

Speaking Places: Language, Mind, and Environment in the Ancash Highlands (Peru)

by

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Dedication

For my anchors, Angélica and Killahaani

*Quechua yachatsikuqnii Césarpaqpis,
Llapan Huaripampa shumaq nunakunapaqpis,
Hatun Wantsan Hirkapaqpis, Shaksha Hirkapaqpis*

[for my Quechua teacher, César,
for all the wonderful people of Huaripampa,
for Great Wantsan Hirka, and for Shaksha Hirka.]

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I would not even have had this opportunity to thank the people of Huaripampa and Canray Grande if it weren't for my teacher and friend, César Vargas Arce, who in 2010 introduced me to Huaripampa and to the energetic students in his Quechua class there at the José Carlos Mariátegui School. I studied Ancash Quechua with César that year and the next, and I have since found myself seeking him out throughout the process of research and writing alike. A long distance phone conversation I had with him in 2016 helped me to resolve a question that plagued the writing of Chapter 2. Most importantly, I have been continually inspired by his

ongoing dedication to the Ancash Quechua language as a teacher, scholar, musician, community organizer, and political activist—an approach he calls “attacking from all sides.”

While César has my gratitude for leading me to the Río Negro watershed, Bruce Mannheim has my gratitude for passing me the seed that grew into the questions I sought to address there. In the winter term of 2010, he lent me a book as I was leaving a seminar on the anthropology of the Andes he co-taught with Joyce Marcus. The book was Stephen C. Levinson and David P. Wilkins’ edited volume, “Grammars of Space.” I think he must have judged—accurately—both my dissatisfaction with the tentative project I had entered my graduate studies with, and that the topic of spatial language would spark my interest. In addition to this small but impactful gesture, the thematic breadth of his work on Andean language and culture has been an encouraging voice in my own efforts to craft a research project that traverses the disciplines of anthropology, linguistics, and psychology. In fact, I have been lucky enough to have a committee of scholars who all are able to contribute their experience in at least two of the three disciplines. Conversations with Barbra Meek helped me to fit together the parts of my research closest to the tradition of linguistic anthropology with those parts primarily in dialogue with psychology. Her work has also served as a model for both conducting and writing ethnography of language use that stays close to its speakers, and for thinking through the complex sociolinguistic landscape of intergenerational language shift. My conversations with Webb Keane about various iterations of this project—from grant proposals to loose bundles of observations to finished chapters—has led to many broad insights that are now woven into the final product. I am particularly grateful for his pointing out the novelty of some aspects of life in Río Negro so familiar to me I had believed them obvious to any reader, and for his candor in warning me about many anthropologist’s skepticism of psychology, and vice versa. Michael Lempert has been a mentor in the art of

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One person deserves to have the last paragraph all to her self, and that is my daughter, Killahaani. She was born while I was writing this dissertation, and has been a constant source of inspiration. Her thirst for empirical evidence of reality has kept me on my analytical toes. Her

first pointing gesture (at a squirrel) coincided with a rewrite of the chapter on demonstrative reference and gesture (and this was no coincidence). Most importantly, her arrival anchored my perspective on the endeavor of writing, kept me from getting lost in it, and gave me a constant reminder of the strength—both affective and material—of the kinds of social relationships that are grounded from the start in cohabitation, nourishment, and care.

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Orthographic conventions and morpheme glosses

Quechua text in this manuscript is generally written following standard conventions for Peruvian Quechua. This includes the three vowels, /a/, /i/, and /u/. Vowel length is represented with a double vowel, as in /aa/, /ii/, and /uu/. Spanish loans are sometimes used in the course of transcribed Quechua text, and in these cases, I included the Spanish vowels /e/ and /o/ when pronounced. Where necessary I have included interlinear glosses. In these cases, the first line is the transcribed text with hyphens inserted to break up morphemes; the second line provides morphemic glosses; and the third line is a free translation. I have used different transcription methods according to the analytic context and purpose of each transcription. For this reason, further conventions are indicated with each transcript.

Below is a list of the morpheme codes used in this dissertation. With the exceptions of NOM and EV, the abbreviations used in examples follow those used in Hintz (2011, p. xxi-xxiii). A list of glosses of all case suffixes is included in Table 10.

Morpheme code	Morpheme	Gloss
2	-nki	second person
3	-n	third person
ABL	-pita/-piq	ablative case
CONT	-yka	continuous aspect
DUR	-ra:	durative aspect
EV	-m/mi	evidential
GEN	-pa	genitive
LOC	-chaw	locative case
NOM	-na	nominalizer
PURP	-paq	purposive case
TOP	-qa	topic

Abstract

This dissertation explores the relationship between language and environmental practice among Ancash Quechua speakers in the Río Negro watershed of the Cordillera Blanca mountain range in the central Peruvian Andes. Using mixed methods, it demonstrates how specific relationships between people and places—for example grazing routes, place-based kinship, and divination—shape how Ancash Quechua speakers conceive the surrounding world for speaking, thinking, and acting. By juxtaposing two experimental studies of spatial orientation in language with an analysis of its use in everyday conversation, I found that speakers draw on a rich, embodied awareness of their orientation with respect to an expansive landscape of named places. Through analysis of filmed interactions, I show that this embodied awareness also partly constitutes the common ground of demonstrative reference, a domain of language that is not explicitly spatial. While the experimental studies of spatial language showed that geocentric orientation was the overwhelming preference for speakers in Río Negro, my ethnographic research showed that individuals’ familiarity with the landscape varies. Herders work in open ranges among the highest peaks, and farmers in small parcels near urban centers. Furthermore, while both groups share a cultural understanding of the highest peaks as powerful social authorities, herders alone interact with individual mountains through offerings and divination. I found that these cultural distinctions between farmers’ and herders’ environmental experiences correlated with performance on an experimental spatial memory task: herders were significantly more likely to orient to the landscapes, and farmers to their bodies. Moreover, the same correlation also appeared within the community’s sub-population of first-language Spanish

speakers. In conclusion, this research contrasts with the commonly held view that the most basic concepts underlying human language are rooted in innate biology, and that their relation to cultural and environmental diversity must therefore be superficial at best. The findings also have broad implications for further research, suggesting that shifting patterns of environmental practice such as large-scale population movement and anthropogenic climate change resonate in human sociality, language, cognition, and corporeality.

Chapter 1: Introduction

1. Research setting

1.1. The Cordillera Blanca

In May 2010, I took the eight-hour bus ride from Lima to Huaraz—the capital city of the Ancash region—to select a community in the Cordillera Blanca mountain range where I would eventually do my dissertation fieldwork on Ancash Quechua spatial language and environmental practice. The majority of the approximately 120,000 residents of Huaraz have emigrated from surrounding highland communities, the nearest of which are only an hour or two's walk uphill from the plaza. For the last twenty years, the city has been undergoing an economic boom of sorts. The towering brick buildings that line the streets and the brilliant white 4x4 trucks that drive down them evince the flow of money from nearby gold and silver mines that are some of the most productive in the world. The mountains of the Cordillera Blanca include Huascarán (Figure 1), the highest in Peru at 6,768 m.a.s.l., and attract tourists and mountaineers that are a source of both income and local pride.



Figure 1. Huaraz with Huascarán in the background.

But these mountains are a source of life in a way more fundamental than the income derived from mining and tourism. They are home to the largest chain of tropical glaciers on Earth, and thus represent a monumental store of fresh water. This water has irrigated some of the oldest plant cultivation in the New World (Lynch 1980), and the rivers and streams that flow from the glaciers currently provide for local consumption, livestock, and agriculture. These rivers all flow into the turbulent Río Santa, which originates south of Huaraz in Conococha Lake¹ and flows north alongside the Cordillera Blanca until it turns toward the coast at Cañon de Pato. Here it

¹ This toponym is redundant, as Conococha means “warm lake.”

² The next year I managed to register an Ancash Quechua course, and received the grant again to

powers the enormous hydroelectric facility at Huallanca that provides electricity both to the coast and to Río Santa's watershed. Finally, its waters irrigate massive agro-commerce projects in the coastal desert.

The glaciers are also tied to human lives in another way. As long as humans have settled in the Andes, they have revered these life-giving glaciers. The mouth of Guitarrero Cave, where legumes were cultivated between 9,000 and 12,000 years ago (Lynch et al 1985), perfectly frames the form of Huascarán from across the fertile Río Santa valley (Figure 2). In the century after the European invasion, priests struggled to disrupt what they saw as Andean people's idolization of mountains as gods, destroying temples and converting ritual specialists to Christianity (Arriaga 1968[1621]; Duviols 2003). Though colonial missionaries have indelibly shaped Andean culture (Taussig 1986; Mills 1997; Abercrombie 1998), their efforts to reduce mountains to mere earth ultimately failed. Contemporary Andean glaciers continue to be the recipients of ritual offerings and still intervene in human affairs through divination and healing ceremonies (Allen 2002; Ricard Lanata 2007; Altamirano Rúa 2014; de la Cadena 2015; Salas Carreño 2016). In Huaraz, however, this is not an easily observable fact. As I quickly learned, the cultural importance of mountains can appear as a relic of ancestral times even in the highlands towns nestled among the folds of the Cordillera Blanca's skirts. With time, I also came to appreciate how mistaken that first impression was. This understanding emerged over the course of numerous interactions with residents of the Cordillera Blanca, and these interactions depended on my ability to speak and understand the Ancash Quechua language. Indeed, the fact that learning the local language was key to understanding its speakers' relationship with the landscape is germane to this dissertation, as one its overarching concerns is precisely the relationship between language and environment.



Figure 2. Huascarán framed by the Guitarrero Cave.

1.2. The Ancash Quechua language

I began to study the Ancash Quechua language with the local teacher and activist, César Vargas Arce in May 2010. At this time, he was working during the day as the Quechua teacher in a bilingual education program at a rural elementary school in Huaripampa, a small town in the Cordillera Blanca south of Huaraz. After a few classes, he suggested I complement my evening lessons by shadowing his Quechua classes in Huaripampa. At 6am on May 21st, I met him at the place where each day a green minivan collects the teachers who work at the schools in Huaripampa and the neighboring town, Olleros. The teachers joked with and teased one another

during the 45-minute ride. They also expressed their curiosity about the Quechua teacher's work and his new foreign companion. It didn't take long for someone to invoke a discourse that I soon became familiar with as I spent more time in Ancash. Why had I come to study Quechua in Ancash, where it was spoken in a corrupt form mixed with Spanish? Why not go instead to Cuzco where the pure Quechua of the Inca was still spoken? In reality, I had studied Quechua first in Cuzco in 2008, and had since taken courses in the Cuzco Quechua language at the University of Michigan. Moreover, I had received a Foreign Language and Area Studies grant from the Department of Education to study Quechua in Cuzco starting in July. While I ultimately planned to study Ancash Quechua, the only available Quechua program registered with the Department of Education was in Cuzco.²

This common discourse that portrays the Quechua spoken in the Cordillera Blanca as a “corrupt” form of the language spoken in Cuzco also implies that Quechua is a single language, and that the variants spoken in Ancash and in Cuzco are dialects or even registers of this language. In fact, this position is not supported by any empirically grounded linguistic research, which instead describes Quechua as a language family (Cerrón Palomino 1987; Torero 2002; Adelaar 2004). While linguists have varying positions on exactly how many languages belong to the Quechua family, Ancash and Cuzco Quechua are unanimously thought to belong to do distinct branches, whether as languages in and of themselves, or as dialects of languages that also include other dialects. Moreover, Ancash is the hypothetical place of origin of the Quechua language family—that is, of proto-Quechua—that has come closest to gaining consensus among linguists (Torero 1970; Adelaar 2004). This hypothesis is supported first by the conservation of phonemic distinctions present in Proto-Quechua that have been lost in other Quechua varieties. It is also

² The next year I managed to register an Ancash Quechua course, and received the grant again to continue my studies with César in Huaraz.

supported by the great amount of variation in Ancash Quechua compared with southern Quechua languages (Cerrón Palomino 1987:326; Julca Guerrero 2009), which includes both conservative and innovative traits. As with the evolution of biological species, the older a particular branch of a language family is, the greater its diversity and innovation.

Hypothetical origins and linguistic designations aside, I quickly observed from my own studies and conversations with native speakers that the Quechua spoken in Ancash differed significantly from Cuzco Quechua in its phonology, in basic grammatical categories such as tense, person, and number, and in much of its lexicon. A common comparison for conceptualizing the difference between the languages is the distinction between Spanish and Portuguese. The similarity is that these languages are closely related in the same family, and that while they are not mutually intelligible, neither are they so different as to be completely opaque to their respective speakers.

What all Quechua languages share is an SOV sentence structure, agglutinating suffixes with a very limited morphophonology, and a sizable lexicon of word stems that can become either verbs or nouns through affixation. While the respective phonologies of the two languages are similar, Ancash Quechua preserves some phonological distinctions that have disappeared in Cuzco and other Quechua languages in the southern Andes. It is also distinguished by the innovation of phonemic vowel length, which distinguishes a number of lexical terms and also marks first person on verbs and nouns ending with vowels. More detailed descriptions of the language are offered in Chapters 3 through 5. A more complete description is beyond the relevant scope of this dissertation.³

³ For further reference on Ancash Quechua, Weber (1989) produced an excellent description of the closely related Quechua spoken in the neighboring region of Huanuco. Diane and Daniel Hintz have also produced a number of thorough and innovative grammatical studies of the

There is one major similarity between Cuzco and Ancash Quechua—they are two of the most widely spoken varieties of Quechua in contemporary Peru. At the same time, they are also both at risk of a dramatic reduction of speakers in the next generations. While there are approximately 300,000 Quechua speakers in Ancash (Instituto Nacional de Estadística e Informática, 2007), the greater reach of public education in Spanish together with increased immigration and government decentralization have led to a situation in which most adults in highland communities speak Spanish as a second language, while their children are fully bilingual in both languages. When combined with the strong social stigma that associates Quechua with the economically and socially “backward” lifestyle of rural peasants, young bilinguals prefer to speak Spanish rather than Quechua. While it seems unlikely in this context that their children will learn the latter language, there is currently a growing tendency to value Quechua as a source of cultural integrity and authenticity.⁴

1.3. Huaripampa and Río Negro

My trips to Huaripampa with César eventually evolved into a long-term research commitment. While I had originally intended to find a community further from Huaraz and with fewer economic and social ties to the city, I quickly began to question that goal. What I saw in Huaripampa first and foremost was a typical community, and at the same time one that was in a conflict of identity. The children in César’s class were fluent in both Quechua⁵ and Spanish. And while they were already adept at the staple tasks of rural livelihood—caring for plants, animals,

Conchucos variety of Ancash Quechua, spoken on the eastern side of the Cordillera Blanca (Hintz 2008; 2011).

⁴ Barbra Meek describes a similar situation among Kaska speakers in the Yukon (2010).

⁵ Here and henceforth, I will simply use “Quechua” to refer to Ancash Quechua, as it is the only Quechua language used in Rio Negro.

and family members—most of them also had ambitions that would ultimately remove them from Huaripampa, for example to become successful business owners or mining engineers. Likewise, I observed that while they spoke Spanish to one another, their parents addressed them in Quechua. I began to perceive that what appeared to be a town that had “lost its customs”—a phrase I learned quickly from residents themselves—was in fact much more complex.

One day after César’s class, one of his students was to introduce me to his grandfather, Donato Molina Rojas, apparently a great storyteller. The boy left me with his mother in a bare adobe storeroom not far from the school and went to track down Don Donato. While I waited, his mother said that she could tell me one of the stories she had learned from her father. I didn’t have any way to record the story, and my Quechua was not good enough yet to follow it completely, but I understood something about children speaking with animals, potatoes that turned to stone, and a girl carrying a bag of bones to heaven in a basket. I later recorded several versions of this story, which narrates two children’s kidnapping by the witch Achikay, and is well known in the central Peruvian Andes (Howard-Malverde 1986; Weber 2008). I didn’t get to meet Don Donato until the next visit, which was my last before I had to leave for my course in Cuzco Quechua. But I could not shake from my mind the stories he told me, nor the warm sense of welcome and familiarity I felt sitting with him and his wife Angélica in the patio outside their kitchen. Nor could I forget the tune of a song that another student’s father, Pascual León Villanueva sang for me—a song I now sing to my daughter as a lullaby. Pascual, or Pashku as I quickly learned to call him, and his wife Mari welcomed me just as warmly, and expressed their eagerness to support my study of Huaripampa’s language and culture. They offered me a spare room in their home during my field research, and their son, Gerson, became a close friend during the shifts we shared tracking cattle in Ruriq canyon.

More than anything, what ultimately led me to select Huaripampa as a site for research was the connections I made with people there during those first visits, and during successive visits to Huaripampa in the summer of 2011. As I eventually learned, and as I argue in Chapter 2, people in Río Negro become attached to places through the same kinds of social and verbal interactions that create familiarity among people (see also Salas Carreño 2016 and Mannheim & Salas Carreño 2015). Just as herders continue herding in part to maintain the possibility of a dialogue with the places that live along their grazing routes, I kept going back to Huaripampa—first in my mind, and then for long term fieldwork—because of the unanswered questions and unreciprocated favors that lingered there.

Yet while I originally imagined Huaripampa as the place that would geographically delimit my research, I found I could not reasonably ignore the paths that connected it with other places. For example, I met people farming in Huaripampa who in fact lived in the town of Aco, several miles north along the Río Santa, and later visited them for interviews. Likewise, Pashku's father-in-law lived across the Sawan River in the Comunidad Campesina (Peasant Community) of Canray Grande, and his brother-in-law moved to Huaraz halfway through my research. Don Donato's son-in-law was from across Río Santa, in Collawasi. The pastures of Ruriq Canyon themselves also have a contested history. In 1971, as part of the national agrarian reform, the canyon was turned over to the government cooperative, SAIS Atusparia (Rasmussen 2015:90). The cooperative's control of the area quickly fell into contestation, leading to several violent conflicts between the neighboring communities of Canray Grande and Canray Chico with the goal of taking control of the pastures. People I spoke with in Río Negro remembered these conflicts, which ended with the establishment of the official Peasant Communities of Canray Grande and Cordillera Blanca, as "la guerra" (the war).

Considering the numerous places where I conducted my research, and the complex social and political relationships among them, I was faced with the problem of distinguishing relevant geographical limits for my project. I didn't want to make general claims about the entire Cordillera Blanca, given its linguistic and cultural diversity, much less about the region of Ancash. I considered first the district of Olleros, whose capital is the town of Olleros, just below Huaripampa alongside the Río Negro. However, toward the end of my fieldwork I also spent time in the town of Canray Chico and the Comunidad Campesina de Cordillera Blanca. These places are south of the Río Negro, which forms the border between the districts of Recuay and Olleros. This made Olleros seem like an arbitrary limit, a sense that was confirmed when I learned that Huaripampa and Canray Grande belonged to the *doctrina*⁶ of Recuay during the early colonial period, then to the district of Recuay until their incorporation into the district of Huaraz in the twentieth century. Huaripampa itself had not even had official political status until several residents organized to acquire the designation of Centro Poblado (populated center) in the 1990's. Until that time, it had been treated as a *caserío* (hamlet) belonging to the town of Olleros, despite the much larger population residing in Huaripampa.

The landscape itself provided a solution to this problem of delimitation. All of the places where I worked were part of the watershed of the Río Negro.⁷ Río Negro is also a landmark known to everyone in the area, and figures centrally in nostalgic songs. Of course, even Río Negro is an arbitrary distinction—people in the watershed move for work and family not only across this river, but also west across the Río Santa, or to Huaraz or Lima. At funerals and festivals, I met Huaripampinos who had returned from Madrid and others all the way from Tokyo.

⁶ The *doctrina* was a geopolitical unit used for ecclesiastical administration in early colonial Peru.

⁷ The one exception was Aco, however my work there was limited to two visits, and I do not feel comfortable making many general statements about its population.

People in the area I call Río Negro do not use the name to refer to themselves as a group, but I found that they generally avoid referring to themselves with anything other than their own names. They did not identify with the label *Indio*, nor with the ethnonym Quechua. They were only *andinos* or *serranos* (from the Andes or mountains) in contrast with *costeños* (from the coast) or *selvaticos* (from the tropical rainforests). They occasionally referred to themselves as Ancashinos when talking about something that affected Ancash such as outrage at a corrupt politician at the regional level, or as Peruvians when comparing themselves to citizens of other countries. Coming up with some geographical and cultural limit for my dissertation was thus irreducibly creative. Nevertheless, Río Negro is a part of the landscape that is familiar and recognizable to all of its residents, and that is tied as much to the glaciers and high pasturelands from which it flows as it is to the fertile farmland it irrigates below.

The way the people I worked with in Río Negro referred to themselves—by using the names of places or regions—also resonates this dissertation in a broader sense. Place names like Ancash or Huaripampa and territorial designations like *sierra* or *costa* evoke much more (and in some ways much less) than borders, coordinates and territories. Rather, they indicate political positions and social relationships, and contribute to framing the interpretation of the discourse in which they occur. These dimensions of territoriality and space are central to the critique stated most succinctly by philosopher Edward Casey’s suggestion that “space and time are contained in places rather than places in them” (1996:44). However, this critique and its reflexes in linguistic anthropology (Basso 1996), sociocultural anthropology (Myers 1986), and cultural geography (Tuan 1974) have been contained to the analysis of space as a cultural, historical, and political phenomenon. Even Basso’s account of the relationship between Western Apache speech and landscape only goes as far as to observe the way that language practices facilitates conventional

associations among stories, their associated moral values, and places. In contrast (or better, in response), one of this dissertation's starting points is the observation that space is also commonly assumed to constitute its own domain of linguistic and cognitive categories—that is, we generally imagine that categories like up, down, left, right, east and west all have a conceptual existence independent of the places that are meaningful in our lives. Can we apply the same critique of space here, suggesting that its physical, abstract aspects are inseparable from humans' social interactions with, cultural expectations for, and sensorial experiences of particular places? If so, what does this mean for spatial language as a linguistic category and practice? What does it mean more broadly for our understanding of the relationships among language, mind, and environmental practice?

2. From spatial language to speaking places

The use of language to describe spatial relationships—shapes, paths, and locations, for example—is one of the more mundane and utilitarian aspects of communication among humans. In this sense, it seems like an obvious candidate for scrutiny by anthropologists, practitioners of a discipline long preoccupied with insights gleaned from the taken-for-granted dimensions of human life. Recent anthropological studies, for example, have perceived profound political and social dynamics in the minutiae of bureaucracy.⁸ And if there's anything duller than paperwork, it might well be giving directions. Indeed, “go-straight-turn-left” grammars may look like the final frontier of the apolitical. If anthropological interests are any indication, this is indeed the case. Few have ventured into the cold, empty space beyond the realm of deictic language, the safe atmosphere—so to speak—of the “here-now-I,” where words are indelibly marked by their

⁸ E.g., Hull (2012).

contiguity with humans. In this dissertation, protected by the breathable if artificial air of its methodological environment, I travel into that outer space purportedly governed by universal structures indifferent to human idiosyncrasies. The paradoxical fruit of this journey is akin to the uncanny discovery made by the space-farers in Stanislaw Lem's novels—that no distance (physical or metaphysical, linguistic or metalinguistic) is great enough to separate humans from the nature of their own subjectivity. However, rather than taking this as Lem did—a reflection of human provinciality—I take it instead as an indication of profound differences in humans' experiences of the “same” world, and as an incitation to grapple with the nature and consequences of such differences.

In this sense, I follow the line of thought that began with Franz Boas' observations on semantic categories and Edward Sapir's theorization of phonological categories, and that was later articulated in the writings of Benjamin Whorf. Whorf argued more explicitly than Boas and Sapir that because different languages presuppose different ways of perceiving reality they also potentially entail different habitual ways of thinking.⁹ As John Lucy pointed out, the research that has emerged from this tradition falls into two camps (1996:43). Lucy identifies the first camp with the work of anthropological linguists like Hoijer (1953), Mathiot (1964), and Witherspoon (1977) who drew associations between individual grammatical categories and cultural patterns evidenced mainly by texts rather than ethnographic observation (Lucy 1996:44). The second camp is dominated by fundamentally comparative psycholinguistic research, such as the work of Brown & Lenneberg (1954), Conklin (1955), and Berlin & Kay (1969) that sought to determine correlations between linguistic structure and cognition, and focused mostly on lexical categories (45). Lucy argues that both camps lost sight of a fundamental aspect of Whorf's research program

⁹ It is important to note here that, for Whorf, the connection between language and culture is mediated by thought.

in two ways. First, they did not involve cross-linguistic comparison, and second, they did not look at systematic relations among the linguistic categories they examined. In response, Lucy proposed a new approach that involved the integration of studies of systematic grammatical patterns such as number marking in at least two languages with experimental studies of individual cognition outside of verbal contexts with speakers of the same languages (50). This approach indeed has been the only one to lead to widely accepted evidence that language shapes thought. However, as I will emphasize below, the conclusions are also confined to such specific phenomena that they are bleached of the kind of broad sociological significance that anthropology ultimately seeks.

