Moieties in the Northern Rio Grande: Ceramic Design Analysis and Social Identity in Southwest Colorado and Northern New Mexico

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MOIETIES IN THE NORTHERN RIO GRANDE: CERAMIC DESIGN ANALYSIS AND SOCIAL IDENTITY IN SOUTHWEST COLORADO AND NORTHERN NEW MEXICO

by

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B.A. University of California Santa Cruz, 2013

A thesis submitted to the Faculty of the Graduate School of the University of Colorado in partial fulfillment of the requirement for the degree of

Master of Arts

Department of Anthropology

2018
This thesis entitled:
Moieties in the Northern Rio Grande: Ceramic Design Analysis and Social Identity in Southwest Colorado and Northern New Mexico
by Samantha Jo Linford
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The final copy of this thesis has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.
Moieties in the Northern Rio Grande: Ceramic Design Analysis and Social Identity in Southwest Colorado and Northern New Mexico

Thesis directed by Professor Scott Ortman

This research examines the designs on ceramics in the Mesa Verde and Northern Rio Grande regions to investigate the origins of the non-kin-based moieties that characterize contemporary Tewa Pueblo social organization. Previous archaeological work has drawn upon evidence of divided villages in arguing that moiety organization first emerged at the village level, but Tewa tradition suggests non-kin-based moieties were associated with paired villages, not divided single villages. In this research I draw upon Tewa tradition and metaphorical expressions in pottery designs to argue that the non-kin-based moieties that characterize contemporary Tewa communities originated in paired villages as opposed to single divided villages. This points to the need for a different explanation for divided villages.

Moieties, or dual tribal sodalities, are central to traditional Tewa social organization, and recent work suggests ancestral Tewa society is descended in some senses from the ancestral Pueblo society of the Mesa Verde region. There is extensive discussion of Summer and Winter moieties in Tewa oral tradition (Ortiz 1969) which suggests dual division social organization pre-dates the migration of Tewa ancestors into the Northern Rio Grande Region where their descendants live today. This thesis investigates this possibility through analyses of pottery designs, guided by ideas concerning the symbolic associations of Tewa moieties and metaphors expressed through pottery designs. The results provide some support for the notion that Tewa ancestors were experimenting with paired summer/winter village associations prior to their migration to the Northern Rio Grande, and that this form of organization became prominent in the immediate aftermath.
DEDICATION

To the colleagues and friends I have gained along the way to completing this project; To my mother who was always supportive of pursuing my dreams, no matter the cost or practicality; to my brothers who remind me to not take life so seriously; to my best friends from college, who challenge and inspire me (and are always available to hear my latest life dilemma); to my recent partner who provided the perfect blend of emotional support and editing help (always so much to say); to my roommate who allowed me to process all of my thoughts and feelings (and allowed me to be messy); to my cohort (you know who you are) for all the coffee breaks, studying support and random adventures; to my roller derby babes who provided unending laughs and outlets to counterbalance my stress; to Emma Britton and Judith Habicht-Mauche for igniting the Southwest archaeology fire in my young heart; to my advisor who has been exceptional in his patience, understanding, leadership and support.
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Chapter 1: Introduction

Dual tribal sodalities (non-kin based moieties) are an essential element of contemporary Rio Grande Pueblo sociopolitical organization. Today, moiety organization is most highly developed among the Tewa-speaking pueblos, where residents participate in various moiety related activities and dances throughout the year. The basic ritual division in the year is between the summer/agricultural and winter/nonagricultural season. The importance of dual organization within Tewa communities today provides a starting point for analyses of material culture in relation to dual division and moiety affiliation within prehistoric pueblos. This thesis examines the expression of moiety affiliation within paired villages through ceramic design analysis in the Mesa Verde Region and the Northern Rio Grande during the Pueblo III Period and the Coalition Period (roughly 1150-1300 C.E.).

The reason I focus on the Mesa Verde Region and the Northern Rio Grande is the preponderance of archaeological evidence suggesting a mass migration of Tewa ancestors from the Mesa Verde Region into the Northern Rio Grande starting in 1280 CE (Ortman 2012; Kohler 2010). Despite debate regarding material culture continuity between the Mesa Verde Region and the Northern Rio Grande, there is evidence of oral tradition, biology, and language continuities between the two regions (Ortman 2012).

Tewa oral traditions (Ortiz 1969) and archaeological analysis of architecture (Fritz 1978; Whiteley 2015) provide two lines of evidence suggesting the presence of dual division social organization in the Mesa Verde Region which is argued to have continued into the Northern Rio Grande in the post-migration period. Although cultural continuity through time cannot be assumed, there is extensive discussion of Summer and Winter moieties in Tewa oral traditions.
(Ortiz 1969) suggesting dual division social organization pre-dates the migration of Tewa ancestors into the Northern Rio Grande where their descendants live today. Importantly, these narratives also imply that Tewa moiety organization initially emerged in the context of paired summer and winter villages. The origin narrative also associates summer and winter with cardinal directions and domesticated versus wild plants (Ortiz 1969).

Southwest scholars have discussed the origins and material culture of dual division social organization in both the Four Corners and Northern Rio Grande (Coffey 2016; Fritz 1978; Lipe and Ortman 2000; Ware 2014; Whiteley 2015), with some suggesting dual organization has been present since the Pueblo II Period (900-1150 CE). The dual spatial organization documented through architecture in the Sand Canyon Locality in the Mesa Verde Region of southwest Colorado implies a corresponding dualistic form of social organization (Coffey 2016). I argue that dual social organization involving paired summer and winter villages was present in the Mesa Verde Region and is reflected in ceramic designs associated with summer and winter moieties at Sand Canyon vs. Goodman Point pueblos.

Ceramic design analysis provides a way of understanding social organization through material culture. Ortman (2000) uses conceptual metaphor theory to suggest that individuals in the Mesa Verde Region conceptualized their ceramics as woven objects (either basketry [plaited or coiled] or woven textiles [loom or non-loom]). Utilizing Crow Canyon Archaeological Center’s design analysis based on Ortman’s 2000 article I documented the proportions of particular ceramic designs present in three sets of paired villages: Sand Canyon and Goodman Point pueblos in the Mesa Verde Region, the Tsama West and Middle/East plazas in the Northern Rio Grande and Cuyamungue (LA 38 and LA792), also in the Northern Rio Grande (Figure 1.1). Running chi square tests highlighted the significant differences in the abundance of
Figure 1.1: Map of the Four Corners Region in the Southwest, United States

*Sand Canyon Pueblo and Goodman Point Pueblo are listed under the same marker, since their proximity is so close at this scale.

Specific design categories at each village. The ceramic sherd samples consisted of black-on-white bowls (for types used in my analysis see Figure 1.2) from one of the two villages argued to have been paired on the basis of contemporaneity and either spatial proximity or connecting infrastructure. Since Tewa oral tradition associates summer with the west/south and winter with the east/north I examined sherds from Sand Canyon (located to the west of Goodman Point Pueblo) and Goodman Point pueblos based on a proposed west versus east correlation with the summer and winter moiety. At Tsama the same logic leads to an association of the west plaza with the summer and the east/middle plaza with the winter. Finally, at Cuyamungue, LA 792 is the north or winter village and LA 38 is the southern or summer village based on proximity and contemporaneity of these two areas of settlement. These associations are contextualized by the Tewa origin narrative (Ortiz 1969). Although many aspects of material culture changed as Tewa ancestors migrated to their current homeland, I suggest architectural patterns and ceramic
designs consistent with paired village organization provides an additional line of evidence connecting the Mesa Verde Region and the Northern Rio Grande.

Examining social identities and affiliations in the past through the archaeological record is complicated. Identity is socially constructed and is not determined by an essential, biologically determined feature present within the individual. This is why a one to one correlation of material culture with a particular identity can be problematic. However, that does not mean we cannot learn things about identity through the material record. There is agency and performativity that is present in the active creation of identities, which can then be expressed in the material record. This is tied to the examination of ceramics in the material record, which I argue can be used as a proxy for understanding social organization.

In order to look for moieties in pottery designs I utilized conceptual metaphor theory, Tewa oral traditions and paired villages in the Mesa Verde Region and the Northern Rio Grande.
The metaphoric structuring of geometric designs in Mesa Verde Region and Northern Rio Grande pottery suggests cotton (a domesticated plant) is associated with summer and wild plants with winter. I examined pottery from each set of paired villages to see if basketry-inspired patterns are more prevalent in the winter-associated (north or east) village and cotton textile-inspired patterns more prevalent in the summer-associated (south or west) village.

Organization of the Thesis

Chapter 1 outlines my thesis argument regarding dual social organization in the Mesa Verde Region and the Northern Rio Grande in the Southwest, United States through the analysis of ceramic designs on Pueblo III (1150-1300 C.E.) pottery using conceptual metaphor theory and contextualized within the Tewa origin narrative (according to Ortiz 1969).

Chapter 2 discusses understandings of moiety organization in the Four Corners region of the Southwest United States. Archaeologically architecture is used as a primary line of evidence in understanding social organization in Chaco Canyon, the Mesa Verde Region and the Northern Rio Grande. Tewa origin narratives provide another line of evidence in understanding social organization in the Mesa Verde Region and the Northern Rio Grande. The Tewa origin narrative according to Ortiz (1969) contextualizes my design analysis. This narrative (Ortiz 1969) correlates cardinal directions with seasonality and domesticated/undomesticated plants. These correlations in the origin narrative provide the baseline links in my associations of certain ceramic designs with particular moieties.

Chapter 3 highlights why I chose to analyze ceramics to understand social organization. Mural paintings, layouts of villages and the history of Tewa language all reflect a reification of Puebloan worldview through repeated references in material culture. I argue ceramic designs
contribute to the cosmogram of Puebloan ideals referenced in material culture throughout the Southwest. Conceptual metaphor theory provides the basis for understanding geometric ceramic designs on Pueblo III pottery (1150-1300 C.E.) (Ortman 2000). Ortman (2000) suggests that at the time of migration from the Mesa Verde Region into the Northern Rio Grande (1280 C.E.) individuals conceptualized ceramics as woven textiles. This research provides the methodology used in my analysis. A pilot study was also conducted to evaluate the efficacy of drawing conclusions from sherd based design analysis by examining whole vessels. The results of this study demonstrate that patterns in designs obtained through a sherd-based analysis using conceptual metaphor theory are replicable in whole vessel collections.

Chapter 4 explains how the origin narrative, architectural layout, ceramic designs and seasonality are connected and applied to the analysis of ceramic designs in the Mesa Verde Region and the Northern Rio Grande. This chapter lays out the links between summer/winter; east/north and west/south; domesticated/undomesticated plants and ceramic designs. These associations are firmly rooted in the Tewa origin narrative (Ortiz 1969) and are applied to the ceramic designs that I analyzed at the villages of Sand Canyon and Goodman Point in the Mesa Verde Region in southwest Colorado, and the villages of Tsama (west plaza and east/middle plaza) and Cuyamungue (LA 38 and LA792) in the Northern Rio Grande in northern New Mexico. The reason I examine sherds from both the Mesa Verde Region and the Northern Rio Grande is due to the preponderance of archaeological and linguistic evidence suggesting there was a migration from the Mesa Verde Region to the Northern Rio Grande in the late 1200s C.E. Using chi square tests, I analyzed the proportion of designs present on the interior of each bowl sherd in order to determine if any of the design categories were proportionally significant.

Chapter 5 provides the results from my analysis as well as a discussion suggesting there
is a correlation between ceramic designs and proposed moiety affiliation, but it is not conclusive. The results from Sand Canyon and Goodman Point pueblos had six significant design categories; the results from Tsama had two significant categories and the results from Cuyamungue had one significant design category. I also conducted a replicability study in order to determine how consistent the identification of ceramic designs was across analysts. Ceramic design analysis is often criticized for its subjectivity, but my results suggest that the design analysis is specific and objective enough to be replicable. I also discuss how this analysis of ceramic designs improves upon previous work conducted by archaeologists in the 1960s and 70s, who came to be known as the ceramic sociologists.

Finally, Chapter 6 summarizes the thesis research and discusses four possible reasons why the results are inconclusive: sample size, misidentified patterns, proximity between villages, or the successful institution of moieties post-migration which would lead to a more homogeneous sample given constant reciprocal trade of ceramic vessels.
Chapter 2: Moieties: Archaeology and Oral Tradition

This chapter discusses the evidence of moieties in the archaeological record and in Tewa oral traditions. Dual organization in Ancestral Pueblo archaeology has been examined through the understanding of architecture in Chaco Canyon, the Mesa Verde Region and the Northern Rio Grande. The Mesa Verde Region and the Northern Rio Grande are linked through the robust evidence that Tewa ancestors migrated to the Northern Rio Grande from the Mesa Verde Region. Mesa Verde Region dualism and Northern Rio Grande dualism are documented through architecture and site layout which provides the background for this study. Moieties are not only understood architecturally; Tewa oral traditions also contribute to an understanding of dual social organization highlighting the importance of moieties in Tewa history. The centrality of moieties in Tewa communities today is also important for understanding social organization in the Northern Rio Grande and is expressed through symbolic material culture. Understanding how archaeologists have interpreted dual social organization through the material record as well as Tewa oral tradition supports my analysis of ceramics to determine correlations between moiety organization and ceramic designs.

Dual Organization in Ancestral Pueblo Archaeology

Dual tribal sodalities (non-kin-based moieties) are an essential element of contemporary Pueblo sociopolitical organization today, but there is debate in the archaeological literature surrounding their antiquity and the manner in which they emerged. Architecture has been the main source of evidence in these debates, with Chaco Canyon serving as the progenitor of architectural mimicry of dual social organization (Fritz 1978; Whiteley 2015). The fluorescence
of Chaco Canyon occurred during the Pueblo II Period (750-1150 CE) leading to increases in building construction. Architecture is a component of ideational systems (Fritz 1978), where information is experienced temporally. For pre-historic Chacoans, architecture embodied the most general concepts of order revolving around their world view (Fritz 1978). Translation, reflection and bifold rotation are present in Chacoan architecture at three scales: individual spaces, aggregated spaces, and the central group of structures (Fritz 1978). Translated elements are moved laterally along an axis; reflected elements are reflected or folded across an axis; and in bifold rotation elements are moved 180˚ about a point (Fritz 1978: 43). Reflective symmetry (symmetrical division) occurs at all three scales; Casa Rinconada (the great kiva), Pueblo Bonito, and the central group of structures within Chaco Canyon proper which are split into symmetrical halves based on a north/south axis (Fritz 1978). “Architectural design was a metaphor of the elements and relations of nature, society, and the sacred” (Fritz 1978: 48-49). According to Fritz, the eastern and western social aggregates were balanced by reflective symmetry and rotational symmetry, which represented cyclical change, such as the rotation of authority (Fritz 1978). Fritz suggests that these elements and relations were components in an ideational system that expressed in material form elements and relations of a world view.

Architectural design was a metaphor of the elements and relations of nature, society and the sacred (Fritz 1978: 48-49). Translational symmetry expressed the social equivalence of social aggregates, that is, towns and the openness of the social system of which these social aggregates were a part. Reflective symmetry expressed social equivalence of social aggregates linked in a closed system of balanced duality (Fritz 1978: 50). This is reminiscent of the seasonal alternation of authority between moieties within contemporary Tewa communities (Ortiz 1969). The layout of architecture as reflective of social organization is also consistent with later
patterning of dual villages in the Mesa Verde region (Coffey 2016; Lipe and Ortman 2000) as well as the Northern Rio Grande (Fowles 2009). Fritz’s research also suggests non-kin based moieties started as early as Pueblo II (750-900 CE). This is important because it provides a background for understanding how the material and built environment is used to understand social organization archaeologically.

More recently, Ware (2014) has discussed the importance of non-residential groups, such as moieties, for affirming the existing principles of kinship in new ways. In the ethnographic literature, moieties are a type of sodality that is non-residential and membership is not determined primarily by kinship or co-residence. Echoing Fritz, Ware (2014) argues that Eastern Pueblo sodality-based polities started as early as Pueblo II (750-1150 CE) in Chaco Canyon. However, Ware also argues that Pueblo ritual sodalities first emerged 1300 years ago, stemming from descent groups that eventually detached themselves from the constraints of kinship. This detachment is thought to have come from a tension between kinship and religion (Ware 2014: 189). Ware’s (2014) argument suggests the integrative force of religion was the impetus for a schism between kinship and religion, which varies from previous kinship studies which focused on increased population aggregation being tied to ecological concerns. Ware focuses on the social aspects rather than the ecologically determined aspects of kinship and social organization. Ritual associations would have undermined kinship relations, promoting a dualist structure of society where ties to sodalities and moieties overwrote biological relations. This argument highlights the connection between clans and sodalities.

