. (Dozier 1983:137)

In contrast, in the Tanoan Pueblos both the terminological pattern and social organization are based on a bilateral pattern, in which father’s and mother’s kin are equal:

Tanoan kinship terms are descriptive and thoroughly bilateral. Parallel and cross-cousins are treated similarly, either raised one generation or lowered one, depending on whether they are older or younger than Ego...Behavior of kin appears to reflect terminology rather faithfully. The basic social and economic unit of the Tanoan Pueblos before recent economic changes was the bilateral extended family. (Dozier 1983:163-64)

Because kinship terminology and kinship behavior are so closely connected in the Western Pueblos and in the Tanoan Pueblos, it is difficult to argue for linguistic diffusion in either of these areas. That is, it is difficult to separate cultural from linguistic diffusion since the linguistic similarities in kinship organization most likely result from similarity in kinship behavior, rather than from direct linguistic diffusion.

However, the Rio Grande Keresan Pueblos offer a different scenario. While the kinship terminology system bears many similarities to the matrilineal-based systems of the Western Pueblos, kinship behavior has been influenced by the Tanoan Pueblos. Therefore, the importance of matrilineal kin has declined in these pueblos, and the role of maternal and paternal relatives has equalized somewhat (Dozier 1983:146-47). This has had some effect on kinship terminology. For example, mother is now grouped with father’s sisters, as well as with mother’s sisters (Dozier 1983:147). Again, however, this linguistic change is a response to a cultural change, rather than
Table 33

Kinship terminology - generations above Ego

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mo</td>
<td>-ηυ/υυ-</td>
<td>tsitta</td>
<td>n'ā'aya</td>
<td>ka-na</td>
</tr>
<tr>
<td>Fa</td>
<td>-na</td>
<td>tačču</td>
<td>-na'išty'ą</td>
<td>tēm-ena</td>
</tr>
<tr>
<td>FF,FM,MM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FaFa,MoFa</td>
<td>k'a</td>
<td>nana</td>
<td>nāna</td>
<td>tałuli-na</td>
</tr>
<tr>
<td>FaFa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MoFa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FaMo,MoMo</td>
<td>so</td>
<td>hota</td>
<td>t'au-ąu</td>
<td>?atu-ąuna</td>
</tr>
<tr>
<td>FaMo</td>
<td></td>
<td>wowo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MoMo</td>
<td></td>
<td></td>
<td></td>
<td>títu-na</td>
</tr>
<tr>
<td>MoBr</td>
<td>taha</td>
<td>kaka</td>
<td>-náwe</td>
<td>mįimį-na</td>
</tr>
<tr>
<td>MoBrW</td>
<td></td>
<td>tsilu</td>
<td></td>
<td>hažářáát</td>
</tr>
<tr>
<td>Fa BrW</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>FaBr</td>
<td>naʔa</td>
<td></td>
<td></td>
<td>ḫu-ąuna</td>
</tr>
<tr>
<td>FaSi</td>
<td>k'a</td>
<td>kuku</td>
<td></td>
<td>ʔiemen-ęna</td>
</tr>
<tr>
<td>MoSi</td>
<td>-nu/-yu-</td>
<td>hąšśi</td>
<td></td>
<td>kayu-na</td>
</tr>
<tr>
<td>oMoSi</td>
<td></td>
<td>tsilu</td>
<td></td>
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<tr>
<td>yMoSi</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>in-law (m.)</td>
<td>möʔōnaŋ</td>
<td></td>
<td>w'ą'ätì</td>
<td></td>
</tr>
<tr>
<td>in-law (f.)</td>
<td>möʔwi</td>
<td></td>
<td>pįhį</td>
<td>mąku-</td>
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<tr>
<td>in-law</td>
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</table>

an example of direct linguistic diffusion. It is still linguistic diffusion, but not the strongest type of evidence for a LA.

Although the kinship terminology systems taken as a whole cannot be considered to be areal linguistic traits, certain aspects of specific Pueblo systems may in fact have resulted from linguistic diffusion. A specific feature of kinship terminology in the Pueblos which may be an areal trait is the vocative form. Hopi has special vocative forms for some kinship terms. For
<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Taos</th>
<th>Navajo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Br(MS)</td>
<td></td>
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<tr>
<td>Br (FS)</td>
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<tr>
<td>oBr</td>
<td>paava</td>
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<tr>
<td>yBr</td>
<td>tuvko</td>
<td>suwe (MS)</td>
<td></td>
<td>p'ey-na</td>
<td>hats'ili</td>
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<tr>
<td>Si(MS)</td>
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<td></td>
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<tr>
<td>Si (FS)</td>
<td></td>
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<tr>
<td>oSi</td>
<td>qööqa</td>
<td>kawu</td>
<td>tutu-na</td>
<td>+hátí</td>
<td></td>
</tr>
<tr>
<td>ySi</td>
<td>siwa(MS)</td>
<td>?ikina (MS)</td>
<td>p'ayu-?una</td>
<td>hateezi</td>
<td></td>
</tr>
<tr>
<td>S,D</td>
<td>ti</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>S (FS)</td>
<td>tiyo</td>
<td></td>
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<tr>
<td>(MS)</td>
<td></td>
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<tr>
<td>D</td>
<td>maana</td>
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<tr>
<td>(FS)</td>
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<td>(MS)</td>
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<tr>
<td>SS,SD,DD</td>
<td>mööyi</td>
<td></td>
<td></td>
<td>maku-na</td>
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<tr>
<td>SS,SD</td>
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<td>DS,DD</td>
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</tr>
<tr>
<td>SiS, SiD, BrS, BrD</td>
<td>tiw?aya</td>
<td></td>
<td></td>
<td>ki?u-?una</td>
<td></td>
</tr>
<tr>
<td>BrS, BrD</td>
<td>mööyi (FS)</td>
<td></td>
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<tr>
<td>BrS(MS)</td>
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<tr>
<td>BrS (FS)</td>
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<td>BrD (MS)</td>
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<tr>
<td>BrD (FS)</td>
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<tr>
<td>SiS, SiD</td>
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<td>SiS (MS)</td>
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<td>SiS (FS)</td>
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<tr>
<td>SiD</td>
<td>k'asse (MS)</td>
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</tbody>
</table>

Table 34

Kinship terminology - generations at / below Ego
example, the vocative form of ‘father’ is taata, the vocative form of ‘older sister’ is kaaka, and the vocative form of ‘child’ is havu ‘male child’ and hava ‘female child’, all quite different in form from the corresponding stem forms (na ‘father’, gööqa ‘older sister’, ü ‘child’). For most kinship terms the vocative is simply the stem without a possessive marker (Kalectaca 1978).

In Acoma the vocative of kin terms is either the first person possessed form or the free noun form. Three kinship terms have special vocative forms, however. The vocative of naa ‘mother’ is n’ayé, the vocative of -a?au ‘sister of a woman’ is ka?áu, and the vocative of p?il ‘a woman who has married a clansman’ is píji’á.

In Zuni, the suffix -mo is used in vocative forms in ceremonial contexts. “This suffix is added to a series of reciprocal kinship terms, which are pronounced by the participants in the smoking ritual of the winter solstice ceremony: e.g., after one of the participants says papa-mo, ‘older brother’, the other responds suwe-mo, ‘younger brother’.” (Newman 1958:113)

While some kinship terms have special vocative forms in the Western Pueblos, the vocative of kinship terms in Taos is simply the stem form of the noun (Trager 1946). The marginal use of special vocative forms may be an areal trait linking the Western Pueblos with Upland Yuman, which has a vocative case suffix. The following example is from Havasupai (Kozlowski 1976:52).

(aa) hatk’ila swar-a t?olvo swar: “kθar-suč-e ŋe”
wolf song-DET sweatbath sing coyote-cousin-VOC
Wolf sang a sweatbath song: “Cousin Coyote oh.”

Another aspect of Pueblo kinship systems which may be an areal trait is sex of Ego or speaker as a factor in kin term distinctions. Sex of Ego/speaker plays an important role in Navajo kinship terminology; e.g., son (male
speaker) and son (female speaker) are distinguished, as are brother (female speaker) and brother (male speaker). In Hopi, this distinction is not so important, only affecting one particular kin relation -- younger sister, which is siwa for a male speaker and tuvko for a female speaker.\textsuperscript{35} The term tuvko also means ‘younger brother’.

In Zuni, sex of Ego/speaker is distinguished only in terms for siblings as well. The term suwe means ‘younger brother of a male’ and the term ?otstsí-na means ‘brother of female’. In Acoma, sex of Ego is also distinguished in terms for siblings; however, complete information is not available for kinship terminology in Acoma. It is unclear if sex of Ego is also distinguished in Acoma terminology for ‘son’, ‘daughter’, ‘niece’, and ‘nephew’, as it is in Navajo. The marginal role that sex of Ego plays in Hopi and Zuni terminology suggests that this is a borrowed feature, perhaps developing under the influence of Navajo, in which it is probably an inherited trait (Athapaskan languages other than Navajo, such as Tanaina, Ingalik, Chipewyan, and Hupa, distinguish terms for sibling based on the sex of speaker, Dyen and Aberle 1974:450-451).

Sex of Ego does not appear to be a factor in distinguishing terms for siblings in Northern Uto-Aztecan languages other than Hopi (Chemehuevi, Press 1979, Túmpisa Shoshone, Dayley 1989), so that it is probably not an inherited trait in Hopi. Also, the fact that the term for ‘female’s younger sister’ also means ‘younger brother’ suggests that one term was expanded in meaning to accommodate an innovative distinction.

Some languages to the east distinguish terms for siblings based on the sex of speaker; e.g., Tonkawa heína? ‘brother of a male’, ?evan ‘sister of a woman’ (Hoijer 1949); Wichita nati?rotsí ‘brother of a woman’, nătítotsí

\textsuperscript{35} In both Hopi and Zuni there is one term for ‘niece/nephew’ which is marked for sex of speaker. However, the corresponding terms for the opposite sex are not available.
'sister of a man' (Spier 1924); Caddo tu?itit ‘younger brother of a man’, ki?nitit ‘brother of a woman’ (Spier 1926). However, the nearer eastern neighbors, such as Arapaho (Salzmann 1959) and Comanche (Robinson and Armigost 1990) do not. Sex of Ego as a determinant in kinship system terminology therefore separates the Western Pueblos from surrounding languages: the Yuman languages to the west, the Great Basin languages to the north, and Tanoan, Arapaho and Comanche to the east.

Dozier (1955) compares the Hopi and Arizona Tewa kinship systems. He concludes that the Hopi kinship system has affected Arizona Tewa kinship terminology. Although native terms have been retained in Arizona Tewa, their meaning has shifted to accommodate changes in kinship behavior. For example, ki?l means ‘father’s older sister’ in New Mexico Tewa, but kiyů- means ‘woman of father’s clan’ in Arizona Tewa, and is identical in meaning to Hopi ik’á?a ‘woman of father’s clan. Thus, as a result of contact with Hopi, some Arizona Tewa kinship terms have changed semantically, but not in form.

3.5.2 Directions

In the Hopi and Zuni Pueblos, the people’s conception of the world is based on the number six, corresponding to the six directions on the vertical and horizontal dimensions -- the four cardinal directions (north, south, east and west) and up and down (Lamphere 1983). These directions play an important role in Hopi and Zuni ceremony. The linguistic evidence suggests that Acoma cosmology is also based on the number six: the terms for ‘north’, ‘south’, ‘east’, ‘west’, ‘up’, and ‘down’ (Table 35) form a special linguistic set, taking special derivational affixes (Miller 1965:168). The Hopi terms for the six directions are taken from Albert and Shaul (1985), which is based on the Third Mesa dialect. Whorf’s (1946) account of the Toreva dialect
(Second Mesa) of Hopi identifies the six directions (plus an additional term for ‘all directions’) as forming a special linguistic set:

Of this type are the important seven orientation terms, i.e., the four compass-points, up, down, and ‘all directions’. Their case-forms are irregular; the allative is the usual name form of the direction, and in several cases lacks the suffix -mi. (Whorf 1946:179)

Unfortunately, Whorf does not elaborate further on the form of the terms for the six directions. Furthermore, since the suffix -mi is the allative marker, it is unclear how the allative can be the usual form of the direction, yet be absent in several cases. However, the important fact is that in both Hopi and Acoma the directions form a special linguistic set.