One of the goals of this dissertation is to reconfigure this approach language, thought, and reality in a way that retains its empirical rigor without sacrificing its purchase on the kinds of experiences whose familiarity and meaningfulness are characteristic of a particular population. In Rio Negro, for example, people spend much of their effort on either strengthening or severing their relationship with the landscape around them. Many farmers and herders put enormous energy into the productivity of their land and herds, and nurse lingering anxieties about the future of these pursuits. They struggle with the contradictions inherent in the idea that the fruit of their labor will translate not into a continuation of that work, but into their children's education and an idea of social progress that is by no means guaranteed. Others strive to acquire property in urban centers like the regional and national capitals with the goal of moving their families away. Meanwhile, families that have returned after living for an entire generation in Europe struggle to readjust to highlands life with children who are more accustomed to metros and airports than to horses and corrals. In the midst of these fraught relationships to the land, I learned, many people in Rio Negro also maintain strong social bonds with mountains, engaging in daily ritual exchanges and divinatory communications with them. Especially for older people who have

worked as herders, the idea that such relationships may someday vanish is the source of an overwhelming sense of nostalgia.

In this context, where people's relationship with the landscape they live on dominates so much of their practical and mental life, I find it hard to imagine studying the relationship between language and space in a way that brackets off these conflicts as a distinct question. However, any approach that includes lived experience as more than circumstantially involved in the relationship between language and mind must also demonstrate some mechanism or mechanisms by which actual practices and their patterns in a group of people are related to habits of speaking and thinking. That is indeed what this dissertation sets out to do, first by showing that the knowledge associated with socialization into a community of speakers with firsthand experience of a specific territory is both a prerequisite for and means of transmission of Quechua spatial language and demonstrative reference (in both language and gesture), and second by showing that distinctions in speakers' firsthand experience of the environment—such as that between farmers and herders—significantly correlates with patterned differences in individual cognition. By demonstrating these specific mechanisms linking socially distributed patterns of practice and experience on the one hand with linguistic and cognitive patterns, I suggest a different picture of the relationships among language, mind, and reality. First, rather than identifying reality as one term in the equation, it is rather the larger frame within which language and mind are related. Second, the environment becomes a crucial element—not the environment as it is commonly conceived in material or symbolic terms, but rather a meaningful, lived environment (see Section 3 below). Before elaborating on this point, I will first introduce the studies of spatial language that have more or less followed Lucy's articulation of Whorf's research paradigm in order both to

draw out the important accomplishments they have made, and to foreground the ways in which my own research diverges.

In the 1990's and 2000's, a number of studies in linguistics and psychology demonstrated that descriptions of space vary across languages to an unexpected degree (Brown & Levinson 1993; Danziger & Pederson 1998; Pederson et al 1998; Levinson 2003; Majid et al 2004; Levinson & Wilkins 2006). Their findings served as a challenge to the common assumption that the egocentric use of “left” and “right”—as in the egocentric perspective use for the “left side of the table,” and as opposed to the object-centered perspective used in “the left side of the cow”—was primordial in both language and cognition. Indeed, this body of research demonstrated that there are languages in which the use of “left” and “right” terms for anything other than the lateral halves of animals is unimaginable. Just as “the left side of the table” may sound bizarre to a speaker of Arrernte, expressions such as “the kettle’s nose” or “my north foot” sound just as exotic to speakers of “egocentric” languages like English. Eve Danziger’s experimental study of Mopan Maya, a language in which “intrinsic” or “object-centered” descriptions such as “the sugar is at kettle’s nose” are the norm, offers a striking example of how profound such perceptual biases. The study shows that Mopan Maya speakers’ tendency to represent spatial relations in terms of their intrinsic shape makes left-right asymmetry so irrelevant that they habitually perceive mirror images as identical (Danziger 2011).

While the conflation of mirror images may seem like a kind of cognitive disability to English speakers, from the perspective of Mopan Maya speakers, the universal application of two arbitrary sides to every object without regard to its shape or orientation must also seem to yield a distorted perception of reality. More dramatically, the spatial awareness of speakers bound to relative “left-right-front-back” terms appears worse than rudimentary alongside the dead-

reckoning abilities of speakers of languages like Guugu Yimithirr, which relies exclusively on cardinal directions (Haviland 1998). This idea—that distinct ways of speaking about the world correspond to distinct ways of thinking about it—has been called both “linguistic relativity” and “the Sapir-Whorf hypothesis” (Sapir 1949[1927], 2002; Whorf 1956; Hill & Mannheim 1992; Lucy 1996; Leavitt 2011). It is also one of the questions at the heart of most studies of spatial language and cognition. Specifically, a group of researchers coordinated through a project at the Max Planck Institute for Psycholinguistics, Nijmegen, conducted parallel studies of genetically and typologically diverse languages around the world (Pederson et al 1998; Levinson 2003; Majid et al 2004; Levinson & Wilkins 2006). The purpose of this project was first to amass a comparable body of linguistic evidence on spatial descriptions, and second to reproduce a series of psychological experiments testing the hypothesis that the use of egocentric or non-egocentric forms of orientation in language correlated with the use of the same kinds of orientation in thought. Although some details have been contested (Li & Gleitman 1999, 2002), the project has provided the most conclusive evidence that language can indeed shape thought.

And yet in the end there was something lackluster about the project’s conclusions. Once the major findings had been published, and a New York Times article had accessibly pulled together the most exotic examples, it seemed to simply be over and complete. The reason, I believe, is none other than the ostensibly esoteric, inhuman character of “space.” After giving careful, rigorous proof that particular ways of conceptualizing space in language correlate with similar ways in thought, there seemed to be little social or political fallout. Problem solved; case closed. While the tentative suggestion that conceptual diversity is an adaptive trait in humans (Levinson 2003:318) is biologically compelling, it comes to a halt at the relatively uncontroversial unity of humankind as a species. But this biological claim belies the fact that the

phenomenon in question—spatial language—occurs in a social world in which emergent, intersubjective meanings are co-constituted together with the differences and relationships among among participants. Yet somehow space remains *outside* these differences, indifferent to them. There are no systematic injustices that divide the left-and-right from the north-and-south. There is no political violence perpetrated against those who remember spatial relationships with respect to the world around them by those who frame these relationships with respect to their bodies. There is even a substantial body of research that crosses geography, anthropology, philosophy, and history arguing for a human, meaningful notion of “place” against the idea of empty, meaningless “space” (Bachelard 1969[1958]; Tuan 1977; Foucault 1986; Gupta & Ferguson 1992; Casey 1996; Ingold 2011). In short, “space” is an aspect of reality in which we struggle to find any echo of humanity. And it is precisely this struggle that I seek to overcome in this dissertation by pointing out that “spatial language” is inseparable from both social persons *and* physical places, that reexamining it with this in mind illuminates a profound connection between language and world, and that this connection is inseparable from the different ways humans embody their surroundings for speaking, thinking, and acting.

While much attention has been given to the intertwining of social relationships with the meaningfulness of language, as in honorific language, the possibility of systematic relationships between languages and their speakers’ spatial or environmental awareness has received little serious consideration. Research has focused mainly on spatial language as a comparative grammatical phenomenon—that is, on honing typologies of the diverse resources human languages use to *describe space*. These studies have indeed uncovered an unprecedented diversity in the conceptual and grammatical resources speakers of the world’s languages use to represent spatial relations (Levinson 2003; Majid et al 2004; Levinson & Wilkins 2006). In doing so they

have simultaneously challenged long-standing assumptions about the universality of categories as basic as “left” and “right,” and “up” and “down.” At a more philosophically resonant level, these studies have also challenged the psychological primacy of the egocentric perspective. Despite the implications that the nature of egocentricity has for more humanistic questions about subjectivity and personhood, research on the diversity of linguistic and cognitive representations of space have consistently come to an abrupt halt at the structural limits of language-as-grammar. It is as if an impermeable membrane separated linguistic and non-linguistic interactions between people and places, as if a farmer’s description of his plot and the work he has done there pertained to two discrete realities. This implicit, hermetic barrier separates “spatial language” from the “physical environment;” it separates the same people into speakers of linguistically diverse utterances and actors of culturally diverse practices; and at the most basic level it separates words from the humanity of the places they describe and name.

In this dissertation, I ask what happens if we imagine instead that the membrane separating these domains is permeable. The first possible observation in this thought experiment is that if the membrane is indeed permeable, understanding the nature of its permeability requires the identification of some continuities that traverse it. The second observation is that identifying continuities across an impermeable barrier is a self-contradictory enterprise, and thus the only reasonable first step is a momentary suspension of belief in these separations between spoken language and lived world. Practically, this requires stepping methodologically through the membrane, so to speak, by using the methods appropriate to the analysis of phenomena that do not lie within familiar disciplinary boundaries (see Section 6 below). Theoretically, it requires a recalibration of the idea of environment, disarticulating it from a materialist-idealist dichotomy entrenched in anthropology’s intellectual history. The next section addresses this last requisite,

recontextualizing the concept of environment within the framework that linguistic anthropologists use to study language, creating space to think about how spatial language not only serves to *represent* space, but also embeds actual places and their moral, affective, and spatial dimensions in the pragmatics and structure of language.

3. From language as social action to meaningful environments

In broad terms, linguistic anthropology is the study of language as an integral part of human life alongside—and intertwined with—culture, technology, and biology. In this spirit, linguistic anthropologists focus their attention not on language as an autonomous system but rather on its relationship with other phenomena such as kinship, ethnicity, gender, and class. Research in this program frames language not merely as a code—a mode or medium of meaning—but rather as intrinsically bound up in meaningful processes. From the start, this approach to language informed the present study of spatial language and environmental practice. However, as the research and analyses coalesced, a new theme emerged as theoretically parallel to language: the environment. However, the central role of environmental practice in this dissertation did not stem directly from my preliminary research questions about spatial language, as the former plays a minor role in previous studies of spatial language. Rather, it emerged through the intersection of my ethnographic engagement with the phenomena, both in concrete and theoretical terms.

The role of the environment in this dissertation also serves as a theoretical and methodological experiment. What happens if we approach the category of the environment with the same spirit of relational, semiotically informed thought that has characterized research in linguistic anthropology? As a result of this hypothetical parallel, linguistic anthropological theory

serves as a constant “frame of reference,” even when language itself is not at the center of the analysis. One goal of this introduction, then, is to make this framing familiar enough that the reader will be able to remain oriented even when the dissertation travels into places where theoretical landmarks are eclipsed from view.

Alongside the goal of exploring the relationship between language and environment, each chapter of this dissertation offers an answer to the question of the role of the environment in human life from a distinct methodological and analytic perspective. A different way of approaching the question might have been to define each of the terms involved so that several possible answers emerge as entailed by (or as a challenge to) entangled intellectual traditions. A dissertation structured in this manner may have had chapters or sections devoted to materialist and idealist theories of the environment and of the human in the history of anthropology and related disciplines. While this is a tried and true method of engaging philosophical problems, it would have been an act of infidelity to the ideas and problems that captivated my mind and compelled me along the path of research that ultimately led to the question. That is, I did not begin my research with this question, but rather with a series of concerns and methodological commitments that crystallized only toward the end of writing as a relatively stable constellation of ideas that—somewhat to my own surprise—had the relation between humans and the environment at its center. The dissertation therefore does not propose to offer a definitive answer to the question, but rather to foreground the question itself as an emergent concern that cuts across different domains of analysis and phenomena among which “spatial language” (or better, “speaking places”) figures prominently.

There is a basic fact that ties language as a social phenomenon to the environment. Not only is language always used *among speakers*, and *in time*, but it also always used *at some*

place(s).¹⁰ The fact that it is used *among speakers* highlights the fundamental sociality of language. Yet this sociality is inevitably riddled with complexities. When someone speaks, we may follow Goffman in dissolving the act into participant roles (1981), we may see dominant discourses and ideologies refracted across these roles (Hill 1995; Carr 2011), and we may see it as a social act that only makes sense in its interactional context (Hanks 1990; Goodwin & Duranti 1992; Tedlock & Mannheim 1995; Ochs et al 1996; Silverstein 2003a). Likewise, while language always happens *at some point in time*, its fundamental reproducibility—or as Silverstein and Urban would call it, its (re)contextualizability—forever complicates temporal determinations. However, the observation that language always occurs *in some place* seems to retain its simplicity. First, while dialectology and the areal dimensions of historical linguistics seem to address this relation, they do so only at a very abstract level from which places function merely as placeholders for the linguistic differences that are the focus of analysis; that is to say, the places defined by isoglosses are as inhospitable to human life as they are conducive to the method of historical linguistics.¹¹ Second, some scholars have explored how place names encapsulate moral discourses (Basso 1988, 1996) or index sociolinguistic identities (Thornton 2015), how linguistic practices such as prayer fit cultural expectations of interactions with individual places (Haviland 2003), and the practical consequences of cross-linguistic variability in representing features of the landscape (Buhrenhult & Levinson 2008). However, these studies have not specifically aimed at identifying individual mechanisms through which language and places come into their

¹⁰ Instances of language other than the speaking individual—e.g., mass-produced print and recorded announcements—have more complex relationships with places that may require parsing into different moments of textual production and interpretation.

¹¹ Bakhtin's concept of chronotope also takes the relation between language and place (and always together with history) into account (1981). However, as a scholar of literature, Bakhtin's intention with this analytic category is to capture the way in which language represents time and space, not to apprehend the causal relations among them.

characteristic relationships that are both particular to spatiotemporal contexts and generalized across patterns of social difference.

The initial goal of this dissertation addressed the absence of such a study, proposing to explore the ways that language—and spatial language in particular—articulates with places. While the environment took on a progressively central role, language simultaneously resolved to one of several interrelated dimensions of human life in Río Negro that I explore.¹² Language is the central focus of Chapters 3 and 4; in Chapter 2 I foreground sociality and ritual practice, and in Chapter 5, cognition. In Chapter 2, I follow herders and farmers' everyday practices, showing how differences in the places with which they interact engender social differences among individuals and constitute a frame for action (including speech, of course) grounded in the local environment. In Chapter 3, I take the spatial orientation that informs language use as the object of study. By examining how people talk about space in relation to the knowledge about the environment they presume one another to share, I aim to shed light on a concrete way in which humans' engagements with their environment substantially shape their use of language. Chapter 4 focuses yet more specifically on three linguistic forms—the Quechua demonstrative pronouns—and their relation to manual gestures. In parallel to the previous chapter, I argue that the use of these words and bodily movements is inextricably bound up in speakers' knowledge of the environment, adding the observation that this relationship between language and environment relies crucially on the body. That is to say, it is not precisely knowledge of the environment at stake, but rather its accessibility to speakers' bodies, so that certain forms of verbal expression

¹² While language itself is not the exclusive subject of the dissertation, my thinking is pervaded by an understanding of all domains of human life as fundamentally semiotic. Though I do not draw explicitly on Peirce's semiotic logic, I do draw on its spirit of taking meaning as primarily processual, dynamic and emergent rather than representational, stable, and reducible to other domains such as biology or physics.

require the embodiment of the spatial characteristics of a remote environment. I make the same observation in relation to cognition in Chapter 5, where I present a controlled experimental study of nonverbal spatial memory. In resonance with the distinction in environmental practice between farmers and herders described in Chapter 2, the study finds that this same distinction also correlates with a distinction in the way people remember objects arrayed on tabletops.

While each chapter provides one kind of answer to the question of what role the environment plays in human life, it does so from within a theoretical frame that seeks to understand the environment as intrinsically bound up in other meaningful processes. This dissertation thus explores the possibility that the environment is as integral to and constitutive of human life as language, culture, technology, and biology, and is not merely an economic and symbolic resource. By examining the role of the environment in human life from this perspective, I don't expect to provide a complete picture, much less an answer. Rather, I hope to suggest that the theoretical approach to language that has emerged in linguistic anthropology has broad significance to understanding not only language, but also the *places* where it becomes a part of human life.

4. The environment as resource, symbol, and meaningful relation

The environment has had a fraught history in anthropology, and I cannot pretend to do justice to it here. Instead, I want to focus on what I see as two central reasons for this turbulence. This is sufficient for introducing a distinct approach to the environment that draws inspiration primarily from an entirely different realm of anthropological theory. The first source of trouble in environmental anthropology is what Marilyn Strathern identified as the “perception of the material world as resource and energy” (1980:184). This also corresponds roughly to what

Descola (2013b) calls the “materialist” trend in anthropology. Descola contrasts this with a “mentalist” trend, which he identifies with structural anthropology. From this perspective, the environment provides the “raw materials” for humans to produce meaning, to lean on his mentor’s metaphor of the *bricoleur* who improvises with the materials at hand to solve mechanical and aesthetic problems (Levi-Strauss 1955). The symbolic role the environment takes in this approach is the second source of trouble for its place in anthropological theory.

These two polarized views of the environment—as the raw material for economic activity and as the raw material for symbolic thought—have precluded defining the environment in terms of *meaningful* rather than merely utilitarian or conventional relationships. The latter definition would be germane to anthropological thought, and to linguistic anthropology in particular, and was already nascent, for example, in the biology of Jakob von Uexküll (2010[1934]) and in James Gibson’s theory of visual perception (1979). Von Uexküll thought of the relationship between the animal and environment as shaped fundamentally by the relations among signs. In his most famous example of the tick, he explains that the animal’s sensory organs have developed for one single purpose—to take butyric acid as a sign of a mammal’s presence. On perceiving butyric acid, the tick releases its grip on the blade of grass to which it has been clinging. After falling, it relies on its sense of touch, first to confirm that it has landed on a warm-blooded creature, and second to find an exposed patch of skin into which to bore. Von Uexküll considers both this chain of actions and the perception of butyric acid to be signs already defined in a relationship between the tick and the qualities of its environment. Every subject’s environment, writes Uexküll, is delimited by these processes which are as semiotic as they are biological—“the simple animal has a simple environment; the multiform animal has an environment just as richly articulated as it is” (50). Like von Uexküll, Gibson thought of the environment as always a term in a relationship

with an organism such that environments are ultimately subjective—that is, only definable from the perspective of a given subject. As a psychologist, however, Gibson’s interest was not in the semiotics of life processes, but rather in the manner in which the relationship between organism and environment contributes to visual perception, a connection he felt could help to overcome a dichotomy between mentalist and behaviorist approaches to perception in psychology.

While some aspects of von Uexküll’s and Gibson’s work have been taken up by anthropologists that share an interest in challenging subject-object, nature-culture, and mental-material dichotomies (e.g., Ingold 2000), their more general movement toward defining the environment—or rather environments, as this definition allows for no generic sense—as always part of meaningful interactions has not resonated much with anthropological theory. For “materialists” like the early Roy Rappaport (e.g., 1967), the environment may take on meanings that in turn shape the way it is used as a resource, but the environment in itself is not inherently meaningful—it always exists outside of humans’ engagements with it, and as such those engagements will always have the quality of false ideologies that evolve to approximate reality through trial and error. Likewise, for “mentalist” like Levi-Strauss, forms from the environment are the constituent parts of cultural meaning, but the relation is ultimately an arbitrary one (1955; Descola 2013b). The environment here is likewise external to human life, but humans’ engagements with it do not amount to approximations, but rather analogies.

The shifting place of language in anthropological theory (at least for linguistic anthropologists) suggests a parallel movement in the theorization of the environment. The shift is a movement away from closed systems with which humans interact in either utilitarian and behavioristic or arbitrary and conventional ways, toward systems that are emergent from particular historical, social, interactional, and material contexts. Taking Chomsky and Skinner

respectively as polar champions of mentalist and behaviorist approaches to language, linguistic anthropologists have cut a middle path by defining language not as a self-contained system that is reducible to neurobiology once the contingent accidents of history have been stripped away,¹³ nor as a mere extension of and elaboration on innate behavioral patterns, but rather as both constitutive of and constituted by human life. In this view, systematic regularities in language are not related merely to its own structural properties or to those of the referents it describes, whether mental or material. Instead, such regularities can only be fully described as emergent from a relationship between the qualities—both structural and pragmatically contingent—of language and the humans that use it.¹⁴ Michael Silverstein highlighted this fact when he argued that if we include the uses of language beyond its symbolic function in propositional signification, our analyses become dependent on our concomitant observations of its social and cultural contexts (1976). Mannheim & Tedlock wrote more explicitly of language itself as an emergent phenomenon best understood (for the purposes of ethnography) not in the terms of traditional linguistics, but rather in relation to its inevitable situation in dialogic encounters (1995).¹⁵

Just as structural linguistics has offered limited purchase on the phenomena of interest to linguistic anthropologists because it sets aside the social world,¹⁶ the same problem has prevented

¹³ I should note that Chomsky's theory boasts analytic purchase on certain linguistic phenomena within the well-defined circumscription of "competence," whereas Skinner's behaviorism did not hold up to the accumulation of empirical data on language in the second half of the 20th century. See Chomsky's (1959) review of Skinner for Chomsky's critique of the latter.

¹⁴ The fact that similar kinds of order emerge from similar kinds of disorder should no longer be surprising—nor should it be dismissed as one of humanism's rhetorical tricks—as physicists in the last few decades have moved toward mathematical models of emergent order as a way of coming to terms with the gap between the complexity of reality compared with the idealized simplicity of classical and quantum models (Prigogine 1997).

¹⁵ This is closely related to Geertz's claim that "culture is public because meaning is" (1973:12).

¹⁶ I say *limited* because it has indeed been useful. Having well-defined and principled categories, however idealized, is a helpful place to start when trying to identify the linguistic forms that get taken up as socially meaningful. Likewise, the historical linguistics offers clues into historical

the pioneering work of von Uexküll and Gibson in their respective fields from being of much use to anthropological theories of the environment. When we turn to them for help with this puzzle, we indeed find a meaningful relation central to the definition of environments, but we also find that it always involves *individuals*, that it is always a *subjective* relationship, and that there is no account of the patterned ways in which individuals vary and interact, and out of which their subjectivity emerges. In other words, there is no common ground with the traditional themes of anthropology. This is likely why their theories of the environment have not been adopted wholesale into anthropology, and it is certainly why they should not be. Yet it is possible to push their ideas from subjectivity to intersubjectivity and thus define an *intersubjective environment*. Central to this push is the recognition that humans interact with their environment not only in meaningful ways but also in social ways. That is to say, in plowing their fields, farmers not only engage with earth as a vehicle that signifies the possibility of nourishment through the cultivation of edible plants, but also as a practice that positions them socially with respect to others who cultivate the same land, nearby land, or no land at all. It may even entail a social relationship with the earth itself.

The concept of Theory of Mind helps us to understand why this social aspect of human-environmental relations is fundamentally intersubjective, not merely individual. Theory of Mind accounts for the fact that our relations with others always involve the presupposition that our interlocutors share with us similar capacities for thoughts (Wellman 2013). It can be added that we not only presuppose this similarity in capacities, but we also project more substantial ideas—dependent on how we recognize our interlocutor—such as shared knowledge about the layout of

contact and movement that can complement ethnohistoric research. Yet the study of grammatical categories grinds to a halt at the moment they are put into use in social interaction, and the historical method is blind to the changes influenced by such use.

the town where we both live, and expect that our interlocutors do the same. By adding this modified Theory of Mind,¹⁷ we can replace the *subjective* relationship between individuals and their environments with a *social* relationship between individuals and their environments in which environments are meaningful at an intersubjective level, and in which their meaning depends not *only* on their physicality but also on their sociality—that is, on the way in which they are socially recognized and situated in the midst of human life.