Whiteley is concerned with how analyzing kinship systems (specifically Iroquois and Crow/Omaha) might highlight the social organization of Chaco based on architectural patterns. In contrast to Ware (2014), Whiteley (2015) posits that dual tribal sodalities evolved directly
from kin-based moieties. Arguing for “ethnological homology” rather than ethnographic analogy, Whiteley (2015) suggests the differences in social organization between Eastern and Western Pueblos are perhaps overemphasized and argues for a continuation between social organization at Chaco and modern pueblos. Understanding Whiteley’s (2015) argument is important because my research ties into the analysis of kinship versus moiety social organization through ceramic design analysis. My data do not necessarily rule out the idea that kin-based moieties may have existed during the Late Pueblo III Period or even earlier, but they do suggest that non-kin-based moieties could have emerged as paired villages during the 13th century in the Mesa Verde Region.

It is important to understand the different kinship systems that Whiteley (2015) addresses because a large part of his argument is based on the organization of kinship groups and how these different elements of organization are reflected in a cosmogram of Chacoan beliefs on the landscape through architecture. Iroquois, Crow and Omaha are classificatory kinship systems (Figure 2.1) that utilize bifurcate-merging or “crossness.” Father’s brothers are additional fathers

**Figure 2.1: Kinship Charts** (Roufs, Timothy G.:1998)
and mother’s sisters are additional mothers according to these systems. The children from these additional “mothers” and “fathers” are parallel cousins and are considered brothers and sisters, which deem them too close for marriage. Iroquoian systems are also based on bifurcated descent, with separate terms for the paternal and maternal kin. Father’s sisters are aunts and mother’s brothers are uncles and their children are male or female cousins. There is a predilection for cross-cousin marriage, which is often associated with both clans and exogamous moieties. A variant of the Iroquoian system, Dravidian, involves using spousal terms for cross-cousins, this implies proscriptive cross-cousin marriage. Iroquois kinship patterns are argued to be reflected dualistically in the buildings of Chaco (Whiteley 2015). This is in contrast to Crow and Omaha kinship patterns which Whiteley argues are examples of pluralistic social structures.

Crow and Omaha add “skewing” in conjunction with “crossness.” In Crow for example, your father’s sisters’ daughters are referred to as “father’s sisters” and your father’s sisters’ sons as “fathers;” and your mother’s brothers’ sons are referred to as “sons” and your mother’s brothers’ daughters as “brother’s daughters.” Contemporary Hopi follow this system and serve as an ethnographic homolog for Whiteley’s (2015) analysis of Chacoan kinship. Omaha kinship is essentially the patrilineal mirror image of the matrilineal Crow system. Since Crow and Omaha are mirror images they are often considered in conjunction when discussing kinship social organization. Crow-Omaha systems are characteristically plural in their social effects, which Whiteley (2015) argues correlates with house societies, creating more intricate networks of marriage alliance.

Key to Whiteley’s discussion of social organization at Chaco Canyon are the structures of alliance (specifically marriage) and its effect on political and social structures (Whiteley 2015: 286). Elementary structures operate by a positive marriage rule, proscribing which category a
person must marry, typically a cross-cousin. Complex structures have only a negative rule, proscribing close kin, but otherwise indifferent as to marriage partners. Elementary structures show a dualistic pattern often reflected in moiety organization where “Moiety A gives spouses to Moiety B and vice versa” (Whiteley 2015: 286). This “symmetric-prescriptive” elementary structure underlies the Iroquois kinship structure. Dravidian type kinship crossness underlies Iroquois and Crow-Omaha and in this light Crow-Omaha is twice removed from Dravidian with a transformation to Iroquois first. This means Crow-Omaha represents an evolutionary step to another kind of non-elementary alliance structure (Whiteley 2015).

As a result of this, Crow-Omaha alliance has been specified between elementary and complex structures as house societies are between kin-based and class-based systems of social organization (Whiteley 2015: 288).

This complex range of kinship categories ties to Chacoan architecture as seen in the two prominent great house forms featuring “D” and “E” shapes. Whiteley applies a kinship system to Chaco and uses the architecture of Chaco to support his argument. Pueblo Bonito (D) and Wijiji (E) are in direct contrast. Pueblo Bonito has a plurality of round kivas distributed throughout the central part of the structure whereas at Wijiji, two kivas are arranged as mirror images on opposite sides of a binary architectural pattern (Whiteley 2015: 273). These two great houses underlie Whiteley’s research concerning the process of social reproduction through time. Pueblo Bonito was internally differentiated into plural elements suggesting that marriage exchange followed a plural, semi-complex pattern rather than an elementary one (Whiteley 2015).

Whiteley’s main argument is that Dravidian-Iroquois-Crow (all kinship structures with various elements of crossness) “articulated the production of variant social forms with their architectural corollaries at Chaco” (Whiteley 2015: 297). As systems developed and diversified their alliance structures, there appears to be a correlation between a house society (clanhous) pattern of practical organization and semi-complex kinship structures such as Crow (Whiteley 2015: 297).
Pluralistic social structures (Crow-Omaha) built off Dravidian and Iroquois dualistic organization. Dualistic organization is retained in echoes in architectural patterns even after a transition to Crow pluralism, demonstrated by the bifurcation of Pueblo Bonito (Whiteley 2015: 297). The construction of Wijiji suggests that the evolutionary transition to a complex kinship structure was not irreversible, but rather that the Crow-Iroquois tension would have been upheld with the ability of alliance structure, based on symmetrical dualism, to shift as historical circumstances dictated.

Whiteley (2015), using ethnographic homology (specifically focused on Hopi), argues that although Eastern Pueblos are thought to have lost kinship patterns under colonial pressures, these patterns were “likely only full-fledged Crow under certain adaptive conditions and otherwise would have oscillated between a Crow-plural and Iroquois dual form” (296). New colonies could deploy oscillating dual-plural modalities to extend and maintain social networks. Whiteley argues that Iroquois and Crow-Omaha forms “crystallized and/or receded under historical forces of an environmental, demographic or social nature, or all three” (2015: 299). Dualistic social organization would have been present in the Western pueblos as well as the Eastern pueblos according to Whiteley (2015), thereby suggesting Rio Grande moiety systems evolved from kinship moieties. This discussion of kinship organization versus dualistic moiety organization is important in understanding the debates regarding social organization in the archaeological record. It contributes to my thesis research by laying the foundation for understanding how social organization has been examined archaeologically with regards to kinship versus sodality.

**Summary of Dual Organization Research in the Southwest**

Fritz (1978), Ware (2014) and Whiteley (2015) each contribute to the debate regarding
the emergence of dualistic social organization amongst the Pueblos. For all these authors, Chaco is viewed as the progenitor of the social organizations present during the Pueblo III (1150-1350 CE) and Pueblo IV (1350-1600 CE) periods. Although Fritz (1978) and Whiteley (2015) both examine architecture at Chaco Canyon, they reach opposite conclusions regarding the emergence of moieties from kinship-based social structures. Fritz (1978) suggests that sodalities emerged from non-kin based groups whereas Whiteley (2015) directly associates kinship with the emergence of dualistic sodalities/moieties. Ware (2014) suggests dualistic moieties detached from kinship groups early on due to a focus on religion undermining kinship ties. My research analyzes ceramic designs to determine if moiety identity was being expressed during the Pueblo III Period in the Mesa Verde Region and the Coalition Period (roughly 1150-1300 C.E.) in the Northern Rio Grande at the level of paired villages.

**Tewa Origins in the Mesa Verde Region**

To support the analysis and comparison of ceramics in the Mesa Verde Region and the Northern Rio Grande I will provide a brief review of the arguments suggesting a migration of peoples from the Mesa Verde Region to the Northern Rio Grande in the late 1200s C.E. The reason I look at Mesa Verde Region material culture as well as Northern Rio Grande material culture is because of the robust evidence that Tewa ancestors migrated to the Northern Rio Grande from the Mesa Verde Region. This migration justifies my use of Mesa Verde Region archaeology to investigate the origins of Tewa moieties.

Genetic, linguistic and cultural backgrounds of the Tewa people have been examined in order to determine whether individuals migrated into the Northern Rio Grande from the Mesa Verde Region. Principal components analysis of the minimum genetic distance matrix estimated
from craniometric data is one line of evidence that suggests post 1275 CE people of the Northern Rio Grande were lineal descendants of populations present in the Mesa Verde Region pre-1275 CE (Ortman 2012: 338). This suggests the population increase in the Northern Rio Grande was not simply due to increased birth rates. Further evidence from linguistic paleontology suggest that the Tewa language became distinct around 920-980 CE, well before the onset of the Rio Grande Coalition period (1150-1325 CE) (Ortman 2012: 339). Ortman’s (2012: Chapter 14) analysis of the Tewa language suggests that Tewa ancestors lived in the Mesa Verde Region and migrated to the Northern Rio Grande during the 1200s, either bringing the Tewa language with them or translating place-names and place-lore upon arrival (see Ortman 2012 Chapter 14 for details).

Inconsistencies between Coalition Period Rio Grande and Pueblo III Period Mesa Verde Region material culture have led some archaeologists to doubt that a large-scale migration into the Northern Rio Grande took place (Boyer et. al. 2010, Schillaci and Lakatos 2016; Schillaci and Lakatos 2017; Schillaci et. al. 2017). Ortman argues that most archaeologists have used models that focused on episodes of immigration, where migrants join an existing society and neither the migrants nor the in-situ population are absorbed or replaced by each other (2012: 340). The migration from the Mesa Verde Region into the Northern Rio Grande was a population scale movement; the migrants either incorporated or displaced the indigenous population, who they greatly outnumbered (Ortman 2012: 340). Population movement can encourage material culture change since population movement is a social process and individuals are no longer tied to the continued practice of homeland traditions (Ortman 2012). Material culture continuities from the Mesa Verde Region (specifically in shrines and pottery designs) are most evident in areas initially settled during the Late Coalition Period (1250-1350 CE) by larger social groups
(Ortman 2012: 341). This research focuses on the continuity of ceramic designs as representations of moiety division between paired villages in both the Mesa Verde Region and the Northern Rio Grande.

The conditions present in the Mesa Verde Region during the late 1200s clearly encouraged large-scale out-migration. The challenges people faced included drought (Cordell et al. 2007, Varien et al. 2007, Varien et al. 2000), resource depletion (Muir and Driver 2002) and increased violence (Kuckelman et al. 2002, Kuckelman 2010). The depopulation of the Mesa Verde region occurred over a century (Duff and Wilshusen 2000; Ortman 2012), with many factors (such as increased population coupled with competition for resources) contributing to the final result. The paleo-productivity model produced by the Village Ecodynamics Project (VEP) demonstrates subpar agricultural conditions in the first half of the 1200s CE (Varien et al. 2007). These subpar agricultural conditions increased competition between individuals for resources, and this competition was exacerbated by a population increase in the region. These push factors were also tied to pull factors in the Northern Rio Grande; more of the farmland in the Northern Rio Grande is floodplain watered by streams, whereas most farmland in the Mesa Verde Region is upland precipitation farmland (Cameron 2006).

Social networks created by migration flows would have encouraged return visits. Return migration is an important part of population movement (Ortman and Cameron 2011) and can be demonstrated by the increased use of obsidian in the Mesa Verde region that has been sourced (using X-ray fluorescence [Shackley 1995]) to the Jemez Mountains (Arakawa 2006; Arakawa et. al. 2011). There is no available obsidian in the Mesa Verde region, but there are multiple sources in the Northern Rio Grande. The use of obsidian from the Jemez Mountains increased, such that from the 1000s CE onward 90 percent of the obsidian found in Mesa Verde Region
sites came from the Jemez Mountains on the western edge of the Tewa Basin (Ortman 2012). In addition, nearly all of the obsidian that ended up in the Mesa Verde Region represents complete projectile points, or projectile point blanks, which suggests that each piece of obsidian was exchanged as a finished product (Ortman 2012). This is important in denoting an intentional exchange of goods between individuals in the Northern Rio Grande and the Mesa Verde region instead of just raw material procurement (Ortman 2012: Chapter 13).

Pace and scale are also important to understanding migration and can be understood through site abandonment. Site abandonment is analyzed through trash fill, burned roofing and usable artifacts on the floor of structures. These elements suggest a permanent closing of a structure, positing that individuals who left these sites were not planning on returning. According to Ortman’s (2012) analysis, “64 percent of kivas abandoned during the 1225-1260 CE period exhibit evidence of ritual closure and 86 percent were so closed during the 1260-1280 CE period” (276). This suggests that there was an increase in ritual closure towards the end of the 1200s CE denoting long distance moves; individuals had no intention of returning to the ritually closed structures.

A final factor tied to mass population movement out of the Mesa Verde Region is escalation in social conflict. Conflict did increase in the latter half of the 1200s CE in the Mesa Verde Region. The violence appears to have involved entire villages such as the massacres at Sand Canyon and Castle Rock pueblos (Kuckelman 2010; Kuckelman et al. 2002). This increase in violence is also correlated with a coalescence of villages surrounding springs in canyon-rim environments (Lipe and Ortman 2000; Ortman 2012). These bowl-shaped village layouts are suggestive of Chacoan architecture and Ortman (2012) argues this could have suggested a revivalist discourse in the final days of the Mesa Verde Region reasserting central ideas of the
past in an attempt to regain power and control within the region in order to combat all of the
violence and social conflict. The conditions present in southwest Colorado during the period of
depopulation in the Mesa Verde Region and the biological, linguistic and cultural links between
the Mesa Verde Region and the Northern Rio Grande (Ortman 2012), support a connection
between the two regions.

**Dual Organization in Mesa Verde and Northern Rio Grande Archaeology**

The origins of moieties debate, the importance of moieties in Tewa communities today,
and the argument for a connection between the Mesa Verde Region and the Northern Rio Grande
all lend support to the discussion of dual organization specifically in Mesa Verde and Northern
Rio Grande archaeology. The expression of dual organization in architectural patterns in the
Mesa Verde Region and the Northern Rio Grande provide the background to my analysis of
ceramics from Sand Canyon and Goodman Point pueblos, Tsama and Cuyamungue. The reason I
focus on these geographic locations and particular sites is due to the evidence of architectural
duality suggesting moiety organization at the level of paired villages.

**Mesa Verde Region Dualism**

During the Pueblo III Period, architecture begins to display evidence of dualism in the
aggregation of villages, specifically at the rim of canyons (Lipe and Ortman 2000) and in the
connection between villages through linking roads (Coffey 2016). In the Mesa Verde region,
Lipe and Ortman (2000) discuss three successive community center types dating from late
Pueblo II Period (1050-1150 CE) through the Pueblo III Period (1150-1300 CE). Stage 1 (late
Pueblo II [1050-1150 CE]) communities are manifested archaeologically as loose clusters of
residences surrounding a great house and/or great kiva. During Stage 2 (early Pueblo III [1150-
1225 CE] there is a formation of a community center characterized by closely spaced linear room blocks containing both kivas and habitation units (Lipe and Ortman 2000). Finally, in Stage 3 (late Pueblo III [1225-1300 CE]) communities become increasingly aggregated. Village locations shifted from upland settings to canyon-rim locations and become conspicuously divided into two parts by a drainage or spring in the center of the village area (Ortman and Bradley 2002). Late Pueblo III canyon-rim villages have many continuities with earlier Pueblo III aggregated communities, but they also show new architectural and layout patterns that may indicate changes in community organization. Lipe and Ortman (2000) suggest this may be due to the intensification of warfare or religious activity. In addition, there seems to be architectural evidence for a supra-household control of food and resources, as evidenced by habitation units with increased storage (Lipe and Ortman 2000). Inhabitants of D-shaped structures may have exercised ceremonial or political influence and therefore had access to substantial amounts of stored food (Lipe and Ortman 2000). The paucity of grinding tools and corrugated gray sherds in refuse associated with the D-shaped structure at Sand Canyon Pueblo is not typical of residential use and could be interpreted as evidence that this structure was neither designed nor initially used for residential purposes, but only for ritual or other nonresidential purposes. Alternatively, the D-shaped structure might have been inhabited, not by a typical family group, but by one or more persons of special status or position who were supplied with prepared food by others in the village (Kuckelman 2007; Ortman and Bradley 2002). This demonstrates a possible hierarchical form of social organization, where perhaps the institution of moieties had not been fully realized.

Understanding social organization at the scale of architectural site layouts is a key building block supporting the analysis of ceramic designs as a reflection of moiety association. The spatial patterning of archaeological sites in the Southwest supports inferences regarding the
social and religious world views of past pueblos (Bernhart and Ortman 2012; Coffey 2016; Fowles 2009; Lipe and Ortman 2000). Changes in the spatial patterning of villages in the Mesa Verde Region over time demonstrate change in community organization. These changes may have been tied to intensification of warfare and/or religious ritual (Lipe and Ortman 2000: 115). As Ware (2014) notes the intensification of religion may underlie the social reorganization documented in the Eastern Pueblos as well. Bernhart and Ortman suggest Tewa-style moiety organization:

“may be reflected in the localization of houses in clusters on either side of open public spaces, and by public marking of the equinoxes, the traditional triggering event for the transference of moiety leadership” (2012: 89).