It is likely that this trait is an areal feature; however, it is also a good example of a trait for which it is difficult to determine the mechanism of diffusion. That is, did the linguistic feature diffuse between Hopi and Acoma, or does the linguistic similarity result from cultural diffusion, i.e., diffusion of cosmological traits? In this particular case, I argue that linguistic diffusion

<table>
<thead>
<tr>
<th></th>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>east</td>
<td>hoopaq</td>
<td>tewan-k*in</td>
<td>h*aa</td>
</tr>
<tr>
<td>west</td>
<td>taavaq</td>
<td>sunha:-k*in</td>
<td>pi</td>
</tr>
<tr>
<td>north</td>
<td>k*ini*</td>
<td>pi*lan-k*in</td>
<td>t*i*a</td>
</tr>
<tr>
<td>south</td>
<td>taatto</td>
<td>ma?-k'aya-k*in</td>
<td>k*uwa</td>
</tr>
<tr>
<td>up</td>
<td>atsmi</td>
<td>?i:yama</td>
<td>t*i</td>
</tr>
<tr>
<td>down</td>
<td>papi-</td>
<td>manikka</td>
<td>n*i</td>
</tr>
</tbody>
</table>
does play an important role. The evidence for this position is the similarity in phonological form between the suffixes which typically mark the directions in Hopi and Acoma. The nominal form of the directions in Acoma is formed by the suffix -mí, strikingly similar to the suffix of the “usual name form” of the directions in Hopi. While -mí is the general allative marker in Hopi, it marks only the directions in Acoma. Also, -mí, meaning ‘to’ or ‘with’, is reconstructible for PUA (Langacker 1977:94). Therefore, it is almost certain that the suffix diffused from Hopi to Acoma.

In contrast, in Taos and Picuris, where only four directions are ceremonially important, the terms for the four cardinal directions form a closed set (Trager and Harben Trager 1970).

3.5.3 Ceremonial Language

While the diffusion of vocabulary among the Pueblos has yet to be fully explored, a complete discussion of loanwords among the Pueblo languages is beyond the scope of this work. However, the diffusion of ceremonial vocabulary, as well as entire songs and prayers, has been documented.

For example, White (1944) identifies ceremonial words in Pueblo languages that are thought to be “archaic” as borrowed words. In Hopi songs, words such as íola ‘corn ear’ and hanati ‘clouds’ probably have their source in Keresan iariko and henati, respectively (White 1944:162). In Zuni the names of the prey gods are borrowed as well, e.g. maitupu ‘shrew’, from Keresan maitupi (White 1944:162).

Songs and prayers that have been diffused include the following. Both Hopi Flute society songs and Hopi Snake-Antelope ceremony songs are sung in Keresan (Parsons 1939:975-77), while some Zuni songs are sung in Keresan as well (Parsons 1939:978). Hopi clowns sing Zuni songs and
pretend to speak Zuni (Parsons 1939:974), and some Laguna kachina have Zuni names.

Naming ceremonies, and the association of father’s sister with naming (a feature characteristic of matrilineal societies), has diffused from Hopi to Isleta, a non-matrilineal society (Parsons 1939:984-85). Whiteley (1992:209) describes the Hopi naming ceremony in detail. He views Hopi names as “individually authored poetic compositions that comprise a literary genre.” While clan membership is inherited from the mother, the female members of the father’s clan confer a name upon the baby.

But a baby’s namegivers are female members of its father’s clan (Niiti’yvaya’s “aunties”), not of its own clan; in fact you never receive a name from your own clan. Gathering in the house of the newborn...several paternal clanswomen each bestow a name associated with their clan. Typically, a child receives half a dozen different names, only one of which will huauria, “stick.” (Whiteley 1992:211)

A naming ceremony is primarily a cultural event, but of course one that crucially involves language. In this particular case, Hopi linguistic form has not been directly borrowed, but rather a linguistic framework for a cultural ceremony.

3.6 Summary

In this chapter I discussed and evaluated shared linguistic traits among the Pueblo languages. It is clear that all types of linguistic features have diffused among the Pueblo area. In the next chapter I discuss the implications of such areal features for a Pueblo linguistic area. That is, do the areal features identified in this chapter provide sufficient evidence that the Pueblo area is a linguistic area? In Chapter 4, I also compare the evidence for a Pueblo linguistic area to that put forward for other linguistic areas. Lastly, I discuss the areal relationship of the Pueblo languages to neighboring languages and linguistic areas.
CHAPTER 4 - THE PUEBLO REGION AS A LINGUISTIC AREA

4.1 Introduction

In the last chapter I presented evidence of a considerable amount of linguistic diffusion among the Pueblo languages. In this chapter I examine whether this evidence is sufficient to demonstrate that the Pueblo region is a legitimate LA. In the first part of the chapter I provide a summary of the traits which have been diffused in the Pueblo area. Then, I discuss the extent of their distribution among and beyond the Pueblo languages. As discussed in Chapter 1, traits which are present throughout the Pueblo languages, but which do not extend beyond the borders of the Pueblo area, provide the best evidence for a Pueblo LA. However, because LAs typically consist of a great deal of localized diffusion, with few isoglosses bundling at the borders, traits which have diffused among only some, but not all, of the languages are considered to be additional evidence.

I then compare the evidence for a Pueblo LA to that which has been adduced in support of other well-known LAs. That is, I examine whether the Pueblo LA is as strong as other LAs, using the number and nature of shared traits as criteria for determining the strength of the LA. A considerable number of shared traits would be indicative of a strong LA, but only if those traits are likely to have resulted from diffusion in some of the languages in the area, extend throughout the area, and are relatively confined to languages within the area, and are unlikely to have resulted through independent parallel development.

Finally, I examine areal connections the Pueblo area may have to other parts of the Southwest and western United States by investigating traits shared by the Pueblo languages and by surrounding languages.
4.2 Areal linguistic traits of the Pueblo region

In this section I list the features which I identified as areal traits in the previous chapter, and discuss the range of their distribution (see Table 36). I do not discuss the traits in detail, as that information is provided in chapter 3. If a feature occurs in one Tanoan language, I consider it to characterize Tanoan in general. Strictly speaking, this may not be the case. However, I take this approach for two reasons. First, the Tanoan languages are relatively poorly described, so that information may not be available as to the distribution of a trait among the Tanoan languages. Secondly, because there are representatives of five language families in the Pueblo region, the presence of a shared trait in at least one dialect/language of each of those language families is fairly good evidence for a linguistic area.

1. Aspirated consonants are present underlingly in a dialect/language of every language family which is present in the Pueblo area. They are fairly rare cross-linguistically, and are not found in the languages bordering the Pueblo area, so that this trait is strongly diagnostic of a Pueblo LA. As mentioned in chapter 3, Jemez, the only Tanoan language without an aspirated stop series, may have lost aspirated stops at a time when the Towa occupied an area peripheral to the Pueblo region. This shift from aspirated stops to fricatives may then have spread, to a lesser extent, to other Tanoan dialects (Davis 1979). This is of course speculative, because we do not know the time depth of the shift of aspirated stops in Towa.

2. Glottalized consonants occur in every Pueblo language, except for Hopi. However, they are also present in Tonkawa and Caddo. They are therefore not strongly diagnostic of a Pueblo LA; however, they are probably diffused in one or two Pueblo languages, such as Zuni and Navajo (glottalized sonorants).
### Table 36

**Areal traits in the Pueblos**

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Zuni</th>
<th>Acoma</th>
<th>Tanoan</th>
<th>Navajo</th>
<th>Puebloan</th>
</tr>
</thead>
<tbody>
<tr>
<td>aspirated Cs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>glottalized Cs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>labialized Cs</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>lateral fricative</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>palatalized Cs</td>
<td>X</td>
<td>(X)</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>non-alveolar sib tones</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>(X)</td>
<td>X</td>
</tr>
<tr>
<td>devoicing</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>(X)</td>
<td>X</td>
</tr>
<tr>
<td>sandhi</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>no pronominal prefixes on V suppletive V</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>ergative pattern</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>dual number</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>inchoative -ti</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>modal -pas</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>passive -ti</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SUB /-isi</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>SUB /-anna</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>number on N not optional pronominal case</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3-way dem. classificatory V inchoative</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>noun ranking vocative</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>sex of Ego in kin terms</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>six directions</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

3. Non-alveolar sibilants are present in some language of every language family in the Pueblo area. They are not inherited traits in Hopi, nor

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36 If a trait is marked as being 'Puebloan' (i.e., the trait is marked with a 'yes' in the Puebloan column), it means that the trait is relatively confined to the languages within the Pueblo region, and does not occur in neighboring languages. Parentheses within the chart indicate that the trait occurs only in some dialects of the language, or that the trait is marginal, or not fully developed, in the language; for example, the Tanoan languages do not lack voiced stops, but voiced stops have shifted to some extent in all the Tanoan languages.
in Jemez, so that their presence in these languages is likely due to diffusion. However, the Upland Yuman languages also have a retroflex sibilant, which is probably the source of influence for the development of Hopi ʔ, so non-alveolar sibilants are not diagnostic of a Pueblo LA.

4. All the languages of the Pueblos lack voiced stops, except for some of the Tanoan languages. In the Tanoan languages, however, voiced stops (b,d) have shifted to varying extents, so that this trait is characteristic of all the languages of the Pueblo area to some degree. However, the absence of voiced stops characterizes the languages around the Pueblo area also, so the trait is not diagnostic of a Pueblo LA. Like the shift of aspirated stops, the shift of voiced stops in Tanoan shows signs of being a change which spread through the various Tanoan languages through diffusion (cf. chapter 5).

5. Every Pueblo language has some palatalized consonant -- kʷ, ɳʷ, tʷ, or hʷ. Furthermore, in some languages these sounds are very likely diffused. However, the sound kʷ is found not only in Hopi and Arizona Tewa, but also in the Yuman languages to the west, so that palatalized consonants characterize a region larger than the Pueblos. Therefore, palatalized consonants are not strongly diagnostic of a Pueblo LA, but do provide evidence of localized diffusion in the Pueblos.

6. The sound kʷ occurs in every language of the Pueblos except Acoma, and it has also likely diffused into Navajo. However, it extends beyond the Pueblo region so it is not strongly diagnostic of a Pueblo LA. The sound xʷ has also likely diffused into Navajo, but is restricted so that it occurs in only a few Pueblo languages, so it is not diagnostic of a Pueblo area, either.

7. A voiceless lateral ɬ is present in Taos, Navajo and Zuni. This sound is rare cross-linguistically and does not occur in the languages
surrounding the Pueblo area; therefore, it is a good areal trait. However, it is not widespread in the Pueblo region so that it is not strongly diagnostic of a Pueblo LA.

8. Tones are present in all languages of the Pueblo area, with the exception of Zuni. Tones are present in Arapaho, Cheyenne, Wichita and Caddo (tones are probably inherited in Caddoan) to the east, so the trait is not strictly confined to the Pueblo area; however, it is a feature which has plausibly diffused within the Pueblo region — tone distinctions are innovative in the Third Mesa dialect of Hopi, and may have developed under areal pressure.

9. Vowels and sonorants are devoiced word-finally to some extent in all Pueblo languages, except for Navajo. This trait is not confined to the Pueblo area, however, but is also present in the Numic languages of the Great Basin. It is a strong areal trait, but does not separate the Pueblo area from surrounding areas.

10. Dual number is distinguished in some way in every Pueblo language. This trait also occurs in surrounding languages (e.g., Numic, Wichita), however, so that it is not strongly diagnostic of a Pueblo LA.

11. A three-way demonstrative system (‘this’ vs. ‘that’ vs. ‘that yonder’) is characteristic of all the true Pueblo languages (i.e., not Navajo). This trait is strongly diagnostic of a Pueblo LA since it is widespread throughout the Pueblos, but extends only a bit beyond to Tonkawa. All the languages which neighbor the Pueblos distinguish between two demonstratives or among more than three.