I owe this observation to the time I spent with people in Río Negro. Before my field research there, I had read about the status of mountains as deities, sentient beings, and social agents. The prominent role of mountains and other “natural” entities in religion, political organization, and cosmology stands out as an icon of the Andean in general—hardly surprising that the region is coterminous with an enormous chain of mountains. Yet despite the frequency and prominence of the social and cultural stature of mountains in literature on the region, the fact that they are simultaneously *places* has not been significant. That is not to say that their existence as ecological entities has been ignored. Their physical characteristics are routinely described, and their importance as ecological factors in human life has also been the subject of some studies (Murra 1972; Brush 1977; Rasmussen 2015; Gade 2016). The cultural importance of *places* and the agency of the nonhuman have also been touchstones of Andean ethnography (Allen 2002; de la Cadena 2015; Mannheim & Salas Carreño 2015; Sals Carreño 2016). Yet what struck me most was the routine *familiarity* with which my acquaintances treated mountains. Indeed, the fact that these mountains are both physical environments and social entities suggests the possibility that the relations between humans and their environments can manifest in a form that is neither material and ecological nor mental and symbolic, but rather social and familiar in the same way as

¹⁷ Rather than a modification of Theory of Mind, it is also possible to think of this as the specification of a particular kind of common ground afforded by Theory of Mind.

relations among humans. That is to say, if relations between humans and their environments are social, they also are meaningful not simply at the level of individual thought, but rather at an intersubjective level.

Guillermo Salas Carreño's and Bruce Mannheim's recent work on kinship and ritual in the Andes has drawn attention to this mutual patterning of human-human and human-place social interaction in the Andes. This parallel can also be generalized beyond the Andes if we recognize that in the opposite case—in which environmental entities are not recognized as social beings—the resulting human-place relations are still social in the same way that relationships characterized by “negative reciprocity” are still social despite the denial of their participants' mutuality. Put differently, the environment recognized as an ecological and physical domain organized by distinct, nonhuman relations ultimately still only comes to bear on human life insofar as this recognition conditions its interaction with humans. Earthquakes, for example, destroy human life because of the ways in which humans have come to engage with seismic places as dwelling and working places, not merely because of tectonic geology.

In the chapters that follow, I use the category of environment in this way to refer to a term in an intersubjectively grounded, meaningful relation. However, in most cases, it is not necessary to distinguish between this use of environment and the other, more materialist use, as the cases that I describe in part aim to make a case for the former. However, there are some places where it is necessary to highlight the difference, and to do so I use the term “intersubjective environment” with the intention of recalling the above discussion. One reason I find it important to emphasize the intersubjectivity of the environment is because it helps resolve problems of determinism, reduction, and relativism that plague the anthropology of the environment. The next section addresses these problems and a potential solution.

5. Determinism, reduction, and particularity

In “The Ecology of Others,” Descola traces the polarized “mentalist” and “materialist” approaches to the environment in anthropology, and proposes his own brand of anthropology as a middle-path-clearing solution (2013b). However, in the opening chapter of “Beyond Nature and Culture” (2013a) he demonstrates a significant affinity with the “mentalist” tradition by taking a hardline opposition to the environmental determinism nascent in cultural ecology and blatant in cultural materialism. In the chapter, he takes readers on a tour of cultures around the globe and throughout history, all with the subtly stated purpose of demonstrating that physical environs have not determined these cultures’ particular understandings of the world. On reading this collage of data from the most diverse places and times assembled to demonstrate that the relationship between environment and culture is irrefutably arbitrary, I could not help but find a surprising parallel in research on spatial language and cognition.

The group of linguists and cognitive scientists dedicated to mapping the diversity of spatial orientation in language and thought have debated the question of whether particular physical environments such as mountains, cities, or jungles shape the grammar or cognition of the people who live within them (Mishra et al 2003:379; Levinson 2003:193; Majid et al 2004:110; Haun et al., 2011). While the explicit goals of these studies of spatial orientation may on the surface be quite different from Descola’s research, there is a similar logic at work in both. Just as Descola wishes to account for the irreconcilably different ways that humans conceive of their worlds, the psycholinguists demonstrate the existence of fundamentally different ways of representing spatial relationships. Likewise, both projects involve both an argument against universalizing theories that tend to project the presuppositions of the analyst’s own language or

culture onto others. As a consequence, both projects also face the problem of how to liberate variability from environmental determinism—that is, how to produce evidence that shows that variations in spatial language or are not determined by purely material phenomena—without recourse to universalist or nativist understanding of language or culture as structures determined by genetic traits, and thus also by ultimately material phenomena.¹⁸

The objection to determinism present in these theoretical programs boils down to a critique of reductive logic. The population dynamics in a jungle ecosystem and the hunting taboos of the society that lives and interacts with it have distinct orders of organization, as do the physical characteristics of a scrub desert and the grammar of the language spoken by its inhabitants. Any argument claiming causality between such distinctly organized phenomena is doomed to fall back on reductive logic unless it can show the means by which actions at one order affect those at another. For this reason, researchers have gradually been coming to a consensus that it is preferable to catalogue and construct taxonomies of their objects of study rather than try to explain them in terms of ecological, biological, or geological phenomena. Indeed, the proposed solution to the problem of the conceptual diversity of spatial language is “*semantic typology*,” just as Descola’s solution to the problem of the cultural diversity of human-nonhuman interactions is “*ontological typology*.”

Whether or not some kind of determinism is at work, it remains a fact that humans *do* interact with the other-than-human world that surrounds them in many ways, and that these interactions tie them into various kind of causal relationships.¹⁹ However, by rendering this realm

¹⁸ Silverstein (2016) deals with a similar issue in his discussion of variation in the role of variation in linguistics from Leipzig to variationist sociolinguistics.

¹⁹ Ian Hodder’s (2012) concept of entanglement provides a way of thinking about these kinds of relationships and the complexities that arise out of the mutual dependencies that characterize them.

of interaction as interchangeable components in a typology, any possible causality therein is instantly lost to the analysis. The grammaticalization of cardinal directions by speakers of Guugu Yimidjir, for example, becomes functionally analogous to structures in languages spoken in Asia, South America, and the circumpolar north, while the means by which speakers acquire and maintain the knowledge to speak such a language becomes an incidental fact (Levinson 2003).²⁰ Likewise, the attribution of personhood to geographical features by Apache, Andeans, and Australian Aboriginals helps to elaborate a typology of the distinct human ways of ordering the world (Descola 2013a), while the individual practices by which personhood (of humans and places alike) is tangible and effective for particular individuals is cordoned off.

More to the point, the tendency to typologize is itself borrowed on *analogy* from the natural sciences and is for this reason just as reductive as explaining grammar with ecology or culture with biology. Meaning, thought, language, and practice are always in the midst of human life, always the result of the particular actions and experiences of individuals, always already in the midst of particular social relationships, and always located in a particular constellation of places. If there are observable regularities, they must be the emergent properties of these dizzying idiosyncrasies. This is the more parsimonious perspective, as we would otherwise have to claim that the regularities we observe and typify are themselves the laws that give rise to the diverse forms of human life, yet without having any theory of how such laws actually affect humans. In other words, we would reproduce the reductive logic of environmental determinism, placing anthropological theory itself in the place of “nature.”

In order to escape this fallacy it is only necessary to take as the object of study *the ways that persons interact*, while keeping the definition of person open to local definition. This

²⁰ Languages are learned through social interaction with other speakers, and these happen not in a void, but rather over the course of habitual practices at particular times and places.

automatically subsumes what would otherwise be considered “human-animal” or “human-environment” interactions in cultural contexts in which animals or places are treated as persons. It is no longer necessary to typologize. If a certain group of New Yorkers has closer relationships with their dogs than with their siblings, we can explore the consequences of this first and foremost for them, then for their relationships with New Yorkers that don’t share this characteristic, and then, perhaps, for gaining an insight into more general cultural dynamics, power relations, and historical processes.

Taking interactions among persons as the object of study also transforms the approach to the study of diversity in linguistics and psychology as well. For example, there is no longer a question of whether the diverse ways of conceptualizing space might be explained better in terms of neurological structures or environmental factors. Instead of these ultimately reductive questions, a more fruitful one emerges: what kinds of interactions among persons might shape the acquisition and maintenance of conceptual structures in language and thought? This is becoming a more widely accepted approach when it comes to social concepts, as can be seen in the work of scholars who have shown how grammar is embedded in the structure of social interaction (e.g., Hanks 1990; Duranti 1994; Agha 2007). However, it is telling that a similar step has been much more difficult when it comes to what counts for most researchers as “nature” or “environment.”²¹

It seems as if researchers’ own ontological distinctions sneak up on them, whispering in their ear

²¹ A similar argument of reductive logic could be lodged against the move toward interaction as a foundational domain for language, thought, and culture. Such an argument would doubtless point to the circumscription of physical processes in individual biology, genetic evolution, and the surrounding environment that indubitably shape interaction in a multitude of ways. Part of this critique is apt—such processes indeed play an important role in shaping interaction—and suggest a separate domain of investigation that would involve the integration of a different set of methodological and theoretical approaches. Another part of the critique, however, is resolved (or dissolved) here by reformulating the place of the physical surroundings or environment in the equation.

that any causal relationship between the physical and meaningful worlds involves reductive logic. But this is only the case if we indeed think of the world that language or cognition represents as a domain ontologically separate from human action. The inaccuracy of this view, I believe, is not merely relative to the radically different ontologies of the Chewong or the Achuar. Rather, humans *do* act on and in the world, and these actions *do* shape the way they think and speak about it. To ignore this fact that is appreciable to all but the most dedicated idealists is to stubbornly fix our eyes on the path ahead, even when it leads us countless times round a meandering loop. And, paradoxically, the forking paths that follow particularities out into the world promise a greater possibility of unifying theories within and across disciplines than the well-trod loop that stipulates the unity of the phenomenon in question.

In the following four chapters of this dissertation, I explore how humans' engagements with their environments concretely shape language and thought. This concern is framed with respect to four distinct questions about particularities of human-environment relationships in the Rio Negro watershed. I begin with the social, and then move to the linguistic, the corporeal, and finally the cognitive. The trajectory intentionally begins with what is commonly thought of as the most (inter)subjective and ideal phenomena and moves toward what is in contrast commonly understood to be the most objective and material. This achieves two things. First, it avoids the implication that the individual is analytically prior to the social and cultural. Second, it challenges the idea that social, linguistic, and cognitive phenomena are distinguished by their relative subjectivity or objectivity, instead showing how in all cases practices are patterned simultaneously at the levels of individual lives and of social groups partially constituted by these very patterns; in the end, I argue, differences in social position, language use, and thought are all

closely tied to these practices in such a way that separating them in terms of their relative subjectivity or objectivity becomes an exercise in futility.

In each of the four chapters, I answer the question and explore the consequences of the answer to life in Río Negro and to the interactions between its people and their environments. The questions are “Why do only herders speak with mountains?” (Ch. 2), “How do people communicate verbally about spatial relations like direction and location?” (Ch. 3), “How does space inform Quechua deixis—a quintessentially social domain of grammar?” (Ch. 4), and “Do different ways of engaging with the environment shape the ways people conceptualize spatial relations in thought?” (Ch. 5).

Each of the questions speaks to very different phenomena and theoretical issues in anthropology, linguistics, and psychology. At the same time, each chapter also points out the difference made by interactions with the high steppe, called “*hallqa*” in Río Negro. Chapter Two shows how the *hallqa* is composed of social persons, not simply “nature,” and that habitual interactions with these persons shape herders’ social positions as individuals as well as more general conditions of political life in Río Negro. In Chapter Three, I show how the descriptions of spatial relations made by Quechua speakers in Río Negro rely on an embodied sense of space, and argue that this makes habitual interaction with the local landscape a prerequisite for verbal interaction. In Chapter Four, I turn to a domain of language that is not explicitly spatial, examining how the use of Quechua demonstrative pronouns is anchored simultaneously in the dynamics of verbal interaction and in participants’ corporeal orientation to and position within a landscape that reaches far beyond what they can immediately perceive. Finally, in Chapter Five, I present the results of an experimental study showing that a particular way of interacting with the environment—namely that of the herders whose work leads them to engage in social interactions

with mountains as persons—engenders a particular way of conceptualizing spatial relations. In sum, though each of the chapters engage with diverse phenomena, methods, and theories, they converge along a path of inquiry that privileges relations among persons—however these are defined—as an object of analysis.

6. Research methods

As I have explained up to now in the introduction, this dissertation does not fall squarely into any one discipline, but rather addresses questions that can only be answered by thinking across phenomena that have traditionally been the exclusive territory of distinct disciplines. Thus, while I draw my most significant inspiration from linguistic anthropology, I address questions that are not directly accessible to the subfield's synthesis of ethnographic and linguistic analysis. As I found that the questions I was interested in crossed disciplinary boundaries, it became a necessity to devise a methodological approach conducive to answering them. More concretely, Chapters Three through Five describe and make comparisons across language use and nonverbal thought, and thus require comparable data. Cognitive patterns and representations have no direct and systematic manifestation comparable to speech, and can only be interpreted as probabilities determined in relation to participation in controlled experiments. Language, on the other hand, can be studied as an individual or event-level phenomenon—grammar is reflected in individual speech, and interactional norms are observable in conversational events. While linguistic anthropologists and structural linguists alike generally use this approach, language can also be studied experimentally. Psycholinguists and psychologists of language integrate grammatical descriptions of language that can be derived from individual speakers with controlled experiments. For example, the scholars who have studied spatial language and cognition define

some groupings of participants in their experiments in terms of grammatically determined categories derived both from traditional elicitation and controlled, experimental language tasks. Finally, in addition to grammatical and experimental approaches, language can also be studied ethnographically, as a social phenomenon. The resulting situation is one in which anthropologists and psychologists interested in language share grammatical analysis as a methodological middle ground with linguists, while diverging in the other approaches they integrate into their analyses (Table 1).

Language	<i>Ethnographic</i>	Linguistic Anthropology
	<i>Grammatical</i>	Linguistic Anthropology; Psycholinguistics; Psychology of language; Linguistics
	<i>Experimental</i>	Psycholinguistics; Psychology of language

Table 1. Methodologies for studying language across disciplines

While there are exceptions to this tendency, it is strong enough to lead to a boundary that poses serious difficulties to analytic comparability across anthropology and psychology. Individual scholars' disciplinary associations matter little here—i.e., though some anthropologists are involved in psycholinguistic research, the methods they use fall along the lines I described above. Because this dissertation represents an attempt to address questions that fall at the intersection of approaches to language that originate in the disciplines of anthropology and psychology, it was necessary to engage with all three approaches in order to avoid a one-sided or circular answer.

As I have explained above, this dissertation is not interested only in language, but also in environmental practice and nonverbal thought. Luckily ethnography and experimentation are not exclusive to language; rather, in both cases their use in the study of language represents an

adaptation of a more general suite of methods more or less contiguous with their respective disciplines. Indeed, this is the reason that ethnography and experimentation distinguish anthropological and psychological approaches to language. In short, ethnography helps me to address language and environmental practice as intersubjective, sociocultural phenomena, while controlled experiments help me to address language and thought as individual, psychological phenomena.

Before moving on to describe the actual methods used in the dissertation, I want to clarify one general aspect of methodology that is crucial to understanding what I mean when I say that one “method” helps me to address questions about distinct phenomena. While methods can be tailored to questions, they also always potentially exceed them. The reason for this is that methods have two facets: materials or information, and the second-order representations from which interpretations are actually drawn. For example, ethnography as a methodology is in fact a suite of methods, each of which is characterized by a particular practice of gathering materials, and thus by a particular kind of information. Take for instance the field notes resulting from a year of participant observation. This huge amount of relatively unordered information cannot be turned directly into a work of anthropological analysis. Rather, the ethnographer first must go through the notes and sort out relevant pieces of information that speak to particular questions or fall into specific categories. In this process of selecting and ordering, some information is inevitably set aside and other information is emphasized. A linguistic anthropologist may take detailed notes about everyday life during fieldwork, and while they may focus particularly on language, they will also record many other observations. The information is thus amenable to two distinct analyses, but in order to achieve this, the notes must be re-represented for each analysis.

With experimental methods, the situation is only partly different. Because experiments are designed and controlled to isolate specific phenomena, they are not as flexible as fieldnotes or recordings. At the same time, the information resulting from an experiment must still be re-represented before it can be interpreted. In fact, it is first re-represented in a selective and categorizing way—what psychologists called “coding”—and then re-represented in a numerical way through statistical analysis. As a result, answering several specific questions through experimental methods differs from ethnography in that it requires designing a different experiment for each question, and passing through the two phases of re-representation for each question as well. While this appears far more labor-intensive than ethnographic analysis, the reality is that re-representations of experimentally derived information are generally more straightforward than of ethnographic information. The reason for this is that experimental information is already highly focused and the goals of analysis are similarly narrow, while ethnographic information is broad and heterogeneous and the goals of analysis are not generally focused on individual phenomena but rather on interactions among multiple phenomena.

The rest of this section provides a detailed account of the ways in which I gathered data. As I explained above, the two-stage nature of the research methodologies I used makes them amenable to very different kinds of analyses. Recorded conversations can answer ethnographic and grammatical questions depending on how they are represented in the intermediate stage between collection and interpretation. I therefore have structured the following subsections in terms of modes of collecting information—notes, recordings, and controlled experiments—rather than the three methodologies of ethnography, grammatical analysis and controlled experimentations. This structure allows me to focus first on the manner in which I gathered the information, and then on the successive ways I reordered and filtered it for distinct analytic

purposes. Another benefit of this approach is that it allows me to respect the different analytic affordances of each mode of information gathering. The kinds of questions that can potentially be answered by notes, for example, are distinct from those that can potentially be answered by recordings. Table 2 represents the uneven correspondences between modes of information collecting and analytic interests. The table illustrates the fact that notes were useful for both ethnographic and grammatical questions, but not systematically for the latter. In contrast, three of the five types recordings I made were systematically amenable to both ethnographic and grammatical analyses, while the other two only provided information relevant to grammatical analyses. Finally, the two kinds of controlled experiments were only useful for the linguistic or cognitive questions they were designed to address.

	ethnography	grammar	cognition
Notes	participant observation focused conversations	<i>participant observation</i> <i>focused conversations</i>	
Recordings	events informal conversations interviews	events informal conversations interviews elicitations controlled experiments	
Controlled experiments		verbal task	nonverbal task

Table 2. Modes of collecting information and analytic interests.²²

²² Emphasis indicates that a mode of information collection was not systematically relevant for the analytic category under which it falls in this table.

In sum, there is no simple way to categorize methodologies in this kind of interdisciplinary research, as each mode of information gathering affords distinct kinds of analyses, and each analytic interest is addressed through multiple methodological approaches. This is ultimately a good thing, as it means that the time spent gathering information unfolds into multiple interpretive possibilities. At the same time, recognizing this inherent complexity is necessary to avoid the fallacious identification of concrete research activities with analytic approaches to research questions. Avoiding this fallacy is in turn necessary to avoid both redundant activity and untapped interpretive potential in a context of limited resources. This is all the more the case for studies that do not sit neatly in familiar disciplinary categories.

7.1. Notes

Note-taking is a fundamental part of any research method. For example, the controlled experiments I conducted during my fieldwork all have associated notes, as do the video recordings. These notes provide qualitative comments on the schematic information yielded by experiments and contextual background on recordings such as their time, place, and participants. However, I also regularly took notes as an independent means of collecting information. This subsection focuses on such use of notes as a method in its own right for this dissertation. As I indicated in Table 2 above, setting aside those associated with recordings and experiments, two kinds of notes served as main research activities: notes on participant observation and notes on focused conversations that I did not record.

Participant observation is an umbrella term for what makes up the majority of anthropological field research—living and going about daily life alongside people that live in the place(s) of interest. The broad array of activities that fell under this label during my research

ranged from the most mundane and passive of activities—watching a Brazilian soap opera after dinner or sitting in a dry goods store to listen to neighbors gossip and chat—to very specific, labor-intensive activities—harvesting potatoes in a place called Mashra Uqu or herding a pair of donkeys along the four-hour route back to town from Ruriq canyon. These activities were also sporadically punctuated by unplanned opportunities to delve into focused conversations on particular topics. For example, while taking breaks from counting cattle in Ruriq canyon, I often had the chance to ask the herders I was accompanying about their family histories, how they felt about herding, and encounters they might have had with mountains personified in human form. For this purpose I kept a folded sheet of paper on which I had written a list of questions. I frequently had to replace the list, not so much because of use—once I had written down the questions I usually remembered them and left the paper in my pocket—as because of the corrections, additions and annotations that gradually filled in the blank areas on the page.

Another reason I often left my list of questions in my pocket is because of the disfluency it would have brought to the interaction; for the same reason, I generally wrote my notes at the end of the day or during down time rather than in the midst of activity. Disfluency is even more of an issue in video recording, while experimentation is in essence the controlled use of disfluency to isolate particular phenomena. Having worked with this range of disfluency across methods, I have come to appreciate the value of post-facto ethnographic note taking as a practice that is most able to preserve the flow of events anchored in the activity of interest. Of course, my very presence is itself an interruption, but over the course of any familiar activity, my exotic presence eventually came to be superseded by the flow of work (or play) and the goals, products, and emotions at stake therein. I came to see my note taking practices not only as a valuable source of information, but also as a necessary counterpoint to more disruptive research practices.

As I generally tried to avoid taking or consulting notes in the midst of whatever I was participating in and/or observing, I regularly wrote my field notes in journals in the evenings or during other dead periods. I copied these into a word processor on my laptop when I had a chance, and I also took advantage of these occasions to fill out details I had neglected and to write more reflective or analytical passages.²³ In these paper and silicon notes, I recorded everything I could remember, regardless of whether I thought it might ultimately be of interest or not. Yet it would be great hubris to claim that I recorded everything that I observed and did—there was never enough time to write everything, nor does short-term memory work in a strictly linear fashion. Thus, I found myself periodically drawing on loose memories and impressions at every stage of my research, from note taking to revisions of the completed dissertation. I find no reason to minimize or devalue this intuitive side of ethnographic research. Presumably all humans share some basic means of storing and accessing memories, and thus it seems a fitting method in the study of humanity when anchored in more material forms of evidence such as notes and recordings.

7.2. Video recordings

During my field research, I gathered a corpus of video recordings that fall into five categories: community or family events or activities, informal conversations, interviews, structured elicitations, and controlled linguistic experiments. In practice, there was some overlap among the first three categories. I often recorded informal conversations (in some of which I also

²³ I often did this work at the end of the day, sitting at a wooden table in the storeroom of my friend and host, Pascual Leon, where he himself also sat to take his own notes on his farm work and community projects and on the cases he was working as a justice of the peace. We drew attention and teasing from the rest of his family for the two traits we shared: facial hair, and staying up late at night writing in notebooks.

participated) and structured interviews before, during, and after activities such as meetings, parties, and work projects, as well as in and around the homes of the people I got to know best in Huaripampa. Inevitably, some parts of these conversations were about me, my presence in Huaripampa, or the equipment I used for the recording (a small digital camcorder, a tripod, a microphone, a stereo audio-recorder, and a tangled assortment of cables). While these topics eventually became more familiar and mundane, recording always inevitably introduced some disfluency into the flow of activities.

One way I made the process of recording less aberrant was by becoming Huaripampa's de facto event filmographer. In other words, in addition to my research activities, I also used parts of my recordings of local festivals, life cycle events, and communal work projects to produce video mementos for community members and groups. Enough residents had DVD players and TVs to make these objects valuable to them, and I found that people genuinely enjoyed watching familiar faces and places as much, if not more, than the pirated DVDs bought in the city and the soap operas on Huaripampa's single television channel. Producing these videos helped make sense of my presence in public situations and made it possible to reciprocate in a unique fashion. However, my cinematographic services were replaced soon after I left—smart phones have become commonplace in Río Negro, and residents now have a vibrant photographic and filmographic public presence on Facebook and Youtube.

7.2.1. Recordings of events

In addition to serving as video mementos for residents, the activities and events I filmed served a number of purposes in my research. First of all, in events like weddings, funerals, and community festivals, there are always multiple, concurrent activities. During a funerary

celebration a handful of people are dancing, two old friends are seated on a bench in heated conversation, an older woman is preparing a hot drink, and children chase one another among the rooms of the house. Instead of trying to remember the details of all of these activities without knowing in advance exactly what will ultimately be of interest, video recordings allowed me to participate more freely, knowing that I could return to the recording to observe the details. These details also consisted of bits of conversations. While people in such contexts move about frequently, it is possible to catch bits and pieces of interactions that are useful for evaluating the use of linguistic forms. Before analyzing the use of Frames of Reference in speech, for example, I watched through these videos and extracted segments that contained stretches of speech relevant to this particular question. Finally, in addition to their value in preserving visual and auditory impressions, recordings have also served more generally as mnemonic. As time passed after returning from Río Negro, these videos brought me back to the place more forcefully than memory alone, and thus helped prime my mind for writing.