The fact that Bernhart and Ortman found both patterns: 1) localization of house clusters on either side of public spaces and 2) architectural patterns reflecting the marking of the equinoxes, in the sites they investigated suggests that moiety organization was present in the Mesa Verde Region prior to 1280 CE, and in the Northern Rio Grande after 1280 CE. This furthers the understanding of cultural continuity and change associated with a migration from the Mesa Verde region into the Northern Rio Grande (Bernhart and Ortman 2012). However, Bernhart and Ortman’s (2012) research suggests moiety division existed within sites such as Jackson Castle, whereas my research focuses on moiety organization at the level of paired villages. Solar alignments at the Jackson Castle site (located on Yellow Jacket Creek in the Four Corners region) suggest an association with ceremonial and subsistence cycles. Moieties are also defined by solar cycles, connecting community organization with the cycles of nature (Bernhart and Ortman 2012). Although my research does not rule out the possibility of dual organization within villages, it suggests moiety division was also prevalent at the level of paired villages.

**Paired Villages**
Paired villages in the Mesa Verde Region and the Northern Rio Grande support my analysis of ceramic designs reflecting moiety organization. My ceramic design analysis focuses on the level of paired villages comparing ceramic sherd samples from Sand Canyon and Goodman Point pueblos, Tsama (comparing the west plaza with the east/middle plaza) and Cuyamungue (comparing the north village, LA 792 with the south village, LA 38). Since there has been archaeological research suggesting dualistic social organization in architecture, I wanted to see if this dualism could be seen through ceramic designs.

Coffey (2016) discusses the evidence of a dualistic society reflected in the physical connection between Sand Canyon and Goodman Point pueblos. Both communities seem to have been established about 1000 CE and both persisted until about 1280 CE. One of the principal factors linking these two communities is the presence of a road. The fact that no other road segments have been documented in the area suggests that this road was important in physically and symbolically connecting the two villages in a multi-community social framework. Coffey (2016) suggests the built environment created and reinforced a dual social organization that mediated relations between these two large ancestral Pueblo communities (Figure 2.2). Historic and ethnographic analogues help interpret the patterns, identify and support the idea that symmetry in the location and orientation of public structures represents a scale of interaction and planning that exceeded individual residential communities. Symmetry in the location and orientation of public structures likely persisted in modern Pueblo social organization through social institutions like moiety organization.
Coffey’s (2016) research suggests that dual social divisions in pueblo society extended beyond the Chaco regional system and that architecture in the Sand Canyon Locality suggests a local use of dualism to promote social systems structured around some sort of pairing. This case of paired villages suggests an East:Male:Winter:: West:Female:Summer pattern (Ortiz 1969) based on the location and shape of each village (Figure 2.3 and 2.4), with Sand Canyon Pueblo being positioned in the west and having a roundish shape, and Goodman Point Pueblo in the east and having a rectilinear shape. This mirrors the symbolic associations of moieties tied to dualism in Tewa ethnography as mentioned by Ortiz (1969).
This provides the backdrop for the ceramic design analysis conducted for this project. Sand Canyon and Goodman Point communities have evidence of collaborative, supra-community planning based on their architectural organization (Coffey 2016). “These two
communities constructed an architectural system in which public structures were built and arranged to reflect a dual sociopolitical entity larger than a residential community, but smaller than a regional system like that centered at Chaco” (Coffey 2016: 13). Ethnographic and historical accounts support the determination of interaction and planning exceeding individual residential communities (Coffey 2016). Dual organization would have fostered social and political alliances outside of kin groups, reflecting later moiety organization as seen in the Tewa Pueblos.

**Northern Rio Grande Dualism**

Dualism is also present archaeologically in the Northern Rio Grande. Another reason I analyzed ceramic designs in the Northern Rio Grande is the archaeological evidence that suggests dualism within archaeological sites. Although my research argues for paired village social organization, my research builds on the evidence of inter-village dualism that has been documented archaeologically in the Northern Rio Grande.

Pot Creek Pueblo is a Northern Tiwa Pueblo with evidence of dual moiety organization extending back to at least the 13th century (based on architectural and artifact differences between the earliest components of the village). Fowles (2009) discusses the importance of material construction of Pueblo cosmology. He is focused on the holistic view of the landscape, which includes villages as well as the surrounding landscape. This is done through the analysis of T’aitōna (Pot Creek Pueblo), located in the Carson National Forest north of Santa Fe. Pot Creek Pueblo provides an example of a divided village in the Northern Rio Grande, highlighting similarities between the social organization present in the Mesa Verde Region and the Northern Rio Grande.

“In concert with the organization of the settlement itself, these shrines suggest an overall spatial logic that is a clear predecessor to the ethnographic cases. The result is an ancestral Northern Tiwa case study that not only complements the Tewa cosmography explored by Ortiz (1969) and the Keresan cosmography
reconstructed by Snead and Preucel (1999), but extends these patterns back in time to the initial appearance of large villages in the Northern Rio Grande region” (Fowles 2009: 449).

The cosmology of the landscape is directly tied to Tiwa conceptualization of the cosmos. T’aitōna came to have over three hundred rooms, multiple stories and was organized around a dual division marked architecturally. This early moiety system preceded modern Northern Tiwa moieties.

Cardinal divisions of sites connect to moiety associations and identity in the Northern Rio Grande, which I also utilize in my thesis research. Taos and Picuris moiety organization is a matter of north and south (Fowles 2005), which is interesting because the organization at the community of Cuyamungue has a north/south division rather than an east/west division. Taos oral tradition discusses summer and winter associations with north and south (Fowles 2005), providing support for a west/south/summer association and an east/north/winter association. The significance of moieties extends even further: summer is associated with the south and agriculture, whereas winter is associated with the north and hunting (Stevenson: passim). North and South have gender connotations as well, north is coded as male and south is coded as female (Fenton 1957). Fowles’ (2005) focuses on how such a system was physically marked on the landscape in prehistory. T’aitōna seems to provide this evidence as the earliest example of moiety organization in the Northern Rio Grande. Offerings in the northeast portion of the D-shaped kiva at T’aitōna are tied to hunting and wild animals (Fowles 2005: 36-37) whereas in the southeast the offerings consist of macrobotanical remains emphasizing a summer connection (Fowles 2005: 37-38). The patterning of closure objects left within the D-shaped kiva expresses the same dualism that is seen at the village-wide level. The nature of the closure objects highlights particular symbolic associations with much greater clarity: north/hunting/animal structurally opposes south/agriculture/plants (Fowles 2005: 38). The moiety associations and
shrine systems at T’aitōna are important in understanding the social organization present in the Northern Rio Grande during the 13th century.

Fowles (2009) argues that the T’aitōna shrine system materialized and made explicit a socio-spatial logic comparable to that described by Ortiz for the Tewa. Although the details of this logic may be beyond an archaeological grasp, it is easy to imagine something similar to Tewa nested tetrads (conceptual organization of the landscape based on landmarks) being mapped onto the Rio Grande del Rancho Valley in northern New Mexico. The discussion of dualism present in sites in the Northern Rio Grande provide further evidence of a connection to the Mesa Verde Region where there is also dualistic social organization expressed archaeologically.

**Moieties in Tewa Oral Tradition**

In addition to being expressed archaeologically, Tewa oral traditions also provide evidence of past moiety organization. These traditions associate seasonality with the cardinal directions, domesticated and undomesticated plants and summer/winter; I use this evidence as the building blocks of my thesis.

Ortiz (1969) discusses the reflections of dual organization in the Tewa origin narrative. Parsons (1926) also emphasizes this dualism in her re-telling of the emergence story:

There was a big lake, Ohänge pokwinge, Sand Lake. There were lots of people in there. They stayed underneath the water. Then they were talking about it, how to go up from the water, how to get ready to go up. And so our mother was born, …corn white our summer mother. In four days after our mother was born, our ice mother… was born. Where she was born there was a little green grass. And so they said, those people ‘this is our mother, summer one,’ said the people. When our corn white mother, ice mother, was born there was just the same round place. So, the people said, ‘This is our mother, winter mother’ (Parsons 1926).

This exemplifies part of the division between summer and winter stemming from the emergence
narrative of the Tewa pueblos by highlighting the summer and winter as two different entities.

The Tewa pueblos of northern New Mexico are organized according to a Summer and Winter moiety division. This division is documented in Tewa origin narratives, which discuss the emergence of the Tewa people into this world and the subsequent division of the Tewa people into two groups: those that follow the Summer chief and those that follow the Winter chief. These narratives also highlight the importance of summer and winter moieties. In one version of the story:

..."the Hunt chief divided the people between the Summer chief and the Winter chief. Those who were to follow the Summer chief would proceed along the mountains on the west side of the Rio Grande. The Winter Chief and his group would proceed along the mountains on the east side of the river” (Ortiz 1969:15).

As this narrative continues, the Summer people are associated with agriculture and the Winter people are associated with hunting. “The Summer People, as the former group came to be called, subsisted by agriculture and by gathering wild plant foods, while the Winter People subsisted by hunting” (Ortiz 1969:15). The origin narrative related by Ortiz (1969) associates plants with summer and animals with winter. In the following analysis, however, I build from a suggested association of domesticated plants with summer and wild plants with winter. This is somewhat different from the details of published origin narratives, but it is still in keeping with other aspects of Tewa culture. For example, baskets are made from wild plants, and the basket dance takes place during the winter season. In contrast, male dancers representing clouds typically wear cotton “rain-sashes” during the corn dance, which takes place during the summer (Sweet 1985). Cotton is a domesticated plant and therefore associated with summer. Tewa pueblos today emphasize the importance of summer and winter dual divisions in association with cardinal directions (north and east [winter] and south and west [summer]) as well as ceremonies tied to either the Summer or Winter moiety.
Ortiz (1969) provides an in-depth discussion of Tewa social organization, focusing on the flexibility and dynamic response to the challenges associated with a dualistic society. Despite challenges tied to leadership, the dual organization is perpetuated. Anecdotes highlight the importance of social organization through time in Tewa communities and demonstrate the continuous reformulation of dualism to continue social cohesion (Ortiz 1969). The underlying structure of Tewa social organization represents symbolic divisions of the natural world. “Deities of the respective moieties come from opposite directions and emphasize colors associated with warm-cold and summer-winter antitheses” (Ortiz 1969: 45). This provides the basis for correlating eastern communities with winter and western communities with the summer.

Important to understanding the spatial associations of villages and moieties is the Tewa origin narrative which states:

“This passage conveys the idea that, in the past, Tewa people lived in paired villages associated with summer and winter respectively; this quote highlights that each group separately took twelve steps and set up a village, which is two sets of twelve villages established as pairings. The narrative discusses the settling of summer and winter people in paired villages, followed at some later time by the coalescence of these two groups into a single village. In the Mesa Verde Region there are paired villages, such as Sand Canyon Pueblo and Goodman Point Pueblo, and in the Northern Rio Grande there are villages such as Tsama and Cuyamungue which began as paired villages that coalesced into one over time, mirroring the origin narrative described above.

“In the very beginning we were one people [the emergence]. Then we divided into Summer people and Winter people; in the end we came together again as we are today. But you can see we are still Summer people and Winter people” (Ortiz 1969:16).
This quote succinctly summarizes the emergence story and the separation and unity that are simultaneously associated with dualistic social organization. When Tewa ancestors began their migrations, Summer and Winter were separate, denoted by respective villages, and eventually these coalesced into a single village, but the distinction between Summer and Winter was still obvious and pertinent.

Paired villages and the coalescing of Summer and Winter are not only evidenced in the Tewa origin story. They are also documented for recent times. At the time of Spanish contact, the Pueblo located at the confluence of the Chama and Rio Grande consisted of two villages: Ohkay Owingeh (previously known as San Juan Pueblo) was the eastern village, and its western counterpart was known as Yunge (Ellis 1989). In the 16th century Yunge was taken over by the Spaniards and its former inhabitants soon coalesced into one village at Ohkay Owingeh (Ellis 1989). Ohkay Owingeh is located on the eastern side of the Rio Grande and Yunge was located on the western side. Ohkay Owingeh was associated with Winter and Yunge with the Summer. After Yunge coalesced with Ohkay Owingeh the village had and continues to have both a Summer and Winter moiety affiliation and division within the pueblo. This is evidence that in the recent past at least some Tewa communities created paired villages that manifested the east-west/Summer-Winter moiety association.

I examine paired villages to understand Tewa-style, non-kin based moieties rather than single divided villages to understand the importance of paired villages that are highlighted in Tewa oral traditions. Archaeologists in the Southwest and beyond have shown that pottery designs express social affiliations through structure, design and composition (Crown 2004; Habicht-Mauche et. al. 2006; Mills 2007; Mills and Crown 1995).
The Centrality of Moieties in Tewa Communities

Understanding the importance of moiety social organization in Tewa communities today provides support for how engrained moiety organization has been throughout Tewa history. Contemporary leadership and ritual practice is tied to Summer and Winter moieties. Although the Summer and Winter moieties are viewed as equal, equality does not exist at any given time, but emerges over the course of a year. This is because both the Summer chief and the Winter chief rule for one half of the year. Ortiz (1969) makes a point of emphasizing that although the Summer chief is in power for over 7 months and the Winter chief for less than 5 months, this does not mean Summer is more important, since the village needs both summer and winter influences and leadership in order to prosper (Ortiz 1969: 82-83). The power and the authority of the moiety chiefs must be equal ensuring a balance of rulership within the village (Ortiz 1969). Balance is important to maintaining social cohesion within Tewa community.

Reification of summer and winter duality is seen through material culture in Pueblo society. Black, yellow and green, (warm colors) are associated with summer and make up the colors of yarn worn around the knees of dancers during rituals. In the winter the yarn worn is either red or not worn at all (Ortiz 1969). Minerals are also used to denote dualism; silver is worn in unlimited quantities during the winter, since it is “cold” whereas it will be absent from participants in the summer rituals. For summer rituals jet is preferred since it is a “warm” mineral (Ortiz 1969: 105). The symbolic associations of moieties are tied to the cardinal directions as well as seasons. Moiety dualism is also tied to birthing rituals and is explicitly mentioned in the origin myth. Moieties provide systematic checks and balances since there is a switch between summer and winter control within the pueblos (Ortiz 1969; Parsons 1994 [1926]). Moieties pervade Tewa social organization today through associations with
summer/femininity and winter/masculinity. The Tewa injunction “to be a woman, be a man” (Laski 1959) seems to express the idea of gender in association with moieties as well. This dualism between directionality, gender, seasons and temperature underlie most Tewa ritual activities. Moiety organization is important and actively present in the Northern Rio Grande, and although cultural continuity cannot be assumed, it supports the analysis of ceramic designs to explore possible expressions of moiety identity. In the following chapter, I suggest the choice of designs on pottery may reflect an association of particular villages with a summer or winter moiety.
Chapter 3: Understanding Social Organization through Pottery

This chapter discusses why I used pottery to analyze social organization in the Mesa Verde Region and the Northern Rio Grande. I propose a link between ceramics, architecture, oral tradition and social organization through an approach to abstract human thought known as conceptual metaphor theory. Ortman’s (2000) research on conceptual metaphor theory suggested individuals in the Mesa Verde Region and the Northern Rio Grande conceptualized ceramics as woven objects. I build upon this methodology in my thesis research. Ortman’s (2000) analysis was sherd based, so in order to determine if the visual constraints proposed by Ortman translated to whole vessels I conducted a pilot study with whole vessels to see if the same design pattern constraints were prevalent. The results supported Ortman’s initial study and justifies my use of conceptual metaphor theory to classify ceramic designs in this project.

Linking Ceramics, Architecture, Oral Tradition and Social Organization

Building from the recent documentation of Late Pueblo III paired villages in Southwest Colorado (Coffey 2016), this research examines ceramic designs to see if these paired villages reflect a moiety division rooted in present-day Tewa concepts. The same approach is then applied to Late Coalition paired villages in the Northern Rio Grande (the sites of Tsama and Cuyamungue) to see if the same patterns are present before and after migration to the Rio Grande. Tewa oral tradition also emphasizes dual social organization through references to Summer and Winter moieties in origin narratives. Paired villages that seem to reflect this form of organization coalesced in the Northern Rio Grande in the post-migration period, emphasizing the importance of Summer and Winter moieties over kinship organization.
Architecture has proven to be the main source of archaeological data in support of dual organization in Chaco Canyon as well as in the Mesa Verde region. Dual tribal sodalities are most central to Tewa social organization, and recent work suggests ancestral Tewa society descended in some senses from the ancestral Pueblo society of the Mesa Verde region (Ortman 2012). In this chapter I develop arguments that link moieties to pottery, guided by ideas concerning the symbolic associations of Tewa moieties and metaphors expressed through pottery designs.