12. Classificatory verbs, or classificatory verb-forming affixes, characterize all the Pueblo languages, except for Hopi. Furthermore, there is evidence that diffusion has been responsible for the presence of this feature in
Zuni and Acoma, and for changes in the classificatory verb system in Arizona Tewa. This trait appears to be confined to the Pueblo area; therefore, it is strongly diagnostic of a Pueblo LA.

13. A morphologically-conditioned rule of external sandhi, in which minor categories (particles, pronouns, suffixes) drop the final vowel, occurs in Hopi and Zuni. While this feature is not widespread throughout the Pueblos, it is a probable instance of local diffusion.

14. The absence of pronominal prefixes on verbs characterizes Hopi and Zuni. This trait separates Hopi and Zuni from the rest of the Pueblo region, as well as from the Yuman languages to the west. It is not a strong areal trait, because it is inherited in Hopi and only possibly diffused in Zuni.

15. The inchoative suffix -ti is shared by Hopi and Zuni, and is another example of localized diffusion.

16. Strict marking of number on nouns separates Hopi, Zuni, and Tanoan from the most of the Pueblo languages and from other neighboring languages. This trait probably developed in Hopi through areal pressure.

17. Two subordinating affixes may have diffused between Pueblo languages: the subordinate affixes Acoma -isi and Zuni nissi, and the conditional markers Zuni ?anna and Taos ?ana.

18. Pronominal case -- subjective / objective / possessive -- is present in Hopi and Zuni, but not in surrounding languages. It is plausibly a diffused trait in Zuni, where it is marked only on independent pronouns, in contrast to Hopi, where it is marked on nouns as well as pronouns.

19. Some verbs are suppletive for number in Hopi, Zuni, Acoma, and the Numic languages. An ergative pattern, in which suppletive verb number marks subjects of intransitive verbs and objects of transitive verbs, is exhibited in number marking in Zuni, Acoma, Taos, as well as in the Numic languages.
This is a likely areal trait linking the Pueblos to the Great Basin. I consider the combination of verb suppletion and ergative patterning as one trait, because both are characteristic of Uto-Aztecan and Kiowa-Tanoan in general and probably diffused from the Uto-Aztecan languages and/or the Kiowa-Tanoan languages in tandem.

20. Special vocative forms for some kinship terms occur in the Western Pueblos -- Hopi, Acoma and Zuni. This is a probable areal trait which links the Western Pueblos with the Upland Yuman languages, which have a vocative case marker.

21. Terms for the sacred six directions form a special linguistic set in Hopi and Acoma. Furthermore, the suffix -mi appears to have been borrowed from Hopi into Acoma as the nominal marker for the six directions.


23. The modal ?as is shared by Navajo and Hopi. It is an inherited trait in Hopi which most likely diffused into Navajo.

24. Noun-ranking on the animacy hierarchy has syntactic consequences in both Navajo and Southern Tiwa. Because Navajo has a complex noun-ranking system, this feature probably originated in Navajo, diffusing into Southern Tiwa. Specifically, obligatory noun incorporation in Southern Tiwa may have arisen under the influence of Navajo.

25. Sex of Ego is a factor in kinship terminology distinctions in Navajo, Hopi, Zuni, and Acoma. Specifically, terms for siblings differ according to the sex of the speaker, so that 'brother of a male' is different from 'brother of a female'. This is a probable borrowed trait in Hopi and Zuni, and possibly borrowed in Acoma. Many Athapaskan languages other
than Navajo (e.g., Tanaina, Ingalik, Chipewyan, Hupa) distinguish terms for sibling based on the sex of speaker (Dyen and Aberle 1974:450-451), so it is probably an inherited trait in Navajo that diffused into Hopi and Zuni. It is widespread throughout the Western Pueblos, but does not occur immediately beyond, so that it is a good diagnostic trait of a Pueblo LA.

25. Arizona Tewa has two postpositions -- -bi ‘possessive’ and -di ‘numeral suffix’ -- which are due to borrowing from Navajo (Kroskrity 1982:66).


27. Arizona Tewa and Navajo both have an anaphor as relativizer (Kroskrity 1982:64-65).

(bb) na he-?i sen ts'andi ʔya-p'o
I that-aforementioned man yesterday grape-water

mán-sun ?i dó-kume
3SUBJ.3OBJ:ACT-drink it 1SUBJ.3OBJ:ACT-buy
I bought the wine which that man drank yesterday

(cc) ʔii-ée dilwo?
horse-aforementioned fast
The aforementioned horse is fast

(dd) hastiin biñh bit”atéltooh-ée neiis?ah
man deer I.shot-REL butcher
The man butchered the deer which I shot

28. In Arizona Tewa, the evidential particle ba is used very frequently, in a pattern analogous to Hopi yaw (Kroskrity 1993:76).

Kroskrity (1983) connects this feature to distinctions in the kinship system which are based on the sex of the speaker. However, as discussed above, I suggest that the gender-based distinctions in the kinship systems have their source in Navajo. Sex-based distinctions in other areas of the lexicon are not present in Navajo, however, and therefore must have another source, so that these two features should be considered separately.

4.3 A Pueblo linguistic area

What do the traits given in 4.2 mean for a Pueblo LA? Isoglosses for two of the traits delineate the Pueblo area, occurring in every language family in the area but in none of its near neighbors. They are aspirated consonants and a three-way demonstrative system. Two additional traits form isoglosses around the Pueblo area, but are absent in one Pueblo language. They are classificatory verbs and sex of Ego as a determinant of kinship terminology distinctions. These four traits support a Pueblo area as a LA. They are widespread in the Pueblo region, they do not occur in languages which surround the Pueblo area, and they are not so common cross-linguistically that independent innovation becomes a better explanation than diffusion for their widespread presence. Furthermore, there is evidence that at least one Pueblo language has changed to become more like other Pueblo languages in
regard to each of these traits. These four traits, therefore, confirm the hypothesis that the Pueblo region is a linguistic area.

Additional support for a Pueblo LA is provided by the many examples of localized diffusion, which include the following traits: the sounds $x'$ and $\xi'$, $y'$ and $\eta'$ (through indirect diffusion), a rule of external sandhi in which final vowels are dropped form some grammatical categories like postpositions and affixes, pronominal case, the absence of pronominal prefixes (tentatively), the passive and inchoative marker -ti, the evidential ?as, subordinating affixes, the marker -mi on the terms for the six directions, the postpositions -bi and -di, passive-like prefixes, the patterning of narrative markers, and an anaphor as relativizer. The diffusion of ceremonial vocabulary and songs and prayers is another piece of evidence for a Pueblo LA.

Considering the cultural unity of the Pueblo region, the fact that the Pueblos also form a LA is not unexpected. Perhaps the most surprising finding is the active role that Navajo has played in the formation of this LA -- Navajo has been both the recipient and source of several diffused features. The Navajo have occupied portions of the Southwest for a relatively short time, in comparison to the Pueblo peoples. However, as mentioned in Chapter 2, trade and intermarriage between the Navajo and the Pueblos were quite common, and Navajo was often used as a trade language. In light of these facts, linguistic diffusion between the Navajo and the Pueblos makes sense.

The Pueblo LA most likely originated previously to the arrival of the Navajo in the Southwest, evidenced by traits which have diffused among the "true" Pueblo languages. In fact some traits within the Pueblos may be

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37 Navajo shares only some of the otherwise relatively homogenous Pueblo complex of culture traits.
Map 3

Pueblo-defining isoglosses

Key

a. three-way demonstrative system  
   b. aspirated consonants  
   c. classificatory verbs  
   d. Sex of Ego in kinship terms

diffused, but not identifiable as such, because of the lack of related languages outside of the area. For example, Keresan possesses aspirated consonants, tones and glottalized consonants, all traits which are typical of the Pueblo region, but because Keresan is a language isolate it is difficult to determine if
these traits are diffused or inherited in Keresan. Some traits that are quite likely borrowed into Zuni (e.g., aspirated consonants, glottalized consonants) could be confirmed as such if more were known about Zuni’s genetic affiliation. Of course, if future comparative work sheds light on such affiliations, areal relationships in the Pueblos will be clarified somewhat.

Both the Pueblos and Navajo have been characterized as linguistically conservative, resisting outside influence (Sherzer 1976, Young 1989). However, in the face of extensive bilingualism, negative attitudes toward “foreignisms” do not fully prevent linguistic diffusion. This is evident from studies on code-switching, which persists in spite of negative evaluation (Wardhaugh 1986:104). In fact, speakers may not always be aware that they are switching between languages (Wardhaugh 1986:102). Furthermore, we do not know for how long these negative attitudes in the Pueblos have existed or persisted. They may very well be a response to European oppression rather than an archaic feature of Pueblo culture.

The evidence firmly demonstrates that some linguistic diffusion did occur in the Pueblo Southwest, whatever the attitudes of the people to linguistic borrowing. As Kroskrity (1982) points out, in situations where both multilingualism and linguistic conservatism are prevalent, linguistic elements of lower salience, such as grammatical morphemes, are more likely to be borrowed than are those of higher salience, such as lexical items, which are readily perceived as “foreign” (Gumperz and Wilson 1971). The factor of perceptual salience may account for the dearth of loanwords among the Pueblos (see also Chapter 5).

However, other factors may account for the apparent scarcity of loanwords in the Pueblos. First, there is an overall lack of comparative studies which address the issue of loanwords (Kroskrity 1993). Second,
because the sound systems of the Pueblo languages are quite diverse, loanwords may not be readily apparent. Kroskrity (1982) notes this phonological diversity when he discusses loanwords between Navajo and Tewa:

As for "content" words, preliminary areal-comparative inspection reveals some similarities in the words for 'deer' (AT pēh, Navajo pijh), 'grease' (RGT kā, Navajo k'ah), and 'coyote' (AT bayēnæh, Chiricahua Apache ñba?ye) (Hoijer 1946a, p. 59) which are quite striking when one considers the phonological differences in these languages. (Kroskrity 1982:66)

A comprehensive study of loanwords among the Pueblo languages will obviously require a detailed examination of the languages involved.

4.4 The Pueblo linguistic area in comparison to other linguistic areas

Sherzer (1973) asserts that while the Southwest culture area is not a LA, the Pueblo subarea is a LA. However, he claims that it is weak in comparison to many other LAs:

It must be stressed, however, that the evidence for setting up the Pueblo area as a linguistic area is weak, when compared, for example, with that used in setting up the Northwest Coast-Plateau linguistic area. Pueblo groups have resided side by side in the southwest for centuries, longer than non-Pueblo groups (The Apacheans, for example, are relative newcomers to the Southwest.) Still, there is relatively little linguistic reflection of this long coresidence. (1973:786)

I disagree that the Pueblo LA is weak, even in contrast with the Northwest Coast LA. Because Sherzer used a preselected trait list he missed several of the traits which support a Pueblo LA, including the three-way demonstrative system, classificatory verbs, distinctions in the kinship system as well as all the examples of direct morphological diffusion (such as the evidential ñas, the directional marker -mi, the passive marker -ti, etc.). Comparison of the evidence for a Pueblo LA with that for other well-known LAs solidly demonstrates that the Pueblo LA is actually a fairly good example of a LA.
Since I discussed these particular LAs in detail in Chapter 1, I do not restate the evidence in depth here.

4.4.1 The Northwest Coast

Sherzer (1973) argues that the NC is an exemplary LA. It is true that the languages of this area share strikingly complex phonological inventories. However, many of the traits that are widespread in this LA are inherited traits in the languages involved, so that diffusion cannot be demonstrated to have played a role in their distribution; for example, glottalized stops, multiple lateral sounds, labialized velars, and velar fricatives are reconstructed for Proto-Athapaskan-Eyak (Cook and Rice 1989), Proto-Wakashan (Jacobsen 1979a:771), Proto-Chimakuan (Jacobsen 1979b:794), and Proto-Salish (Thompson 1979). Therefore, Sherzer (1976) must rely heavily on shared retention as support for a Northwest Coast LA. Other traits are sound areal traits, but are limited in distribution; e.g., lack of nasals (Thompson 1972, Kinkade 1985), the change of k to č (Jacobsen 1979a), numeral classifiers, classificatory verbs, palatalized velars (Jacobs 1954), and glottalized resonants.