7.2.2. Recordings of informal conversations

As I mentioned above, having my camera set up and running in such events also provided many occasions for making more focused recordings of both informal conversations and interviews. This usually occurred when I encountered individuals who had already participated in my research. I would then ask them if I could either simply record them as they spoke with one another with the purpose of learning about the Quechua language, or if I could ask them some specific questions with the purpose of learning about local culture. I also recorded both informal conversations and interviews in other settings as well—for example at tables in dry good stores, during breaks in farming work, in people’s homes, or in the street.

Recording informal conversations was in fact one of the most difficult activities in my research. The goal here is to capture as “natural” a portrait as possible of everyday talk, yet talking about everyday things with a camera and microphone trained precisely on you and your interlocutors is not an easy task, and arguably cannot be truly accomplished without hidden recordings devices, which pose a serious ethical problem and breach of trust. As I described above, people’s familiarity with me and my recording equipment was really the only way of mitigating the inherent awkwardness. Setting aside lingering doubts about artificiality, certain questions about language, and especially about its use in social interaction, can only convincingly be addressed with recordings of informal conversation. This fact has been demonstrated convincingly by conversation analysts since the seminal work of Schegloff (1971) and Sacks, Schegloff, & Jefferson (1974). Furthermore, given my interest in manual gestures, video recordings in particular were necessary. I was also particularly determined to record informal conversations because most research on spatial language has focused exclusively on elicitations and controlled experiments. While my analyses of the spatial language used in these settings is not as rich in sheer number of instances as the elicitations and experiments I conducted, they counterbalance the latter with observations of usages in settings that more closely approximate daily life. Indeed, these observations substantively change the direction of my interpretation, as I show in Chapter 3.

7.2.3 Recordings of interviews

The interviews I recorded ranged from unscripted, informal conversations to carefully planned questionnaires. At the beginning of my research these were two very distinct kinds of interviews, but as I became more fluent in both Quechua and the interview process itself, I found

myself moving back and forth between casual chat and highly specific questions over the course of each interview. I conducted these interviews sporadically and sometimes spontaneously in the midst of events, during breaks from agricultural work, or on visits to families living in more remote areas close to the high pastures. At first I had a list of topics of interest as well as a list of pre-formulated questions—family histories of land use, current practices, the places people frequented and their names, stories about memorable things that happened while working in the mountain pastures or cultivated fields, other places where people have lived and why, what differences most stand out to them, etc. All of these topics and questions served a double purpose. First, they aimed to provoke the people I spoke with to address my interest in patterns of engagement with the environment. At the same time, I also tried to ask questions that were open enough to spur my interlocutors to tell stories and speak freely about what they knew and were themselves interested in. This more relaxed kind of speech—as opposed to answers to precise questions—provided stretches of speech that were useful to analyze not only for their content, but also for their linguistic structure, and more specifically for their use of spatial language. As I regularly conducted interviews, I gradually became more able to improvise my way through them in a way that got at my interests while also maximizing the informality of the conversation. This process of adaptation paralleled (and contributed to) my constantly improving ability to communicate smoothly in Quechua. It also contributed to the community's acceptance of me as an interlocutor in Quechua rather than in Spanish, the language used to communicate with outsiders and in official contexts.

As I mentioned above, the recordings of these interviews and conversations served several analytic purposes: understanding current and past practices through which Río Negro residents engaged with their environments, including ritual interactions with and stories about individual

places (Chapters 2 and 5); determining the spatial Frames of Reference that Quechua speakers in Río Negro use in speech (Chapter 3); and analyzing the use of demonstrative pronouns in Quechua and their co-occurrence with pointing gestures (Chapter 4). These three analytical purposes involved different second-order representations of the recordings. For each analytic task, I began by listening through the entirety of the recordings and flagging relevant sections. When these were smaller segments of larger recordings, I created a separate file of the excerpt. I then created a file for each recording or excerpt in ELAN, the transcription software developed by the Max Planck Institute. This software allowed me to see the video file in coordination with the audio waveform and multiple tiers of transcription.

The transcription process varied in detail according to the analytical purpose. For developing an ethnographic description of patterns and variability in residents' engagements with their environments, I needed only a rough transcription, and in some cases I could rely on simplified notes. In contrast, my analyses of spatial orientation, demonstrative reference, and pointing gestures required more detailed and precise transcriptions. For this reason, I first did these more detailed analyses. I began this process during my fieldwork, flagging the most difficult segments—especially those where more than two people are speaking at the same time or when there was significant background noise. For these more difficult transcriptions, I worked with two assistants, both native speakers of Ancash Quechua, César Vargas Arce, a dedicated Quechua educator and activist, and Florencio Quito Molina, an anthropologist and colonial historian of Ancash. Doing transcription during the second year of my fieldwork, both alone and with assistance, was instrumental in improving my ability to speak and understand the language and to conduct interviews. For example, when I returned to an interview from preliminary fieldwork

with a monolingual Quechua healer in her eighties that I had long dismissed as largely incomprehensible, I found that I could transcribe most of it without too much trouble.

I completed the transcriptions for the linguistic analyses over the course of several months after returning to Ann Arbor. Having these transcriptions also speeded the process of reviewing recordings for the purpose of describing environmental practices. This second pass through my recordings was an eye-opening process. During transcription, my attention had been necessarily focused on the language itself, and I had not paid close attention to the content. Listening to the recordings once more was thus a necessary step for writing a coherent and thorough ethnographic account, and the next best thing to returning to Río Negro for further field research. Concretely, I created a text document that included notes ranging from simple paraphrasing to verbatim quotes, all labeled with reference to the recorded situation—the speaker, location, time, and brief description of context—and to the recording itself—filename and timecode. This made it possible to return quickly to the original recordings if needed. At the same time, I created a parallel document that similarly gathered relevant materials from my field notebooks. This process illustrates a way in which the different stages of research methods merge and diverge. These documents combined second-order representations of information gathered through video recordings and notes, while the same recorded interviews also fed into separate transcriptions I made to answer specific questions about language and gesture.

7.2.4. Recordings of elicitations

In addition to recorded interviews and conversations, my analyses of spatial orientation in language and gesture drew on recordings of a structured elicitation. I designed this scripted questionnaire to gather evidence of both the grammatical structures that Ancash Quechua

speakers used to describe spatial relations, and of the accompanying bodily movements—namely manual gestures, torso movement, and changes in gaze direction. The questionnaire, which I call “Spatial Algebra,” consisted of a series of simple questions about routes among places familiar to participants. The elicitation consisted of two types of questions; ones that prompted participants to name the direction they would have to go in order to get from one place to another—e.g., from the the local elementary school to the town plaza—and another that prompted participants to name the place to which they would arrive following a particular direction from a point—e.g., going uphill from the old cemetery. Eighteen individuals participated in the full study, which consisted on average of 25 questions, and there were 478 total question-answer pairs. I describe the elicitation and its analysis in greater detail in Chapter 3 (3.2), as this is the Chapter in which I describe spatial orientation in Ancash Quechua. Once again, even this focused elicitation program proved useful for another analytic purpose, as I included the use of demonstrative pronouns and accompanying pointing gestures in the elicitation together with instances from other recordings in the analysis presented in Chapter 4.

7.2.5. Recordings of controlled experiments

The last kind of recording I collected was of a controlled experiment. I conducted two distinct controlled experiments during my fieldwork—one focused on spatial orientation in language, and other on spatial orientation in nonverbal thought. I filmed every trial of the former experiment, and in Chapter 3 I integrate the results of their analysis with the analysis of the elicitation described above and with qualitative observations drawn from field notes and other recorded events and conversations.

I did not film the experiment focused on nonverbal thought. Since it was nonverbal and no transcription was required, I coded each response in a notebook during the trials (see section 6.3 below for a more detailed account). I also kept notes with qualitative observations during the trials of the verbal experiment.

The controlled experiment focused on language use was based on the “Man and Tree Game” designed at the Max Planck Institute for Psycholinguistics, Nijmegen (Pederson et al 1998). In this task, adjacent participants separated by an opaque barrier are asked to match photographs picturing various arrangements of a model man and tree. Participants take turns as director and matcher. The director is given one photograph and asked to describe it to the matcher so that the latter can choose an identical one from among a set. The utterances participants make during this task reveal the linguistic strategies they use to describe spatial relationships. For example, an English speaker may say “the man is looking to the left and standing in front of the tree,” using their own body to anchor the description, whereas a Quechua speaker might describe the same picture with relation to the landscape, saying instead, “the man is looking uphill and standing on the Qitsqay Mountain side of the tree.” In reality, the results contained a large degree of variability, which I interpret and discuss in Chapter 3.

The experiment I conducted was not an exact reproduction of the “Man and Tree Game.” First, instead of a man, I used a cow. This was because the people I was working with were familiar with cows and in fact one genre of speech is pointing out and identifying cows from a distance. I also decided to use models rather than photographs of models, as I found the flatness of photographs to introduce an unnecessary degree of artificiality into the experiment. I was especially concerned about this, as I had already observed that Quechua speakers tended to orient descriptions to the environment, and felt that working with flat photographs rather than three-

dimensional models might create an ambiguous situation and lead speakers to avoid environmentally anchored descriptions.

This was the research activity that made the most demands on participants, but I found that people enjoyed taking part in it. One man, for example, created a narrative out of the task. As I successively rearranged the cow and tree and he in turn described the scene to his wife on the other side of the curtain that hung between them, he added comments about what a fickle cow this was—first it was headed up to Ruriq, and then down to Arzobispo, one moment it was licking the tree, and the next it was scratching its side up against it. Younger participants also found it to be an entertaining game, though I sometimes had to remind them that it was a game of cooperation when they were carried away by competitive spirit and tried to either trick or spy on their partners. In most cases, there was plenty of laughter involved. This was particularly so during a trial in the high grasslands that was completely thwarted by the wind. First, when a gale carried away my makeshift curtain, I resorted to having participants close their eyes. Even then, the plastic models themselves refused to stay still in the gusty weather. In all, I conducted twelve successful trials, including twenty-four participants. I provide a more details account in Chapter 3 (3.1).

7.3. Controlled experiments

I waited until the second rainy season of my field research—starting in November 2013—to begin the second controlled experiment, which focused on spatial orientation in nonverbal thought. The rainy season was ideal, as the experiment had to be conducted indoors, and this was the period of the year during which people spend more time indoors. Though planting occurs it this time, it is a far more punctual activity than harvesting—there is generally a window of a few

days within which everyone tries to plant. Of course, the sun still shines during much of the day in the rainy season, and it did so during most of my trials. Nevertheless, people generally had less outdoor work to do at this time. I also had less outdoor work to do, as the spontaneous rain showers posed serious technical difficulties for outdoor video recording.

Waiting for the second year of my fieldwork also made it easier to recruit participants for this study, as I had become a familiar presence in Huaripampa by my second November there. This was critical for the study, as I needed to have a robust number of participants for several reasons. The actions observed by the study were narrower in scope—there were only four possible choices in each trial—compared to the open-ended descriptions in the verbal experiment described above. The strength of my interpretation of the results thus depended on the significance of the statistics. In statistical analysis, significance is gradient and subject to interpretation, not categorical. In concrete terms, this meant that the more participants I had, the lower the margin of error in the statistical tests to which I would eventually put the data, and thus the more confidence I could have in judging the significance of any correlations I ultimately found. This was all the more important, as I aimed not only to describe a general pattern of spatial orientation, but also to examine possible sources of variability such as language, age, gender, and differences in habitual engagements with the environment (i.e., the distinction in the environmental practices of farmers and herders).

I recruited 97 participants, 3 of which I had to drop from the analysis. To put this in perspective, consider the numbers of participants in the seminal studies of spatial language and cognition conducted in coordination in large part by members of the Max Planck Institute for Psycholinguistics, Nijmegen. The comparable studies of nonverbal orientation ranged from 8 to

40 participants, with an average of 20 (Levinson 2003:182).²⁴ There are both practical and theoretical justifications for the relatively low number of participants in these studies. First, most of them were conducted during fairly short field visits that were organized specifically to conduct studies of spatial orientation. The researchers were thus faced with the practical problem of recruiting strangers for an even stranger activity. Second, most of these studies were coordinated with the ultimate goal of a comparative, cross-linguistic meta-analysis. The participants from each study were ultimately grouped into larger study populations in this meta-analysis based on their responses, and this mitigated the low number of participants in each individual trial. In contrast, because my own study was *not* cross-linguistic in nature, I needed more robust numbers.

While the study tested different variables than those designed by the MPI, it was closely modeled on one of their experiments. The task, called the “chips task” (Levinson 2003, 159), is designed to reveal whether individual participants remember the arrangement of figures on a table with respect to their own bodies or to the surrounding world—in other words, whether they use an allocentric or egocentric Frame of Reference. To get at this distinction, the task asks participants to move back and forth between two tables, rotating 180 degrees each time. At the first table, they are asked to remember the arrangement of a small black chip and large white chip; at the second table they are asked to select the matching arrangement from four pairs of chips. Rather than loose chips, I used square cards with a small black circle and a large white circle. The task exploits the fact that there are two possible ways of choosing a matching card after rotating 180 degrees. For example, the “egocentric” match might orient the two figures to the left and right (of the participant’s body), while the “allocentric” match might orient the figures instead to the east and west. For someone who remembers the original card in an egocentric Frame of Reference, the

²⁴ There were 5 trials with 40 participants, all with Dutch speakers in the Netherlands.

allocentric match would seem to be a mirror image. In contrast, someone who remembers the card in an allocentric Frame of Reference essentially takes a birds-eye-view of the two tables. From this perspective, the rotation is essentially irrelevant, and the absolute orientation of the cards to the surrounding world frames the match.

At the end of each individual's participation, I conducted a brief, standardized interview about language history, past and present residence, and experience in the high pasturelands. I describe the rationale of these post-trial interviews along with the experiment's implementation, coding, and analysis in greater detail in Chapter 5.²⁵ I did not film this experiment for several reasons: the conditions were rigorously controlled to maintain consistency across trials; participants spoke little, so I was able to record relevant comments in my notebook; and the camera would potentially distract participants and possibly even suggest its own perspective during the trials.

7.4. GPS data

During my field research, I almost always carried a digital camera with me. This was not only to have the camera's photographic memory at my assistance, but also in order to record GPS data. Every picture I took was automatically tagged with information that later allowed me to locate the place where the photo was taken. Furthermore, because each picture also was tagged with the precise time it was taken, I was also able to figure out exactly where I was at that time. In addition to the camera's GPS, I also carried a handheld GPS unit in my backpack on longer walks (or rides). This unit took GPS measurements every few seconds, in essence recording the path that I followed. I uploaded all of this data to the Google Earth software as soon after recording as I

²⁵ See also Shapero (2016).

could. Having the data plotted on the satellite images made it possible not only to more clearly visualize these places and paths, but also to easily see the altitude of each point and the velocity with which I moved from one point to another.

While the specificity of this data may seem redundant or irrelevant, it was in fact useful for several reasons. First, my primary reasons for recording GPS data were to capture common herding routes and to help in putting together a map of the named places mentioned in my notes and recordings. The mapping of places and routes was crucial across most of the questions in my research. Putting together an accurate ethnographic account of the patterns of environmental practices among Río Negro residents required me to be able to somehow represent the numerous place names that came up in interviews and conversations. Indeed, as I eventually learned in my research, Quechua speakers are consistently aware of their orientation and location. In this sense, the GPS data helped me simulate a similar awareness during analysis. Specifically, it became possible for me to figure out where named places were without having to actually go to them. I did eventually go to many of them, or at least close enough to have them pointed out to me, and over time developed a more intuitive sense of the lay of the land. Nevertheless, without periodically studying my GPS data during fieldwork, I would have progressed much more slowly in my knowledge of the landscape, and ultimately would have had far more blind spots.

My analyses of spatial orientation in language and gesture also relied critically on the GPS data. Because speakers generally oriented their representations of spatial relations to the contours of the landscape and to specific landmarks, it was frequently impossible to analyze the orientation without knowing both the shape of the landscape and the location of the landmarks around the speaker. For example, when I asked a participant in an elicitation which direction they would go to get from the Sawan River bridge to the Wancha neighborhood, they might point past the

camera and say something like “down that way.” Coordinating such recordings with mapped GPS data helped determine whether the speaker was pointing directly at the location of Wancha, or instead pointing west, which is equated with “downhill” in Huaripampa, and is also the direction one goes to get to Wancha from the Sawan River bridge. To analyze these elicitations, I first located the individual recordings on satellite images, and then oriented speakers’ utterances and gestures with respect to the named places I had mapped. This process provided an important insight about the embodied aspects of spatial orientation. Without being able to map pointing gestures, I would not have noticed—nor had convincing evidence—that people pointed quickly to distant landmarks with great accuracy, even when indoors.

The GPS data I recorded also had an unexpected use. After returning from longer trips with herders to the high pastures in Ruriq canyon, I took time to write extensive notes that filled in the gaps in my field notebooks. This was an important practice, as I had little time for note taking on these trips. I was most interested in what happened and was said in the midst of this work, which was done constantly on the move, and thus was not conducive to writing in a notebook. Taking GPS-tagged photographs, however, was easier to accomplish, and so was carrying the handheld GPS device in my backpack or pocket. Once I had time to write a more complete description of these trips, it was often hard to piece together the precise order and location of events, especially when everything was so new to me. However, by comparing my notes both with every movement plotted on satellite images and coordinated with my own photographs, I was able to reproduce the sequence of events and their locations with precision that would otherwise have been impossible. In addition to facilitating this precision, I found the GPS data also served as a kind of mnemonic. As I studied the routes we had followed, the times we had been at particular places, how long we had stopped here and there, and how slow or fast

we had progressed from one place to another, more details emerged from my memory. This process of remembering not only helped enrich my field notes, but also led me to reflect on how much of everyday experience is lost to conscious memory, and thus on the importance of combining multiple modes of observation—e.g., notes, photographs, videos, and GPS data—even in strictly ethnographic research.

Chapter 2: Who can speak with mountains? Herders, farmers, and quotidian ritual in Río Negro

1. Introduction: Coca and cigarettes

On an August morning not yet warmed by the rising sun, Donato and I led two donkeys up the hill called Qitsqay at the western end of the town of Huaripampa. At the top, we stopped to catch our breath (or at least for me to catch mine) and took in the sight of the town reaching out below us—a few snaking rows of houses surrounded by a patchwork of farmland to the north and grasslands climbing over foothills toward the glacial peaks that pierced the blue sky to the east. After staking his animals on a stony patch of grass, we walked a few minutes along a narrow ridge between the fields until we reached the one that belonged to his family. Sitting on a grassy clump, we waved to his wife, Angélica, who was now making her way up toward where we sat with the lunch they would eat after a few hours of harvesting potatoes. Before getting to work, Donato had agreed to answer a few questions of mine about local place-names. I fished a pencil and notebook out of my backpack and set up the recording equipment. In the meantime, Donato reached into his pocket for a plastic bag of coca leaves. He passed a handful of the green leaves enclosed in his fist in small circles before his lips, whispering inaudibly to them, then blew quickly into the leaves and began putting them into his mouth.

During this process I had started recording our interview, oblivious to the fact that a very quotidian sort of ritual was underway, and it is thanks to this recording that I am now able to describe the actions that I barely perceived in the moment. As I explained the kinds of questions I was going to ask, Donato slipped a cigarette from a folded piece of paper and passed it in small circles before his mouth, moving his lips as if speaking. After I finished explaining myself, Donato answered, “Ya, tapupaaramay Yoshwita,” (“alright, Joshua, go ahead and ask me”). Then, after answering the first question, he interjected, “Pero, imanaw kaptinshi Yoshwita, siigarutaraq humaramushaq parlapaarir” (“But, whatever might be said, Joshua, I’m still going to smoke a cigarette while we’re talking”). Picking up on some, but not all, of the social implications in his interjection, I asked if it was all right to continue, and he assured me it was. I waited, notebook in hand, while he lit the cigarette and said, “chakcharamushaq” (“I’m going to *chakchay*”), and then proceeded with the interview.

While I knew that the verb *chakchay* referred to chewing coca, and was familiar with the practice of divination with coca leaves and cigarettes, I believed that the latter was something done only by experts, and gave no further thought to Donato’s announcement. While I focused on the interview, Donato periodically examined the ash on his cigarette, looking for signs. At the time, several months into my fieldwork, I didn’t know what these small, seemingly unreflective actions were, and thus did not take them as cues to pay attention. I eventually learned that *chakchay* refers not only to a suite of practices—primarily chewing coca, smoking cigarettes, and drinking alcohol—but also to their use as offerings or in order to ask for favorable outcomes, safety and health, or answers to specific questions.²⁶ Cigarette ash, I discovered, was also a

²⁶ Chakchay is generally translated as “to chew,” and I have not seen it used in any ethnographies of the Andes to refer to any more than this. I also have not seen it used to refer to chewing

particularly common divinatory medium. I didn't learn these things among farmers like Donato in Huaripampa, but rather while accompanying herders to the highest parts of Río Negro, where daily life was punctuated by the continual use of coca, tobacco, and alcohol to pacify wild (*chukaru*) places, request safe passage, and divine the location of stray animals.

After juxtaposing my observations about coca and cigarettes in farming and herding contexts, I came to perceive a categorical difference. In the agricultural context, farmers address ritual offerings to the particular parcel of land they are working,²⁷ and to the distant peaks (often invisible to speakers) in the high pastures above. Herders in contrast address their offerings directly to the high peaks while working on and among them. Likewise, the messages farmers receive through divination come directly from the tobacco or coca leaves, and not from the mountains—*hirka*, in Quechua²⁸; in contrast, herders' offerings are always made to particular *hirka*, and the answers to their divination with coca and cigarettes come from these *hirka*, and not from the plants themselves.²⁹ In both contexts, ritual offerings are anchored in the specific place where they are performed—either the parcel of land being farmed or the mountain on which herds

anything other than coca, though in the contexts that coca is chewed, frequently tobacco and alcohol are also consumed, and often in a ritual context (e.g., Herrera & Lane 2006:168)

²⁷ Occasionally farmers dedicate rituals to the *patsamama* (literally, “earth mother”). However, even in this case, the beneficiary of the ritual is the particular place where land is being cultivated—e.g., Mashra Uqu, Mitu Hirka, Qitsqay—and not land in the abstract. Salas Carreño has made a similar observation in the department of Cuzco (2016:20).

²⁸ The herders and shamans that Ricard Lanata worked with in the southern Peruvian highlands described the distinction between divination that communicates with specific *hirka* and divination that draws merely on divinatory medium such as coca as the respective domains of *altamisayuq* and *pampa-misayuq* by (2007:145). Such a formalized distinction is absent in Río Negro. In Ancash, Stein wrote that every man in the community of Hualcán could conduct a basic divination ritual to determine whether or not a given event would transpire by chewing coca (1961:318)—the specifics of which match what I learned in Río Negro—while more complex consultations were made by *curanderos* or witches (*brujos*) who received their responses from “patrons” embodied in places like waterfalls, glaciers, or rocks (324).

²⁹ Ricard Lanata noted a similar absence of reference to the *patsamama* in myths or rituals among herders in the highlands surrounding Mt. Ausangate in the department of Cuzco (2007:74).

graze. At the same time, the high peaks are also invoked in both contexts, whereas individual parcels of farmland only receive offerings when they are the place of the ritual. While the hirka of the high pastures alone receive offerings from a distance, either from farmers or herders, only herders communicate with individual hirka through divination. In sum, the distinction between ritual in agricultural and pastoral contexts centers on the role of the herders who graze their animals on the high peaks with whom only they are able to communicate.

In what follows, I argue that this difference in ritual across agricultural and pastoral contexts does not amount simply to a shibboleth of distinct social identities actually constituted otherwise—for example historically, politically, or structurally—but is rather a direct result of the environmental practices that take herders into constant and close contact with hirka. This is not surprising in the Andean context, where territorial associations are defined not in terms of permanent ownership, but rather in relation to a given social group's activities (Poole 1984:149). Examining the relationship between herders and hirka in its own terms also reveals a way in which this relationship comes to shape social life beyond herding. First, herders' privileged relationships with hirka shapes their position in the social world of Río Negro, as these relationships are grounded in the same relations of respect, care, and mutual obligation that constitute human social relations there. Second, their social access to hirka not only shapes their own social positions, but also plays a constitutive part in shaping the conditions for social action in Río Negro more generally. Specifically, because farmers cannot directly communicate with the unruly hirka of the high pastures, they seek out herders as intermediaries when faced with critical problems such as severe illness, and by doing so frame their actions with respect to a familiar environment. Finally, this frame constitutes a form of resistance, or at least an alternative, to

another common frame,³⁰ anchored in relation to unfamiliar entities such as government institutions, and characterized by inaccessibility, power, and progress.³¹ It is a frame that casts places like Río Negro as impoverished backwaters. In fact, it is this very frame that recognizes the practice of chakchay and the sociality of hirka as merely “custom”—arbitrary symbols of identity at best, and at the worst as indexes of ignorance.