**Symbolic Associations of Moieties**

Moiety association is not only seen at the level of architecture and villages, reflections in material culture are also important to moiety affiliation and association. For example, personal adornments worn by individuals from each moiety reflect this division and emphasize the link between symbolic and fundamental social organization within Tewa society (Ortiz 1969; Sweet 1985). Feast days today at pueblos such as Ohkay Owingeh have dances where individuals are wearing different colored moccasins based on their moiety. This has been a privilege to witness at summer feast days I have attended at Ohkay Owingeh. Yellow is associated with the Summer People and red and white with the Winter People (Ortiz 1969). Cotton textiles are representative of clouds and summer rains. Women often wear *tablitas* on their heads in the shape of clouds and men often wear white tassels suggestive of rain (Sweet 1985). This is representative of the male and female division as well as the importance of summer and cotton. Moiety affiliation is reflected in the attire of individuals participating in Pueblo activities today illustrating the importance of moiety representation in material culture. Based on Tewa origin narratives and current material expressions of moieties it appears reasonable to associate cotton with agriculture
and summer, and wild plants with basketry and winter.

**Expressions of Tewa-Style Moieties in Pottery Design**

Pottery is not only one of the most prevalent artifacts preserved in the Southwest, it is also a material expression of Puebloan ideals. The reason I focused on pottery designs is the importance of pottery designs in reifying the cosmogram of a Puebloan worldview. There are a variety of lines of evidence suggesting that ceramics can be used to analyze social organization: mural paintings in kivas (Ortman and Bradley 2002), models of villages (Bernhart and Ortman 2012; Coffey 2016; Fowles 2009), and the history of the Tewa language (Ortman 2012). The next step in my analysis was to link basketry and cotton cloth to pottery designs. The symbolic association of pottery, basketry and cotton cloth in Tewa language and Mesa Verde material culture can be understood through conceptual metaphor theory. Examining the Tewa language, it becomes apparent that there are semantic connections between woven objects and words for pottery. Words for pottery in Tewa roughly translate as “clay-baskets” in English (Ortman 2012). Such terms reflect the metaphor POTTERY VESSELS ARE BASKETS (Ortman 2012: 230).

Textile imagery is also expressed in Mesa Verde pottery designs (Ortman 2000). These associations are examples of a phenomenon known as conceptual metaphor, through which abstract concepts are conceptualized in terms of more concrete things and experiences. In this thesis I examine conceptual metaphors as they are expressed in Mesa Verde Region and Northern Rio Grande pottery designs. To do this I build from Ortman’s previous work, which suggests that at the time Tewa ancestors migrated from the Mesa Verde Region to the Northern Rio Grande they conceptualized pottery vessels as earthen versions of woven objects. Ortman
(2012) found evidence of continuity in this conceptualization in designs from the west ruin at Tsama. I adapted this approach to associate specific types of ceramic design with seasonal moiety concepts.

**Conceptual Metaphor Explained:**

Conceptual metaphors allow one to study the transfer of ideas and concepts through material culture. These six principles help to lay the foundation for my research, which utilizes design analysis to understand links between material culture and social organization.

Conceptual metaphors are familiar concepts such as, “love is a journey,” “being happy is being off the ground,” and “the community is a family” (Lakoff 1993; Kovesces 2002). These are all examples of understanding a relatively abstract domain of experience in terms of a more concrete domain (Lakoff 1993). For example, love is understood as a journey in the phrase “our relationship has hit a dead-end street.” It is assumed that the lovers cannot “keep going the way they have been going” (Lakoff 1993: 206). This can be understood as mapping from one source domain (love) to another (journey). Both terms are understood in separate contexts, but can be used to manipulate language to understand reality (Pinker 2007: 259). Metaphors are expressed linguistically, but they emanate from conceptual metaphors grounded in embodied experience.

Conceptual metaphors are present in everyday language and influence how individuals act. In Lakoff’s words “metaphorical thought and metaphorical understanding of situations arises independent of language” (Lakoff 2014: 1). Individuals experience their world in a variety of ways, whether through their physical senses or mental observations, and these experiences can be best conceptualized and understood through comparisons. Conceptual metaphors are not binding, however, and differing but similar experiences can be used to frame the same expression (Pinker 2007: 261). Language is the primary mode of expression of conceptual metaphors, but objects and materials can also express such concepts. The origin of conceptual
metaphor is in thought and as a result they can be expressed in other forms of non-linguistic behavior, such as material culture. Symbolic material culture can thus be used as a means of storing collective knowledge. Artifacts thereby embody and reinforce cultural phenomena as mnemonic devices (Ortman 2000: 614). Material culture can be understood in terms of inferred conceptual systems allowing for ideology and worldview to be examined archaeologically (Ortman 2000: 639).

Conceptual metaphor in archaeology can provide insight into social and cultural constructs tied to ideology and cosmologies of prehistoric peoples. Ortman (2000) uses design analysis of Pueblo III (1150-1300 CE) Mesa Verde Region ceramics to define various mappings of textile imagery onto pottery vessels. Behavior related to metaphor is highly structured and therefore the design analysis data is unlikely to follow the model by chance; however, the model is not deterministic (Ortman 2000: 621). The attributes examined in the pottery designs exhibit correspondences with textile imagery, but it cannot be proven ahead of time that these analogous features are indeed metaphorical expressions (Ortman 2000:621). Analyzing ceramic sherds (using a method focused on identifying constraints imposed by the metaphoric mappings themselves) allows for the hypothesis of metaphoric mapping to be tested. Ortman (2000; 2008; 2012) further argues this conceptual mapping was propagated through a worldview steeped in container imagery. This ideology is reflected in kiva construction as well as ceramic decoration. The discovery of widespread analogous features in Mesa Verde pottery designs argues for a perpetuated and regulated worldview where conceptualizations of ceramics that were not related to woven objects were often excluded.

Ortman discusses six different properties of metaphor. Understanding these properties is important for examining constraints in design imposed by the conceptualization of ceramics as
textiles. First, Directionality implies metaphorical mappings are from source domain A to target domain B, but not vice versa. Source domains (the concrete object individuals are using to understand the more abstract concept) are grounded in physical experience whereas the target domain (the more abstract domain itself) is more abstract (Lakoff 2014). Applied to this particular case, directionality implies that the relationship between textiles and ceramics was asymmetrical. Although certain designs could have been invented in pottery decoration initially, the correspondences noted are unlikely to have been invented in pottery (Ortman 2000: 627).

“For example, when a triangle is sewn into a coiled basket wall, a leg that is diagonal to the rim and travels against the work direction will necessarily appear jagged due to its traveling in opposition to the stitch slant; but when a triangle is executed in twill-tapestry weave on a loom-woven fabric, it is a vertical leg (parallel to the warps on an upright loom) that will appear jagged, due to the twill rhythm. These subtle differences in triangles woven in various media were expressed in pottery designs as ticked triangles, with the ticking on the appropriate leg. Notice that these details were not intentionally woven into triangles in different textile media, but were unavoidable consequences of different weaving processes” (Ortman 2000: 628).

Second, the Superordinate Principle refers to the way human beings understand various types of experiences as generalizations (Lakoff 1993). Prototypic images are basic level categories, such as “car, train, boat, and plane” (Lakoff 1993: 211). These basic level categories fall under the superordinate category of vehicles. Mappings are made at the superordinate level rather than at the basic level (Lakoff 1993). Textiles fall under the superordinate category because there is no single concrete image that represents the full range of woven objects, whereas coiled basketry, plaited basketry, non-loom fabrics, and loom-woven fabrics are basic level categories (Ortman 2000: 627). Therefore, textiles map onto ceramic vessels broadly as general craft media. There is no specific relationship between vessel forms and/or weaving methods (Ortman 2012).

Third, the Invariance Principle is important in understanding that metaphorical mappings retain their “cognitive typology” (Lakoff 1993: 215). The Invariance Principle guarantees that container interiors will match interiors, exteriors will match exteriors, and boundaries will be
upheld from source to target domain (Lakoff 1993: 215). This is important for seeing constraints in the connections between textiles and ceramic designs. Textiles, theoretically speaking, would map onto ceramics in ways that do not contradict the inherent structure of textiles and textile designs.

The fourth concept is the *Constitutive Principle*, which describes how the constraints and understandings of conceptual metaphors are perceived as true to participants in a culture (Ortman 2000: 616). Embedded concepts are rarely consciously acknowledged as metaphorical (Reddy 1993). This is important when thinking about the transfer of design practice and the idea of tradition versus active representation of conceptual metaphors. In Ortman’s study, over two and a half centuries of design motifs could be traced to innovations in weaving techniques. Pottery designs that utilized non-textile imagery were consistently rare (Ortman 2012), demonstrating the consistency within Pueblo III Period culture where ceramics were understood as textiles via a conceptual metaphor.

Fifth, *Blended Sources* reference middle spaces where conceptual structure from two or more domains is projected onto a more abstract target (Ortman 2000: 618). Blended spaces are important because they provide a venue for conceptual structures, which exist only in thought, to be mapped (Ortman 2000: 618). This allows archaeologists to go beyond “real-world correspondences” (Ortman 2000: 618) to explore the realm of imagination in the past.

The final property of metaphor is the *Experiential Principle*. This is the idea that conceptual metaphors are grounded in bodily experience; and mental imagery is deeply rooted in perception. Individuals can only understand metaphorical concepts when they have direct experience of the source and target domains (Ortman 2000: 619). This can be seen in the regional variation of pottery designs corresponding to weaving industries,
“… designs from loom-woven cotton cloth are more common on vessels produced in areas where cotton was cultivated and woven, whereas elements of design that derive from coiled basketry were more common in areas where cotton was not grown” (Ortman 2012: 227).

An principal issue with regard to Ortman’s approach is the fact that is has previously been applied only in analysis of sherd collections. Thus, there is the possibility that analytical bias enters into the interpretation of partial patterns on sherds, and there are fewer opportunities to document constraints on combinations of elements suggested by the textile metaphor hypothesis. I therefore decided to test whether patterns observed in Ortman’s previous studies are also apparent in whole vessel collections. I present this pilot study in the following section.

A Test of the Textile Metaphor Hypothesis

As a preliminary to my thesis research, I applied Ortman’s (2000) approach in an analysis of 135 Pueblo III (1150-1350 CE) Mesa Verde-style whole vessels. Analyzing Pueblo III whole vessels from the University of Colorado Museum of Natural History, HistoryColorado in Denver, Sand Canyon Pueblo, and Long House at Mesa Verde National Park, provided data for testing and expanding on Ortman’s sherd-based analyses. I utilized whole vessel collections to determine if observer bias was present in the original study. When analyzing sherds the designs are often extrapolated since only a portion of the design is present. I utilized whole vessels to remove the potential for sample bias and to test the textile metaphor hypothesis in application to whole vessel designs. Analyzing whole vessels using Ortman’s attribute analysis sheet (Table 3.1), I statistically tested correlations between the presence and absence of design attributes that Ortman defined as representative of conceptual mappings between textiles and ceramics.
Table 3.1:  
**Bowl Rim Design Analysis Categories** (Crow Canyon Archaeological Center 2009)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indeterminate:</td>
<td>The interior is too damaged or small to tell what the pattern is.</td>
</tr>
<tr>
<td>Unpainted:</td>
<td>The interior of the sherd was never painted.</td>
</tr>
<tr>
<td>Checkerboard:</td>
<td>A checkerboard pattern is on the interior.</td>
</tr>
<tr>
<td>Background White:</td>
<td>The interior design consists of only geometric shapes “floating” on an unpainted background.</td>
</tr>
<tr>
<td>Framing Line Band:</td>
<td>The interior design is just a framing pattern.</td>
</tr>
<tr>
<td>Sectioned Band:</td>
<td>The interior design consists of a band divided into sections and filled with geometric patterns.</td>
</tr>
<tr>
<td>Continuous Rectangular Band:</td>
<td>The interior design consists of a “flowing” band with geometric shapes oriented N-S and E-W and a negative line pattern in the leftover space.</td>
</tr>
<tr>
<td>Continuous Diagonal Band:</td>
<td>The interior design consists of a “flowing” band with geometric shapes oriented NW-SE and NE-SW with a negative line pattern in the leftover space.</td>
</tr>
<tr>
<td>All-Over Hatched-Line Pattern:</td>
<td>The interior design consists of an all-over pattern of thin parallel or meandering lines that are hatched-in.</td>
</tr>
<tr>
<td><strong>All-Over Solid-Line Pattern:</strong></td>
<td>The interior design consists of an all-over pattern of broad parallel or meandering lines.</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Background Hatchure:</strong></td>
<td>The design includes hatching that fills in the leftover space around buffered lines and shapes.</td>
</tr>
<tr>
<td></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Angled Bands:</strong></td>
<td>The design contains band designs that run at an angle to the rim.</td>
</tr>
<tr>
<td></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td><strong>Other Pattern:</strong></td>
<td>The design is different from all the options above.</td>
</tr>
<tr>
<td></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>

This pilot study produced several interesting results. Correlations between attributes were assessed statistically using *JMP 12 Pro* (a statistical computer analysis program) and several new design elements were documented through the use of whole vessels. Although my results were not always statistically significant, they mirrored the expectations regarding design constraints set forth by Ortman’s (2000) original research with sherds.

Utilizing the *invariance principle* and the concept of *blended sources* I tested the following expected constraints: 1) slanted ticking, being representative of coiled basket rim stitching, should not occur on draped layouts, which derive from plaited basketry; 2) framing patterns representing the texture of coiled basketry also should not occur on draped layouts.
(Figure 3.1); and 3) background hachure representing the texture of twill-tapestry weaves should occur in banded designs only when these are inspired by such weaves.

**Figure 3.1: Plaited Basketry and an “All-over line” or Draped Ceramic Pattern** (Ortman 2000: 625)

In order to demonstrate the operation of conceptual constraints, I conducted contingency table analyses of three pairs of attributes that were hypothesized to not co-occur on the same ceramic vessel: 1) slanted ticking and a draped layout; 2) framing patterns and a draped layout; and 3) background hachure and banded layout. Draped layouts cover the entirety of the interior of the ceramic bowl and are conceptualized as a woven textile being draped across the interior of the bowl, versus banded layouts consist of a band design around the interior of the vessel and are conceptualized via the characteristics of coiled baskets.

Table 3.2 summarizes the occurrences of rim decoration versus layout in the sample I studied.
Table 3.2: Rim Decoration versus Layout on Pueblo III Whole Vessels.

<table>
<thead>
<tr>
<th></th>
<th>Draped</th>
<th>Banded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slanted Ticks</td>
<td>1</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
<td>107</td>
<td>124</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>117</td>
<td>135</td>
</tr>
<tr>
<td><strong>Chi Square Results:</strong></td>
<td><strong>0.665822869</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I used a chi square test to determine if the observed distribution would be expected to occur by chance. The pattern in the data conforms to the hypothesis, but due to a small sample of vessels with draped layout the distribution is not statistically significant. Still, only one vessel with a draped layout co-occurs with slanted ticks suggesting that these two attributes do not often co-occur. This is consistent with Ortman’s original hypothesis that specific combinations of attributes that derive from contradictory mappings should not occur together.

The presence of framing patterns coupled with a draped layout is an example of another design constraint (Ortman 2000). These two design elements should not occur together in the same design field if they are in fact representing textile imagery on a ceramic vessel. Framing patterns involve the use of multiple parallel lines and spaces of differing widths, and sometimes tick marks between the lines, reflect the texture of a coiled basket; whereas a draped layout is representative of a plaited basket (Ortman 2000). I conducted another chi square test to verify the statistical significance of framing lines and draped layouts (Table 3.3). The results are statistically significant and demonstrate that framing lines are more common in banded layouts than in draped layouts. This supports Ortman’s sherd-based analysis since framing patterns representing the texture of coiled basketry would not be expected on draped layouts which represent plaited basketry. These results are statistically significant and support the textile
metaphor hypothesis (see Ortman 2000).

Table 3.3: Framing Pattern versus Layout on Pueblo III Whole Vessels

<table>
<thead>
<tr>
<th></th>
<th>Draped</th>
<th>Banded</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex (multiple line)</td>
<td>2</td>
<td>51</td>
<td>53</td>
</tr>
<tr>
<td>Simple (single line or absent)</td>
<td>16</td>
<td>66</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>117</td>
<td>135</td>
</tr>
<tr>
<td>Chi Square Results</td>
<td>0.008615838</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The third example of a design constraint is the use of background hachure representing the texture of a twill-tapestry cotton fabric (Figure 3.2) (Ortman 2000). A chi square test (Table 3.4) yielded statistical results suggesting a significant relationship between the uses of background hachure and draped design layouts that could incorporate twill-tapestry cotton fabrics. The results are likely to be even stronger than suggested by this analysis because background hachure represents the texture of twill woven tapestries and thus could also occur on twill-tapestry bands (Figure 3.2), which are included in the banded layout category. However, such designs would not be expected on plain tapestry or non-loom bands, and I suspect this is the reason for the lower prevalence of background hachure in the banded layout category.
Figure 3.2: Twill-tapestry Cotton Fabric as Represented on Pottery (Ortman 2000: 630)

Table 3.4: Background Hachure versus Layout on Pueblo III Whole Vessels.