The Pueblo region actually fares quite well in comparison with the NWC as a whole. Although the areal traits which characterize the Pueblos are not as cross-linguistically marked as those of the Northwest Coast, there are four traits that extend throughout the Pueblo area, but not beyond. Furthermore, and most importantly, unlike NWC-defining areal traits they are demonstrably innovative, and therefore likely to be diffused, in some of the languages involved.

4.4.2 The Northern Northwest Coast

The NNWC (Leer 1991) forms a sub-LA of the NWC. Two “deep” grammatical traits characterize the NNWC -- promiscuous number marking and a periphrastic possessive construction. The first is present in all of the
languages of the area, while the second is present in only two of the languages. Supplementary evidence for the NNWC LA includes lack of labial obstruents, head-final syntax, glottalized sonorants, and an agentive/patientive pronominal system. All of these traits, however, extend beyond the NNWC area, or do not occur in all the languages within the area, so that only one isogloss (promiscuous number marking) encloses the NNWC. Therefore, although the NNWC is a legitimate LA, it is not considerably stronger than the Pueblo LA.

4.4.3 Southern California

Hinton (1991) firmly demonstrates linguistic diffusion between the Cupan languages and Yuman languages. However, because she focuses on phonological traits, the Southern California area cannot be equitably compared with the Pueblo area, for which evidence of several types of linguistic diffusion is available. Also, her goal is not to delineate a linguistic area as such, but to identify one link in a chain of areal linguistic influences.

4.4.4 The Balkans

The Balkans are characterized by diffused traits with varying distributions; that is, areal features of the Balkans typically do not extend throughout the entire area. Most features are absent in at least one language or another, e.g., the postposed article, the presence of a central vowel, vowel harmony, and dative/genitive merger. The Pueblo LA compares well with the Balkan LA, with several traits that extend throughout the area, but not beyond, and numerous examples of localized diffusion.

4.4.5 South Asia

Of the fourteen traits identified by Emeneau (1980) and Masica (1976), only two define a South Asian LA clearly -- the echo-word construction and the dative construction. The remainder of the traits are of limited distribution.
within India, or extend beyond its borders. In fact, some traits encompass nearly all of Southeast Asia. Again, the Pueblo area compares well with this famous LA.

4.4.6 Arnhem Land

Arnhem Land in Australia is clearly a LA (Heath 1978). However, it is the type of linguistic area in which isoglosses of diffused traits do not bundle around the borders; rather, there has been a good deal of localized diffusion with varied distribution within its borders -- primarily from Ritharngu into Ngandi and from Nunggubuyu into Warndarang. The Pueblo region compares favorably to Arnhem Land as a LA, because it not only includes a great deal of localized diffusion, but also widespread traits whose isoglosses bundle at the borders.

4.4.7 Mesoamerica

Perhaps the only well-known LA that is considerably stronger than the Pueblo LA is Mesoamerica (Campbell, Kaufman and Smith-Stark 1986). I base this evaluation on both the number of traits that define the MA LA, and the size of Mesoamerica. Four isoglosses enclose and set off MA (a fifth, vigesimal number systems, extends a bit beyond), bundling at the borders, in comparison to the two which completely enclose the Pueblo area. The unitary nature of the MA LA is particularly impressive when the size of the region is taken into account. Larger regions tend to exhibit the characteristics of networks of smaller LAs (South Asia, the Northwest Coast), while smaller regions are more cohesive (the Northern Northwest Coast). While MA obviously has connections to neighboring regions (e.g., vigesimal number systems extend both northward and southward), a large number of traits separate MA from the surrounding languages, and serve to define it as strongly cohesive LA.
4.4.8 Summary

The point of this comparison is not to deny that the various regions discussed are LAs. In each case, the numerous examples of shared traits support their status as LAs. Rather, the above discussion is designed to demonstrate that, seen in comparison with these other LAs, the Pueblo LA is a relatively stronger example of a LA. Certainly, one would prefer to support a LA with numerous isoglosses which bundle at its borders, shared by all the languages within the LA and by none outside it; however, a LA which fits this ideal is not known anywhere. Thus, a LA with two or more bundling isoglosses, and with many examples of localized diffusion, exhibits relative strength.

The Pueblo LA fares quite well when compared to other areas, and exhibits linguistic cohesion exceeded by relatively few known LAs. This unity is striking in light of the number of unrelated language families which are present in the Pueblo region, and in light of the linguistic conservatism which is said to characterize the languages of the area.

4.5 Areal connections beyond the Pueblos

Many of the traits listed in Table 36 are not limited to languages of the Pueblo region, but extend beyond to languages in neighboring areas. Do these widespread traits provide evidence for any larger LAs which encompass/include the Pueblo LA, or do they lend support for a network of LAs in which the Pueblo LA participates? The traits given in Table 37 link the Pueblo LA with surrounding areas. The following traits are shared with the Yuman languages to the west: labialized consonants, palatalized consonants, lack of voiced stops, and special vocative kinship terms. The traits that are shared with the Great Basin languages are: labialized consonants, lack of voiced stops, devoicing, suppletive verb number and
ergative pattern in verb number, dual number distinction and pronominal case. Languages to the east possess the sound k*, no voiced stops, glottalized consonants, tones, dual number and pronominal case.

<table>
<thead>
<tr>
<th>Table 37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Areal traits that extend beyond the Pueblos</td>
</tr>
<tr>
<td>labialized consonants</td>
</tr>
<tr>
<td>palatalized consonants</td>
</tr>
<tr>
<td>retroflex sibilants</td>
</tr>
<tr>
<td>glottalized consonants</td>
</tr>
<tr>
<td>tonal contrasts</td>
</tr>
<tr>
<td>lack of voiced stops</td>
</tr>
<tr>
<td>devoicing</td>
</tr>
<tr>
<td>suppletive verb number</td>
</tr>
<tr>
<td>ergative pattern in number marking</td>
</tr>
<tr>
<td>dual number distinction</td>
</tr>
<tr>
<td>pronominal case</td>
</tr>
<tr>
<td>vocative kinship terms</td>
</tr>
</tbody>
</table>

Several of these traits that are likely to have diffused within the Pueblo region do not support more widespread areal connections. Pronominal case and the absence of voiced stops are just such traits. Pronominal case may have developed in Zuni under areal pressure from Hopi, and therefore supports intrapueblo diffusion. However, because pronominal case is an inherited trait in Hopi, as well as in Upland Yuman and the Great Basin languages, it cannot be used as evidence for areal connections between Hopi and the west or north.
The absence of voiced stops has affected the Tanoan languages; however once again, this is an inherited trait in Hopi, Upland Yuman, the Great Basin languages, and the Caddoan languages, so that it is difficult to establish diffusion of this trait beyond the borders of the Pueblo region.

Because Tonkawa is a language isolate, it is not possible to determine if pronominal case and the lack of voiced stops are innovative or retained in Tonkawa. Tonkawa is geographically removed from the Pueblo languages that have pronominal case, so that this feature is not relevant to Pueblo-Tonkawa diffusion.

Three traits suggest interaction between the western Pueblos and Upland Yuman. They are kʷ, retroflex sibilants and vocative kinship terms. The sound kʷ is present in Hopi, Arizona Tewa, and Upland Yuman. It is also present allophonically in Zuni. This sound is an inherited trait in Upland Yuman (Kendall 1983), but not in Hopi, nor in Arizona Tewa. Arizona Tewa likely developed this sound under Hopi influence, while Hopi probably developed it under the influence of Upland Yuman. Another sound which has likely diffused from Upland Yuman into Hopi is the retroflex sibilant ž which is represented with the symbol 'r' in both Hopi and Upland Yuman (Kalectaca 1978, Kendall 1976).

Finally, special vocative forms for some kinship terms in Acoma, Hopi and Zuni connect the Western Pueblos to Upland Yuman, which has a special vocative case ending.

Three traits also link the Pueblos to the Numic languages of the Great Basin languages. They are devoiced vowels and sonorants, dual number, and suppletive verb number/ergative patterning of verbal number. Dual number is also present in Tonkawa. These traits are sufficiently uncommon to suggest
Map 4

Traits linking the Yuman and Pueblo languages

Key
a. kⁿ and ż
b. special vocative kinship terms

areal connections between the Pueblos and the Great Basin, although it is difficult to determine the direction of diffusion.

Voiceless vowels are present in Chemehuevi, Tümpisa Shoshone and Comanche. In Chemehuevi (Press 1979) vowels become devoiced before
morpheme boundaries, in Tümpisa Shoshone (Dayley 1989) vowels become devoiced word-finally, and between voiceless consonants, and sonorants are devoiced before voiceless vowels, and in Comanche (Charney 1993) unstressed vowels are devoiced between a voiceless stop or affricate and an h-nasal sequence and before an s or h. Voiceless vowels are also present in Cheyenne (Petter 1952). Voiceless sounds are present in all Numic languages, which suggests that they originated in these languages and then spread southward to the Pueblos and eastward to the Plains.

Dual number is distinguished for nouns, pronominal affixes and independent pronouns in Comanche, for nouns and independent pronouns in Tümpisa Shoshone, for pronominal affixes, first person inclusive independent pronouns, and a few nouns in Chemehuevi (Press 1979), and for independent pronouns and pronominal affixes in Tonkawa (Hoijer 1946c). Dual number also occurs in the Caddoan languages (Chafe 1979), so it is clear that dual number extends across a large portion of the western and midwest United States. It is not present in Cheyenne, nor in Yuman.

Certain parts of the dual personal pronouns in Numic are reconstructible for Proto-Uto-Aztecan, e.g., *ta(-mi) ‘first person PL’, *i-mi ‘second person PL’, ʕi(-mi) ‘first person SG’ (Langacker 1977:124). However, there do not appear to be cognate morphemes which signal dual across the Numic languages (although Tümpisa Shoshone -nku and Comanche -k'ih, both Central Numic languages, may be cognate). Therefore, ‘dual’ may not be a reconstructible category for Proto-Numic. In general, the dual category differs a great deal in distribution and in phonological realization in the Northern Uto-Aztecan languages (see Table 38), suggesting that this category is a diffused feature in the Uto-Aztecan languages in which it occurs, rather than a trait of Proto-Northern-Uto-Aztecan (which has not conclusively been
Map 5

Traits linking the Pueblo and Numic languages

Key

a. voiceless vowels and sonorants
b. dual number
c. suppletive verb number/ergative verb number

demonstrated to have existed). Dual number can be confirmed as a genetic trait only in the Kiowa-Tanoan languages, so that perhaps that language family is the source of this areal trait.
### Table 38

**Dual number in Northern Uto-Aztecan**

<table>
<thead>
<tr>
<th>Hopi</th>
<th>Comanche</th>
<th>Tümpisa Shoshone</th>
<th>N.Paiute</th>
<th>Chemehuevi</th>
<th>Tubatulabal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>nominal DL</strong></td>
<td>-vit</td>
<td>-tik*ih</td>
<td>-tanku</td>
<td>táa</td>
<td>tami</td>
</tr>
<tr>
<td><strong>pronouns DL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 inclusive</td>
<td>tah/tak*ih</td>
<td>tanju</td>
<td>ta</td>
<td>tami</td>
<td>iŋgila</td>
</tr>
<tr>
<td>1 exclusive</td>
<td>nik*ih</td>
<td>nuŋju</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>mih/mik*ih</td>
<td>mŋku</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>itihi/tik*ih</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>verbal DL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>?um</td>
</tr>
<tr>
<td><strong>nominal PL</strong></td>
<td>-m/-t</td>
<td>-nii</td>
<td>-ammü</td>
<td>-wi/-mi</td>
<td>-mi</td>
</tr>
<tr>
<td><strong>pronouns PL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 inclusive</td>
<td>itam</td>
<td>tanni</td>
<td>tammü</td>
<td>tam’i</td>
<td>tawi</td>
</tr>
<tr>
<td>1 exclusive</td>
<td>nimni</td>
<td>nümmü</td>
<td>nim’i</td>
<td>nimi</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>uma</td>
<td>mimmi</td>
<td>mümmu</td>
<td>mìi</td>
<td>mimi</td>
</tr>
<tr>
<td>3</td>
<td>puma</td>
<td>iti</td>
<td>um’ìi</td>
<td></td>
<td>imi</td>
</tr>
<tr>
<td><strong>verbal PL</strong></td>
<td></td>
<td>-ya</td>
<td>-ti</td>
<td></td>
<td>-ka</td>
</tr>
</tbody>
</table>

**Suppletive verb number and ergative verbal number are present in the Numic languages.** In Comanche (Charney 1993), intransitive verbs are suppletive for singular versus plural subject, and transitive verbs are suppletive for singular versus plural object, i.e., Comanche displays an ergative-like pattern in verbal number-marking. In Tümpisa Shoshone obligatory number marking on verbs is ergative, with both suppletive verb

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38 The Northern Paiute data are taken from Jacobsen (1980) and the Tubatulabal data are taken from Voeglin (1935).
number and number affixes. In Chemehuevi, a small number of verbs mark number with suppletive forms, in an ergative pattern. Langacker (1977:127) suggests that suppletive verb number was characteristic of Proto-Uto-Aztecan, and reports that Uto-Aztecan languages (both Northern and Southern) consistently mark number through verb suppletion in an ergative pattern. Watkins (1984:153) reports a similar pattern for suppletive verbs in Kiowa, so that it may be an inherited trait in Tanoan, as well. The trait may therefore have spread from either Uto-Aztecan or Kiowa-Tanoan (or both) to surrounding languages.