1.1. Understanding hirka in social terms

While the linguistic focus of my programmed interview with Donato was itself part of the reason that I initially overlooked the simultaneous ritual, another reason was undoubtedly the frequency with which I had been told that such rituals were a thing of the past in Río Negro. Beginning with my preliminary visits, whenever conversations broached “cultural” subjects like ritual practices, religious beliefs, and mythology, I found that people in Río Negro tended to make comments to the effect that nowadays there was no respect for the hirka. At first I was worried that my research and dissertation would end up reifying a problematic discourse—circulating since the early colonial period—that casts the reality of Andean culture as an inferior corruption of past cultural purity. This preoccupation dissipated as my focus narrowed on the complexities of spatial description in Ancash Quechua, and it disappeared completely with my principled if naïve

³⁰ This analysis could also be made in terms of *cultures* rather than *frames*. However, such an approach would generalize what are in essence contextually emergent, and thus variable, phenomena instead as norms shared across a population. My argument here depends on an analytic sensitivity to patterns of variation in practice. Because the concept of frame entails the possibility of movement—of reframing or shifts in framing (or footing, in Goffmanian terms)—it is more suitable to the intent of this chapter. Furthermore, it is consonant with the terms I use to analyze Quechua spatial language: i.e., Frames of Reference. However, I am not here proposing any deeper logical connection between the two uses of the word.

³¹ Examining social interactions in terms of their framing rather than in terms of “local” and “national” scales avoids the implicit presumption of scales that are in fact the product of interactional work and sometimes coordinated “scalar project,” as Carr & Lempert (2016) have argued.

pledge to focus my ethnography on the world as I found it, rather than as I (or other anthropologists) imagined it should be.

Ironically, the reality that I found in Río Negro didn't make the problem disappear by revealing "tradition" as a hegemonic, exoticist fantasy, but rather by teaching me to listen differently to people's statements about its erosion. Instead of hearing these as descriptions of objective states-of-affairs, I now understand them as invocations of a particular discursive frame relevant to particular kinds of contexts—that is, to a particular *interactional* state-of-affairs. I began to recognize the same discourse in other contexts—in meetings with officers of the National Park that occupies much of Río Negro's pasturelands, with visitors from NGOs or government agencies promoting development projects, or with tourists or other outsiders. Considering that this discourse of cultural erosion and inferiority itself comes from the outside, it is not surprisingly invoked as a frame for interactions with outsiders. Furthermore, because Río Negro residents rely on outside resources—medicine, wage labor, imported products, public education, etc.—it is also a ubiquitous frame, and probably one that feels quite natural. But it is not the only frame, nor is it the only ubiquitous frame, nor the only one that feels natural.

In fact, these comments in which I first encountered the discourse of cultural erosion already presupposed another frame. Instead of framing Río Negro as a provincial backwater, the comments were grounded in a perspective anchored in the environment as known and experienced by the people who lived and worked in it. In those early interviews, people expressed their dismay not with cultural degradation *in general*, but specifically with the growing lack of respect for hirka. This specific concern takes for granted that hirka can be the recipients of the fundamentally social action of respect. In other words, while their statements were explicitly

about the erosion of certain cultural practices, these statements themselves presupposed that such practices were central to the conditions of sociality.

Salas Carreño similarly observed that social practices and discourse presuppose the characteristics of mountains in the Andes (2016). Because they are forged in social interaction, such presuppositions do not exist in isolation—insofar as they are social facts, their significance hinges on the horizon of social relations relevant to the context in which they emerge. For example, if I clasp my hands and address a word of thanks to an antiquated elevator after a long, jerky ride, I presuppose that the elevator can be the recipient of gratitude, and thus participate in a particular type of social relationship. This presupposition indeed tells us that I am capable recognizing a circumscribed form of sociality in elevators, but it does *not* speak to differences among elevators or contexts in which they may or may not be social, or to the consequences of their sociality. To address these questions, it would be necessary to look more broadly at expressions of gratitude (possibly the most ubiquitous and obligatory of all social exchanges in my own cultural context), at who does or does not thank elevators, and at when they do or don't do so. This investigation would most likely demonstrate that there is a widespread practice of thanking inanimate things in relatively high-stakes contexts in which their successful performance was in doubt. However, it would most likely *not* demonstrate much social variation among individual elevators, nor even among types of objects.

People in Río Negro engage in social relationships with *hirka* not as a generic type, but as individuals, in the same way that humans relate with other humans not simply *as humans* but rather as fathers, daughters, or more specifically as named individuals. At least in the context of Río Negro, mountains do not merely embody some important features of personhood and thereby constituted a general type structurally related to personhood. Rather, *as persons* they have

individual histories and thus heterogeneous social positions. This difference between an abstract, person-like type and a population of individual persons is of critical consequence for understanding “respect for hirka.” For example, my own cultural background gives me a very different commonsense understanding of what it might mean to “respect hirka.” For example, a tourist or climber may express their respect for hirka in terms of being awe-struck, dumbfounded, or mesmerized by their physical qualities. Likewise, visitors in the Andes have begun to espouse “respect for nature” by leaving no refuse in their wake. Mountaineers themselves often feel that locals lack “respect for nature” when they leave plastic or even orange peels at the feet of glaciers. Ironically, such “garbage” is sometimes part of offerings that enact local respect for hirka. The well-rehearsed discourse of ecological impact invoked in visitors’ discourse about garbage indeed demonstrates awareness of a particular kind of nonhuman agency in which “nature” strikes back at disrespectful humans. However, while an outsider may speak of such respect *as if* it targeted particular places, there is no actual distinction between places *in practice*.³²

In other words, outsiders do not demonstrate their respect to mountains as if they were social individuals, but rather as tokens of the type “nature.” This also means that they do not expect respect in return—while they may recognize some features of personhood in nature, such as vengefulness, these remain at the abstract level of the type, and are not inherited by its individual tokens to the extent that they become persons. In contrast to tourists’ enactments of respect that reduce particular mountains to “nature,” “respect for hirka” in Río Negro implies a social relationship based on the most basic kinds of mutual obligations and care that characterize social relationships among humans (Mannheim & Salas 2015). This is by no means to say that

³² Any distinctions in practices of “respect for nature” among middle-class North Americans, for example, would reveal something about what is included in the generic category of “nature,” but not about any distinctions *within* that category.

hirka and humans are the same. Yet while mountains and humans are indeed different from one another, they are also similar in their differentiation. That is, like relationships among humans, relationships with and among hirka are socially heterogeneous. Qitsqay and Collawasi Hirka, for example, do not get along well at all, while Shaksha and Wantsan are like siblings.

The relationships of hirka with humans are likewise shaped as much by their own individual characteristics as by those of their human associates. For example, the hirka closest to Huaripampa—Don Juan, for example—constitute its agricultural land. They are considered tame, and it is safe to walk among them (at least during the day) without offering signs of respect. In contrast, the hirka in the hallqa—the high pasturelands—are dangerous and unruly, and safely passing among them requires constant ritual offerings. Likewise, there is a social division of labor in ritual interactions with hirka—only herders who frequent the hallqa communicate directly with individual hirka. Others may make offerings to them, but if they want to consult a hirka directly, they will seek a herder that can act as an intermediary. In question here is not simply reciprocation for offerings, but rather the difference between offerings made indirectly and sporadically (i.e., from a distance and out of a general sense of reverence and gratitude) and those made regularly and directly (i.e., in person and as an instrumental part of an ongoing interaction). While this distinction is not recognized as an institution in Rio Negro, the category of *hirkawan rimaq* (speaker-with-hirka) is used elsewhere in the central Andes to label specialists in ritual divination (Domínguez Condezo 2003:13). If we reconsider to the presupposition that hirka can be the recipients of respect together with the fact of their social heterogeneity, then it becomes clear that the social authority constituted by hirka is not stable (i.e., hirka are not conventional symbols of authority), but rather is contingent on particular social interactions (i.e., acts of respect for a hirka index its authority in relation to other signs taken as relevant in the interaction, its participants,

and its context). Living safely among hirka, and enjoying (rather than being the victim of) their authority thus requires individual acts of respect that cumulatively index the relation as such, and not a generalized belief or understanding of hirka as authoritative in a certain way.³³

Given that residents of Río Negro share an evaluation and understanding of hirka as social persons with distinct kinds of power and authority, and that all residents may make offerings to hirka as acts of respect, what accounts for the fact that only a subset of individuals—namely herders—communicate directly with them? I suggest that the answer to this question can be found in a careful consideration of the practices that constitute herders’ relationships with hirka. My description of these practices corresponds to three ways in which herders communicate with hirka: ritual offerings and divination made while working on the slopes of hirka, dreams and visions, and divination services provided to others far from hirka. Following these interactions from the slopes of the hirka themselves down to the towns below helps me to conceptualize the manner in which herders’ quotidian experience among hirka in the hallqa pastures accretes to their position in the social world of Río Negro.

While my approach is similar to Bourdieu’s (1977) in that I treat social life as structured by dispositions embodied through habitual practice (*habitus*), I differ in opening the social relations in which *habitus* is instantiated to persons as locally defined, such as hirka, rather than

³³ “Belief” and “understanding” are slippery concepts here. The emergence out of individual interactions among hirka and herders of a broadly recognizable authority is on the surface certainly what we might call belief. The stakes of claiming that this is not so lie not in the broad recognizability, but rather in a dispute of the underlying proposition that such beliefs proliferate as they are—that is, in this case, that the authority recognized in hirka is itself a sort of cultural proposition that is passed along as such. Instead, I am arguing that such a particular shared belief is in fact the result of an elaborate history of particular interactions. In addition to grounding the substance of culture, as it were, in empirically observable phenomena, my approach also provides a simple mechanism for change and transformation by allowing a gap between second-order ideological representations of beliefs—statements like “we don’t respect hirka anymore” or social categories such as *hirkawan rimaq*—and the inherently unstable conditions out of which they emerge and are irreducible to.

limiting it a priori to humans. In Bourdieu's model (cf. 1991:242), the locally anchored social field is conditioned by distinctions in the distribution of access to and dispositions toward economic and social capital. In contrast, my analysis of social position is not limited to the domain of relations among human persons, but also includes relations with "place- persons" (Mannheim & Salas Carreño 2015) such as hirka. Finally, because I treat hirka in the first instance not as tokens of a cultural type defined by a position in a symbolic structure but rather as social persons engaged in dynamic and meaningful processes, they highlight the artificiality of familiar nature-culture distinctions in Río Negro. Hirka do not stand in distinction to humans as matter imbued with meaning, but rather as a particular kind of participant alongside (which is not to say equal to) humans in the production of meaning. Indeed, discourses that frame hirka as natural—as in the National Park's official discourse of environmental protection—or cultural—as in local discourses that resist the Park on the grounds of traditional beliefs—both elide the actual social relationships and habitual practices that constitute hirka and humans alike as social persons. In what follows, I show that an account of human-hirka interactions in Río Negro along the lines of cultural tradition or belief is inadequate, as it fails to account both for important distinctions in who interacts with hirka and. Perhaps more importantly, it also fails because it renders much of the experiential labor that Río Negro herders put into their interactions with hirka as irrelevant to this relationship, instead transforming this work into economic behavior and superfluous ritual.

I begin with an account of the quotidian activities that bring herders into physical co-presence with hirka, focusing on the accompanying use of coca, tobacco, and alcohol in small ritual offerings and divinations. Then, I turn to herders' encounters with the hirka personified as human bodies or disembodied "voices" in dreams and visions. Finally, I present a case in which a herder is called on by neighbors to ask the hirka for advice regarding a medical emergency. I

reach this case along the path that herders themselves follow to their roles as ritual intermediaries—from the mountains downward—making it possible to understand how herders’ own experiences of the landscape come to bear on their emergent social position as intermediaries for the *hirka*.

2. Hirka in the everyday work of herding

2.1. The Río Negro landscape

In order to understand the way herders meaningfully engage with the environment of the *hallqa* it is necessary to understand how that environment is situated physically, practically, and historically with respect to the rest of Río Negro. The *hallqa* is an ecological zone consisting of wetland, scrub desert, and cloud forest between 3,700 and 4,700 masl. Pastoralists have exploited the *hallqa* for at least 5,000 years, and the basic residence pattern—scattered compounds of several small residential units—appears in the archeological record as early as the Early Horizon (1000-1 BC) (Lavallee 1973; Browman 1974:191; Hastings 1987). Individuals’ experience participating in pastoral activities in these areas provides them with a body of cultural knowledge including the names of places and plants, practical skills, and stories. Herds in the *hallqa* also serve as economic reserves for many families (Murra 1965). In the 1970’s, a large portion of this land became state property as the Huascarán National Park (Barker 1980; Mayer 2009), and was later protected as part of a 3,400 km² UNESCO Biosphere Reserve (Young 1998). While large landowners did little to alter traditional *hallqa* land use, the Park’s conservationist policies have led to a decrease in human residence and mobility in the region, a demographic shift from family to adult male-dominant herding, and other social and technological changes.

These shifts are relatively recent, and the hallqa today stands in clear contrast to the *centro poblado* Huaripampa (see Figure 3)—the most densely populated area of Río Negro. In Huaripampa, houses and compounds are built close together, often sharing walls, along several roughly parallel roads on a flat area north of a steep slope that descends about 100 meters to the smaller district capital, Olleros, and the rust-colored current of the Río Negro. The land surrounding Huaripampa is heavily farmed, but as it climbs to the north and east, it gives way to dedicated pastureland. To the west of Huaripampa, the round promontory called Qitsqay Hirka, perched 300 meters above the Río Santa, is a quilt of small parcels of cultivated land. To the north, more agricultural land covers the adjacent Mitu Hirka, Chawkas River valley, and the higher mountain, Don Juan Punta.

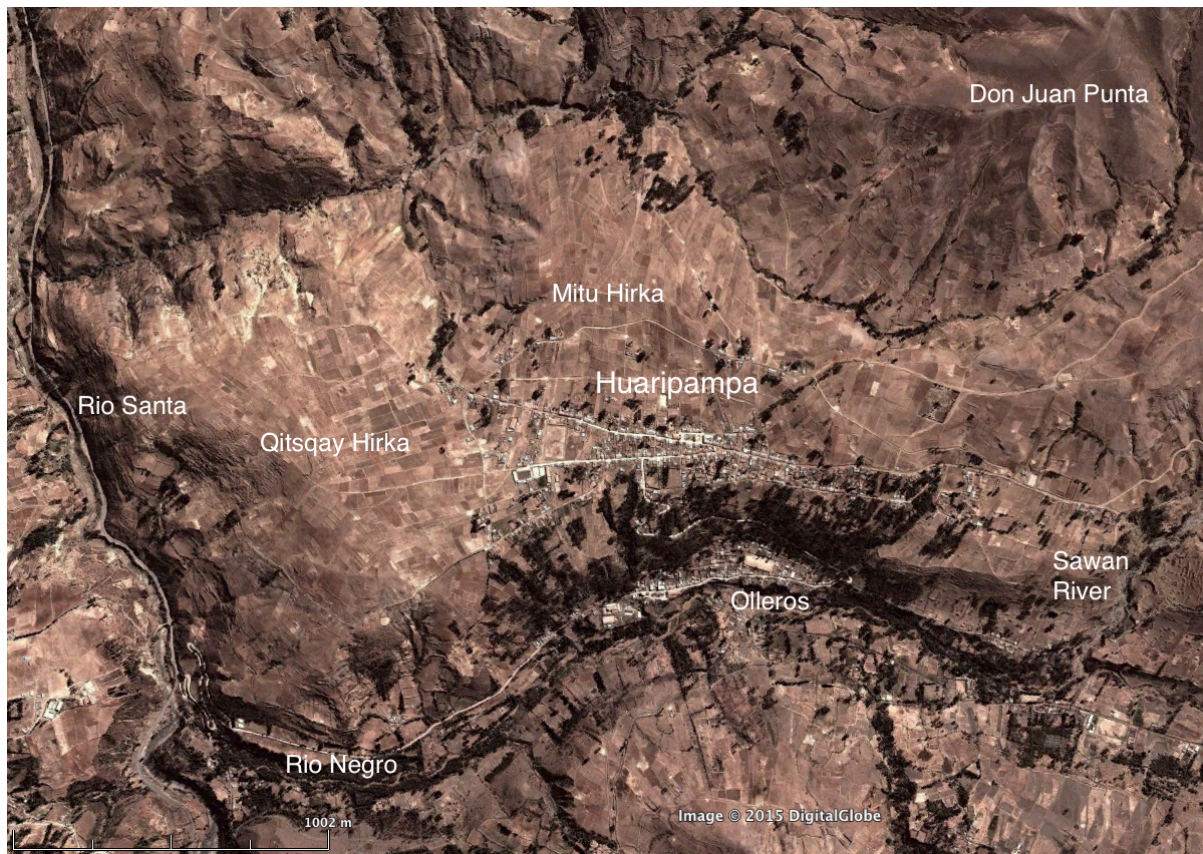


Figure 3. Map of Huaripampa

The town's settlements grow more dispersed following the road east and end altogether where it forks at the Sawan River. Here, one branch descends the steep river gorge, and climbs the other side to Canray Grande, the former seat of the Canray Grande Hacienda, and of the current Peasant Community of Canray Grande—formed during the Agrarian Reform of 1969—most of whose members now live in Huaripampa (see Figure 4). In Canray Grande there is more farmland, but following paths further east, the ground becomes rockier as it climbs gradually, to the large plateau of Canray Pampa, at 3,700 amsl. While the hillside to the south that drops to the Río Negro and the other to the north that drops to the Sawan River are both used for the cultivation of tubers and grains, on the plateau itself there is no more cultivated land. After climbing another 200 meters, the path reaches a place where two canyons meet and the Ruriq and Arway rivers converge to form the Río Negro. This land is used exclusively for grazing.



Figure 4. Map of Canray Grande

The northern fork of the road at the eastern edge of Huaripampa follows the Sawan River past the cluster of houses at Tuktuk Pampa to some small agricultural parcels at Quñasha and Qaqayuq. There are no more adobe or cement houses here, but rather tsuklla—circular stone walls conically roofed with tough uqsha straw. The families that reside here all have other seasonal compounds further northeast along the same road in the pasture areas of Waraqayuq, Tsaway, and Inkatsa. Prior to enforcement of the Huascarán National Park’s policies, these dedicated herding areas, dotted with clusters of tsuklla and stone corrals, extended further northeast into Ruriq canyon (see Figure 5). Now, however, domestic residence is prohibited within its boundaries, and herders collectively control their herds in this region through the Comité de Usuarios de Pastos Naturales de Ruriq (CUP) officially administered by the National Park.³⁴

³⁴ In practice, the CUP is mostly autonomous. On the rare occasion that Park administrators attend meetings, they present and discuss particular concerns, and do not stay to observe or participate in the ordinary proceedings of grievances, requests, etc. This part of the meeting usually last several hours, and is where the bylaws of the CUP are interpreted and negotiated.



Figure 5. Map of Ruriq

The Park itself formed on the tail of the Agrarian Reform that dissolved the hacienda's ownership of land in the area, including Ruriq canyon. However, before the Park's formation the new policies' granting this land to the simultaneously established Comunidad Campesino (Peasant Community) de Canray Grande turned the administration over to a large state-run "cooperative" company, SAIS Atusparia-Utcuyacu, that administered 8,667 sq. km. of pastoral and agricultural land from Río Negro along both sides of the Río Santa to Conococha, roughly 50 km to the south (Dirección de Comunidades Campesinas 1971; Rasmussen 2015:91). The herders that tend the animals in Ruriq Canyon are now considered *usuarios* (usurpers) of the National Park's grasslands. They are also the *comuneros* of Canray Grande who previously worked as the laborers in the state run cooperative. Before this they worked as peons for the haciendas of Canray Grande and Ruriq. What emerges as a constant through these unstable contexts for herding in Ruriq Canyon is that local herders have continued, though in diminished numbers, to

lead and care for animals in the region. While the nature of these herders' economic, social, and legal relationships with their animals, one another, their community, and their state have undergone successive transformations, their relationships with the landscape—or more precisely with the *hirka*—have continued to be constituted by ritualized social interactions mediated by coca, tobacco, and alcohol.³⁵

2.2. The social and political landscape of the *hallqa*

In Ancash Quechua, the word “*hallqa*” refers to the high region where arable land gives way to deserts of tough grass, swampy green wetlands and dense patches of cloud forest.³⁶ The *hallqa*'s idiosyncrasies are not limited to its physical features. Recently, archaeologists have found that this region in the central Peruvian Andes has been characterized by dispersed multi-family compounds dedicated to camelid herding and distinct forms of ritual architecture oriented toward mountain peaks (Herrera 2005) and water sources (Orsini & Benozzi 2013). Prehistory aside, a number of factors set this region apart today as well. As described above, the ascent from the agricultural lands to the *hallqa* corresponds with a change from tightly clustered, rectangular adobe brick houses to circular “*tsuklla*” houses made from stones and *uqsha* grass. Likewise, the small corrals made from branches, barbwire, or adobe are replaced with large stone enclosures. Neighboring *tsuklla* do not share walls. Instead, they are usually separated by about 100 meters,

³⁵ Karen Spalding (2008) observed that one reason that “idolatrous” religious practices have persisted in the Andes is that local priests in the hinterlands were primarily dedicated to economic endeavors such as mining and intensive agro-pastoral production (287). It is thus not the orthodoxies of Christianity but rather that of Environmentalism, with its novel restrictions on the relations between people and places, that has the most relevant relation to the quotidian practices constitute of Andean ritual life. The same can be said, and with more certainty, about the impact of *ecomiendas*, *haciendas*, and state cooperatives.

³⁶ The region is called “*puna*” in southern varieties of Quechua. While this term is more common in literature on the Andes because of a southern bias, Ancash Quechua speakers consider it the Spanish translation of “*hallqa*.”

while the distance from one manada (a Spanish word for herd used by Quechua speakers to refer to hallqa homesteads) to another ranges from 300 meters to two kilometers. As there is no running water, manadas are positioned close to the sources of fresh water on which they depend. And while the towns below have had electric power since the 90's, there is none available in these areas.

In addition to these distinguishing factors, the region is also divided by the boundary of the Huascarán National Park. Established in the early 1970's, concurrent with the agrarian reform, the Park placed an enormous territory³⁷ into state ownership with the purpose of preserving a landscape framed as a delicate ecosystem of microclimates and endangered megafauna such as spectacled bears, pumas, condors, two species of deer, and especially the reduced but iconic population of vicuñas targeted by poachers. The manadas mentioned above—in Quñasha, Qaqayuq, Waraqayuq, Tsaway, and Inkatsa—all fall within the Park's buffer zone, and are thus not directly subject to the Park's legal prohibitions on land use. However, the boundary of the Park itself is clearly marked by a gated fence beyond which it is not legal to maintain permanent residence.

The Park's explicit goals include prohibiting the entrance of any species not native to its territory. Yet local herding practices involve the introduction of cows, sheep, horses, donkeys, and dogs within the Park's boundaries. Recognizing the Park's limited ability to strictly enforce such a disruptive prohibition, the National Service for Protected Natural Areas (SERNANP) struck a compromise. The resulting policy permits local herders usufruct rights to continue maintaining herds within the Park's boundaries, but within a structure of cooperative governance overseen by Park administrators. To do so, Park employees formed Committees of Usufructuaries

³⁷ 1,784 sq. km (SERNANP 2010:12).

of Natural Grasses (CUPs) with individual peasant communities throughout the Cordillera Blanca to oversee the use of pasturelands within the Park. Members of these CUPs are obliged to participate in rotating three-day shifts within the park in groups of three. Failure to appear for a shift is penalized by fines³⁸ that go into the CUPs treasury and are used to maintain the committee's fences and shelters. For Park officials, the ultimate end of this policy is to gradually phase out use of this land for herding altogether (Gómez López *interview* 2013), a goal couched in the assumption that local practices degrade the biodiversity of the grasslands and marshes (SERNANP 2010:213; Gómez López *interview* 2014).³⁹ To this end, after the initial establishment of the CUPs, no new members are permitted to officially join. However, it is possible to substitute family members, and in reality the number of animals—particularly bovines—has actually increased rather than decreased. The underlying goal of phasing out herding is not mentioned in CUP meetings, and obviously stands quite apart from the reasons that members give for participating—namely economic gain and social advancement. Another result of this relatively new form of herding is that for those who keep animals in Ruriq, wage labor and agriculture must now provide the majority of their family's resources.⁴⁰ In official contexts, both Park administrators and herders themselves frame herding as an economically marginal, irrational, and anachronistic practice. In contrast, the following account reframes herding in the hallqa in terms of the practices and social relations that constitute it. Framing herding in this way

³⁸ Seen from another perspective, herding has now been monetized and can thus be purchased.