<table>
<thead>
<tr>
<th></th>
<th>Present</th>
<th>Absent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draped</td>
<td>5</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Banded</td>
<td>13</td>
<td>104</td>
<td>117</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>117</td>
<td>135</td>
</tr>
</tbody>
</table>

Chi Square Results: 0.052807511
If we assume the overall designs on whole vessels reflect a textile metaphor, a few examples of “meta” metaphors were apparent in my sample. “Meta” metaphors reflect the metaphor of a metaphor, for example a design inspired by cotton fabrics that is constructed from images of actual blankets. Figure 3.3 is an example of a draped layout with an overall motif of a blanket (represented by the center rectangle with four attached rectangles), with each rectangle representing a woven blanket (a “meta” metaphor). The entire draped design is representative of a twill-tapestry woven cloth, due to the characteristics of the designs present. Several iterations of the conceptualization of ceramics as textiles are present on this vessel. This vessel demonstrates the qualities associated with metaphoric expression through several layers of nested metaphorical mappings. In the same way, Figure 3.4 demonstrates an example of woven design elements tied with design elements referencing tie-dye cloth (as represented by the circular designs). Woven designs are angled and can be curved, but are never circular (Kent 1983).

**Figure 3.3: Catalog #00483 CU Boulder Museum**
This vessel combines multiple elements of textiles mapped onto a ceramic bowl. This may represent a space in which weaving imagery is being manipulated, suggestive of subconscious iterations of metaphors versus active and conscious ones. This can be translated into the notion of active learning of an ideology versus a tradition that has been passed down through generations (Ortman 2000). These two concepts are not mutually exclusive, but can shed light on the structure of society in the past through material culture. These “meta” metaphors are an important benefit of studying whole vessels.

Another benefit to studying whole vessels came from the identification of new design categories not previously recognized on the sherd based analysis. As discussed above, when examining the whole vessels, I found a variant of the rim-ticking pattern that had not been previously recognized as a category. On four vessels the rim ticking was clearly slanted to the rim (Figure 3.5) whereas on most the ticking was vertical to the rim (Figure 3.6). Eight percent
Figure 3.5: An example of leaning (slanted) repeated rim ticking (Catalog #00141 CU Boulder Museum)

Figure 3.6: An example of straight repeated rim ticking (Catalog #00491 CU Boulder Museum)
of the total assemblage had slanted rim ticks. The presence of more than one vessel having slanted rim ticks denotes intentionality and observing a larger sample size would flesh out the possible importance of this attribute. Discovering the variation in repeated rim ticking demonstrates how examining entire vessels can provide beneficial insights that may be missed in a sherd-based analysis. The ideological importance of the variation in rim ticking requires further research, but the importance of noticing the difference in styles highlights limitations of sherds versus whole vessels for design analysis research.

Studying whole vessels allowed for the ability to identify and characterize entire designs. For example, framing line-banded patterns on the interior of vessels noticeably resemble a coiled basket (Figure 3.7) when examined on a whole vessel, but this association may not be apparent

Figure 3.7: Catalog #00497 University of Colorado Boulder Museum
when only a fragment of the vessel is examined. Analyzing whole vessels allowed for an examination of the strength of the conceptual metaphor theory in relation to ceramic designs, and brought to light larger questions regarding complete layouts of vessels and the strength of metaphors.

The results of this pilot study add support to the idea that pottery designs in the Tewa tradition reflect textile imagery, and it reinforces Ortman’s conclusion that one can capture these designs even through a sherd-based analysis. The sherd-based analysis I conducted to investigate the emergence of paired-village moieties in the Tewa tradition focused on distinguishing cotton textile designs and basketry designs based on their suggested associations with the seasons, directionality and domesticated/undomesticated plants, which is contextualized by the Tewa origin narrative as mentioned previously.

**The Association of Summer/Cotton and Winter/Baskets**

The conceptual metaphor theory in conjunction with the Tewa origin narrative provides the basis of my ceramic design analysis. Ortman (2000) developed a list of Pueblo III ceramic design attributes that derive from various weaving methods utilizing conceptual metaphor theory. These attributes demonstrate a conceptualization of ceramic designs as textiles, which as a category includes a variety of objects from coiled basketry to plaited basketry, non-loom-based weavings, and loom-woven cotton cloth. Ortman (2000) associated specific design attributes with either woven cotton textiles or basketry. The Tewa origin narrative associates Summer with the west/south and agriculture whereas the Winter is associated with the east/north and wild plants (Ortiz 1969). Combining conceptual metaphor theory with the Tewa origin narrative I associate basketry patterns with wild plants (undomesticated, such as yucca and skunk bush), the
Winter, east/north and textile patterns with cotton (domesticated), the Summer and west/south (Figure 3.8).
Figure 3.8: Summary of Semantic Chains Connecting Pottery Designs with Moieties
The seasonal associations I make here are based on the materials utilized in making these distinct types of articles. Cotton is a domesticated plant that is grown in the summer, whereas wild plants can be collected and utilized during the winter when there is a focus on hunting rather than agriculture. This separation in material (cotton and wild plants [such as yucca and skunkbush]) tied to ceramic designs (via conceptual metaphor theory) provides the beginning links in my argument associating moieties with particular ceramic designs (see Figure 3.8). For example, Goodman Point Pueblo is located east of Sand Canyon Pueblo and therefore based on the textile metaphor in pottery and the Tewa origin narrative I would expect to find more incidences of basketry pattern designs on sherds from Goodman Point Pueblo and more incidences of textile pattern designs on sherds from Sand Canyon Pueblo. I would also expect the same patterns to distinguish the West Plaza from the East/Middle Plaza at Tsama, and the north village (LA 792) and south village (LA 38) at Cuyamungue. I provide further background on these three pairs of villages, and the methods I used to collect the ceramic design data, in the following chapter.
Chapter 4: Sites, Samples, and Methods

This chapter discusses the sites, samples and methods used in my research. Utilizing design analysis categories that were created at Crow Canyon Archaeological Center (CCAC) following Ortman’s approach (Table 3.1) I analyzed ceramics at Sand Canyon Pueblo and Goodman Point Pueblo, Cuyamungue, and Tsama.

Mesa Verde Region: Sand Canyon Locality Sites

This section reemphasizes why I examined sherds specifically from the Sand Canyon Locality. Sand Canyon Pueblo and Goodman Point Pueblo appear to be linked both through architectural correlations and a road between the two pueblos (Coffey 2016). The architecture and layout of sites such as Sand Canyon Pueblo and Goodman Point Pueblo suggest a dualistic form of social organization. In Tewa society today, Summer and Winter moieties have many specific and balancing characteristics and one characteristic is tied to cardinal directions. North and the east are associated with Winter, and south and the west are associated with the Summer (Ortiz 1969). Sand Canyon Pueblo is located in the west and Goodman Point Pueblo is located in the east (reference Figure 2.2). Based on the Tewa origin narrative (Ortiz 1969) this suggests Sand Canyon Pueblo was the Summer village and Goodman Point Pueblo was the Winter village.

Sand Canyon Pueblo (5MT765)

Sand Canyon Pueblo (Figure 4.1) is in southwest Colorado, located approximately 12 miles west/northwest of Cortez, Colorado in Montezuma County at an elevation of 6800 ft. Crow Canyon Archaeological Center conducted two field projects at Sand Canyon Pueblo (1984-1989,
and 1991-1993). Beginning in the mid-1200s CE pueblo people constructed Sand Canyon Pueblo, a large village situated around a spring at the head of a small tributary to Sand Canyon.

**Figure 4.1: Sand Canyon Pueblo Site Map** (Crow Canyon Archaeological Report: 2007)

The drainage divides the site into east and west and cuts through the Dakota formation sandstone. The site itself wraps around the canyon rim and extends down the talus slope. There is a D-shaped bi-wall building and a great kiva, which is similar to the construction of Goodman Point Pueblo.

Construction at Sand Canyon Pueblo began in the late 1240s CE and ended in the late 1270s CE. There was a short occupation span that is documented through tree ring dates and evidence of only minor architectural remodeling. Few structures have evidence of secondary refuse as well (Kuckelman 2007). Sand Canyon Pueblo was primarily residential; kivas are abundant and served as primary residential spaces for households (Lightfoot 1988).

The depopulation of Sand Canyon Pueblo was a result of drought, environmental...
degradation, population pressures, conflict, and social/religious upheaval (Dean and Van West 2002; Kuckelman 2002; Kuckelman et al. 2002; Lipe 1995; Lipe and Varien 1999).

Depopulation of the village appears to have been stimulated by failure of a subsistence base which was tied to a heavy reliance on maize and turkeys. This abrupt climatic downturn led to long-term environmental degradation and this competition of dwindling resources was a catalyst for violence. The data from Sand Canyon Pueblo illustrate the strife that emerges from environmental push factors.

Intensive excavations at Sand Canyon Pueblo (Site 5MT765) were conducted by the Crow Canyon Archaeological Center, a not-for-profit research and education institution in southwestern Colorado. Crow Canyon archaeologists, with the assistance of thousands of lay participants enrolled in Crow Canyon education programs, excavated selected areas of the site from 1984 through 1989 and from 1991 through 1993 (Kuckelman 2007). The data used in my research was derived from the sherds excavated during these field seasons.

**Goodman Point Pueblo (5MT604)**

Goodman Point Pueblo was a large terminal Pueblo III (1150-1350 CE) village in the central Mesa Verde region (Figure 4.2) located approximately six kilometers east-northeast of Sand Canyon Pueblo. The site is located near the eastern edge of a concentration of Pueblo III village sites bounded by Hovenweep National Monument to the west and Yellow Jacket and Castle Rock Pueblos to the north and south, respectively. Goodman Point Pueblo is a canyon rim village that wraps around the head of a small tributary drainage along the western rim of Goodman Canyon. This drainage ultimately flows south into McElmo Creek (Kuckelman et al. 2009). The village occupied pinyon and juniper uplands, canyon-rim ledges of sandstone bedrock, and steep, sagebrush-covered slopes northeast of the spring at the head of the canyon.
Goodman Point Pueblo was a large village community center and was most populous between 1260-1275 CE. Crow Canyon Archaeological Center conducted excavations at Goodman Point Pueblo for four field seasons from 2005-2008. These excavations provided the ceramic samples I utilized in my research.

**Figure 4.2: Goodman Point Pueblo Site Map** (Crow Canyon Archaeological Report: 2009)
Northern Rio Grande Region Sites

The reason I examine Northern Rio Grande sites and compare them to the Mesa Verde Region sites is due to the evidence of a migration of peoples from the Mesa Verde Region to the Northern Rio Grande in the late 1200s (Ortman 2012). If paired-village moieties are mentioned as being associated with the migration of Tewa ancestors to the Northern Rio Grande, and they are also present in their Mesa Verde homeland, then one might expect them to have also characterized post-migration communities of the Northern Rio Grande.

Cuyamungue: LA 38 and LA 792

The Late Coalition Period (1250-1350 CE) Cuyamungue community consisted of two sites (LA 38 and LA 792) that I examine as a pair (Figure 4.3). Cuyamungue is located in northern New Mexico, approximately 15 miles north of Santa Fe on the west bank of the Rio Tesuque, and a short distance south of the modern community of Cuyamungue (Wendorf 1952). The pueblo of Cuyamungue was inhabited through the Pueblo Revolt of 1680-92 and was first noted in Spanish documents in 1634. Excavations by Fred Wendorf in the early 1950s concluded the pueblo was occupied beginning in the late 13th century with the most intensive occupation occurring between 1400-1500 (Ortman 2016). Wendorf’s excavations cleared three kivas and 54 rooms, which exposed three superimposed pueblos, the uppermost pueblo is associated with the early Spanish period (Wendorf 1952). Wendorf also uncovered several layers of rooms at LA 38, the earliest of which date from the Late Coalition Period. LA 792 (the Northern Village) was documented by H.P. Mera and seems to have dated exclusively to the Late Coalition Period. These chronological patterns have been confirmed by recent surface archaeology at the site conducted in collaboration with the nearby Pueblo of Pojoaque (Ortman 2016). Thus, the historical pattern at Cuyamungue is of a pair of Late Coalition Period villages that coalesced into
Figure 4.3: Cuyamungue (LA 38 and LA 792) Site Map (Map courtesy of Scott Ortman)
a single village at LA38, the southern village of the pair, during the Classic Period. LA 792 was not excavated or researched in great detail and is usually understood as being a part of Cuyamungue (LA 38). LA 792 is the northern/winter village and is angled so that it faces the southeast, which is the direction of the sunrise at the winter solstice. This supports the identification of the north village as the winter village. The layout of the southern village is too obscured by the later Classic village to see what its layout was originally, but an orientation towards the summer solstice sunrise is not out of the question.

**Tsama (LA 908)**

The second case of paired, Late Coalition Period Northern Rio Grande villages that I examine occurs at Tsama. This settlement has often been documented as a single site, but the two main habitation areas (the West and East/Middle plazas) were once separate villages that coalesced into one village over time. Tsama is a Late Coalition (1250-1350 C.E.) and Classic Period (1350-1600 C.E.) settlement in the Chama River Valley (Figures 4.4 and 4.5). A major ancestral Tewa settlement, Tsama is located on a terrace above the north bank of the lower Rio Chama, which was first recorded by J.P. Harrington in 1916. The west plaza consists of low single-story mounds of melted adobe, which form one open and one enclosed plaza. The middle plaza has two detached, but taller adobe mounds with some embedded cobbles. The east plaza is a massive quadrangle of melted multistory adobe architecture enclosing a plaza larger than a football field (Windes and McKenna 2006). Mera (1934) suggested the middle plaza and east plaza were occupied from the beginning of the 14th c. to the beginning of the 16th c. Greenlee (1933) also excavated several rooms in the east plaza and confirmed it was occupied during the late Classic Period.

In 1970 Florence Hawley Ellis directed field school excavations at Tsama (Windes and
McKenna 2006). These excavations yielded information regarding Kiva W-4 and the associated west plaza appear to represent the earliest tree-ring dated occupation currently known for the Chama district. Surface assemblages clearly suggest an occupation sequence from west to east that corresponds with patterns in surface architecture. Ellis also found evidence for a second Late Coalition village beneath the East Plaza, and this is the source for some of the material I analyzed. The middle plaza is somewhat later and the west plaza reflects a longer overall occupation and contamination from the later middle plaza occupation. The west plaza has 120 rooms and was constructed rapidly around 1250-1275 CE (Ortman 2012).

**Figure 4.4: Location of Tsama (LA 908) and Cuyamungue (LA 792/LA 38) in the Northern Rio Grande**
For Tsama the basis for interpreting the West and Middle/East plazas as paired villages derives from the fact that there are Coalition-period sherds found in both locations and the fact that these adjacent villages coalesced into one over time. Thus, I compared the eastern/middle portion of the village with the western portion. The reason for including the middle plaza with the eastern plaza data comes from patterns in the data. When the eastern, middle and western plazas at Tsama were compared proportionally using chi square tests, the data from the middle plaza closely mirrored those from the eastern plaza rather than the western plaza. The association between the west/summer and east/winter is defined by the placement of the plaza openings. The opening in the west plaza looks northeast, towards the summer solstice sunrise, and this is consistent with a Summer identification for the West plaza. In the same way, the primary opening in the East plaza faces southwest toward the winter solstice sunset, thus associating the East plaza with winter.
Methods

For this project I classified the ceramic designs on McElmo B/W, and Mesa Verde B/W painted bowl rim sherds in the Mesa Verde Region, and Santa Fe, Wiyo and Santa Fe/Wiyo Black-on White bowl rim sherds in the Northern Rio Grande Region, utilizing design analysis categories rooted in Ortman’s study of conceptual metaphor (Table 3.1, based off of the CCAC 2009 design analysis directions).

Although there are lists of attributes applicable to the exterior, rim and framing patterns present on the sherds, I focused solely on the interior designs because these provide the clearest indicator of whether the design reflects basketry or cotton cloth. Table 4.1 lists the design attributes and their source industries as well as associated season. The designs with basketry and non-loom weaving source industries are associated with winter because baskets and non-loom woven objects are made of wild plants. The designs associated with loom based cotton are associated with summer, since cotton is domesticated and harvested in the summer.