Some traits which link the Pueblos to the east are the sound k*, glottalized consonants and tone. The sound k* is present in Tonkawa and Wichita. It is not present in Caddo (Chafe 1979), nor in Pawnee or Arikara (Taylor 1963). It is unclear whether k* was present in Proto-Caddoan. Chafe (1979) does not reconstruct it, but Taylor (1963:128) asserts that it might have been present in Proto-Caddoan, and was probably present in Proto-Northern Caddoan. It is absent in Arapaho. The development of k* in Wichita (if in fact it is not inherited) may be evidence of an areal link between that language and Tonkawa and the Pueblo languages to the west. Comanche, which currently is spoken in the southern Plains, also has the sound k*. However, the Comanche migrated from the northern Great Basin/Plains/Plateau region relatively recently (Charney 1993), so that Comanche is a less likely source for Wichita k*. The sound k* is also present in Upland Yuman and in Numic, but it is an inherited trait in those languages.

Phonemic pitch is present in Wichita and Caddo, and is an inherited trait in those languages. It is also present in Arapaho and Cheyenne, but is innovative in those languages, possibly arising under areal pressure. It is perhaps more likely that Arapaho developed tones as a result of contact with
Traits linking the Pueblo and Plains languages

Key

a. $k^*$
b. glottalized consonants
c. tones

other Plains languages (e.g. Wichita, Kiowa, etc.), than as a result of contact with the Pueblo languages. However, considering that Tanoan-Plains cultural contact was common, Tanoan influence in the development of Arapaho tone
cannot be ruled out. Tonal contrasts do not appear to be characteristic of Siouan languages (Rood 1979, Sherzer 1976).

Glottalized consonants occur in Tonkawa and Caddo. They are an innovative trait in Caddo, not being reconstructed for Proto-Caddoan (Chafe 1979). Again, it is difficult to determine the source of the impetus for the development of glottalized consonants in Caddo, if in fact it is an areally-induced change. It could be a link to Tonkawa and the Pueblos, or it could be a link to other Plains languages such as Kiowa or Siouan.

The patterning of areal features that extend beyond the Pueblos suggests that the Pueblos participate in a network of linguistic areas that includes the Yuman languages to the west, the Numic languages of the Great Basin languages to the north and Algonquian (i.e., Arapaho and Cheyenne), Caddoan and Tonkawa to the east. Some isoglosses connect the Western Pueblos to the Yuman languages (k⁷, ʔ, vocative kinship terms), others connect the Eastern Pueblos to the Plains (tone, glottalized consonants, and kʷ), others to the Great Basin (suppletive ergative verb number and voiceless vowels), and at least one to both the Great Basin and the Plains (dual number).

Only one isogloss suggests that the Pueblos are part of a larger LA -- ergative patterning of suppletive verb number. However, one trait is not sufficient to establish a Great Basin-Pueblo LA, especially since the source of the trait is unclear. That is, it is unclear whether the trait spread from Numic, Hopi, or Kiowa-Tanoan to the various Pueblo languages.

The distribution of isoglosses establishes the Pueblos as one link in a chain of interacting linguistic areas. Further areal links between the Southwest and California and among the Plains, the Southeast and the Northeast undoubtedly exist, but are beyond the scope of this work.
4.6 Summary

The great amount of linguistic diffusion that has occurred within the borders of the Pueblo area supports a Pueblo LA rather strongly. All of the traits discussed in 4.2 have probably been diffused into at least one Pueblo language, with most diffusing from another Pueblo language. The number of isoglosses which enclose the Pueblo LA are small in number; however, the Pueblo area compares well with most other linguistic areas. Most previously-identified LAs are not characterized by many isoglosses which bundle at the borders, but rather by much localized diffusion, as well as by isoglosses which extend beyond the borders of the LA in question.

As might be expected, while the Pueblo LA displays unity, it is not linguistically isolated from surrounding areas. A few isoglosses also connect the Pueblo LA to the Yuman languages to the west, to the Great Basin languages to the North, and to the Caddoan languages, Tonkawa and Arapaho to the east. While these traits do not serve to sharply distinguish the Pueblo LA, some do provide evidence for linguistic diffusion within the Pueblo LA.

Within the Pueblo area, the languages which are closest geographically have influenced one another the most, as is typical in other LAs of the world. Again, this is unsurprising. For example, Hopi and Zuni display several shared traits which do not occur in other Pueblo languages. Such traits include the inchoative suffix -ti, absence of verbal pronominal prefixes, fairly rigid number marking on nouns, and morphologically-conditioned sandhi. Arizona Tewa has changed somewhat to become more like Hopi as a result of close residence to the Hopi and adoption of Hopi as a second language.

It would not be accurate to characterize the Pueblos as consisting of a core and a periphery, in which isoglosses expand outward from the core, as
has sometimes been done in work on some LAs elsewhere in the world, on the model of dialect geography and the distribution of isoglosses among the dialects of a single language. Because Acoma (and Keresan in general) occupies a central geographic position in the Pueblo region, it has connections with both the Western Pueblos and the Eastern Pueblos. However, there are several isoglosses which bypass Acoma, such as those for \( i \) and \( k^w \), as well as isoglosses which do not reach Acoma, such as those for the affix -\( \text{ti} \) and palatalized \( k \).

The Pueblo area is a legitimate linguistic area, defined by four isoglosses that are shared by most of the languages within the region, but not by neighboring languages. Additional evidence for a Pueblo LA comes from the many examples of localized diffusion, as well as from traits which have diffused within the Pueblos but also occur in nearby languages outside the region. However, the Pueblo LA also participates in a network of linguistic areas, in which the Western Pueblos are linked to the Yuman languages to the west, while the Eastern Pueblos are linked with the Plains languages to the east, and the entire Pueblo region has connections with the Great Basin. The isoglosses for areal traits in the Pueblo region display a distribution similar to those identified in dialectology studies (Hock 1986, Anttila 1989, Winter 1973).

If the extent of a linguistic area is determined by the presence of a shared feature or set of features, it follows that a language or dialect may be part of more than one area at a time. This phenomenon is well known from dialect geography: a given local dialect \( D \) will share one set of features with one, possibly neighboring, dialect or group of dialects, a second with another, and so on . . . . The agreement between isoglosses tends to be only partial; bundles will fan out in places and converge again in others, which means that it is a characteristic of linguistic areas as determined by the presence of clusters of isoglosses that their
boundaries are sometimes neatly defined, but just as often fuzzy.
(Winter 1973:140)

Rather than bundling, most of the Pueblo isoglosses vary quite a bit in range, with some enclosing small regions within the Pueblo area and others extending beyond the Pueblos.

In the next, and final, chapter, I discuss the implications of the areal phenomena described above for other aspects of linguistics and anthropology, including linguistic universals, prehistory, and theories of language change.
CHAPTER 5 - IMPLICATIONS OF DIFFUSION IN THE SOUTHWEST

5.1 Introduction

In chapters 3 and 4, I demonstrated that many traits have diffused within the Pueblo region, and that the Pueblo area is a LA, as well as a link in a network of LAs. The identification of a LA is important in and of itself, because it sheds light on the history of languages. However, LAs, and areal phenomena in general, have greater significance; that is, areal phenomena often have consequences for theories of language and language change, for proposed genetic relationships, and for the identity and movements of prehistoric peoples. In this chapter, I discuss the implications that areal traits shared among the Pueblo languages have for other aspects of linguistics and anthropology.

Several diffused features in the Pueblo languages have led to linguistic systems which "disobey" language universals. The types of traits which have diffused in the Pueblos (in conjunction with what has not diffused -- i.e., few lexical items) has consequences for theories of linguistic diffusion. Diffusion may also play a small role in issues of Kiowa-Tanoan subgrouping, prehistory and larger genetic connections. After discussing such implications of diffusion in the languages of the Pueblos, I summarize the findings of this study, and their importance for a better understanding of areal phenomena, language in general, and Native American prehistory.

5.2 Pueblo areal traits and linguistic universals

The search for universals of language has played an important role in the linguistic research in recent years (Comrie 1989). Frequently, linguistic
universals must be modified as exceptions are found in cross-linguistic data. In particular, the examination of diffused linguistic traits can unearth exceptions to proposed linguistic universals, so that universals become universal tendencies (cf. Comrie 1989 for discussion of absolute universals and universal tendencies and Campbell 1980 for discussion of the implications of diffusion for language universals). This is true of both absolute universals (i.e., universals which state that all languages have a certain trait) and implicational universals (i.e., universals that state that if a language has one trait it will necessarily have a second trait). The discovery of such exceptions holds great importance for theories of linguistic universals. First, it is important to know which universals can be violated, and which cannot. Second, exceptions to universals that have arisen through diffusion have different implications for theories of language universals. That is, because most universals have an internal basis (e.g., physical or psychological), if an exception is due to external factors such as language contact, the universal may in essence still hold true (Campbell 1980). However, if the exception arose through internal change, the universal itself becomes questionable. Some potential counterexamples to a universal may actually be externally-motivated changes, or diffused categories, and therefore may not invalidate the universal in the same way that a counterexample that arose through internal change would (e.g., the association of the dual with the singular rather than the plural in Hopi, see below).

Examples of exceptions to linguistic universals that have arisen, or spread, through diffusion include the following. The linguistic universal that states that all languages have nasals is contradicted by some languages of the Northwest Coast which have lost nasals due to areal pressure (Haas 1969, Thompson and Thompson 1972, Kinkade 1985). The development of a
nasalized *a* in Eastern Algonquian through Iroquoian influence is an exception to the universal which states that nasalized vowels develop only in the context of nasal consonants (Ferguson 1963; Goddard 1965, Sherzer 1972).

Implicational universals may also have exceptions which are due to linguistic diffusion. Some languages of the Northwest Coast have borrowed a rule in which *k* becomes *c*, leaving these languages with a *q*, but no *k* (Kinkade 1973, Kinkade and Powell 1976, Thompson 1979). This led to a violation of the implicational linguistic universal which states that a language which has a *q* will also have a *k*. Languages with VSO word order almost always have prepositions (Greenberg 1966, Comrie 1989), rather than postpositions, but Classical Nahuatl had VSO word order and postpositions (as well as relational nouns) (Steele 1976). In this case, Classical Nahuatl shifted from SOV to VSO basic word order, in response to areal pressure from surrounding Mesoamerican languages, none of which have verb-final basic word order (Campbell, Kaufman and Smith-Stark 1986). However, word-order correlates of verb-final languages (i.e., postpositions) remained to some extent. Therefore, as a result of an areally-induced change involving basic word order, Classical Nahuatl presents an exception to the universal that VSO languages have prepositions.