³⁹ Homewood and Rogers (1991) have noted how claims about overgrazing presuppose ethnocentric models of livestock management and serve to justify the displacement and restriction of indigenous people for the purpose of environmental protection.

⁴⁰ In my interview with the director of the PNH, Ricardo Jesús Gómez López (2012), he attributed herders' economic independence from their herds to economic growth at a national level. He further suggested that their continued maintenance of herds in the Park, a relic of traditions and customs, was leading to the degradation of its biodiversity.

shows how, even after the restrictions imposed by the Park, it continues to shape the social world of CUP members and nonmembers alike in substantial ways.

Setting herd sizes aside, the main difference between the hallqa inside and outside the Park's boundaries is the way people reside and work. While the shelters inside the Park are property of the CUP and host alternating groups of three men, manadas in the buffer zone are owned and used by families.⁴¹ Women spend the most time actually living there, as men frequently travel to the town or provincial capital for wage labor and children spend much of their time in school in the town below. On several occasions during shifts within the Park, the men I accompanied often noted the absence of women with respect to the necessity of preparing their own food. Though my companions impressed me with their aptitude for kindling fires with scant fuel in a drafty stone room and cooking up creative and nourishing meals from hastily assembled ingredients,⁴² they never failed to note that the food sadly lacked a woman's touch. Women are indeed conspicuously absent on CUP shifts; however the real difference I noted in the food was in the ingredients. In buffer zone manadas, food is seasoned with wild herbs picked nearby and may include meat or cheese from the family's herd. As a family enterprise, manadas also trade animal products for tubers and other products from below. For example, during a night I spent at a manada south of Río Negro, in Shillakancha (Recuay), old friends of the family from the other side of the Cordillera Blanca passed through, stayed the night, and traded freshly harvested oca for a sheep. In the morning we ate the slightly sweet red tubers with fresh cheese, fragrant mutton soup, and the bread I had brought along. Such food contrasts dramatically with the hasty but hearty concoctions that fueled our shifts in Ruriq.

⁴¹ In two years, I only saw a woman attend a turn once. She was replacing the shift of her son, who had died the week before, and by doing so avoided a costly fee.

⁴² Several sacks of potatoes, carrots, onions, salt, oil, canned tuna, bread, chiles, and occasionally chicken.

There is one final and critical difference characteristic of the hallqa inside the Park: the glaciated peaks of the Cordillera Blanca—that is, the hirka—are all within its boundaries. During their shifts, members of the Ruriq CUP spend their days locating and herding the animals on the slopes of the hirka from the flat marshy bottom of the canyon to the barren rocks at the feet of glaciers high above. It is as part of this rugged work that I had the opportunity to see the fundamental role that hirka play in herders' lives, and it was the latter's continuous ritual use of coca, tobacco, and alcohol throughout the day that made this relationship observable. These habitual practices underlined to me not only the importance of the hirka, but also the fact that the relationship between herders and hirka was an ordinary and mundane one. It was not surrounded by the aura of spirituality and sacredness that surrounded offerings I had seen practiced in cities. Instead, as will be clear in the following description of CUP shifts, chakchay is for herders one of the basic practices that comprise their work: a spontaneous (if programmatic) response to the frequent dangers and anxieties of interacting with the hirka, both as physical and social entities.

2.3. Herding in Ruriq

It is roughly nine kilometers from the entrance to Ruriq canyon at the gated fence of the Park's boundary to Tarawra Lake's shore at its upper end. The long corridor of the canyon is divided into Outer Ruriq and Inner Ruriq by a stone wall with a locked, steel gate at the midpoint of the canyon. There are three shelters in the canyon. Two are square stone houses with corrugated aluminum roofs held down by nails and rocks, one each in Inner and Outer Ruriq. The third is a large, round tsuklla with a conical straw roof just outside the gate to Inner Ruriq. Depending on the seasonal conditions of the grasses, animals may be in one or both of the sections of Ruriq.

On March 23rd, 2014, I joined a shift in Ruriq just after all animals had been herded either into Inner Ruriq or back to the town below. The three of us—Gerson, Feliciano, and I—had spent the first night of the shift at the smaller shelter in Inner Ruriq.⁴³ The third shift member hadn't shown up and would be fined. Only half-joking, they had told me that I was his replacement. Dawn arrived around 6am, but it was still very cold. No one wanted to move out from the layers of wool blankets and straw. Yet a long day lay ahead, and at some point its momentum overpowered the cold night's inertia, and we began to stir. First, someone had to get water from the nearby stream for cooking breakfast. It was my turn. While Gerson went to round up the donkeys and horses that had wandered away during the night, I filled the bucket at the stream that passed by the house. I tried with little success not to douse my feet with the frigid water while navigating the slippery stones back to the house where I found Feliciano already at work peeling potatoes for soup. Gerson returned shortly from rounding up the animals and asked me for help finding one of them. I headed uphill from the house, scanning the hillside. The depth of the challenge struck me at once. The land before me was a mess of the grays, blacks, browns, yellows, and greens of stones, boulders, and scrub covered with lichen and moss. Finding a

⁴³ In this description, I follow the course of a typical day as recorded in my field notes from a shift on which I accompanied Ruriq's CUP's members. Unlike cataloguing isolated beliefs and practices, this narrative approach allows me to capture the variability of the practices I describe without sacrificing the importance of the contexts in which they are embedded. One challenge to doing ethnography that takes the role of the environment seriously is finding a way to represent the surroundings relevant to the actions and relationships at stake. This is especially the case when on the move. Just as audio or video recordings are necessary for serious analyses of verbal interactions, it was necessary to find some way to record spatial information. To this end, I coordinated GPS-tagged photographs with path data from a second GPS unit. The combination of written notes and images linked to specific times, locations, and altitudes made it possible to reconstruct the spatial relationship between specific events and a surrounding environment taken for granted by herders but unfamiliar to me.

shaggy, brown and white spotted donkey with its head bowed to a clump of grass seemed nearly impossible.

Yet while I pondered the task's difficulty, Gerson was already shouting out to me from somewhere unseen, "It's headed your way, Joshua! Cut it off and guide it back to the house before it gets away!" I heard the unruly animal's hooves before I saw its pointy ears amidst the bushes several yards uphill from where I stood. I scrambled uphill trying to cut off the animal, but found myself separated by a well-camouflaged ravine, and the donkey continued yet further uphill. After a breathless and inefficient chase we finally had the stubborn creature tied up alongside the other donkeys and horses. The difficulty of finding an animal in this immense and wild—that is, relatively unmodified by humans⁴⁴—landscape underlines one of the principle challenges of herding in the hallqa and, as will become clear below, is also one of the principle motives for communicating with hirka.

After a scalding breakfast of potato soup, "kwaker,"⁴⁵ coca tea, and bread, we discussed the day's first task. Gerson located a weathered notebook in the rafters and read over the previous shifts' notes. Clucking his tongue, he chided their laziness in neglecting to account for a number of animals. Now we would have to find these animals with no indication of their last whereabouts. However, both Gerson and Feliciano had other priorities—first, to find their own animals, and then to find those of their closest kin and friends. Feliciano—the older of the two—also had noted on his last shift that one of his cows was pregnant, and hoped to find the newborn calf on this shift. Calves are particularly vulnerable in the highest parts of the hallqa, as they are

⁴⁴ I say that it is *relatively* unmodified because there are indeed many modifications. Some examples are the stone wall dividing Ruriq in half, the three houses, numerous canals that irrigate the flat valley floor (and which are only visible from above), and the single, sunken, stone-lined path through the valley.

⁴⁵ Drinkable gruel ideally made from Quaker brand oats, and sometimes with chocolate added.

easy pray for condors and pumas. CUP members usually try to bring newborn animals down to town for a period after they are born to protect them from these dangers. More importantly, removing calves from the canyon is now the only way to ensure their domestication, as there are no manadas where this job can be accomplished within the Park's boundaries.

The two men decided that Feliciano's calf took precedence, and so the morning's explicit goal was to find the newborn animal. After packing our backpacks with bread, water, crackers, chocolates, fruit, coca, cigarettes, and alcohol, we moved to the semi-circle of stones adjacent to the house. Feliciano got a bag of coca leaves from his backpack, took a handful, and passed it to Gerson who did the same and passed it to me. We followed Feliciano's example, placing several leaves carefully at the base of some of the larger rocks. Feliciano then began to gesture with a handful of coca leaves before his face and whispered to them that the three of us—Feliciano, Gerson, and Joshua—were here now, on the twenty-fourth day of March in the year two-thousand and fourteen, doing chakchay for the benefit of the hirka and for the benefit of the awicho (literally, grandparents). He went on to list a number of these by name: Awicho Juan Karpu, Pamparahu, Hatun Wantsan, Casuelapataq. Gerson also spoke to his coca leaves, though inaudibly, and I followed suit, trying to copy Feliciano's precise and rapid invocation as best I could. Feliciano then produced a plastic soda bottle full of cane alcohol. He repeated his words as he moved the bottle before his face, and then took a small sip that he sprayed from his puckered lips in a fine mist in all directions, twisting his torso left and right. He passed the bottle along, and we each followed his lead. Now, Feliciano took his *puru*—a tiny gourd full of sodium bicarbonate used to activate the alkaloids in the coca leaves—from his backpack and waved it in small circles before his face, once again whispering a similar formula, and adding pleas for a light journey (“ankashllatam purinantsikpaq”) with clear skies in order to collect firewood (“usyaaparamushun

llantakunapaq”). After dabbing the white powder between his cheeks and gums with the long needle attached to the gourd’s cap, he passed it along as well.

Feliciano now took an unfiltered Nacional brand cigarette out of a packet of folded paper and passed some more our way. Again passing the cigarette before his face he invoked the hirka, but this time asking the specific question of whether we would find the new calf. This marked a change from doing *chakchay* simply for the benefit of the mountain, including some humble pleas for favorable conditions, to *chakchay* with the goal of getting answers to specific questions. The distinction is one of which herders are quite conscious, and which is also grammatically marked. I learned this after asking Feliciano about the alternating use of the derivational suffixes “-ku” and “-pa” with the verb *chakchay*. “Chakchapay,” he explained, is simply to make homage to the hirka, whereas “chakchakuy” is to ask specific questions to the hirka. The contrast also coincides clearly with the functions of the two suffixes. Both indicate that the action defined by the affixed verb is carried out for someone’s benefit; “-ku” marks the middle voice, indicating that the action benefits the subject of the verb, whereas “-pa” is used when the action affects or, frequently, benefits someone other than its agent (Hintz 2011: 170).

In the course of the ritual itself, this change in the directionality of agency and benefit was also announced with the request “willakayaamay yaw!”⁴⁶ (Now tell us!). Only after this indication of a shift in the structure of communicative roles in the ritual—i.e., a shift of footing in the participation framework (Goffman 1979)—did Feliciano make his direct request for information to the hirka, asking to be told whether we would find the newborn calf. After making his question and blowing onto his cigarette, he lit it as well. While he smoked, Gerson spoke inaudible words to his own cigarette and lit it. After every draw, Feliciano lowered the burning cigarette to check

⁴⁶ Willa-ka -llaa -ma -y
Tell -MID-DLM-1OBJ-IMP2

the ash. The ash itself is the primary medium for the hirka's messages. The direction it points can indicate the location of animals, while irregularities in color and shape suggest obstacles or undesirable outcomes. In this case, the ash fell off the cigarette rather quickly. Seeing this, Feliciano shook his head. Once he had finished most of the cigarette, he placed it carefully on a stone where it continued to smoke itself. This, I learned on another occasion, was so that the hirka could enjoy smoking the cigarette and the reason for the preference for unfiltered cigarettes. Only after having done this did Feliciano reveal the outcome of his divination. We would not find the calf. The ash had fallen quickly; a condor or a puma had likely carried off the animal.

With this new information, the goal for the day was slightly modified. However, while the calf no longer took precedent, the next most important task was to account for Feliciano's cattle, and since the calf was Feliciano's, the route we would take was not significantly altered. We would head toward his cattle's *paraje*, a Spanish word that herders used to refer to a group of animals' habitual place for grazing. His animals' *paraje* was on the east-facing slope of the tributary valley that flowed south from the Lullu Wantsan (Little Wantsan) glacier just up the canyon from the shelter. Feliciano suggested, however, that instead of going directly to the *paraje*, we should climb to the top of the opposite hillside. He had several reasons for this. First, he told me that he had gone up this hillside himself recently to do *chakchapay* and had been deeply impressed by the beauty of the spot, underlining the fact that he was playing the role of my guide. He also added that on his last trip there, he had seen not only his own animals but a number of other groups of cattle on the opposite slope. So, from the top of the far side, we would better be able to locate not only his animals, but also others that might be scattered across it. Once I had actually crossed through this area, I understood the wisdom of his suggestion, as the entire hillside

was covered with grass, hidden streams, and enormous boulders, making it virtually impossible to see anything from the ground and just as difficult to traverse directly.

Going after Feliciano's animals was also considered a sound decision because of the results of a divination session on the day before that had suggested they would indeed be in their usual spot. Shortly after arriving at the shelter on the previous morning, we had set out to look for animals on the hillside directly above. However, after walking uphill for about an hour and a half, it had begun to rain. Within a few minutes we had come on a cave formed by the negative space among the boulders on the edge of the forest and took shelter within. Just as we entered the cave, the rain turned to hail. Our good timing in coming upon this shelter was not lost on my companions, who suggested that it was the consequence of our previous gifts of coca, tobacco, and alcohol to the hirka. In other words, the hirka, on whose body we were walking, had *placed* the cave there for our benefit. This idea—that the physical shape of the hirka is volatile and responsive to acts of social reciprocity—was echoed in stories I was told on other occasions. For example, one man told me that he had once come up to the depths of Ruriq—close to where we now were hiding from the rain—alone on a shift where neither companion had shown up. In the midst of a windy snowstorm, he'd caught sight of a cave in a beautiful spot nestled high up the canyon's wall. He climbed straight up to the cave and sat out the storm there. However, when the snow cleared, he saw that there was no longer a path back down. It seemed the shape of the rocks had changed, leaving nothing but a sheer cliff below the cave. At that moment he chewed coca, smoked, drank alcohol, and offered fruit and candies.⁴⁷ Only after this did the path back down to

⁴⁷ The man's narration indicated that the offerings were made to patsamama ("the earth mother"), however it is important to note that the story was shared during a celebration in a group mainly composed of farmers in the town of Huaripampa.

the valley floor reappear. I was also told a strikingly similar story about three men hunting deer in Ruriq before it had become part of the National Park.

Though there was more room in the cave than initially appeared, we were forced to squat above the cow dung covering the floor with our heads bowed beneath the enormous boulder suspended above. As I tried to wedge myself into a corner I stuck my hand into a shiñwa plant (stinging nettle) and let out a shout of surprise and pain. Luckily, this offered some comic relief in an uncomfortable situation—they laughingly assured me that it happens all the time. More importantly, Feliciano pointed out that since we were in a cave we ought to make homage to the mountain (“chakchaparillashun,” or, “we will humbly do chakchay for the benefit of the hirka”). The ritual unfolded more or less the same as the one described above, except that the question put to the cigarette was whether Feliciano’s animals would indeed be in their usual spot. This time the ash did not fall off the cigarette but instead dipped noticeably downward. After finishing, Feliciano told us that the animals would indeed be where he expected. I asked him this time what it was about the ash that told him this. He explained that the downward pointing ash indicated that the animals were *just here* (“kayllachaw”), and pointed down at the ground, like the ash, with his index finger. He elaborated that this meant the animals were indeed in their usual spot. In contrast, if the ash had pointed uphill (“umaman”), we would find the animals uphill from their usual spot, and if it had pointed downhill (“uraman”), they would be downhill.

With the information gleaned from the two divination sessions, we started off from the shelter in good spirits, confident with our path despite the bad news about the new calf. We initially followed a gradually uphill route to the northeast. Looking at this route as recorded by the small GPS device stowed in my backpack, I now appreciate that the path we initially followed, if extended in a straight line, would lead to a point less than fifty meters south of our final stopping

place. This is a remarkable fact considering there was no discernible path to follow, and that the entire journey of 1.6 km in fact included a number of twists and turns to navigate environmental obstacles. For example, after about ten minutes, we reached the marshy area where the Lllullu Wantsan tributary filtered into Ruriq. Here we deviated to the north through a narrow area with the steep slope of the tributary canyon on our left and the wetlands on our right. The ascent became steeper as we followed the slope alongside a dense cloud forest of Quenual trees whose peeling, orange bark was bearded with pale green lichens and mosses, and whose gnarled branches and roots host the majority of the canyon's birds and insects.

Less than thirty minutes into our ascent we came to a place where we could cross the stream and begin ascending the opposite slope. At this point, our route turned almost due north and simultaneously became much steeper. A half hour into this steeper ascent, we stopped to rest. Feliciano picked a tall plant with pink flowers that he said was medicinal (Figure 6). We fell silent for a moment when there was a distant, echoing sound like thunder. Feliciano pointed out an avalanche on the peak on the opposite side of the canyon. We took a moment to observe the spectacle of snow cascading nearly a kilometer down the mountain called Puma Waqanqa, “Where Puma Cried” (Figure 7). While the rumbling of an avalanche—“pun-run-ruuuuun” in local onomatopoeia—is often described as the hirka's voice, neither Feliciano nor Gerson offered a translation at the moment.



Figure 6. Flowers in Ruriq.



Figure 7. Puma Waqanqa.

We continued on up the mountain, now walking straight up the slope rather than skirting. The ground we were climbing was also significantly different. There were only sporadic tufts of grass more than a few inches in height. The ground was a composite of spongy black soil and small, rough stones. Once we reached the top, I would realize that it was in fact a moraine—rocks and sediment formed by the growth of the Lllullu Wantsan glacier that has now receded, leaving behind a wide gravel trough between two high moraines. We were at over 4,600 meters above sea level, and the lack of oxygen was taking its toll on me. The next break came after what felt like an hour but was in fact only ten minutes. However, the purpose of this break was not to rest—Feliciano didn't seem at all tired, and Gerson only mildly so. We were now in fact a mere 40 meters from the crest of the moraine. So why stop so soon before reaching the goal? As soon as we had found some suitable rocks to sit on, Feliciano opened his backpack and took out his coca once again. The ritual was briefer this time. There were no questions asked—no cigarettes

smoked. We only chewed the coca and took sips of the alcohol and offered these to the hirka, this time with few words. We sat here for another thirty minutes, mostly in silence, watching the mountains around us and regaining our strength. On other trips to peaks and crests in Ruriq, I also found that we would stop just before reaching the top to repeat this ritual for the sake of the hirka. It seems that to pass over this act of humility would show an unthinkable disrespect, as if to say that one had reached the top with no help from the very mountain on which one had been walking. Sitting on the rock there, surrounded by vast, empty space, I indeed found myself grateful for the (momentary) solidity of the mountain beneath me.

After several more minutes of ascent, we were at the crest of the moraine, looking at the great, gray trough carved out by Llullu Wantsan, probably during the Little Ice Age between the 15th and 18th centuries (Figure 8). The glacier appeared only in bits and pieces through the dancing fog above, but what I could see was stained black like decaying teeth. It was not the brilliant white I had expected. Feliciano said that the glacier used to be pristine, but that it had receded significantly in the last fifteen years and grown ugly. Indeed, the minerals from exposed rock had leached into the ice, changing its color and contaminating local water sources with heavy metals, turning several streams and rivers—including Río Negro itself—a rusty orange color. Feliciano now walked a bit up the narrow ridge, at most a foot wide, and cracked his leather whip several times. The sound echoed around us. This, he explained, was both to make the hirka clear the skies and to frighten the cattle so they would start down toward the valley floor.



Figure 8. Lullu Wantsan trough.

We settled down on some rocks and Gerson and Feliciano began to pick out animals on the opposite hillside. At first I could see nothing there. Then I began to notice a few black, red, and white specks among the boulders and grass. After a few minutes they had already begun to pick out individual animals of both Gerson's and Feliciano's, naming them and establishing their relations to one another. This red cow was that black one's calf, and the two spotted one's there are brother and sister.

Feliciano began another chakchay ritual at this point. Though not identical, it was similar in form and content to the one at the start of the day. However, there was now a significant difference in the context. From our high perch, the hirka that Feliciano mentioned all were visible. The green waters of Tarawra, for example, lay at the head of the canyon far below (Figure 9), and

Hatun Wantsan's glacier disappeared into the clouds overhead. As he named the places, he looked and gestured toward them. Rather than the abstract, distant landmarks they had seemed in earlier invocations, Feliciano now addressed them as a group of individuals in whose company we were gathered. After the initial enumeration of hirka and the dedication of the coca and alcohol to them, Feliciano again marked the shift to divination with the phrase, "Now tell us!" ("Willakayaamay yaw!"), followed by a repetition of the list of surrounding hirka. This time he also added, "Tell us now, us two here, these orphan grandchildren of yours now. Grandfathers, you are seeing us here now" (Willakayaamay yaw, kay ishkaakunata, kay waktsa willkayki yaw. Awichu, kay rikaykaayaamankim).⁴⁸



Figure 9. Tarawra Lake.

⁴⁸ I recorded this particular ritual with a tripod-mounted camera wedged among the stones, and so I have been able to carefully study the exact utterances rather than constructing them from notes or memory.

The remainder of the divination was devoted to asking about what would happen the next day—if there would be good weather, if there would be any significant problems, if someone might have an accident. What stands out as particularly significant here is the way that Feliciano characterizes his and Gerson’s relationship with the hirka in the opening formula, which emphasizes the closeness and intimacy of this relationship in two ways. First, he represents Gerson and himself as the hirka’s “orphan grandchildren.” This phrase requires careful attention. Rather than simply creating denotational equivalence across languages, an “ethnographic translation... embedded in the contexts of use and lexical and indexical relationships” of the words is necessary (Mannheim 2015:205; Silverstein 2003b).

The word *waktsa*, usually translated as orphan, does not merely indicate the child of deceased parents (Leinaweaver 2008:74). It refers more generally to anyone who cannot engage in reciprocal social relations (76)—in other words, a social outsider (de la Cadena 2015:44). This state of social isolation also differs from the occidental notion of orphan in its temporality, as one can be temporarily *waktsa* when separated from one’s reciprocal relations (Leinaweaver 2008:74), for example when alone in an unfamiliar place. However, this still leaves us to wonder why Feliciano, an experienced Ruriq herder who has often made gifts and homage to the hirka, would refer to himself and his companion as social outsiders. The answer lies in the hierarchical nature of the relationship. The underlying logic of both offerings and divination presumes that the hirka are territorial authorities. Thus, to do one’s work on the hirka’s territory requires some payment—the offerings of coca, alcohol, tobacco, fruit, candies, etc. Likewise, their authority also endows hirka with knowledge of what goes on within their territory. Not only do the hirka see Feliciano and Gerson sitting there, they also see their animals’ movements, making the hirka valuable sources of information. Considering this dynamic, the closeness between hirka and herders is

expressed not as what outsiders often perceive in Andean ritual as a sense of “oneness with nature,” but is instead marked with the strictly hierarchical form of intimacy that also characterizes Andean families (see also Gose 1994:224).⁴⁹

On two other occasions I also heard the more explicit request for the *hirka* to adopt the supplicant as their children [“*wawatsayaamay*,” lit. make us your children]. As my friend and teacher César Vargas Arce (who himself was raised among *hirka* in the *hallqa* of Conchucos) pointed out, in Andean families, men generally refer to their children as “*tsuri*” while women use “*wawa*.” However, as César emphasized and as I observed was common practice in Río Negro, men also refer to their children, or even their spouses, as “*wawa*” when they want to emphasize their roles as caregivers, as providers of nourishment and protection. In this case, then, the person engaging with the *hirka* doesn’t simply take on a submissive social role, but more specifically the role of the dependent “orphan,” nourished and protected by their adoptive parents. The invocation of such a social role is not surprising. I know several children who have “circulated” this way in Río Negro, and the movement of children among households as part and parcel of the establishment, management, and transformation of social relationships is also common in the southern Peruvian Andes (Leinaweaver 2008, 2007). Indeed, such practices parallel the rituals I describe here in that both are socially constitutive acts and, more importantly, the critical conditions for both are co-residence, care, and feeding (Leinaweaver 2008).