To track the abundance of each category of design the sherds were recorded individually on a worksheet with a series of check boxes. Each design category listed in Table 3.1 is considered a yes or no question. Table 4.1 shows how the Ortman 2000 analysis matches up with the Crow Canyon Archaeological Center categories. Three categories are listed as “summer/winter?” and this is due to the unclear seasonal association of twill-plaited “sifter” baskets: they are baskets, but they are used in preparing corn meal, an agricultural product. If the interior of the sherd exhibits the design type listed, then the box on the form should be checked, as a result, multiple categories can be marked for each sherd. Indeterminate is also a category, so the sample size for each site depends on the number of determinate sherds in each assemblage. The sample size for each of the interior attributes is the same because if I could see any of the interior attributes the
sherd counted as part of the sample. This would have been an issue if I also analyzed framing patterns and rim decoration, but I kept this analysis to interior bowl designs. Each sherd may or may not have had a given design attribute, and more than one can occur on a given sherd. Thus, the design categories are not mutually exclusive. The analysis is focused on the frequency of each attribute on its own, which means the percentages of all the designs observed at each site will not add up to 100. Chi square tests proved to be the most adequate statistical test to use in my analysis, since multivariate analysis methods such as principal components analysis presume the use of exhaustive and mutually exclusive categories.
Table 4.1: Attribute Labels

<table>
<thead>
<tr>
<th>Orman 2000 Attribute</th>
<th>Crow Canyon Attribute</th>
<th>Label</th>
<th>Source Industry</th>
<th>Season</th>
</tr>
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<tbody>
<tr>
<td>Coiled basketry color pattern</td>
<td>Background White</td>
<td>solbkgd</td>
<td>Coiled Basketry</td>
<td>Winter</td>
</tr>
<tr>
<td>Coiled basketry texture pattern</td>
<td>Framing Line Band</td>
<td>frammbnd</td>
<td>Coiled Basketry</td>
<td>Winter</td>
</tr>
<tr>
<td>Non-loom band design</td>
<td>Sectioned Band</td>
<td>sectmbnd</td>
<td>Non-loom weaving</td>
<td>Winter</td>
</tr>
<tr>
<td>Simple plaiting</td>
<td>Checkerboard</td>
<td>checkmbnd</td>
<td>Twill-plaited basketry</td>
<td>Winter/Summer? *</td>
</tr>
<tr>
<td>Twill-plaiting texture pattern</td>
<td>All-Over Hatched Line Pattern</td>
<td>hatchline</td>
<td>Twill-plaited basketry</td>
<td>Winter/Summer? *</td>
</tr>
<tr>
<td>Twill-plaiting color pattern</td>
<td>All-Over Solid Line Pattern</td>
<td>solidline</td>
<td>Twill-plaited basketry</td>
<td>Winter/Summer? *</td>
</tr>
<tr>
<td>Plain-tapestry band design</td>
<td>Continuous Rectangular Band</td>
<td>contmbnd</td>
<td>Non-loom weaving</td>
<td>Winter</td>
</tr>
<tr>
<td>Twill-tapestry texture</td>
<td>Background Hachure</td>
<td>bkdhatch</td>
<td>loom-woven cotton cloth</td>
<td>Summer</td>
</tr>
<tr>
<td>Twill-tapestry band design</td>
<td>Continuous Diagonal Band</td>
<td>diagmbnd</td>
<td>loom-woven cotton cloth</td>
<td>Summer</td>
</tr>
<tr>
<td>Twill-tapestry all-over design</td>
<td>Angled Bands</td>
<td>angmbnd</td>
<td>loom-woven cotton cloth</td>
<td>Summer</td>
</tr>
</tbody>
</table>

*The attributes with “Winter/Summer?” are labeled as such due to the unclear association of twill-plaited “sifter” baskets with a season.
Data Collection:

The collections from which the data analyzed in this study derive are from Crow Canyon Archaeological Center, the Center for New Mexico Archaeology, and the Maxwell Museum of Anthropology at the University of New Mexico. The data from Crow Canyon Archaeological Center were previously collected from painted bowl rim sherds found at Sand Canyon Pueblo (published in Ortman 2000), the West Plaza at Tsama (Ortman 2012), and Goodman Point Pueblo (recorded by CCAC lab assistants and participants in CCAC education programs). The collections at the Center for New Mexico Archaeology and the Maxwell Museum of Anthropology were analyzed by myself and undergraduate field school students from CU Boulder.

Sand Canyon Pueblo (5MT 765) and Goodman Point Pueblo (5MT604)

The Sand Canyon Archaeological Project (1983-1993), of which the Sand Canyon Pueblo excavations were a major component, allowed for the collection of archaeological material to be curated and analyzed by Crow Canyon Archaeological Center. My sample size for Sand Canyon consists of 450 sherds (Mc ElmoB/W and Mesa Verde B/W). Intrasite provenience was not important for my analysis, so I included all sherds from Sand Canyon Pueblo in a single analytical unit. The sherds from Sand Canyon Pueblo were analyzed according to the same categories noted in Table 3.1, but there has been some evolution in terminology over time and Ortman adjusted the variable labels to match the current categories described in the table for his original analysis. The Sand Canyon Pueblo data were recorded using an earlier version of the design analysis protocol that was later refined and streamlined (Table 3.1) for a more intuitive application. Data for my research from Sand Canyon Pueblo were retrieved from the Crow Canyon Archaeological Center research database. The Goodman Point Pueblo ceramic designs
were recorded using the current and more intuitive system by participants in Crow Canyon’s educational programs. The sample size that I used from Goodman Point Pueblo is 448 sherds (McElmo B/W and Mesa Verde B/W). Once again, sherd provenience was not important, so Goodman Point Pueblo was considered a unit.

**Cuyamungue (LA 38 and LA 792)**

Both LA 38 and LA 792 (Cuyamungue) were established in the Late Coalition Period, but LA 38 continued through the Classic Period and presumably absorbed LA 792 around 1400. Data collection for Cuyamungue came from sherds I analyzed at the Center for New Mexico Archaeology (CNMA) in Santa Fe, New Mexico. I also utilized the streamlined approach (Table 3.1) for the recording of designs present at Cuyamungue.

Utilizing Fred Wendorf’s 1952 excavated material from LA38, I analyzed the interior designs on Santa Fe B/W, Santa Fe/Wiyo B/W and Wiyo B/W bowl rim sherds. The University of Colorado Boulder 2017 field school students assisted me in analyzing the interior designs using the Crow Canyon system (Table 3.1). To account for discrepancy between observers I had the students sit across from me and we discussed each sherd and the possible options for the design present. I also had students take photos of each sherd (the photo number was recorded for each sherd) in order to be able to verify the designs once I was writing up the analysis.

Documenting the sherds at LA38 (the southern, summer village) warranted a comparison to the northern village, LA792.

H.P. Mera collected a sample of sherds from the surface of LA 792 and I was able to analyze these at the Center for New Mexico Archaeology. Due to the lack of surface artifacts currently present on the site, the surface collection by H.P. Mera proved to be extremely useful in making a comparison between Cuyamungue as the southern, summer village and LA 792 as
the northern, winter village. I analyzed 183 sherds from Cuyamungue and 16 sherds from LA 792. Provenience was important at the level of the specific village.

**Tsama (LA 908)**

The data gathered from Tsama (LA 908) came from sherds excavated by Florence Hawley Ellis in the 1970s. Data for the Western Plaza at Tsama (LA 908) come in part from a previous analysis conducted by Fumi Arakawa and Scott Ortman (see Ortman 2012: Chapter 14 for results) as well as further analysis conducted by two 2017 field school students, Gretchen Bach and Julie Belter, and myself. This analysis expanded the sample of bowl rim sherds analyzed from the western plaza to a total of 221 sherds. We also analyzed the available Santa Fe, Santa Fe/Wiyo, and Wiyo black-on-white bowl rim sherds from the eastern and middle plaza from Tsama at the Maxwell Museum at the University of New Mexico, for a sample size of 110 sherds. Provenience of the sherds was important at the level of the plaza (west or east/middle). The analysis was conducted using the Crow Canyon Archaeological Center Analysis Form and the field school students double checked their analysis results with me as well as took photos of each sherd.

**Data Processing:**

After recording the presence, absence, or indeterminate presence/absence for each attribute for each sherd using the Crow Canyon check-box system (Table 3.1), the data were entered into an Access database and reclassified as presence/absence data. These were then used to calculate the proportion of each design attribute present in each sample. The sample size for each attribute is variable due to the occurrence of indeterminate sherds. After calculating the
proportion of vessels on which each design attribute occurs, it was important to determine if the observed differences were simply due to sampling error.

Inputting the presence and absence data into JMP (a statistical computer program) I was able to run Pearson chi-square tests and determine whether the difference in proportions between designs associated with the summer village were significantly different from the designs associated with the winter village in each community. After determining significance at the .05 level between proportions of designs based on location, I determined whether there is a correlation between designs and architectural divisions that are suggestive of season-based moiety organization in each community. In the following chapter I discuss the results of these analyses.
Chapter 5: Results and Discussion

This chapter discusses the analysis in the Mesa Verde region of Sand Canyon and Goodman Point pueblos (Tables 5.1), Cuyamungue (Table 5.2) and Tsama Pueblo (Table 5.3). The percentages in the tables do not add up to 100 since the design categories are not mutually exclusive. The total number of cases for each village is the total number of sherds for which the presence or absence of the given attribute could be determined. Indeterminate sherds were left out of the sample size. Using architecture, ceramics and oral traditions the links between social organization and material culture are analyzed. According to my hypothesis, western/southern villages should be associated with the summer moiety and eastern/northern villages should be associated with the winter moiety. I also analyze observer bias in ceramic design analysis by comparing design analysis results between analysts. This lends support to the efficacy of ceramic design analysis as a replicable method of analysis. Finally, I provide a discussion of how this research improves upon the work of previous archaeologists who examined social organization in the archaeological record through ceramics in the 1960s and 70s.
Table 5.1: Percentage of Designs present at Sand Canyon Pueblo (5MT765) and Goodman Point Pueblo (5MT604)

<table>
<thead>
<tr>
<th>Design layout</th>
<th>Code</th>
<th>Source industry</th>
<th>Cases at Sand Canyon</th>
<th>Cases at Goodman Point</th>
<th>Percent in &quot;summer&quot; village</th>
<th>Percent in &quot;winter&quot; village</th>
<th>Difference in percentage (summer - winter)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coiled basketry color pattern</td>
<td>solbkgd</td>
<td>Coiled Basketry</td>
<td>450</td>
<td>448</td>
<td>5.91</td>
<td>2.64</td>
<td>3.27</td>
<td>0.01</td>
</tr>
<tr>
<td>Coiled basketry texture pattern</td>
<td>frambnd</td>
<td>Coiled Basketry</td>
<td>450</td>
<td>448</td>
<td>12.38</td>
<td>24.55</td>
<td>-12.17</td>
<td>&lt;.0001</td>
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<td>sectbnd</td>
<td>Non-loom weaving</td>
<td>450</td>
<td>448</td>
<td>1.11</td>
<td>3.79</td>
<td>-2.68</td>
<td>0.01</td>
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<td>Plaited Basketry</td>
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<td>Plaited Basketry</td>
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<td>448</td>
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</tr>
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</tr>
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<td>Loom-woven cotton cloth</td>
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<td>Loom-woven cotton cloth</td>
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<td>Other, non-textile pattern</td>
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*Statistically significant results at the .05 level are highlighted (blue = winter; yellow = summer; orange = indeterminate or contradictory association)*
<table>
<thead>
<tr>
<th>Design layout</th>
<th>Code</th>
<th>Source industry</th>
<th>Number of cases at LA38</th>
<th>Number of cases at LA792</th>
<th>Percent in &quot;summer&quot; village</th>
<th>Percent in &quot;winter&quot; village</th>
<th>Difference in percentage (summer - winter)</th>
<th>Chi-square P-value</th>
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</thead>
<tbody>
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<td>Coiled Basketry</td>
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<td>Nonloom weaving</td>
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</tr>
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<td>Plaited Basketry</td>
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<td>0.96</td>
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<td>Plaited Basketry</td>
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<td>2.19</td>
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<td>Loom-woven cotton cloth</td>
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<td>Loom-woven cotton cloth</td>
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<td>Other, non-textile pattern</td>
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<td>7.65</td>
<td>0.25</td>
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</tbody>
</table>

*Highlighted rows are statistically significant at the .05 level (yellow = summer)
Table 5.3: Percentage of Designs present at Tsama (LA 908)

<table>
<thead>
<tr>
<th>Design layout</th>
<th>Code</th>
<th>Source industry</th>
<th>Number of cases at Tsama (LA908 [west])</th>
<th>Number of cases at Tsama (LA908 [east/middle])</th>
<th>Percent in &quot;summer&quot; village</th>
<th>Percent in &quot;winter&quot; village</th>
<th>Difference in percentage (summer - winter)</th>
<th>Chi-square P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coiled basketry color pattern</td>
<td>solbkgd</td>
<td>Coiled Basketry</td>
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<td>14.03</td>
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<td>Coiled Basketry</td>
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<td>Nonloom weaving</td>
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<td>Plaited Basketry</td>
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<td>Loom-woven cotton cloth</td>
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<td>Other, non-textile pattern</td>
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<td>2.24</td>
<td>0.45</td>
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</tbody>
</table>

*Highlighted rows are statistically significant at the .05 level (blue = winter; orange = indeterminate association)
Analysis of the Sand Canyon Community

Figure 5.1 summarizes the differences in design attribute frequencies between Sand Canyon and Goodman Point pueblos. The ceramic types I considered include McElmo B/W, and Mesa Verde B/W. Some of the important attributes to pay attention to are coiled basketry texture patterns (framing bands), twill-tapestry band design (diagonal bands) and twill-tapestry all-over designs (angled bands). Coiled basketry texture patterns (framing-line bands) are about twice as frequent at Goodman Point Pueblo (P<.05). The percentage of sherds with coiled basketry

*statistically significant bars are highlighted (P<.05).

**Blue is significant in the direction of winter and yellow for summer and orange for significant, but may be in the wrong direction (i.e. the opposite direction of what is expected based on the summer/winter design correlation)
texture patterns at Sand Canyon Pueblo (Summer) is 12.38 whereas at Goodman Point Pueblo (Winter) this percentage is 24.55. This design category is found in a significant proportion at the Winter associated pueblo, Goodman Point Pueblo. The other two patterns that are significant at the .05 level is the higher frequency of twill-tapestry band design (diagonal bands) and twill-tapestry all-over designs (angled bands) at Sand Canyon Pueblo. Twill-tapestry band designs make up 28 percent of the designs at Sand Canyon Pueblo compared to 12.95 percent of the designs at Goodman Point Pueblo. Twill-tapestry all-over designs make up 2.22 percent of the designs at Sand Canyon versus the 0.22 percent at Goodman Point Pueblo. These two design categories are suggestive of textile imagery being associated with a Summer pueblo; the fact that they are more significant at Sand Canyon Pueblo supports my hypothesis that woven, cotton textile patterns would be more prevalent at the Wester/Summer village, which in this case of paired villages is Sand Canyon Pueblo.

Two design categories were found to be significant at the .05 level, but these significant results did not support my initial hypothesis. Coiled basketry color pattern (white background) and twill-plaiting color pattern (solid all-over line pattern) are both significant at Sand Canyon Pueblo, but these designs that are associated with basketry patterns according to my analysis and in my research basketry is correlated with the Winter pueblo, which would be Goodman Point Pueblo. It is possible that these two designs are actually band designs rather than draped designs. If so they would be consistent with my hypothesis. This may mean that the attribute is difficult to classify accurately on sherds, but is not necessarily contradictory to the expected outcome.

Four design attributes are significantly more common at Sand Canyon Pueblo, but only two of these four vary in ways that support my hypothesis that cotton textile imagery should be associated with the summer moiety (Figure 5.1). Twill-plaiting color as mentioned previously
may be misidentified band designs instead of draped designs and in that case, they would be consistent with the hypothesis. Two design categories are significantly more frequent at Goodman Point Pueblo and support my hypothesis that basket imagery is associated with the winter moiety. Differences in the frequency of non-loom band design (sectioned band) are also significant at the .05 level, in the direction of the winter pueblo. Non-loom weaving is associated with winter because most non-loom articles are tump bands and belts, which would have been woven using wild plants, not cotton.

Table 5.1 lists the percentages present of each design attribute at Sand Canyon Pueblo and Goodman Point Pueblo in detail. Twill tapestry texture (background hachure) and plain-tapestry band (continuous band) both have a higher percentage of designs associated with Sand Canyon Pueblo, but the results are not significant, despite the proportions supporting my hypothesis (Table 5.1).