5.2.1 The voiced/voiceless contrast in Taos

The maintenance of voiced/voiceless contrasts in various positions within the word can be related implicationally (Eckman 1984). The presence of a voicing contrast word-finally in a language implies that that language will also have a voicing contrast word-medially, but not vice versa. In turn, any

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39 Hawkins (1983:27) notes that this is one of only two of Greenberg’s universals which do not have a considerable number of exceptions.
language which maintains a voicing contrast in medial position will also have it word-initially, but not vice versa:

Voicing Contrast Implicational Hierarchy

word initial > word medial > word final

A voicing contrast in word-final position is thus more marked than in word-medial position, which is in turn more marked than in word-initial position. Eckman (1977) discusses a voiced/voiceless contrast in English with a marked distribution — the s/z contrast, which occurs word-medially and word-finally in English, but not word-initially. This contrast resulted from the development of z through French influence (Pyles 1971:38,187), and is therefore an example of an exception to a universal which arose through diffusion.

Taos presents another exception to this implicational universal. In Taos, p contrasts with b, and t contrasts with d, in word-medial position but not in word-initial position (Trager 1946), because voiced stops shifted in word-initial position — Proto-Kiowa-Tanoan *d became I, and *b became m. In word-medial position, however, *d and *b did not change. I argue above that the shift of voiced stops which occurred to varying extents in the Tanoan languages is an areally-induced change, leading to the Tanoan languages becoming more like surrounding languages. If this is true, the loss of a voiced/voiceless contrast in word-initial position in Taos is an example of a diffused change which resulted in a marked pattern of phonological contrasts, and a counterexample to a proposed language universal.

5.2.2 Contour tones in Hopi

Maddieson (1978) discusses universals of tone. Universal 7. states that “if a language has contour tones, it also has level tones” (1978:345). The Pueblo languages which have inherited tone (i.e., Navajo, Tanoan, Keresan)
adhere to this universal. The Third Mesa dialect of Hopi, however, may not. As discussed in chapter 3, this dialect of Hopi has developed a falling tone which contrasts with vowel sequences which exhibit a different pitch contour (Jeanne 1982). Jeanne describes the non-falling tone as level (or “rising”) (1982:257). It is therefore unclear whether Hopi has one level and one contour tone, or two contour tones.

Maddieson (1978) argues that apparent exceptions to 7. actually result from the choice of descriptive labels, so that level tones are sometimes described as contour tones (1978:346). For example, intonational factors may cause a level tone to be perceived as a falling tone; “on the other hand, a pitch glide which cannot be predicted naturally from factors such as coarticulation and intonation, is essentially a contour tone” (Maddieson 1978:337). The perception of one of the Hopi tones as rising may in fact be predictable from intonation, etc.; however, it may also be the case that the tonal contrast in Hopi developed due to areal pressure and resulted in a system which contradicts universals of tone. It should be noted that Hopi, unlike other Pueblo languages with tone, exhibits tone only on long vowels, and that long vowels and vowel clusters in Navajo and Keresan display contour tones (Young and Morgan 1980, Miller 1965). The development of rising vs. failing tone on long vowels in Hopi may therefore have resulted from influence from Navajo and/or Keresan, without a concomitant development of level tones on short vowels.

5.2.3 Person distinctions in pronouns in Zuni

Ingram (1978) makes several claims regarding universals of pronominal systems. One of these is that there are at least four persons in every language: ‘I’, ‘thou’, ‘he’, and ‘we’ (1978:227). Zuni presents an exception to this universal, at least in the subject pronoun system, which distinguishes
five persons, none of which is 'he': ho:ro 'I', toi:ro 'you (SG)', ta:ci 'they (DL)', ho:no 'we (DL,PL)', to:no 'you (DL,PL).

There are no subject pronouns for the third person in the singular or the plural, and the third person objects are employed only as emphatics. The third person subject, then, is indicated by the absence of a pronoun, with the verb denoting the singular or plural number of the subject. (Newman 1965:60)

Is this a result of diffusion? This is a question which is difficult to answer, because Zuni is a language isolate and cannot be compared to related languages, nor to a proto language. However, there is evidence that two aspects of the Zuni pronominal system have arisen through areal influence: dual number and case. It is therefore possible that through some rearrangement of Zuni pronouns to accommodate new, borrowed distinctions, the system was left without a third person singular subject pronoun.

5.2.4 Dual number in Hopi

Moravcsik (1978a:347) argues that dual number marking is a subcategory of plural. One piece of evidence that she uses for her argument is that if a language marks nouns for dual, and there is no corresponding dual agreeing term, a plural agreeing term will be used. One example comes from Akkadian, in which plural adjectives cooccur with dual nouns. Moravcsik identifies Hopi as an exception to this rule, because dual nouns cooccur with a singular predicate. Pronouns, which are not marked for dual, are distinguished for duality vs. plurality by the number marking on the verb. A plural pronoun plus singular predicate indicates a dual subject, while a plural pronoun plus a plural predicate indicates a plural subject: puma pitu 'they (DL) arrived' vs. puma öki 'they (PL) arrived' (Kalectaca 1978). Moravcsik does not discuss Zuni, but a similar situation exists in that language. While
pronouns that are marked specifically for dual take plural predicates, undifferentiated dual-plural pronouns take a singular predicate to indicate a dual subject and a plural predicate to indicate a plural subject: hon šemaka 'we (DL) called him' vs. hon šemanapka 'we (PL) called him' (Newman 1965:60). The cooccurrence of dual subjects with singular predicates in Hopi and Zuni may result from the fact that dual is probably a borrowed category in both of these languages. As a diffused category, the dual category may not conform to the cross-linguistic tendency for dual subjects to trigger plural agreement in the verb.

5.2.5 Obligatory noun incorporation in Southern Tiwa

Mithun (1984) makes two claims about noun incorporation which are important for areal phenomena in the Pueblos: (1) all languages that have noun incorporation also have syntactic paraphrases consisting of a verb and unincorporated noun, and (2) the noun which is incorporated does not refer, so it is not marked for definiteness or number (Mithun 1984: 847-849).

Southern Tiwa contradicts these claims about noun incorporation. First, inanimate direct objects are obligatorily incorporated, as are plural, animate, non-human nouns and singular, animate, non-human nouns. Second, definite nouns are incorporated (Allen, Gardiner and Frantz 1984). I repeat the examples given in chapter 3 here to illustrate these two characteristics of Southern Tiwa noun incorporation. In (ee), the incorporated noun can be definite, while (ff) is ungrammatical because an inanimate noun is not incorporated.

(ee)  ti-shut-pe-ban
      1s:A-shirt-make-PST
      I made the/a shirt

(ff)  *shut ti-pe-ban
If this description of Southern Tiwa is accurate, then it provides evidence that previously-held notions about restrictions on noun incorporation may have to be reevaluated. However, if it is true, as I argue above, that the obligatoriness of noun incorporation in Southern Tiwa has developed under Navajo influence, then the peculiar nature of noun incorporation in Southern Tiwa may result from the fact that it is an areal trait, and areal traits often display unusual form and/or distribution.

5.3 The Pueblo LA and theories of linguistic diffusion

Thomason and Kaufman (1988:74-75) outline an implicational hierarchy of linguistic borrowing, in which intensity of contact and types of structural borrowing are correlated. For example, they argue that in casual contact situations only lexical borrowing will occur, while with more intense contact slight structural borrowing, as well as the diffusion of function words such as adpositions, may occur. In situations in which one language group is under strong cultural pressure from another language group, the borrowing of major structural features such as new phonological contrasts and allophonic rules, and changes in word order rules and morphosyntax are made possible. The hierarchy suggests that the borrowing of structural features entails lexical borrowing.40

40 Thomason and Kaufman contrast borrowing with interference through shift, in which second language learners incorporate features of their native language into the target language. Thomason and Kaufman argue that in cases of interference through shift structural diffusion may occur without lexical diffusion; e.g., Uralic speakers shifting to Slavic led to the incorporation of structural Uralic features, but not Uralic loanwords, into Slavic (1988:240). While the diffusion of some features among the Pueblo languages may have resulted from interference through shift, the case of Arizona Tewa and Hopi in particular presents evidence against the claim that non-basic vocabulary is always borrowed first. That is, Arizona Tewa has borrowed structural features, but very few lexical items, from Hopi (Kroskrity 1993). However, because Hopi speakers do not learn Arizona Tewa, the incorporation of Hopi traits into Arizona Tewa cannot have resulted from interference through shift.
We propose that, in the absence of a close typological fit between particular source-language and borrowing-language structures, features lower on the scale will not be borrowed before features higher on the scale are borrowed. Typological barriers increase as we go down the list; we know of no exceptions -- and would be astonished to find any -- to the rule that non-basic vocabulary is always borrowed first. (Thomason and Kaufman 1988:73-74)

The evidence suggests that the Pueblo LA is an exception to the rule that non-basic vocabulary is always borrowed first. While intrapueblo loanwords do exist, very few have been identified. Walker (1967:256) notes that there appear to be very few borrowings between Zuni and Acoma:

Whatever the nature of the Zuni-Keresan contacts, Miller's book provides remarkably little evidence of such contact in the form of obvious lexical borrowings. Only two items seem pertinent in this connection: nána ‘grandfather’ (93) and cúski ‘fox, coyote’ (95); cf. Zuni nána ‘grandfather’ and súskí ‘coyote’.

Similarly, Kroskrity (1993) identifies only two Hopi loanwords in Arizona Tewa -- ka:kha ‘from Hopi gööqa ‘older sister’ and kulasa from Hopi kolassa ‘leather’. A few Navajo loanwords in Arizona Tewa were noted in chapter 4.

As discussed in chapter 4, two factors may account for the apparent dearth of loanwords among the Pueblo languages, namely, the lack of comparative studies and the potential obfuscation of loanwords due to the divergent phonological inventories of the Pueblo languages. However, the possibility that the lack of intrapueblo loanwords is real rather than apparent must be entertained. The absence of loanwords among members of a linguistic area is not unknown outside of the Pueblo area. Leer (1991) observes that although Aleut is a part of the NNWC LA, sharing grammatical traits with Eyak and Haida, it does not share loanwords with those languages. Leer suggests that two factors are at work here. First there is a general lack of loans between Eskimo-Aleut and Na-Dene peoples. Second, there may
have been languages which intervened between Eyak and Aleut, sharing loanwords with both, which have since become extinct.

Thomason and Kaufman (1988) base their hierarchy of borrowing on social factors, that is, the intensity of contact between two groups of speakers. The situation in the Pueblo LA suggests that speaker attitudes may affect the borrowing hierarchy as well. That is, a negative attitude toward linguistic "foreignisms" may result in the diffusion of grammatical traits without much concomitant lexical borrowing. The diffusion of lexical items will be impeded because such elements are especially salient as foreign, while the diffusion of grammatical traits proceeds more readily. The linguistic conservatism of the Pueblo peoples has been well documented. Perhaps, similar linguistic attitudes prevailed in the NNWC LA as well, with speakers of Eskimo-Aleut and Na-Dene avoiding salient lexical diffusions.

5.4 Kiowa-Tanoan subgrouping

The discovery of diffusion can have implications for the subgrouping of language families. Shared innovation is the only acceptable evidence that two or more languages form a subgroup of a language family. That is, if those languages have undergone similar changes, while the other members of the language family have not, then we can assume that they descend from a common parent language and are therefore more closely related to each other than to other languages within the family. However, if what appears to be a shared innovation is actually a trait which diffused from one language to the other, then that trait does not lend support to a hypothesis that those languages form a subgroup. For example, in both Nitinat and Makah (Nootkan languages) nasals have changed to voiced stops, suggesting that these languages form a subgroup of Nootkan. However, the loss of nasals is an areal feature of that part of the Northwest Coast rather than a shared
innovation in Nitinat and Makah. Authentic shared innovations show that Nitinat and Nootka form a subgroup, rather than Nitinat and Makah (Haas 1969, Jacobsen 1969). Awareness of areal phenomena is necessary to separate shared innovation from independent innovation, so that spurious subgrouping hypotheses may be avoided (Campbell 1985).