The second important aspect of Feliciano’s characterization of the herders’ relationship with the *hirka* lies in his emphasis on their spatial, temporal, and sensual co-presence. One way he does this is by repeatedly using the demonstrative pronoun “*kay*,” which indicates not simply

⁴⁹ The word *willka*, translated as grandchild, also merits further attention. For example, in Southern Peru, the word translates as “sacred.” However, I do not elaborate any more here, as the translation “grandchild” fits well with the characterization of *hirka* as *awicho*, or “grandparents.”

proximal spatial relations in Quechua, but rather signals an act of reference grounded in the location and orientation of the speaker's very body (see Chapter 4). By including this demonstrative in each successive clause of the utterance, Feliciano draws attention to the anchoring of his words not just in the place of speaking, but moreover in the midst of a constellation of places—*hirka*—each of which has already been singled out and identified several times in relation to the speaker's place of speaking. At a more explicit level, Feliciano also focuses the utterance on co-presence with the assertion, "Grandfathers, you are seeing us here now." With this phrase, he raises to the level of awareness the fact that we are in view of the *hirka* he is addressing, and simultaneously asserts the reciprocity of perspective, testifying with certainty (he uses the evidential enclitic "-m" on the end of the verb phrase) that not only are the *hirka* visible to us, but that *we are also visible to them*.⁵⁰

Guillermo Salas Carreño and Bruce Mannheim (Mannheim & Salas Carreño 2015; Salas Carreño 2016) described the sociality of Andean places along similar lines.⁵¹ Specifically, the agency of places such as *hirka* is the result of their social engagement in mutual nourishment. Because this is also the essential element in the fabric of Andean sociality, "the relationships and actions that Quechua people have with places are not different in kind from the interactions they have with each other" (Mannheim & Salas Carreño 2015:62). Likewise, Smith (2012) suggested that Aymara speakers' criteria for choosing interlocutors is rooted in their sociality rather than

⁵⁰ In this sense, the sociality of *hirka* draws crucially on Theory of Mind (see discussion in Chapters 1 and 6), a point also observed by Mannheim & Salas Carreño (2015:68).

⁵¹ Mannheim & Salas Carreño focus on the term "wak'a," while de la Cadena's work is focused on "apu." Both terms pertain to Southern Peruvian Quechua and are not in Ancash Quechua's lexicon. Nevertheless, there are numerous genetic and semantic associations among the three words that go beyond the scope of this work. It is sufficient to say that "apu" is roughly equivalent to "hirka," while "wak'a" captures the abstract meaning of "social place," as it can be applied to places that are not mountains such as waterfalls or streams. No term equivalent to "wak'a" is in use in Río Negro. Rather, such places are simply designated by name, and often given the title "awicho" (grandparent).

their ontological status, evident in the use of an Aymara interjection to cajole alpacas, children, and pieces of fruit alike. While these accounts capture the particularities of Andean understandings of nonhumans, they abstract away from the texture of the social and linguistic practices that situate them. In contrast, I depart from the observation that looking to social practice to understand the relationship between humans and places requires attention to “practice” not in terms of broad, generalizable cultural patterns, but rather in terms of fine-grained local distinctions, such as the differences in ritual practice and communicative access to *hirka* between pastoral and agricultural contexts in Río Negro.

* * *

In all, we spent nearly two hours there at the foot of the Llullu Wantsan glacier passing coca, cigarettes, and alcohol, and spotting animals. We also spent some time simply looking at part of the canyon spread out before us. I do not think that Feliciano’s and Gerson’s repeated comments about the canyon’s aesthetic value during the trip are reducible merely to their knowledge of camera-toting gringos’ taste for landscape photography (their own photographic interests during the trip were highly focused on bovine portraiture). Feliciano was proud to have found this breathtaking spot—which of course also had a function in spotting animals—and wanted to show it not only to me, but also to his younger companion, Gerson, to impress on him the satisfaction of this aesthetic aspect of herding as important alongside the hard work. In fact the latter was still to come, for the rest of the afternoon was spent rounding up the animals we’d spotted on the opposite hillside, and herding them down toward the valley floor.

Feliciano and Gerson would skirt the moraine to cross the river higher up the tributary valley, cutting off the cattle and herding them back down, while I was to head straight down the moraine wall and cross the river, making sure the animals didn't cross back over and head up the moraine. It was harder than I'd imagined. The terrain around the tributary was treacherous. The thick tufts of uqsha grass reached my shoulders, and the boulders were larger still. The ground itself was mostly invisible. The only way to move was by jumping between boulders and uqsha tufts, avoiding the hidden streams that filled the deep crevasses among them. The river itself was much deeper and wider than I had suspected, and it took some circling in order to find a good spot for a jump. Once on the other side, I spotted Feliciano and Gerson hopping along through the grass further up the canyon. They were leading the cattle toward me and shouting instructions: keep following the stream downhill and make sure the animals don't try to cross.

Eventually they caught up with me, and we continued on—Gerson above the animals, Feliciano behind them, and I below—for roughly a half hour, occasionally changing positions in response to the animals' movements and the shape of the terrain, until we came to a flat area just above the canyon floor. Feliciano and Gerson agreed that it was a good place to leave the animals, with plenty of green grass. We took a brief rest, and in another half hour we were back at the shelter. It was Gerson's turn to fetch water, and I gave Feliciano a hand peeling potatoes for soup. By the time we had filled our stomachs, the sun had gone down, and the darkness in the canyon was total. We crawled under the stiff wool blankets, cracked jokes and teased one another, passed around the coca, alcohol, and cigarettes, said a few words of thanks to the hirka, and drifted off to the sound of wind and rain on the metal roof and the hirka's conversations echoing in the thunder of avalanches.

3. Hirka in herders' dreams

While the rumbling avalanche with which the hirka spoke was untranslatable in the course of this average day in Ruriq, such is not always the case. In dreams, apparitions, and other liminal experiences, individuals who have cultivated relationships with the hirka over the course of their daily work occasionally receive messages unmediated by divination with coca or tobacco. In dreams and apparitions, these messages instead are either conveyed through an associative logic (Mannheim 1991) or through the hirka's use of human language. Messages from the hirka may also be interpreted in terms of specific contexts, such that an avalanche may be read as either a warning or a welcome. The hirka's actions and movements may also be witnessed in liminal moments—usually during the night of a new moon. In these cases, the actions are interpreted as explanations of the landscape itself rather than as messages directed to their witnesses. In this section I give examples of dreams and visions in which hirka appear. In these examples, hirka only communicate directly with herders who have already formed social relationships with them through the rituals that accompany their daily work. When hirka appear to farmers, they may speak among one another, but they do not offer messages intended for their human witnesses. In such cases, hirka's actions and interactions are seen as if by accident, almost as if their witness were eavesdropping. The covert nature of this channel of communication between hirka and farmer contrasts with that between herder and hirka, which is characterized by the recognition of mutual attention. In this sense, at the heart of the distinction between the two kinds of communications with hirka is a set of conditions under which persons recognize one another as potential participants in a social interaction. What I argue below is that the basic condition for such recognition is the presence of a familiar social relationship, such that only those relationships between individual herders and hirkas who have become accustomed to one another's co-

presence—thanks to the herder’s repeated offerings—can yield a mutual recognition and thus a possibility for intentional communication.⁵²

During the last dry season of my fieldwork in Río Negro, I spent a significant portion of each day walking alone to, from, and within the “*zona de amordiguamiento*,” or “buffer zone.” This is the broad border of land that is defined by the Huascarán National Park as ecologically influential on the “protected natural area” it surrounds.⁵³ Unlike the area within the Park itself, residence is officially permitted here, albeit with some ecological condescension. Nevertheless, settlements are both sparse and only seasonally occupied, and so getting to know the people that lived there involved walking long distances, alone but for the watchful hirka above. The people I spoke with were elderly couples, solitary women whose husbands worked periodically in the town below, or younger people helping their families with punctual, seasonal tasks like making grass ropes, re-thatching roofs, or harvesting high-altitude potato crops.

At this point in my research, I had gotten to know the quotidian ritual practices of herders in Ruriq, so I was interested to learn more about the people who lived a bit further from the hirka but still maintained at least a partially pastoral livelihood. One thing I learned was that they had all worked as herders whose seasonal grazing routines had taken them higher in the mountains before the establishment of the National Park. While their economic relationship to the region had

⁵² This distinction in social relationships also calls into question a basic assumption made by most scholars interested in Theory of Mind. What would be recognized as the properties of “mind” here are not ontologically given, but rather contingent on particular interactional histories. In such a context, “mind” is no longer best understood as a property of individuals, but rather as a condition that encompasses and exceeds individuals such that they occupy different mental potentialities as they move across social (and spatial) situations.

⁵³ While Ruriq was unanimously considered hallqa, this designation was spotty in the ‘buffer zone.’ Whether some place was hallqa or not varied and seemed to depend on whether or not any crops were planted there and what kind of grasses grew. More importantly, people who lived there tended to consider the hallqa as beginning always just a bit further uphill, whereas people who lived in Huaripampa generally considered the entire ‘buffer zone’ to be hallqa.

been substantially different—they herded animals owned by the government cooperative formed by the agrarian reform, or before that tended herds belonging to the *hacendado*—their quotidian routine nevertheless brought them into daily contact with the bodies of hirka. A few of them were wealthy enough to consolidate animals to contribute to the Committee of Usufructuaries of Natural Grasses organized by the National Park, and they or their children continue herding in Ruriq today. However, the majority of the families who reside at least partially in the “buffer zone” simply make do with a smaller range, seeking out other supplemental goods and incomes through agriculture and wage labor.

In dreams or visions, hirka sometimes appear in human form to the people who work in close contact with them. For example, a woman who had lived more than seventy years in her family’s manada in the hallqa region just south of Río Negro told me that the hirka once appeared to her as an elderly couple,⁵⁴ “a poor old man in tattered clothes and a brown poncho... and an old woman with a crumpled hat just like this one” (allaw awkis makwalla... muru punchushqa... chakwas hina kaynawlla tsukush lapulla). The couple had appeared to the woman and her sister, at the time young girls, while they were grazing their mother’s sheep near a mist-shrouded lake at the upper end of a nearby canyon. The old couple had appeared out of the swirling clouds, milking feral cattle. Below is an excerpt from my transcript of the account:

Inti inti pukutaychaw waakakunam “mooooo mo” niyaq altanarakuna.

⁵⁴ There are few descriptions of this in the ethnography of the southern Andes. Isbell (1978) wrote that in Chuschi, a community in the highlands of Ayacucho, the *wamanis* (place-persons similar to hirka) appeared as finely dressed white men (59). Gose’s ethnography of a highlands community in Apurimac similarly mentions *apus* appearing as white land-owners that to steal women during festivities (1994:222). In the central Andes, Domínguez Condezo’s (2003) collection of oral Quechua texts includes a section devoted to stories in which hirka appear as herders. The stories I heard in Río Negro more closely matched Domínguez Condezo’s oral texts than the ethnographic accounts from southern Peru.

In intermittent sun and clouds, there were cows going “mooo mo,” haughty animals.

Tsaynam (unintelligible) chaariptii rikaariyaq kayaa qapiykuraykaq awkishna.

So (unintelligible) when we arrived we saw that an old couple was now milking them.

Rikaykunaqqa qatiykuraykanaq, hiqarkunaq.

Then what we saw, they were leading [the cows], going on up [the mountain].

Chikuteta waqaykatsiptin piña ayqiraykuraq chakwas.

When the old woman cracked her whip, the feral animals would run along.

Lichillanash kaynaw patsachaw qucharaykashqa kanaq

And the milk had spilled out on the ground, like this.

When the girls returned home they told their mother what they had seen. She told them that the old couple was the hirka, and that their encounter was a good omen.

Francisca, another woman who lives in her manada in Qaqayuq, also shared her encounters with hirka with me. Francisca has lived most of her adult life as a herder in Río Negro’s hallqa regions of Ruriq and Waraqayuq as well as to the south in Recuay’s Yanamaray and Qirqucha. When I asked if she’d ever met the hirka, she told me that in her dreams she used to see the hirka in the form of an old woman grazing feral cows. I asked how the old lady was dressed, and Francisca said, “like me, in dirty clothes,” gesturing to her own clothes (though they were in fact quite clean), “and the old man with his pants all torn.” She further explained that in Ruriq, the “awkikuna” (lit., old people, in this case the hirka’s corporeal form) reveal themselves in dreams taking care of the feral animals. “They even call out,” she said. “The hirka call out, and even if you didn’t see them, they spoke, ‘hoooo.’”

While these encounters with hirka in the form of an old couple tending to feral animals are similar, their respective interpretations are distinct. The first sees the appearance as an omen, a sign that reveals something about the future, while the second merely purports to reflect some fact about the nature of hirka. These two types in fact represent the two main ways of interpreting encounters with hirka. The most common context for the second type is in stories about places. For example, a woman who had lived most of her life in a manada in Inkatsa told me the reason that the two enormous boulders in this place were called Tuuruqaqa (Bull Rock) and Gaalluqaqa (Rooster Rock). The story originated with her aunt, who had also lived at Inkatsa. As a young girl, the aunt and her sister had been alone there and had seen a rooster and a bull emerge from the lake on the slopes high above. The two animals had stood perched a moment on the edge of the hill, then rushed down the mountain toward the manada. Once they arrived at Inkatsa, they turned to stone and released a great cloud of smoke. These two boulders are now considered extensions of the hirka that dominates Inkatsa's pastures, and offering to that hirka are made to them as proxies. Likewise, another story I heard from residents of Huaripampa on two separate occasions told me that the mountain at the western edge of town, called Qitsqay Hirka, had a rivalry with the mountain on the other side of the Río Santa, on top of which was the town of Qullawasi. On the nights of new moons, the story goes, two bulls would emerge from the two mountains and begin to taunt one another, and ultimately fight ferociously.⁵⁵

When encounters with hirka are taken as messages, they are sometimes described as having a voice that is interpretable in human language. However, this is not critical to the ability to interpret specific messages received from hirka. Donato told me the story of a man who lived near a cross that Santo Toribio de Mogrovejo had planted in the hallqa pastures at the foot of

⁵⁵ Domínguez Condezo (2003) provides a rich corpus of oral texts in Quechua that include numerous examples of hirka speaking to one another, and to humans.

Shaksha Hirka.⁵⁶ The mountain itself told the man in a dream that the cross was falling into the river, and that if it fell, everyone would die. When he warned the villages of Olleros, Huaripampa, and Canray Grande, they organized among themselves in order to move the cross to the more stable position where it is currently located, at the confluence of Río Arzobispo and Río Santa. In this narrative, the hirka does not physically appear, but makes its message known in terms of human language. However, I only heard accounts such as this, in which the hirka's message was given in literal terms, in stories that were already several degrees removed from their original sources. The man in the story may originally have received a message conveyed through a combination of images whose meaning emerged in relation to a particular context, which was then translated into a text that could be quoted in the course of narrating the story. For instance, he may have received the message in a dream.

Dreams are one of the most common ways of receiving non-verbal messages from a hirka. Messages that arrive by this route do not rely on linguistic forms as signs, but rather are the result of the interpretation of oneiric images as indexical signs that point toward the intended message. Don Clemente, a man who has lived his life in a manada in Qutukancha—a hallqa region south of Río Negro in Recuay—explained to me that the hirka has often given him information in his dreams that shape the day's activities. One night, he told me, he dreamed that he found bones in a tree. When he awoke, the first thing he did was go to look around in the scrubby trees near the manada, where he immediately found a deer whose leg had become tangled there. The hirka did not mean to tell him he would find bones, he explained, but rather that he would have meat that day, and where he should go to find it. The bone here signifies meat by means of the indexical

⁵⁶ Mogrovejo was a Catholic priest who became the archbishop of Lima in 1581, and was later canonized by the Vatican in 1679 for the remarkable trail of miracles left by his *visitas* throughout the viceroyalty of Peru (journeys now made legible by a trail of places called Arzobispo).

relationship between the sign (bone) and a contiguous object (meat), a semiotic dynamic documented in dream interpretation in the Andes since the seventeenth century (Mannheim 2015:31). An early seventeenth century extirpator of idolatry reported the existence in Recuay (the parish to which Río Negro belonged at the time) of ritual ministers of “idols” who specialized in dreaming and dream interpretation (Hernández Príncipe 1923 [1622]:28). The use of dream interpretation for planning daily activities is also common among agricultural communities both in Ancash and in the south of Peru as well (Mannheim 2015:11). Likewise, throughout Peru, the images encountered in dreams are understood not as coming from the dreamer’s innermost self, as is common in many Western contexts, but rather from outside (9). However, dreams and their possible interpretations can also vary in principled ways within populations. In Río Negro, for example, individuals who have cultivated relationships with particular *hirka*—namely herders—have dreams and interpretations that are unique in that they understand the contents as originating in the *hirka* with whom they have social bonds. This distinction also offers a parallel to my previous observation that the messages that herders receive through ritual divination are seen as originating in the *hirka*, while those of farmers is seen as simply emanating from the coca leaves or cigarettes themselves.

The difference between herders’ and farmers’ encounters with *hirka* in dreams and apparitions corresponds to their patterns of engagement with their environments. However, it also corresponds with a distinction in the kinds of *hirka* in the *hallqa* and farmland environments with which herders and farmers respectively engage. In Francisca’s interpretation of her dream, she emphasized the fact that the *hirka*, in the form of an old couple, were caring for the “feral” animals that lived on their slopes. In Quechua, the word she uses is “*chukaru*.” This word is used commonly in Río Negro to refer to feral or wild animals. When used to describe cattle, it is

interchangeable with “piña,” Quechua for “angry.” The word “chukaru” itself is also commonly used to describe not only animals but places as well. It is furthermore used to describe the state of a person’s spirit or essence, their *haani*,⁵⁷ after it has become frightened in a chukaru place or by a chukaru entity and has abandoned the body, leaving the person in the state of illness known as “susto” or “manchay.” For this reason, the close relationship between hirka and the condition of chukaru is critical to understanding the acquisition of the intervention of hirka—and herders by extension—in healing rituals in the towns far below the hallqa regions (for a more detailed discussion, see Ricard Lanata 2007). The distinction between chukaru and tame hirka also helps to answer the question of why farmers and herders treat the hirka on whose slopes they work in such different ways. For example, consider Qitsqay Hirka, the round promontory at the western edge of Huaripampa. One of the stories above involve Qitsqay, a mountain that is *not* in the hallqa region, and is in fact covered almost entirely in farmland. Indeed, the word hirka also refers to the physical form of a mountain and, as such, agricultural towns in the Andes like Huaripampa sit on top of and among hirka. However, these hirka are different from those in the hallqa high above, as they are not chukaru—they are domesticated hirka.⁵⁸ While the hirka in the hallqa can have potentially violent reactions to herders who pass over their slopes without making numerous offerings of homage, those whose flanks are dressed in parcels of cultivated land do not have the same temperament. When herders talk about their offerings to hirka, they often speak of this as “mansay,” a verb derived from the Spanish word, “mansar,” which is equivalent to the English, “to tame.”

⁵⁷ A more precise translation of *haani* is that part of a person that engages in social relationships and to which the effects of the latter accrue. Ricard Lanata (2007) analyzes the word’s southern cognate, *sami*, at length.

⁵⁸ Quechua speakers borrow the Spanish word “manso,” or “tame” in English, to characterize domesticated hirka like Qitsqay.

None of the other hirka in the territory of Huaripampa—for example Mitu Hirka, Don Juan Hirka, and Challwa Hirka—are considered chukaru, and farmers continuously pass over their slopes every day without making any special actions of respect.⁵⁹ One possible explanation of the differential treatment of hirka in the high pastures and the farmlands below is that traditions have eroded in agricultural contexts. However, two important facts call such an interpretation into question. First of all, farmers are fully aware that hirka in the hallqa region are chukaru compared to the tame ones that surround them. By the same token, herders accustomed to ritual payment of respect to hirka in the hallqa do not carry out these rituals when leading animals over the tame hirka below, for example when bringing calves to town to protect them from the dangers of Ruriq. The second reason why eroded tradition is not a good explanation is that farmers in Huaripampa consider the chukaru hirka high above to have efficacy in healing certain illnesses and in providing answers to certain difficult questions. The following section recounts just such a case.

4. Herders as intermediaries for hirka

Gerson's father, Pascual, was one of the first people I met in Huaripampa. He and his wife Mari lent me a spare bedroom in their house complex. Roughly five months into my fieldwork, I returned late one evening to Huaripampa after several frustrating but ultimately successful days in the capital trying (again) to acquire a student visa. On arriving, I learned that Paolo, Gerson's four-year-old brother, was very ill. He had been throwing up for the last few days, Gerson told me, and unable to keep any food down. Mari had just taken him to a neighbor who was a *curandero* (a local healer) to ask for advice. While we waited for their return, I purchased goods

⁵⁹ It is also worth mentioning that this cross, along with numerous others belonging to families, is carried to the church in the plaza of the district capital, Olleros, each February, during *carnaval*, in order to renew its adornment and, significantly, make it offerings of food, coca, and alcohol.

from Gerson's younger sister, Fiorela, who was attending the family's small shop. The next morning I planned to accompany Gerson along with two other CUP members on a shift to Ruriq for the first time. I packed my bag with the goods and my recording equipment, then joined Pascual and Gerson at the table in their modern-style living room where they were watching Mexican soap operas. Both father and son were uncharacteristically laconic.

Suddenly, Mari entered the store with a frantic air, carrying Paolo in her arms. The *curandero* had told her that Paolo had "no pulse," and that she should take him to the state hospital in Huaraz. There are a number of reasons why this was far from an ideal option. First, it was night, and there was no longer any transportation to Huaraz. Getting to the hospital would involve asking a favor from one of the two local residents who ran van lines between Huaripampa and Huaraz (the others had moved to Huaraz with the capital gathered from this business). I myself would have been unable to return, as I lacked the social capital required for such an imposition. Second, taking Paolo to the state hospital in Huaraz entailed its own risks, as the hospital was notorious for its poor facilities and management.⁶⁰ Third, despite the public care offered at the hospital, the family would no doubt incur unexpected expenses.

Mari and Pascual stepped aside and spoke quietly and intensely for a few moments. Pascual then called Gerson and gave him a brusque command that was too fast for my ears to discern. Gerson nodded and dashed out the door. Several minutes later he returned with a thin man I had seen but did not yet know. It was in fact the same Feliciano who I would eventually accompany on a shift in Ruriq. At the moment I could only watch, impressing everything on my memory in order to record the episode in my notebook later.

⁶⁰ For example, the hospital had been partially evacuated due to leaks and structural instability during heavy rains in February of the prior year.

Feliciano took a seat at the small table in the store. Mari gave him a bag of coca, a couple of cigarettes, and a plastic bottle containing a small amount of alcohol. He took some of the coca leaves, spoke to them, chewed them one by one, then passed a cigarette before his face, speaking once again. The ritual should be familiar by now—he was doing *chakchay*. I recognized the name of the mountain, Wantsan Hirka, but made out little else of his incantations. After blowing on the cigarette, he lit it and carefully observed its ashes, occasionally muttering a few words of dismay. Once the first cigarette was done he told Mari and Pascual that Paolo was in very bad shape. He then spoke to and lit the second cigarette. This time he watched the ash burn with a bit less concern, and finally informed Mari and Pascual that the child would be fine in the end if they took him to the hospital in Huaraz. Considering Feliciano's interpretation of the two cigarettes' ashes, the second was clearly used to ask the specific question of whether Paolo needed to go to the hospital in Huaraz in order to get better. Because the first message was so general—Paolo was in bad shape—it is unclear whether Feliciano had used the cigarette to ask about Paolo's condition, or simply offered it to the hirka and then interpreted the ash as a general assessment of the situation. Whatever the specific questions asked, the results were clear, and led to prompt action. Within ten minutes, they had made the necessary negotiations and arrangements to have a neighbor drive Mari and Paolo to Huaraz in his van. They would stay the night, and return on the first van in the morning. By the time they arrived, Gerson and I would already be within Ruriq.