Although the results are not conclusive they are suggestive in that the distribution of designs (Figure 5.1) does partially support the hypothesis of a west/summer/agriculture/textiles and east/winter/wild plants/basketry association. There is a correlation between basketry patterns in the east and loom-based patterns in the west, suggesting an association between ceramic designs and summer versus winter. This is consistent with the presence of moiety organization at the level of paired adjacent villages. The patterns present in the data are not exclusive, but instead reflect different mixtures of patterns. This may be due to the fact that pottery samples are accumulations at their consumption locations, not necessarily production locations. I discuss this and other possibilities related to my results in the concluding chapter.

**Northern Rio Grande: Cuyamungue**
Figure 5.2 (Table 5.2) demonstrates the results from Cuyamungue. LA 38 is the southern, summer village and LA792 is the northern, winter village. Twill-tapestry band design (diagonal band) is significant at the .05 level at the southern/summer village, LA 38, given the source industry of the design, loom-woven cotton cloth. At LA 38 there is 20.77 percent of the sherd sample that has the twill-tapestry band design (diagonal band) compared to LA 792, which has zero percent of the design present. No other design categories were found to be significant, but this is most likely due to the small sample size available from LA 792.

Figure 5.2: Difference in Percentage of Designs present at LA 38 and LA 792

*Statistically significant (P<.05) bars are highlighted (yellow represents “summer”)

Northern Rio Grande: Tsama Pueblo

Figure 5.3 (Table 5.3) demonstrates the results from comparing the interior designs present on
Figure 5.3 Difference in Percentage of Designs present at the Western and Eastern/Middle Plaza at Tsama Pueblo

*statistically meaningful results (P<.05) are highlighted (blue represents “winter,” orange represents results that are significant in the wrong direction)

sherds from the western plaza to the eastern/middle plaza at Tsama. The coiled basketry texture pattern (framing-line band) is significant at the .05 level at the east/middle plaza of Tsama. This correlates with the hypothesis that coiled basketry source industries are correlated with the east, winter and wild plants. The percent of the sherds with a coiled basketry texture pattern in the western plaza is 8.6 compared to the 23.64 percent present in the eastern/middle plaza. Twill-plaiting texture pattern (hatched line pattern) is also significant at the .05 level, but at the west plaza of Tsama, which does not support my hypothesis, since twill-plaiting texture pattern is associated with the Winter according to my analysis. The percentage of twill-plaiting texture designs present on the western side of the plaza at Tsama is 9.05 compared to the 1.82 percent present on the eastern/middle side of the plaza. The source industry for the twill-plaiting texture
pattern is plaited basketry, which according to my hypothesis should be more prevalent in the eastern/winter side of the plaza, not the western/summer side. Twill-plaited basketry may be associated with the summer because of its role in sifting cornmeal. Cornmeal falling through a sifter basket into a bowl below is a natural symbol of summer rain and agriculture. An argument could be made for cotton and sifter baskets representing the summer and coiled basketry and non-loom articles representing the winter, which would slightly change my original argument concerning the associations of basketry versus woven textiles. Twill-plaiting texture patterns may also be misidentified hachure patterns, and if this were the case the design attribute would be significant at the Summer associated plaza and support my hypothesis. Twill-tapestry texture or background hachure is another category worth noting although the results are not significant. There is a significant difference between the frequency of the design found on sherds in the summer or west plaza (12.67 percent) compared to the winter or east/middle plaza (7.27 percent) as seen in Table 5.3. Background hachure is associated with woven, cotton textiles, which is tied to the Summer. The prevalence of background hachure sherd designs at the western plaza, which is also associated with the summer supports my hypothesis.

Comparing the sherds from the west and east/middle plaza of Tsama Pueblo (Figure 5.3) allowed for a secondary case study to determine if the pattern seen in the Mesa Verde Region of southwest Colorado was continued after 1280 C.E. in the Northern Rio Grande Region of New Mexico. Since, there is only one significant design category perhaps Tsama is a case where the association between summer/west/agriculture/cotton versus winter/east/wild plants/basketry was no longer expressed through ceramic designs. This is not to say these associations do not exist beyond the scope of ceramic designs (they obviously do, as seen in the present structure of Tewa society and moiety division [Ortiz 1969]), but perhaps the expression of these connections and
associations changed as individuals settled into the Northern Rio Grande.

**The Intensity of Metaphoric Imagery across Communities**

Ortman’s previous analysis at Tsama revealed the deterioration of the textile metaphor in post-migration pottery design, as demonstrated by the decrease in framing patterns and rim ticking through time (Ortman 2012). Several points drawn from the study and comparison of Mesa Verde style ceramic designs and those of Tsama are listed. The data confirm that weaving imagery that appears most often on 1200s CE Mesa Verde region pottery appears in similar frequencies on Late Coalition (1250-1325 C.E.) pottery at Tsama. This is consistent with Ortman’s expectation that material emblems of the Mesa Verde homeland would have been most apparent in areas of the Tewa Basin that were settled later in the migration process by larger groups of migrants. Ortman also suggested that rim decorations and framing patterns came to be executed in an increasingly stereotyped way over time (Ortman 2012). Sites such as Sand Canyon Pueblo in the Mesa Verde region exhibit a huge range of variation in experimenting with conceptions of weaving designs on ceramics. At Tsama however, rim decorations and framing patterns were painted more routinely through time, meaning the patterns were replicated without much creative innovation. This suggests that Tsama potters painted these embellishments as a matter of convention rather than creatively manipulating weaving imagery to create a variety of designs (Ortman 2012). This research supports the use of the textile imagery in Late Coalition (1250-1325 C.E.) pottery, although my analysis also suggests the metaphor of pots as textiles faded in prevalence after the migration to the Northern Rio Grande from the Mesa Verde Region.

Table 5.4 presents the overall frequencies of design attributes for each of the
Table 5.4: Percentage of Designs Present in Each Community.

<table>
<thead>
<tr>
<th>Design layout</th>
<th>Source industry</th>
<th>Sand Canyon/Goodman Point</th>
<th>Cuyamungue</th>
<th>Tsama</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coiled basketry color pattern</td>
<td>Coiled Basketry</td>
<td>4.28</td>
<td>3.67</td>
<td>11.11</td>
</tr>
<tr>
<td>Coiled basketry texture pattern</td>
<td>Coiled Basketry</td>
<td>18.47</td>
<td>23.59</td>
<td>16.12</td>
</tr>
<tr>
<td>Non-loom band design</td>
<td>Non-loom weaving</td>
<td>2.45</td>
<td>5.04</td>
<td>8.61</td>
</tr>
<tr>
<td>Simple plaiting</td>
<td>Plaited Basketry</td>
<td>1.23</td>
<td>6.41</td>
<td>4.99</td>
</tr>
<tr>
<td>Twill-plaiting texture pattern</td>
<td>Plaited Basketry</td>
<td>1.79</td>
<td>1.10</td>
<td>5.44</td>
</tr>
<tr>
<td>Twill-plaiting color pattern</td>
<td>Plaited Basketry</td>
<td>4.34</td>
<td>1.10</td>
<td>9.98</td>
</tr>
<tr>
<td>Plain-tapestry band design</td>
<td>Loom-woven cotton cloth</td>
<td>6.79</td>
<td>29.29</td>
<td>7.03</td>
</tr>
<tr>
<td>Twill-tapestry texture</td>
<td>Loom-woven cotton cloth</td>
<td>12.69</td>
<td>2.19</td>
<td>9.97</td>
</tr>
<tr>
<td>Twill-tapestry band design</td>
<td>Loom-woven cotton cloth</td>
<td>20.48</td>
<td>10.39</td>
<td>22.90</td>
</tr>
<tr>
<td>Twill-tapestry all-over design</td>
<td>Loom-woven cotton cloth</td>
<td>1.22</td>
<td>0.28</td>
<td>0.46</td>
</tr>
</tbody>
</table>
communities (village pairs) I have examined in this study (Sand Canyon Pueblo and Goodman Point Pueblo, LA38 versus LA792 [Cuyamungue], and West vs. East/Middle Plaza [Tsama]). The results suggest there was a continuation of conceptualizing ceramic vessels as textiles, both cotton cloth and basketry, in both post-migration communities. There appears to be a relatively high frequency of coiled basketry texture patterns (framing-line bands) across all three communities (18.47 Sand Canyon Pueblo/Goodman Point Pueblo; 23.59 Cuyamungue; 16.12 Tsama). This appears to have been a common design that was easily replicated whether or not the metaphorical symbolism was being enacted consciously by the potters.

In some instances, the frequency of a particular design (such as plain tapestry band designs [continuous band]) is higher (29.29) at Cuyamungue than at Sand Canyon Pueblo/Goodman Point Pueblo (6.79). This is interesting because Cuyamungue is a post-migration Late Coalition Period site and instead of the conceptual design decreasing, it increases. For most of the design categories there is consistency between the frequency of designs present at Sand Canyon Pueblo/Goodman Point Pueblo and Tsama. The increased frequency of design attributes at Cuyamungue (Cuyamungue on average has a higher percentage of various design categories compared to Sand Canyon and Goodman Point pueblos and Tsama) is interesting and perhaps suggests a longer continuation of individuals perpetuating ceramic styles from the Mesa Verde Region. This is important to consider because if we focus on Tsama instead of Cuyamungue due to the larger sample size from Tsama, there is more continuity between ceramic designs and material culture in the Mesa Verde Region and the Northern Rio Grande than has been previously assumed. A larger sample size and the examination of more paired villages in the Mesa Verde Region and the Northern Rio Grande might provide more evidence supporting the continued frequency of conceptual metaphor designs post-migration. This is
supported by my data because if a certain design has an equal or increased frequency in the Northern Rio Grande sites in comparison to the Mesa Verde Region sites this suggests individuals were conceptualizing ceramics as baskets and cotton, woven textiles post-migration in the Northern Rio Grande. This is supported by the tested efficacy of using conceptual metaphor design analysis in my research.

**Data Replication:**

Design analysis is often criticized as being more intuitive rather than an objective form of classification in archaeological analysis. Due to the skepticism associated with design analysis I wanted to compare different analyst’s design analysis results in order to determine if the conceptual design analysis categories were in fact streamlined enough to be objective design categories.

Utilizing the design analysis form created by Ortman at Crow Canyon Archaeological Center (2009; Table 3.1), two University of Colorado Boulder field school students (Gretchen Bach and Julie Belter) and I re-analyzed a portion of the sample from Tsama that was analyzed by Arakawa and Ortman at the Maxwell Museum of Anthropology at the University of New Mexico in Albuquerque, New Mexico. The 203 sherds included types such as Santa Fe Black-on-White, Santa Fe/Wiyo Black-on-White, and Wiyo Black-on White. These types date from the Coalition Period (1150-1350 C.E.). Following data collection, I implemented the same procedures as in the paired village comparisons, but in this case the compared groups were defined by the separate groups of analysts who collected the data.

Table 5.5 presents my comparison of the results for interior design categories by analyst
group. Overall the proportions of designs recorded for each sherd were similar, but framing line bands were more frequently noted in the sample I recorded (29/203 cases). Arakawa and Ortman appear to have been more restrictive in their identification of framing line bands on the interiors of bowl rim sherds (4/203 cases). Some possibilities for this may be tied to the size of the sherd (pertaining to how much of the interior of the sherd is visible) and whether there are multiple framing lines or if the pattern can be considered a framing line band pattern. The familiarity of the analyst with ceramic designs is important in determining whether or not a series of parallel lines below the rim of a sherd is actually the primary interior pattern or a framing pattern with a separate interior pattern below. When I examined the sherds on which I had identified a framing line band versus those on which Arakawa and Ortman had done so, there did not seem to be an obvious pattern in sherd size. Arakawa and Ortman were more conservative in calling a framing line band versus indeterminate interior design than my research team and me.
Table 5.5: Comparison of Results from Different Analyst Groups at Tsama Pueblo (LA 908 [western plaza])

<table>
<thead>
<tr>
<th>Design layout</th>
<th>Code</th>
<th>Source industry</th>
<th>Identified Cases: FUA/SGO</th>
<th>Identified Cases: SJL</th>
<th>Total Cases</th>
<th>Percentage FUA/SGO</th>
<th>Percentage SJL</th>
<th>Difference in percentages</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coiled basketry color pattern</td>
<td>solbkgd</td>
<td>Coiled Basketry</td>
<td>22</td>
<td>22</td>
<td>203</td>
<td>10.84</td>
<td>10.84</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Coiled basketry texture pattern</td>
<td>frambnd</td>
<td>Coiled Basketry</td>
<td>4</td>
<td>29</td>
<td>203</td>
<td>1.97</td>
<td>14.29</td>
<td>-12.32</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Non-loom band design</td>
<td>sectbnd</td>
<td>Nonloom weaving</td>
<td>18</td>
<td>16</td>
<td>203</td>
<td>8.87</td>
<td>7.88</td>
<td>0.99</td>
<td>0.72</td>
</tr>
<tr>
<td>Simple plaiting</td>
<td>checkbd</td>
<td>Plaited Basketry</td>
<td>8</td>
<td>10</td>
<td>203</td>
<td>3.94</td>
<td>4.93</td>
<td>-0.99</td>
<td>0.63</td>
</tr>
<tr>
<td>Twill-plaiting texture pattern</td>
<td>hatchline</td>
<td>Plaited Basketry</td>
<td>0</td>
<td>7</td>
<td>203</td>
<td>0.00</td>
<td>3.45</td>
<td>-3.45</td>
<td>0.01</td>
</tr>
<tr>
<td>Twill-plaiting color pattern</td>
<td>solidline</td>
<td>Plaited Basketry</td>
<td>5</td>
<td>13</td>
<td>203</td>
<td>2.46</td>
<td>6.40</td>
<td>-3.94</td>
<td>0.05</td>
</tr>
<tr>
<td>Plain-tapestry band design</td>
<td>contbnd</td>
<td>Loom-woven cotton cloth</td>
<td>10</td>
<td>9</td>
<td>203</td>
<td>4.93</td>
<td>4.43</td>
<td>0.50</td>
<td>0.81</td>
</tr>
<tr>
<td>Twill-tapestry texture</td>
<td>bkdhatch</td>
<td>Loom-woven cotton cloth</td>
<td>22</td>
<td>19</td>
<td>203</td>
<td>10.84</td>
<td>9.36</td>
<td>1.48</td>
<td>0.62</td>
</tr>
<tr>
<td>Twill-tapestry band design</td>
<td>diagbnd</td>
<td>Loom-woven cotton cloth</td>
<td>31</td>
<td>37</td>
<td>203</td>
<td>15.27</td>
<td>18.23</td>
<td>-2.96</td>
<td>0.43</td>
</tr>
<tr>
<td>Twill-tapestry all-over design</td>
<td>angbnd</td>
<td>Loom-woven cotton cloth</td>
<td>0</td>
<td>0</td>
<td>203</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Non-textile design</td>
<td>otherdes</td>
<td>Other, non-textile pattern</td>
<td>6</td>
<td>9</td>
<td>203</td>
<td>2.96</td>
<td>4.43</td>
<td>-1.47</td>
<td>0.43</td>
</tr>
</tbody>
</table>

*Highlighted rows are statistically significant at the .05 level*
Figure 5.4: Analyst Group Comparison Graph

*Highlighted columns are statistically significant at the .05 level

This inter-observer variation is important to note because the attribute it involves (framing line bands) is one of the attributes that I argue should vary across summer versus winter-associated contexts. Therefore, it is important to consider whether the observed patterns of significance reflect real patterns in the data or are simply differences due to variation in recording by different analysts. Fortunately, differences in the relative abundance of this attribute across summer vs. winter contexts are so substantial that even if one assumes a 25 percent error rate in the identification of framing line bands across analysts, the resulting data would still be significant in the expected direction. Utilizing multiple analysts is important in understanding the effectiveness of design analysis and the variation that may or may not occur in the data collected based on the observer.

Hatched line patterns also vary significantly between analysts (Table 5.5). This discrepancy may be due to variation in sherd size as well, but it is less obvious why this discrepancy in analysis is present. Arakawa and Ortman listed 0 cases as having the hatched line
pattern and I listed 7 cases with the design present. The design pattern is less frequent than other patterns listed (Table 5.5), but it is important to note that there is a statistically significant discrepancy between analysts. Arakawa and Ortman may have identified these sherds as having background hachure instead of a hatched line pattern. The largest difference after the statistically significant results is 8 cases for solid line patterns (twill-plaiting color pattern), but the difference in cases is not statistically significant at the .05 level. The rest of the cases listed for FUA/SGO and SJL match closely. This suggests that the design analysis categories, for the most part, can be collected consistently by different analysts. Being straightforward about the variation in data recording allows for transparency in understanding the process of the researcher as well as the validity of the results.

The data replicability gives me confidence in the research I conducted. Although there is some variation between analysts and the categorization of designs, the results proved that the design analysis categories can be replicated. This is important in supporting my analysis of ceramic designs using conceptual metaphor theory in the Mesa Verde Region and the Northern Rio Grande. A more objective method of conducting design analysis is an improvement in archaeological ceramic analysis.