As discussed in chapter 2, some controversy exists over the subgrouping of the Kiowa-Tanoan family. Traditionally the Tanoan languages were thought to form a subgroup, while Kiowa was considered to be the most divergent member of the family. Current thinking tends to view the Kiowa-Tanoan family as consisting of four coordinate branches -- Kiowa, Tiwa, Tewa, and Towa. Both Hale and Harris (1979) and Watkins (1984) support this position.

In fact, a case could perhaps be made for the view that Kiowa is coordinate with the Tanoan branches and that its apparent divergence is a result of geographic and cultural separation rather than a reflection of purely linguistic differentiation. (Hale and Harris 1979:171)

And:

In other words, the label Kiowa-Tanoan reflects an obvious cultural division rather than a linguistic one; Kiowa looks very much like a Tanoan language and it is difficult to point to any constellation of features that might indicate a particularly long period of separation from Tanoan before the Tanoan languages split from each other. Of special interest are the striking similarities to be found in the uncommonly complex system of noun (number) classification and pronominal prefixes, in addition to the detailed correspondence in consonantal ablaut outlined by Hale (1967). (Watkins 1984:2)

One phonological change suggests a unified Tanoan subgroup; that is, the development of nasals from voiced stops before nasal vowels in word-initial position (Davis 1979). However, if the shift of voiced stops is an areal development, then the Tanoan subgroup has little support. The shift of
voiced stops has the earmarks of a change that diffused through the various Tanoan dialects; that is, it has affected the Tanoan languages to varying extents. Davis (1979:402) notes that other changes within Kiowa-Tanoan also have this characteristic; i.e., the development of fricatives from aspirated stops in Tanoan and the merging of affricates and apical stops in Kiowa and Towa.

Further Kiowa-Tanoan work may clarify the picture, although the possibility remains that the relationship among the languages are of the nature that one would expect from slow differentiation in a context of incomplete isolation rather than clean breaks. (Davis 1979:402-403)

I suggest that the loss of voiced stops is a change that spread throughout the Tanoan languages, which were in “incomplete isolation” from one another, initiated by areal pressure from the surrounding languages which lacked voiced stops. If the shift of voiced stops is eliminated as a shared Tanoan innovation, then little support for a Tanoan subgroup remains. Rather, the nature of the shift of voiced stops (as well as aspirated stops) in the Tanoan languages supports the view that there are four coordinate branches of the KT family -- Tiwa, Tewa, Towa and Kiowa -- which slowly separated, and through which certain sound changes diffused to varying extents.

5.5 Linguistic diffusion and Southwest prehistory

5.5.1 Linguistics and prehistory

Linguistic investigation, in conjunction with archaeology and ethnohistory, has the potential to add to our knowledge of prehistoric peoples. Areal phenomena, in particular, can illuminate the nature and extent of contact between people. Examples of the implications of contact linguistics for prehistory are plentiful. I give a few here.

Hinton (1991) demonstrates that the Cupan languages of southern California borrowed several Yuman phonological traits (cf. 1.4.6). She
therefore postulates that Cupan speakers have been in contact with Yuman languages since the time of Proto-Cupan and suggests that at one time Yuman speakers occupied the territory now occupied by Cupan speakers, whose ancestors spread southward into the Los Angeles Basin, encroaching upon Yuman territory. Furthermore, the Yuman speakers that were displaced probably spoke a language similar to those of the River language branch, since those languages have all the traits borrowed by Cupan. Because of the nature of the borrowed traits, it is likely that the contact between Cupan and Yuman was intensive, involving intermarriage and a period of bilingualism.

Loanwords can often shed light on prehistory. Emeneau (1980) suggests that the Dravidian borrowings in the earliest recorded Sanskrit, the Rig-Veda, give credence to the argument that Dravidian speakers occupied the upper Indus valley when the Indo-Aryans arrived on the subcontinent, and that therefore the Harappa script found in northwest India may be Dravidian in origin. Campbell (1978) argues that the nature of Mayan loanwords in Xinca eliminates the possibility that the Xinca were the early occupants of Kaminaljuyú and Chalchuapa, as has been previously argued (Sharer 1974). Almost all agricultural terms in Xinca are borrowed from Mayan, suggesting that the Xinca were not agriculturists before contact with Mayans. Commercial loans from Cholan into Xinca, on the other hand, point to early contact between Mayan and Xinca and to lowland Mayans as the occupants of these sites.

Caution must be used in interpreting the prehistoric implications of diffused features, however. That is, the postulation of prehistoric contacts must rest on a fairly substantial number of shared traits. Conversely, evidence that two language groups were in contact is necessary to support a
hypothesis that one trait diffused from one of those languages into the other. If evidence for both linguistic interaction and cultural interaction is lacking, hypotheses of diffusion and contact become suspect. For example, Shaul and Andressen (1989) propose a linguistic area which included Piman and Delta-California Yuman based on one shared trait -- a contrast between retroflex and non-retroflex stops. However, evidence of prehistoric contact between these two groups that included bilingualism is lacking so that the one shared trait becomes evidence for interaction between the two groups. The argument therefore becomes circular -- the shared trait is evidence for cultural contact, but evidence of cultural contact is necessary to support the hypothesis that diffusion led to the development of the trait in Piman. Either the presence of several shared traits which are likely to have spread through diffusion between Yuman and Piman or stronger archaeological evidence for Yuman-Piman interaction would be necessary in this particular case to support a linguistic area.

5.5.2 Southwest prehistory

As a preliminary to discussing the relationship of the modern Pueblo peoples to prehistoric peoples, the prehistoric phases of Southwest prehistory must be briefly discussed.

1. The Cochise (9000 B.C. - A.D. 100) were people who occupied the uplands of Arizona and New Mexico. They were hunters and gatherers, but were also the first true farmers north of Mexico, growing corn, squash and beans by 1000 B.C. (Mails 1983).

2. The Hohokam (400 B.C. - A.D. 1500) culture was located in the southern Arizona deserts. The Hohokam displayed several Mesoamerican features, such as the use of irrigation, ball courts and macaws, so that some archaeologists have postulated that they were actually migrants from Mexico.
They are thought to have been an influence in the development of the Anasazi culture (Mails 1983:48), before dispersing about A.D. 1400.

3. The Mogollon culture (300 B.C.-A.D. 1500) occupied the mountains in southern New Mexico and Arizona. They provided the stimulus for cultural developments among the Hohokam and Anasazi. For example, Mogollon villages were characterized by the first kivas. Later cultural connections (architectural styles, pottery styles, painted pottery associated with the Katchina cult, religious practices) between the Anasazi and the Mogollon suggest that the Hopi and Zuni descend, in part, from the Mogollon (Mails 1983:59-63). The Mogollon culture dissipated during the thirteenth and fourteenth century, in part due to the Great Drought in the twelfth century.

4. The Anasazi culture is divided into five periods, the earliest of which are Basketmaker II and Basketmaker III. Basketmaker II (100 B.C.-A.D. 550), in the San Juan drainage basin, was characterized by hunting and gathering, with some agriculture, cave and open-air dwellings, and the use of the atlatl. Archaeological remains suggest that the Basketmakers were similar in physical appearance to the modern Pueblo peoples (Mails 1983). The Basketmaker III period (A.D. 500-700) saw a shift to farming as the primary means of subsistence, the growth of villages, the development of the protokiva, pottery-making for food storage, the use of the bow and arrow, the addition of beans to the diet, the domestication of the turkey, and the use of turquoise in jewelry-making (Mails 1983). The Anasazi culture expanded geographically, perhaps with an influx of peoples who adopted the Basketmaker lifestyle (Mails 1983:145).
Linguistic evidence has been employed previously to help shed light on Southwest prehistory. I first summarize the proposals given in the literature concerning prehistoric locations of specific linguistic groups. I then discuss the contribution that areal phenomena can make to studies of the identity of prehistoric peoples.

Hale and Harris (1979) associated certain linguistic groups with specific prehistoric cultures, using evidence from theories of linguistic homelands. For example, the Uto-Aztecan homeland was probably around the Arizona-Sonora border (Lamb 1958, Romney 1957), with dispersal occurring about 5000 years ago. Therefore, the Cochise culture probably consisted of Uto-Aztecan speakers.

The linguistic evidence for the Kiowa-Tanoan homeland is inconclusive. Claims have been made that the Kiowa-Tanoans have their origins in the Mogollan culture of southern Arizona and New Mexico (Ellis 1967) or an archaic culture of northern Mexico (Irwin-Williams and Haynes 1970). The earliest known location of the Kiowa is Montana, at the head of the Missouri River (Mooney 1898), which has led some (e.g., Trager 1967) to postulate a northern Plains origin for the Kiowa-Tanoans. If the Kiowa-Tanoans originated in the south, they may have participated in the Cochise culture as well. Because Zuni and Keresan are language isolates, they are presumed to have developed in their current location, rather than migrating from elsewhere, and to have therefore participated in the Anasazi tradition. The Hopi have been linked with the Kayenta Anasazi, while the Tanoans are considered to have developed the Rio Grande Anasazi tradition.

Trager (1967) assumed that the Zuni and Keresans represent “relics” of the early Pueblo peoples, because they are linguistic isolates, and that the Tanoans became “puebloized” as they entered the Rio Grande valley. Trager
guesses that Kiowa-Tanoan separated from Uto-Aztecan three to four thousand years ago, but because this genetic relationship has not been satisfactorily demonstrated, hypotheses of dates of separation are premature. Even if KT and UA are related, Trager’s suggestion for their date of separation is far too shallow, since the breakup of UA itself is estimated at approximately 5000 years ago. He also proposes that Kiowa and Tanoan separated 2000-1500 years ago, and that Jemez split from the other Tanoans about 1500-1250 years ago. He suggests that Tewa may be a creole, but does not give specific evidence for this claim.

Trager proposes the following scenario. The Keresans developed the Rio Grande complex and the Zuni developed the Anasazi tradition. The Kiowa-Tanoans migrated from the northern Plains, and the Tanoans split off to the west. By A.D. 750, the Towa were settling in the Rio Grande. Archaeological evidence points to the presence of diverse cultural traditions in the Rio Grande valley at this time (Trager 1967:345). Part of the northern Tanoans migrated south at a later point, occupying Keresan Pueblos. The bilingual situation resulted in a pidginization of the Tanoan language, which then developed into Tewa. Later Tanoan migrants became the Southern Tiwa, while those who remained in the north are now the Northern Tiwa.

Ford, Shroeder and Peckham (1972) discuss the prehistory of the Rio Grande pueblos, focusing on archaeological evidence but also taking into consideration linguistic models of Pueblo diversification. They concur that by the Basketmaker III period (A.D. 400-700) Hopi speakers occupied southeastern Nevada, southern Utah, and northern Arizona and Zuni speakers occupied west-central New Mexico. Ford and Peckham (from Ford et al. 1972) agree that at the same time the Keres occupied the middle San Juan.
Archaeological evidence places the Towa in the Los Pinos area about A.D. 1, with later southward migration to the Gallina region (A.D. 950) and then to the mountainous Jemez country (A.D. 1250) (Ford, Shroeder and Peckham 1972:25). Ford, Schroeder and Peckham (1972) argue that the Tiwa developed in situ in the Rio Grande valley. Shroeder and Ford (from Ford et al. 1972) believe that an intrusive Tewa population split the Tiwa, while Peckham (from Ford et al. 1972) envisions an in situ development of the Tewa that left the Tiwa fragmented. Schroeder argues that a Tewa-Towa split occurred in the upper San Juan about A.D. 700, with the Tewa moving southward about A.D. 1000. Peckham, on the other hand, believes that the Tewa separated from the Tiwa in the middle Rio Grande about A.D. 900. All three agree that the movements of Keres speakers effected the southern/northern Tewa split.