**Discussion**

**Revisiting Ceramic Sociology**

My research improves upon previous research conducted by archaeologists in the 1960s and 70s. During this period many archaeologists operated within Lewis Binford’s paradigm of analogy and middle-range theory. To understand social, economic and demographic patterns through material culture archaeologists, working within middle-range theory, utilized ethnographic analogies invoking the direct historical approach. One of the important episodes of
the New Archaeology was the work of ceramic sociologists (Longacre 1970, Hill 1970) who utilized intra-site spatial patterns in pottery designs to infer kinship systems of ancestral Pueblo societies in the US Southwest. Prior to the work of the ceramic sociologists, kinship (here defined as shared cultural characteristics, origins, and blood relations within societies) (Longacre 1970) had been examined primarily through ethnographic research. However, the ceramic sociologists assumed a positive correlation between social organization documented ethnographically and the spatial distribution of decorated ceramic sherds at archaeological sites. They argued post-marital residence rules were mirrored in the ceramic art of female potters. Social organization in the Western Pueblos was presumed to be fundamentally consistent for over 400 years. Female potters following a matrilocal post-marital residence rule were assumed to strictly adhere to the design frameworks learned as a child since they were not subjected to residential dislocations and remained with their female relatives through the entirety of their lives. A functional perspective, emphasizing deterministic and opportunistic human behavior, dominated the understanding of material culture within the framework of the New Archaeology.

**Critiques of Ceramic Sociology**

The arguments by Longacre, Hill and others (Longacre 1970) were seminal in their attempt to infer social organization through the archaeological record, but they were met with strong criticisms. First, projecting the ethnographic present into the past assumes cultural continuity, an issue the functionalist perspective does not consider. Allen and Richardson (1971) provided a succinct critique of these underlying issues specifically regarding the direct historical approach; using the present to directly inform the past. The authors argue that residence and descent should be analyzed separately. The assumption that matrilineal or patrilineal descent necessarily translates into matrilocal or patrilocal residence, respectively, is refuted by
ethnographic examples where residence rules and actual choices of residences have great
disparity. A second shortcoming that was not emphasized in published critiques is the nature of
the design classifications, which were determined intuitively by an art historian (Hill 1970). The
ceramic designs were classified exclusively per shape and style. The subjective renderings of
designs are unverifiable in the archaeological record as direct intentions of past individuals.
Finally, perhaps the most obvious and important shortcoming of the ceramic sociologists’ work
is their disregard for the complexity of site formation processes. Various environmental and
social activities can affect how artifacts are deposited at a site (Hayden & Cannon 1982; Schiffer
1972). Additionally, artifacts may have been deposited in a separate location from where they
were used or initially manufactured, making it difficult to correlate where worn-out artifacts are
found with where they were produced and used. Defining specific activity areas prehistorically is
problematic, but understanding the general associations between location and possible social
meaning of decorated ceramic sherds is important to understanding the range of tools, activities
and social organization of prehistoric communities.

The ethnographic present cannot be applied to the past without care. The ceramic
sociologists emphasized ethnographic studies of clan-based social organization as their basis for
interpreting the archaeological record, which did not account for cultural change through time.
Looking for matrilineal clans would have always been difficult because many ethnographic
studies, such as Kroeber’s *Zuni Kin and Clan* (1917), have previously shown that clans are not
localized architecturally in Western Pueblo communities.

My approach to inferring social organization from ceramic designs takes these major
critiques of ceramic sociology into account by utilizing spatially defined villages to categorize
my ceramic samples, a more objective methodology of design analysis for geometric designs,
and a focus on the Tewa origin narrative and archaeological evidence to contextualize my research. Analyzing ceramic sherds based on conceptual metaphor theory suggests that non-kin based moieties of present-day Tewa communities may have evolved out of an earlier, kin-based, exogamous matrilineal moiety system that was reflected in divided or paired villages that are apparent architecturally (Coffey 2016). Linguistic research has suggested that ancestral Tewa populations originated in the Mesa Verde region (Ortman 2012) and therefore it is reasonable to conclude that ancestral Puebloan archaeological sites in the Four Corners Region are affiliated with Tewa Pueblos, even if this link is not exclusive (Bernhart and Ortman 2012; Lipe and Ortman 2000). This research focuses on whether the use of material culture markers denotes summer and winter moieties (Ortiz 1969), rather than clans. Community rituals provide the most obvious representations of material culture differences between moieties today as individuals wear different regalia to represent their membership in the summer or winter group. Although it can be assumed moiety structure did change through time, understanding the possible moiety associations of ancestral Puebloan communities gives insight into the various circumstances that led to current moiety representations and association.

**Kinship Reimagined**

The original arguments and theories of the ceramic sociologists had flaws, but the questions they raised and their goals remain important to archaeology today since social organization is a critical determinant of social action in all societies. Renewed interest in kinship studies (Ware 2014; Whiteley 2015) has led to debates concerning the chronological emergence of clans versus moieties among the ancestral Eastern and Western Pueblos, which is important for understanding ideological change through time. The revival of kinship studies focuses on moieties and sodalities, as opposed to clans. Sodalities and moieties can be seen at the scale of
architectural organization, whereas kinship is much harder to read from the material record (Ortiz 1969). This research aimed to see if patterns of moieties could be seen in the material record through ceramic decoration. Kinship studies are important, but sodalities (non-kinship groups organized for a specific purpose) and moieties (a split of society into two social groups) may be more appropriate for analyzing social organization in the prehistoric Southwest due to their clearer spatial signatures, and thus more definite link between buildings and artifacts.

The ceramic sociologists provided a basis for thinking about patterns of within-community interaction, and although their methods (involving the direct historical approach) were flawed the questions they asked are too important to abandon. Reexamining social organization through ceramics found at sites demonstrating architectural organization is important to understanding if ceramics alone can represent elements of social organization through design analysis. If this is the case, perhaps ceramics at sites without a clear understanding of the architecture can be used to understand possible moiety affiliation in the Four Corners region. In the following, final chapter I provide a summary of the thesis and discuss possible reasons why my results were not as strong as they might otherwise have been.
Chapter 6: Conclusions

In this thesis I have investigated the potential origins of Tewa moiety organization in paired villages of the Mesa Verde Region and Northern Rio Grande. Architectural duality in the Mesa Verde Region allowed for an analysis of social organization utilizing ceramic designs. This led to further analysis of ceramic designs in the Northern Rio Grande to determine if dual social organization could be documented through ceramic designs during the post-migration period. According to this research there seems to be an argument for a correlation between basketry patterns associated with the east/north and weaving patterns associated with the west/south. This suggests an association between ceramic designs and moiety organization based on the correspondence of specific design categories with either a Summer- or Winter-affiliated village (as contextualized by the Tewa origin narrative). This interpretation of the relationship between material culture and social organization combines Tewa oral tradition, ethnographic, historical and archaeological evidence to improve archaeologists’ ability to interpret community-level patterns in ceramic design and its connection to past social organization.

In this thesis I analyzed the pottery designs from one set of paired villages in the Mesa Verde Region (Sand Canyon and Goodman Point pueblos) and two sets of paired villages in the Northern Rio Grande: LA 792 and LA 38 at Cuyamungue and the West vs. Middle/East plazas at Tsama Pueblo. Utilizing design categories defined through previous research by Ortman I categorized the assorted designs focusing on the interior decorations of the vessels from each of the villages in each pair. I uploaded the presence and absence data into JMP and then I ran significance tests at the .05 level utilizing Pearson chi square to compare the proportions of particular design categories at each site. These results allowed for a determination of whether particular design elements were significantly abundant in association with the proposed summer
or winter village. I also examined inter-observer variation in order to determine the validity of the design categories.

Overall, my results suggest that Tewa moieties, as dual tribal sodalities, were present in the Mesa Verde Region during the Pueblo III Period (1150-1300 CE) and were expressed in the form of paired summer and winter villages as opposed to divided single villages. I found evidence that particular types of designs can be associated with summer or winter based on their source textile industry and occur more frequently in villages that can be associated with summer or winter based on their spatial arrangements in light of their correspondences with Tewa tradition. My data do not necessarily rule out the idea that kin-based moieties existed in earlier times and even in Late PIII times, but they do provide evidence that non-kin based moieties in particular existed as paired villages during the 13th century in the Mesa Verde Region, and that this form of organization was most likely carried over into early Tewa society in the Northern Rio Grande.

Summary of Results

Of the three communities examined, the Sand Canyon Locality had the largest number of design attributes for which differences in frequency between villages were significant. Four are more frequent at Sand Canyon Pueblo, but only two categories (possibly three) support the association of summer/west/cotton. Two design categories that support the association of winter/east/wild plants are more frequent at Goodman Point Pueblo.

Tsama had one significant result (framing bands) in the direction of winter and one significant result in the direction of summer. Twill-plaiting texture patterns (hatched line patterns) was significant at the west/summer associated plaza, which conflicts with my
hypothesis since the design is associated with basketry/east/winter in my methodology. There may be an association of twill-plaited baskets used to sift cornmeal and therefore the results would support my hypothesis and be associated with the Summer moiety. Cornmeal falling from a sifter basket is a vivid image denoting the agricultural fertility of the summer months. This may be important in the association of hatched line patterns and the summer months. Although the source is basketry it is important to pay attention to the use of sifter baskets in association with cornmeal and the summer months. Perhaps there is another layer of material culture symbolism that is associated with not only construction material, but the use of the baskets, as well.

Cuyamungue just had twill-tapestry band design (diagonal band) significant in the direction of summer at LA 38. The lack of significant results from Cuyamungue is most likely due to the small sample size of sherds that were available from LA 792.

Comparing frequency of designs across all three sets of paired villages it appears that conceptual rendering of ceramics as textiles for the most part remained consistent across the period of migration from the Mesa Verde Region to the Northern Rio Grande and in some cases certain designs even increased in frequency post-migration. Finally, the consistency check utilizing comparative data from multiple analysts demonstrated relative consistency between researchers. This contributes to the validity of my research results.

Overall my results are suggestive, but the patterns are not as strong as they could be. There seems to be a correlation between basketry patterns in winter-associated villages and cotton weaving patterns in summer-associated villages, suggesting an association between ceramic designs and moiety organization.

**Discussion of the Results**
It is important to understand the results from my analysis are suggestive, but not conclusive. In this section, I discuss four possible reasons as to why this is the case: sample size, distance between paired villages, misidentified patterns and the possible successful institution of moiety organization.

Sample size plays a large role in my analysis and the lack of conclusive results may be due to the small sample sizes utilized in the Northern Rio Grande, especially at LA 792, where the sample consists of only 16 sherds. The largest sample I had consisted of 450 sherds from Sand Canyon Pueblo and even that sample could be considered small.

Another reason the results may be inconclusive is due to variation in the distance between paired villages. There are more significant design categories between Sand Canyon Pueblo and Goodman Point Pueblo than in the other two cases, but the former villages were also much farther apart. Thus, one might expect there to have been less movement of vessels between villages simply based on distance. As a result, one might expect there to have been less chance for initial differences in the production of pottery designs to have been homogenized through exchange. In contrast, Cuyamungue and Tsama consist of villages that are much closer to one another geographically. This would suggest an ease of trade between the two villages leading to more homogenized ceramic assemblages.

A third reason why the results are only suggestive may be misidentified patterns. This would affect whether or not the proportions of designs at the villages were significant.

A final possible explanation for the results may be tied to of the increasing success of moiety organization in the Northern Rio Grande in the post-migration period. Moiety organization is intended to provide harmony and unity within a community, so the successful institution of a moiety system would involve extensive exchanges of goods between moieties.
This would homogenize distributions of vessels across villages, even if there were initial differences in production, such that the distributions of designs would no longer be significant. In this scenario, the results from Sand Canyon and Goodman Point pueblos are unexpected and perhaps demonstrate a less successful institution of moiety organization, since so many design categories vary across the villages in the pair. In comparison the sites from the Northern Rio Grande have a limited number of significant design categories and may reflect a more successful institution of moiety organization post-migration which would be in concert with previous archaeological analysis in the region suggesting individuals migrating to the Northern Rio Grande were abandoning their previous way of life in many ways due to tumultuous times (Ortman 2012).

Benefits

This thesis research had two specific benefits: 1) a further line of evidence suggesting moieties were present at the level of paired villages in the Mesa Verde Region during the Pueblo III Period from 1150-1300 CE and 2) a focus on the veracity of oral tradition in understanding the archaeological record.

Moiety Origins

Earlier in this thesis, I reviewed three different arguments regarding the origins of dual tribal sodalities: Fritz (1978) discussed the emergence of dual tribal sodalities independent of kinship structures; Ware (2014) suggests dual organization emerged from descent groups, but eventually detached; Whiteley (2015) argues that dual tribal sodalities emerged directly from kin groups. This research adds a fourth possibility by positing that dual tribal sodalities arose through a metaphorical mapping of kinship structures onto paired villages as a way of linking
them together. My analysis does not rule out the possibility that Tewa ancestors had kin-based moieties prior to the emergence of dual tribal sodalities, but it does suggest that the latter emerged through the same type of metaphorical mapping process that Tewa ancestors had previously utilized in forging links between pottery and weaving.

**Oral Tradition**

Oral tradition as a means of historical reconstruction is a highly contested topic (Echo-Hawk 2000; Mason 2000), which is directly tied to the Native American Graves and Repatriation Act (NAGPRA). NAGPRA mandates that oral tradition be considered as a line of evidence in repatriation cases alongside archaeological data, biology and linguistic evidence (Bernardini 2008). In this respect oral tradition has not only scholarly implications, but legal and ethical implications as well.

Debates over the historical accuracy of oral tradition has been ongoing since the early days of fieldwork in archaeology (Dixon 1915; Lowie 1915). After the 1960s and the scientific revolution in the field archaeologists rejected oral tradition, deeming it unscientific (Trigger 2006). This debate has become polarized by philosophical and moral arguments. The elitism of scientific knowledge is critiqued, while others revel in the freedom from religion in scientific pursuits (Bernardini 2008).

Bernardini (2008) focuses on the veracity of oral traditions in his study of Hopi clan migration stories. Hopi clan migration tradition has 800 years of history being recounted (Fewkes 1900). Hopi clan migration stories are questioned because small exogamous groups cannot move independently and they are not likely to have persisted for hundreds of years, which would be necessary to maintain the knowledge attributed to them (Bernardini 2008: 483). Bernardini addresses this critique by documenting that heritage is traced not through genealogy of lineal ancestors, but through a topogeny of places where the proprietary ceremony has been
performed by a succession of custodial house groups. Understanding processes through which information in curated through time is perhaps more critical than the content being transmitted (Bernardini 2008: 485). This is critical in understanding oral tradition as a valuable line of evidence in archaeological analysis. Oral tradition cannot just be assumed to be “primitive tradition” (Lowie 1917:167); oral tradition is a way of understanding how social memory is formed and the acts of transfer that make remembering possible.

Social organization is important as the basis of community and interaction and my analyses of ceramics from paired-village communities provides a particular snapshot of social organization before and after Tewa ancestors migrated to the northern Rio Grande. In this respect, my research suggests that the non-kin-based moieties that characterize contemporary Tewa communities may have emerged among Tewa ancestors prior to their migration from the Mesa Verde region. In this way, my research provides an additional line of evidence connecting Mesa Verde and ancestral Tewa society. It is unlikely moiety structure has remained static, but understanding the history of ancestral Pueblo moieties may give insight into the circumstances the led to the emergence of contemporary Tewa moiety structures. Native American oral tradition needs to be taken seriously as a line of evidence to understand the archaeological record and past history of indigenous peoples.

**Future Directions and Improvements**

Overall, this research could be improved by examining more paired villages in both the Mesa Verde Region and the Northern Rio Grande. Increasing the sample size available for LA 792 would also benefit the research. It is important to emphasize that it is not clear how widespread the paired village pattern is in either the Mesa Verde Region or the Northern Rio
Grande. There are additional examples from the Northern Rio Grande (Hupovi/Howiri, Pojoaque/Tekeowingeh, Puye, Ponsipa’akeri), but so far, the only documented example for the Mesa Verde Region is Sand Canyon Pueblo and Goodman Point Pueblo. A more concerted effort to define this pattern architecturally is important for determining just how widespread this type of organization was through time. It would also be worthwhile to try and identify additional design attributes that can be related to summer or winter. For example, Xs and zig-zags on rims derive from braiding on coiled baskets and thus one might expect these to be more frequent in winter-associated villages. Finally, in this thesis I relied upon spatial arrangements to associate particular villages with summer or winter. It would be worthwhile to try and determine additional lines of evidence that support these associations. Regardless of these caveats, I believe the present study helps to move discussions regarding the history of Pueblo social organization and their reflections in contemporary cultures and oral traditions forward in important ways.
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