Ford (Ford et al. 1972:34) suggested that the Kiowa may have originated in the middle Pecos river, and that their migration to the Plains may have resulted from a “radical adaptive change” from a farming to a hunting economy, initiated by an expansion of the range of bison in the late twelfth century. This radical change makes Kiowa appear very different from the Tanoan languages, when actually Tewa, Tiwa, Towa, and Kiowa may have split simultaneously. Ford, Schroeder and Peckham (1972) agree that Trager’s (1967) date for the split of Kiowa from Tanoan is at least six centuries too early, but that his dates for the Tewa-Tiwa split correlate well with archaeological evidence.

The nature of phonological development in Tanoan does not support deep divergence between Kiowa and Tanoan (cf. 5.4); therefore, a later date for the separation of Kiowa, such as that postulated by Ford, Schroeder and Peckham (1972) is more in line with the linguistic evidence. This has
implications for proposed homelands for the Proto-Kiowa-Tanoans. A northern origin for the Kiowa-Tanoans is based on the notion that Kiowa is the most divergent member of the family (Hale and Harris 1979). However, if this notion is false, as many Tanoanists now believe (cf. Chapter 2), then other proposed homelands become feasible:

At first, the north might seem a more reasonable suggestion than the south, since the Kiowa divergence might suggest that the north is the area of greatest diversity. But if Kiowa divergence is spurious, then the north is no more reasonable than the south, since in the absence of an area of greatest diversity, the competing views are of roughly equal complexity. (Hale and Harris 1979:174)

The linguistic evidence suggests a rather late separation between Kiowa and Tanoan, yet the archaeological evidence places Tanoan groups in the Southwest many centuries ago (Ford, Schroeder and Peckham 1972). These two facts in conjunction support a southern Kiowa-Tanoan homeland (see also Ellis 1967), perhaps associated with the Cochise culture (Hale and Harris 1979). The lexical similarities between Kiowa-Tanoan and Uto-Aztecan may also be indicative of a southern KT origin (see following section). Davis (1979:416) prefers a southern KT homeland as well:

Trager’s suggestion that the Kiowa-Tanoans as a whole moved down from the northern plains and that part of this group moved westward across the mountains to become the ancestral Tanoans does not seem to be supported by archaeological evidence and seems linguistically less tenable than that with the Uto-Aztecs somewhere in the Southwest. Ford suggests that the archaeological sites along the middle Pecos River described by Jelinek as showing a shift from an agricultural to a hunting economy may represent the source of the Kiowas. If this is the case, he claims that Trager’s date of A.D. 1-500 for the differentiation of Kiowa and Tanoan is “minimally six centuries too early.” However, pushing the date up that far may begin to strain the linguistic evidence, even admitting the possibility of considerable language change triggered by the radical shift in the culture.
I argue that pushing the date up would not strain the phonological data. Glottochronological estimates place Kiowa divergence from 2600 to 3300 years ago (Hale and Harris 1979); however, as mentioned in chapter 2, glottochronology has been largely invalidated. Hale and Harris (1979:171) admit that their estimates may turn out to be far too great, and that "Kiowa may ultimately prove, from a strictly linguistic standpoint, to be no more distant from Tiwa, say, than is Towa." The phonological developments within Tanoan appear to be changes that spread throughout slowly diverging dialects, without reaching Kiowa. The proposal that Kiowa separated completely from Tanoan only in the twelfth century, a separation perhaps initiated by movements of bison (Ford, Shroeder, and Peckham 1972), is thus reconcilable with the phonological data.

5.6 The evidence for Aztec-Tanoan

Whorf and Trager (1937) were the first to propose a relationship between the Uto-Aztecan languages and Kiowa-Tanoan. Davis (1989) reevaluates this hypothesis, and finds that fifty-two cognate sets have a "good possibility of being valid" (1989:377). He concludes that Uto-Aztecan and Kiowa-Tanoan are likely to be genetically related:

The quantity of potentially valid cognate sets and reasonably regular phonetic correspondences is certainly beyond what would be expected from chance similarities. This is in spite of the fact that our comparisons involve, on the most part, matching of single syllables and are thus liable to some unavoidable chance convergence. (Davis 1989:178)

A potential southern Kiowa-Tanoan homeland raises another possibility, however. That is, perhaps some of the cognate sets represent borrowings from Uto-Aztecan languages into Proto-Kiowa-Tanoan, or vice-versa. Some tentative borrowings include UA *totolit 'chicken, turkey' (actually diffused among the southern UA languages from Nahuatl) and KT
*delu 'chicken, fowl', UA *k'í ‘acorn, oak’, and KT *k'e ‘oak’, UA *so 'cottonwood' (found only in Hopi and Numic) and KT *so ‘stick, wood’, and UA *tì ‘deer’ (found only in Northern UA languages) and KT *të ‘elk’.

This possibility of diffusion, in conjunction with the fact that many of the cognate sets consist of monosyllables and the likelihood that some similarities between Uto-Aztecan and Kiowa-Tanoan are due to onomatopoeia (e.g., Aztec-Tanoan phu ‘to blow’, #12), leads to the conclusion that more caution is necessary in accepting a genetic relationship between KT and UA.

Hale and Harris (1979:175) give the following warning:

An association of Kiowa-Tanoan speakers with the Cochise culture is not to be identified with the alleged linguistic connections to the Uto-Aztecs, who are also associated with Cochise. If Uto-Aztecan and Kiowa-Tanoan are related, their common ancestor most probably existed at a time much earlier than the base line (3000 B.C.), perhaps near the beginnings of the Desert culture development.

This statement is true of genetic arguments, but of course not true of areal connections. The placement of the Proto-Kiowa-Tanoans in the Cochise culture implies contact with various Uto-Aztecan languages that could have been the source for diffused vocabulary which creates the appearance of a genetic relationship between UA and KT.

This discussion is not designed to deny that a genetic relationship does exist between KT and UA. Rather, it is meant to advise caution in attributing lexical similarities to common inheritance when other factors may be at work.

5.7 Conclusions

The peoples of the Pueblo area, in addition to sharing a great many cultural traits, also share many linguistic features, despite the fact that they speak several unrelated languages. The presence of these features across the Pueblo languages cannot be attributed to genetic inheritance, nor are they
likely to have arisen through independent parallel development. They are therefore convincing areal traits. While a large percentage of these traits are either limited to two or three languages within the Pueblos or are widespread beyond the Pueblos, several are relatively confined to the Pueblos and support a Pueblo LA. They are aspirated consonants, a three-way demonstrative system, classificatory verbs, and sex of Ego as a determinant in the kinship terminology system. As is typical of linguistic areas, the Pueblo LA is not defined by numerous isoglosses which bundle at its boundaries; however, it compares favorably with other previously-identified linguistic areas, which have frequently been proposed on the basis of only few such isoglosses and a great deal of accompanying localized diffusion.

As is also characteristic of linguistic areas, the Pueblo LA is not completely isolated from surrounding areas. Isoglosses that expand outward from the Pueblos reflect the fact that the Pueblos have had considerable interaction with peoples who live beyond the Pueblo borders, including the Upland Yumans to the west, the Numic people of the Great Basin to the north, and tribes of the Great Plains to the east. The Pueblo region is not only a linguistic area, it is also a link in a chain of linguistic areas.

The identification of a Pueblo LA is important for several reasons. First, the overall picture of areal phenomena and linguistic areas in North America needs to be clarified. Sherzer (1973, 1976) provided a beginning by examining the distribution of certain linguistic features among the languages of North America. However, the design of his study limited the depth of exploration that could be achieved for each particular area. Because Sherzer investigated only a preidentified set of linguistic features, many potential areal features would be missed. Also, the role of genetic inheritance and independent parallel development in the distribution of shared linguistic
features was not fully explored. Detailed examinations of individual LAs are necessary to elucidate the areal relationships among the indigenous languages of North America. This study sheds light on areal phenomena in a part of the Americas which has previously received relatively little attention in regard to linguistic diffusion.

This study has implications beyond the identification of one particular linguistic area, however. Although investigation into linguistic areas is not new, much more research into particular LAs is needed to clarify our knowledge of the character of linguistic areas in general. The Pueblo LA provides additional evidence that linguistic areas which are defined by many bundling isoglosses are actually rare. Instead, LAs tend to be characterized by relatively few isoglosses, accompanied by much localized diffusion, and they may also be linked areally to surrounding areas.

Areal phenomena often have consequences for linguistic theory and prehistory, and the Pueblo area is no exception. Diffusion in the Pueblo area, like diffusion elsewhere, has created systems that contradict some proposed linguistic universals. The diffusion of grammatical traits in the Pueblo area, without a great deal of concomitant lexical diffusion, is important for theories of linguistic borrowing, and suggests the importance of social attitudes, as well as intensity of contact among peoples, in the formulation of hierarchies of linguistic borrowing.

The major limitation of this study is the relative scarcity of documentation of the Pueblo languages. Still, the existing information is sufficient to demonstrate the existence of a Pueblo LA. In the happy event that more information, both descriptive and historical, becomes available in the future, additional evidence for a Pueblo LA will most likely come to light,
and our knowledge of the areal relationships of the Pueblo languages to one another and to neighboring languages will be expanded.
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### APPENDIX

#### Abbreviations

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<th>Phonological Categories</th>
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<tr>
<td>A=adjective</td>
<td>asp=aspirated</td>
<td>Br=brother</td>
</tr>
<tr>
<td>ACT=active</td>
<td>fric=fricative</td>
<td>D=daughter</td>
</tr>
<tr>
<td>DET=determiner</td>
<td>glot=glottalized</td>
<td>f=female</td>
</tr>
<tr>
<td>DL=dual</td>
<td>lab=labialized</td>
<td>Fa=father</td>
</tr>
<tr>
<td>FUT=future</td>
<td>nas=nasal</td>
<td>FS=female speaker</td>
</tr>
<tr>
<td>G=genitive</td>
<td>obs=obstruent</td>
<td>m=male</td>
</tr>
<tr>
<td>INC=inchoative</td>
<td>pal=palatalized</td>
<td>Mo=mother</td>
</tr>
<tr>
<td>OBJ=object</td>
<td>son=sonorant</td>
<td>MS=male speaker</td>
</tr>
<tr>
<td>N=noun</td>
<td>vc=voicing</td>
<td>o=older</td>
</tr>
<tr>
<td>PAS=passive</td>
<td>C=consonant</td>
<td>S=son</td>
</tr>
<tr>
<td>PL=plural</td>
<td>V=vowel</td>
<td>Si=sister</td>
</tr>
<tr>
<td>POST=postposition</td>
<td>̃v=high tone</td>
<td>W=wife</td>
</tr>
<tr>
<td>PST=past</td>
<td>̃v=low tone</td>
<td>y=younger</td>
</tr>
<tr>
<td>R=relative clause</td>
<td>̃v=rising tone</td>
<td></td>
</tr>
<tr>
<td>REL=relativizer</td>
<td>̄v=falling tone</td>
<td></td>
</tr>
<tr>
<td>RDP=reduplication</td>
<td>$=syllable boundary</td>
<td></td>
</tr>
<tr>
<td>SG=singular</td>
<td>#=word boundary</td>
<td></td>
</tr>
<tr>
<td>SR=switch reference</td>
<td>##=sentence boundary</td>
<td></td>
</tr>
<tr>
<td>STA=stative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUB=subordinator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBJ=subject</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOC=vocative</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
a=animate
i=indefinite
ο=obviative
VITA

Catherine Christine Bereznak was born and grew up in Hazleton, Pennsylvania on December 23, 1967, the daughter of Thomas Bereznak and Rose Marie Saul Bereznak. She graduated from Hazleton High School in 1985 and attended the University of Pennsylvania, where she received a Bachelor of Arts degree in Italian Studies in 1989. She then entered graduate school at the Pennsylvania State University, and received a Master of Arts degree in linguistics in August of 1991. She spent four years pursuing her doctorate in linguistics at Louisiana State University and expects to receive her Ph.D. degree in August of 1995.
DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Catherine Bereznak

Major Field: Linguistics

Title of Dissertation: The Pueblo Region As a Linguistic Area: Diffusion among the Indigenous Languages of the Southwest United States

Approved:

[Signatures of the Major Professor and Chairman, Dean of the Graduate School]

EXAMINING COMMITTEE:

[Signatures of the Examining Committee members]

Date of Examination:

May 9, 1995