Why did the family seek out Feliciano rather than simply doing the ritual themselves or choosing one of the other neighbors that frequented their store? What was the pragmatic criterion that informed their decision then? I shared this story and the dilemma it presented with my friend and teacher, César Vargas Arce, who was raised in the hallqa of Pichiw, in the mountain range east of Río Negro, and who first introduced me to Pascual and Mari. His response at first seemed

to me indirect and metaphorical. His father, he told me, had a mule. This mule did everything his father asked of it with great obedience and strength. However, if César or anyone else other than his father tried to get it to respond, it merely dug in its heels and stayed stubbornly in place. When I didn't perceive the relevance, he offered another story. His father had told him when he was young that his *taklla* (hand plow), which he had fashioned himself, only responded to his effort and no one else's.⁶¹ The two stories then seemed to suggest an analogy, which I verified with César. The mule only responded to his father due to the strength of their relationship, specifically to the constant care he had dedicated to the animal; his *taklla*, the product and implement of his labor, also responded proprietarily to him. Likewise, Mari and Pashku deemed it best to seek out someone like Feliciano who had a working relationship with the hirka from whom they sought assistance. Because there is no conventional structure for ritual status or authority in Río Negro, the logic of the choice is ultimately pragmatic in nature. Pascual, for example, may have done coca divination himself, but he did not have as strong a relationship with hirka like Wantsan because he spends most of his time on farming and wage labor.

But is *analogy* the right way of analytically linking the relations between people and mules, plows, and hirka? I believe there is a principled reason why César did *not* present these stories as *analogies* to me, but rather as explanations of the events' *causality*. As analogies, they only point out the *similarity* between the events, limiting any underlying *causal* relations. In other words, in an analogic interpretation, the dynamics by which a farmer tames a mule and a herder cultivates a relationship with hirka are linked only on the basis of their *formal* similarities; there is no corollary implication that the same underlying *processes* are involved. Instead, the connection

⁶¹ The preoccupation with the place of quotidian instruments in social hierarchies has a long history in Andean cultures. A Moche vessel depicts scenes in which weapons and eating utensils attack humans (Quilter 1990; Allen 1998).

between the two phenomena is a subjective one that exists only in the mind of the person who makes the analogical association. Thus, the analogy that links human relationships with mules, plows, and mountains ascribes the connection to the domain of belief. To put it in another way, this account places the relationship between herder and hirka not in a field of social relations, but rather in the arbitrary, shared structure of cultural meaning that Lévi-Strauss envisioned along the lines of Saussure's semiology (Lévi-Strauss 1955). Here, we may find an explanation for something like a cosmological "belief in hirka." Yet this explanation also treats the social relations that make such "belief" discernible as arbitrary, eliding the way such practices are not only symbolic but also causal at both material and social levels.

What happens if I take seriously the fact that César did *not* present these stories as terms in an analogy? In order to see what kind of causality might be involved, it's necessary to first think carefully about the entities. As I mentioned above, the hirka with which Feliciano has cultivated a relationship are considered "chukaru," which I translated as "feral," whereas those in the agricultural area of Huaripampa are considered tame. At first, I struggled to understand the concept of chukaru. Friends often referred to particular animals as chukaru. For example, cattle that had grown up in Ruriq without ever having contact with humans were considered chukaru. This is what initially led me to translate the term as "feral," defined as an individual member of a domestic animal species raised in the wild. However, the word was also used in other contexts that didn't quite fit this definition. For example, Gerson used the word to describe a horse I attempted to ride to Ruriq, and which nearly threw both of us to the ground in our successive attempts to mount it. Yet, I later saw that the horse's owner could ride it easily. Feral animals do not have preferential relationships with humans; they are merely domestic animals raised in the wild. So why consider this horse chukaru? Rather than a contradiction or an exception, this

appellation points out the fact that the state of *chukaru* does *not* translate directly to feral, or even to wild. Descola's sense of bearing no recognizable trace of human sociality (2013a:33). Let me reconsider the case of cattle that have matured without human intervention in the *hallqa*. These animals are considered *chukaru*, but are not "wild" in the sense of having no social relationships of mutual respect. Rather, they are considered to be the *hirka*'s own herds. Likewise, in Río Negro "naturally wild" fauna such as foxes, pumas, and vicuñas are considered to be the *hirka*'s domesticates. A similar understanding has been described in southern Peru, (Allen 2002:28; Flores Ochoa 1974:256; Gose 1994:222; Isbell 1978:153; Martinez 1983:88;⁶² Ricard Lanata 2007:64; Salas Carreño 2016:17), however, the observation has usually been explained in terms of ownership of *all* animals, or of particular species, rather than in terms of the social logic of domestication I describe here.

Careful consideration of the state of *chukaru* indeed reveals a process shared in the cases of feral cattle, tame mules, and Feliciano's relationship with the *hirka*. When cattle become *chukaru* in Río Negro, they necessarily do so by living on the *hirka*'s slopes. They are thus nurtured and raised not by human owners but by the *hirka*, and by virtue of this fact they are responsive to the whims of the *hirka*, not of human owners. Likewise, a mule who has been nurtured and raised by one man is responsive to that man, and not to others. And, finally, when herders make offerings to *hirka*, they attain the *hirka*'s responsiveness. Of course, a *hirka* is much harder to tame than a mule or a wooden plow, and in fact herders are more often in the position of the mule than in that of its master with respect to the *hirka* (in the same way Andean children are productive members of households). This fact itself is directly related to the greater authority attributed *hirka* in the *hallqa* compared to those in agricultural areas, and helps explain for

⁶² Salas Carreño's citation (2016) led me to this source.

example why Mari and Pascual didn't merely consult the agricultural hirka close by, the patsamama more generally, or simply the coca itself. In other words, it seems likely that the dominion of hirka in the hallqa over so much territory and over so many beings—human and animal alike—is a key component in their cultural evaluation as ultimate local authorities, sought out in critical situations such as Mari's and Pascual's.⁶³

This state of affairs parallels Descola's description of the jungle surrounding the ordered clearing that constitutes an Achuar settlement. What appears to the outsider as a wild space, socially vacuous, and clearly separated from the domestic, is in truth "a subject in a social relationship... an extension of the world of the homestead... domesticated even in its most inaccessible reaches" (2013a:6). Descola's solution to these radically different interpretations of what is ostensibly the same world is to encompass them in a typology of ontologies. This theoretical contraption provides an excellent alibi for the ethnographer's initial "doubts concerning what he had previously taken for granted" as well as a suitable means for later taking these doubts and "analyzing them in a systematic fashion" (4-5). Descola also notes that the analogs of wild and domestic across cultural contexts are not equivalent to its modern, occidental manifestation, whose roots he traces to the Roman Empire (55). The differences, he argues, are due to the distinct ways in which cultural groups recognize human influence in their environment (33), and evaluate this influence in aesthetic and moral terms (55). In the modern western context, he argues, starting with the agricultural exclusivity of the rural landscape of the Roman Empire where hunting was merely a form of policing cultivated land (53), and despite a history complicated by interactions with the heroics of the Germanic hunt and medieval social

⁶³ This case, like the explanatory examples César provided of his father's relationships with his hand-plow and donkey, suggests interesting parallels to the category of master or owner found throughout Amazonia (Fausto 2008).

reorganizations, human influence has disappeared from the cultural perception of the environment. It was not the case, however, that “nature” in fact became more “wild” because of its physical separation from human practices, but rather because there were no relevant relationships that connected people to the “wild” places in the terms of human sociality.

Descola’s observations ultimately suggest that as long as some group of people are bound to an environment in terms of human sociality (however recognized locally), then that environment bears the mark of human intervention to all who can recognize this sociality in it, whether through its names, associated stories, or physical forms. However, while Descola moves from this observation toward a typology of ontologies assembled from a basic set of fundamentally incompatible categorical distinctions (and much like the typologization of spatial Frames of Reference, for that matter), in this chapter I redirect my analysis back toward the social relations that constitute environments as other-than-nature. From this perspective, the essential characteristic of the western distinction between wild and domestic nature that Descola describes is not its systematization of oppositions that are irreducibly symbolic even when historically constituted, but rather its exclusion of the possibility of social relations with places and things as social and semiotic—if not linguistic—subjects, even if they sometimes embody characteristic features of personhood. If nature and culture or wild and domestic are inherent parts of the concomitant ontology, it is simply because the social interactions out of which such ontologies can emerge at the level of intersubjective meaning do not include members of both sides as participants. Domestication in this context then consists of bringing something across a boundary (either by moving the thing or the boundary) that is inherently ontological—that is, it divides two fundamentally different categories of being. In contrast, the kind of domestication Descola describes in Amazonia and the kind I describe in the Andes involves the *creation and*

maintenance of hierarchies among subjects capable of human social relations.⁶⁴ The boundaries that are thereby created do not entail an ontological distinction between socially incommensurable categories of being. Rather, they distinguish categories of sociality that, while different, are different in the same way that other human social categories are different.⁶⁵

I have shown that the shared evaluation of *hirka* in Río Negro cannot be reduced to terms of belief or faith (de la Cadena 2015:165). While something like belief—or more specifically presuppositions about the world in which certain propositions could achieve their ends or statements could be true—is a necessary and ubiquitous aspect of cultural patterns of behavior, this does not explain how such beliefs or presuppositions emerge in a social reality characterized by differentiation and heterogeneity. I have also offered an empirically grounded argument that it would be fruitless to explain the social agency of places like *hirka* as the product of the animistic or perspectival ontologies proposed by Descola, as these fail to explain why some but not all places are social actors. Part of the solution can be found in understanding the power of places like *hirka* as the result of basic elements of sociality: nourishment and co-presence (Mannheim & Salas-Carreño 2015:59; Salas Carreño 2016). This analysis makes the important observation that the sociality of *hirka* is essentially the same as that of persons, as it is constituted through the same processes. However, because the question it seeks to answer is about the *ontological* status⁶⁶ of such “places-persons,” it does not offer a direct answer to the question I ask in this chapter: what accounts for the fact that only a subset of humans communicates with *hirka*?

⁶⁴ It is worth noting that this profound distinction also resonates at multiple levels in the contrast between the masking of social hierarchy that emerged together with what Descola calls naturalism and the overt enactments and reproductions of hierarchy that characterizes Amazonian and Andean societies.

⁶⁵ This distinction—between ontologically and socially constituted difference—emphasizes the importance in both the Andes and Amazonia of the ongoing creation and maintenance of social relations over hierarchies taken for granted as part of shared symbolic structures.

⁶⁶ That is, it defines them within “specifically Quechua ontology” (48).

For example, Mannheim and Salas Carreño attribute the difference in importance among hirka to an association between “power and sphere of influence” in the Andes, which they suggest is coterminous with altitude, so that higher mountains have larger spheres of influence and are thus more powerful (63).⁶⁷ Here, altitude becomes a conventional symbol of status, ironically making the social processes responsible for the evaluation of hirka as persons in the first place irrelevant in the evaluation of their individual characteristics. In other words, it yields an account of the relative statuses of hirka, but one that separates the logic at work in evaluating hirka from the logic at work in the social interactions where hirka are participants. This move to define hirka in terms of processes of human sociality is crucial, but it must then go beyond the objectifying operation of definition in order to locate hirka within the interactions by which they are socially positioned. Because these processes occur at the level of individual interaction, they can best be understood by staying close to individual practices. In this chapter, following the everyday work of herders led to the conclusion that their quotidian ritual practices play a causal role in shaping the structure of local culture, and not the other way around. For example, the greater status of the glacial hirka compared to those of the farmlands is not simply a consequence of their *symbolic* or physical attributes, but rather one of their *causal role* in social life. If hirka and humans animate and are animated by the same sociality, then just as distinctions in power among humans is neither a purely symbolic nor material quality, but moreover a property of their position in a social situation, distinctions in power among hirka is also neither a symbolic nor material quality, but emerges like humans’ from their social position. The quotidian practices of herders in the hallqa unfold simultaneously as social relationships with individual hirka, and by associating in this way with hirka, the herders’ social position is changed. It is not that rituals reconfigure

⁶⁷ Also see Allen (2002:28)

herders' sociality through the hirka as a "symbolic medium," to use the term Douglas applied to the role of the body (1966:128), but rather merely by virtue of their inherent sociality, in the same way that regularly harvesting a neighbor's field changes one's social relationship with the neighbor.

Writing about Southern Peru, Peter Gose observed that "the political rank of the *apus* is determined by the offerings that people give, and is not an intrinsic feature of the mountain itself, like its height" (Gose 1994:215). This observation stands in contrast to most ethnographic descriptions of mountains in the Andes as it highlights the social mutuality (not to say symmetry) of human-mountain relations. While it is indeed a step toward treating mountains analytically as persons by positioning them in social rather than purely symbolic relations, it still restricts the direction of influence from human to mountain. In Río Negro, I contend, it is impossible to retain this view of human-mountain sociality. First, the differences in social position among hirka are not due simply to the type or quantity of offerings made. Rather, hirka in agricultural areas differ from those of the hallqa pastures in that they have been tamed by collective interactions and thus their proprietary relationships are the exact reverse of those in the hallqa. In contrast to the familiar nature-culture or wild-domestic divide of the modern West, in which nature entails the absence of reciprocal human sociality, the wild hirka of the hallqa and the tame hirka of the chakra are distinguished by the kind of sociality involved, and not by its mere presence or absence. The tameness of chakra hirka, whether generalized as "patsamama" or specified as particular parcels of cultivated land in all their historical specifics, is constituted as a social relationship in which farming families function as patrons, managing the potential unruliness of hirka sociality through periodic, collective ritual and continuous, intensive work. In contrast, the wildness of hirka in the hallqa is constituted as a social relationship in which the hirka function as

patrons, taking on herders as adoptive children. Hirka in the hallqa, as socially dominant, also have a dominant cultural authority. This authority lies in the causal role they play in humans' lives, just as a mule's obedience or a farming implement's effectiveness lie not in belief or in a cultural symbol, but are instead the causal effects of particular individuals' habitual relationships with them.⁶⁸ These relationships are of course themselves partially constituted by patterns of presuppositions and practices, and could thus be argued to reduce what I suggest are their fruits—social differentiation among hirka—instead to a simple consequence of convergent cultural norms. However, the fact remains that individual relationships between people and hirka are indeed only partially constituted by generalizable presuppositions and practices—in addition, these relationships are also shaped by the contingencies inherent in the landscape, human lives, historical processes, economic pressures, etc. It is in the midst of this chaotic, unstable system that we find emergent cultural orders of intertwined social, linguistic, and material differences, and it seems to me unsatisfying and fruitless to ignore the traces and potential influence of this messy reality in the patterns it engenders. It is possible—and indeed often useful—to abstract Feliciano's interactions with Huantsan Hirka away from their situation in his life and among the places where it unfolds, rendering them cumulatively as a token of animistic ontology, nonhuman agency, Andean religion, etc. Doing so, however, also drains these interactions of most of their moral, aesthetic and affective potential. If anthropology is only interested in understanding the relationship between what humans experience as meaningful or in the empirical characteristics of the human lives that situate such experiences of meaning, but not in their causal entanglement,

⁶⁸ Mules and farming implements (sickles for example) of course figure in cultural beliefs or symbols as well, but it's hard to imagine this being the case in contexts where their engagement with humans in habitual practices was not widely known. In semiotic terms, symbols are built up out of iconic and indexical processes, and are thus the product of work rather than its raw materials. If structural anthropology takes symbols as the substance of culture, it does so because it analyzes them far from the furnace of habitual interaction in which they are forged.

then it threatens to become either a voice for what others could best say themselves or a means of understanding humanity by excising human understanding.

I also want to emphasize the fact that focusing on the causal relationship between human engagements with the landscape and the understanding of *hirka* as social subjects in Río Negro is of consequence not merely to the definition of analytical perspectives in anthropological theory. If *hirka* in the *hallqa* are *chukaru* because of their relative lack of interaction with humans, and not because of cultural beliefs or symbols, then things like nature reserves must be seen in a different light. By limiting human presence, Huascarán National Park does not *preserve* a wild area, but in fact *produces* wilderness not simply in Cronon's sense of cultural construction, but more concretely in the sense that isolation from humans makes the *hirka* within the Park *more chukaru*.

5. Divination as a frame for social action

In the previous section, I argued that Mari's and Pascual's decision to seek out Feliciano can best be understood as the result of the latter's cumulative social engagements with *hirka* such as *Wantsan*. However, one part of the question remains unanswered (or rather, one part of the answer remains unquestioned). Why did the family seek the counsel of outside help at all, rather than relying simply on their own rational judgment? While the instigation to seek counsel in the first place comes from the reasons I gave above—the economic and health risks associated with the trip to the hospital—this does not explain the role of the *hirka* itself as an authority. One possible answer is that *hirka* like *Wantsan* are the ultimate cultural authority in Río Negro. There may certainly be truth in this answer, but it is unsatisfactory in two ways. First, explaining the appeal to the *hirka* by means of their cultural importance again replaces a social fact with one of cultural symbolism, and thus fails to explain the decision to appeal to the *hirka* in the first

place. Second, explaining the decision in this way also neglects the existence of a common frame that casts hirka as the chief symbol of a culture belonging to backwards Indians, and as part of a culture that must be abandoned for the sake of economic and social development. This latter evaluation pertains to a distinct social field that does not include hirka as participants in action, but which undeniably informs many aspects of social life, such as the decline in the use of coca and the prestigious value of the Spanish language. It is from within this social field that Park officials justify the move toward excluding Río Negro residents from their territory. And finally, it was this perspective that Río Negro residents evoked during my early interviews when they commented on the absence of traditional practices and values in Huaripampa while presupposing the sociality of hirka as recipients of respect.

If appealing to cultural symbolism fails to explain the relevance of the hirka in the family's moment of crisis, it does so in part because it erases the underlying tension among competing frames for action, and thereby defines the question of why Mari and Pascual sought help from a hirka (with Feliciano as an intermediary) in terms of symbolic structure rather than contingent social interactions. A focus on divination as a frame for action instead redefines their choice. To take their son to the hospital in Huaraz would effectively concede that Río Negro did not have the necessary resources to ensure their well-being. This in itself reinforces the frame that would ground their action within a social field wherein highland communities are underdeveloped and powerless. However, by relinquishing their agency in this decision to the hirka—as mediated by Feliciano's divination—Mari and Pascual reframed the very same action that was solidly rooted in the local landscape, making the trip to the hospital a locally mandated acquisition of outside help rather than a concession of local inadequacy.

This subtle reframing of action thus did more than simply facilitate a difficult decision. It also made it possible for Pascual and Mari to inhabit a social space that is not nested in a hierarchy that places the greatest value and authority in the urban areas at lower elevations associated with the national government. Instead, they were able to make the appropriate decision in a potentially life-threatening situation in the terms of a hierarchy grounded in the local landscape, which then frames an action that might otherwise be framed as an act of cultural, social, and economic submission. This does not constitute an act of isolation, but rather a specific way of engaging with an entity—e.g., the state hospital—that is not socially familiar. Respecting the hirka in this case is *not* merely a culturally symbolic act, but rather a terminal point or concatenation of locally meaningful social relationships. At the same time, it can be seen as constituting an act of resistance⁶⁹ to interpellation in the social field that assures Río Negro's domination in part by framing this very act of respect for hirka as merely of symbolic value. Finally, because the hirka are critical to this reframing, if families like Pascual and Mari's are to continue to inhabit this social space of resistance, they will also depend on access to people like Feliciano who are dedicated to cultivating relationships with the hirka.

⁶⁹ Abercrombie (1998) pointed out that ethnographies in the 70's and 80's (e.g., Bastien 1978, Isbell 1978, Allen 1988) emphasized traditional practices at the expense of contiguous modern practices they portray in contrast as a superficial overlay of Christianity. He further critiqued the concomitant claims that this amounts to cultural resistance for their poignantly ironic reproduction of colonial missionaries' own obsession with hidden idolatry. Instead, Abercrombie suggests Andean communities have seriously engaged with colonial, Christian, and national culture, albeit on their own terms, to such an extent that to ignore their resulting transformations cannot but yield a substantially distorted representation. While a narrow focus on what the anthropologist perceives as cultural survivals indeed amounts to a form of political exclusion, it would be equally narrow not to heed the salience of the tension between local and external social fields in Río Negro and, I suspect, other Andean communities. The means I found to avoid both pitfalls was to locate the power of these social fields in interactionally substantiated frames for action rather than in cultural or symbolic structures.

6. Conclusion

Underlying many studies of Andean “religion” is a symbolic-structuralist tendency to privilege the question of *why* people think about and interact with the world in the ways they do. For example, ethnographies have drawn out the underlying beliefs, presuppositions, or structures implicit in practice, or even simply in Andean people’s reflexive explanations of their own culture. In contrast, my principal goal here has not been to answer the question of *why* *hirka* are so crucial to social life in Río Negro. Rather, I came to this as a secondary question, whose answer was fundamentally contingent on the organization of social relations among persons, defined locally to include entities such as *hirka* that would otherwise fall into categories such as nonhuman, nature, environment, place, or landscape. The question I addressed, then, was the following: Given that residents of Río Negro share an evaluation and understanding of *hirka* as social persons with distinct kinds of power and authority, and that all residents may make offerings to *hirka* as acts of respect, what accounts for the fact that only a subset of individuals—namely herders—communicate directly with them through divination?

One possible answer would be given by the existence of a political structure that legitimates the authority to communicate with *hirka* through divination. Such a structure has in fact been described elsewhere in the Andes, where legitimation is reportedly conferred by supernatural events (e.g., being touched by hail or lightning; Ricard Lanta 2007:149), apprenticeship (de la Cadena 2015:48; Ricard Lanata 2007:145), kinship (Hérendez Príncipe 1617:27), or personal ceremonies (Altamirano Rua 2014:148). The presumption of ritual authority plays a fundamental role in analyses of the role of mountains in Andean religious life. In John Topic’s analysis of the cult of Catequil (2008)—a mountain in Huamachuco (in the region north of Ancash) that served as a local oracle and then later was incorporated into the Inca religious

hegemony—he attributes ritual communication with mountains to political authority. As in Topic’s account, while people in Río Negro evaluate mountains similarly as knowledgeable, powerful social beings, the particular ways they engage with them are varied. In this context, Topic places *belief* at the center of his account, suggesting that the beliefs about the oracle of Catequil shared by both community elites and commoners led to a solidary and reciprocal form of power rather than a hierarchical and exploitative one (79). In Río Negro, there are no a priori sources of ritual authority because structured political roles are limited to those such as mayor or positions within the Peasant Community committee, and are thus authorized by external political structures rather than ritual interactions with *hirka*. For this reason, it is not possible to take the division between those who can and cannot speak with mountains for granted as a political structure.⁷⁰ Instead, as I argue, this distinction emerges simply from patterns in individuals’ diverse social relationships with mountains, themselves conditioned by the different ways herders and farmers habitually engage socially and spatially with the environment. Regardless of the nature of their beliefs, and regardless of the extent to which they are shared or not, I have shown that herders and farmers develop different social relationships with the mountains around them, and that by virtue of these relationships their social positions with respect to *hirka* change. Furthermore, because the social relationships between mountains and people share the same characteristics of hierarchy and mutual obligation (not exactly reciprocity) as those among people, there is no need to determine whether the community is solidary and reciprocal or hierarchical

⁷⁰ There are of course political factors involved. However herders do not constitute a politically defined group. For example, herds are either inherited or purchased, and these have very different politics. On the other hand, the HNP’s restrictions on access to the highest pastures such as Ruriq and their corresponding control by CUPs does introduce a sort of political filter. However, this is clearly not a cause of herder’s relationships with *hirka*, as can be appreciate in the case of herders who have been pushed into the buffer zone by HNP restrictions.

and exploitative. In fact, it seems that this distinction is not well suited to an analysis of the social field of Río Negro.

Another possible explanation is that herders acquire their privileged access to *hirka* by virtue of a symbolic association with the latter, such that herders are linked to *hirka* by a cultural rule or convention. This can only explain herders' relationships with *hirka* by substituting a symbolic fact for the social fact that it is herders rather than some other social or cultural category that fill this role, and leaves this fact itself unexplored. Nevertheless, this is a dominant mode of explanation in Andean ethnography. The distinction between the high pastures and the cultivated *chakra*, for example, has been treated in terms of structural or symbolic associations with other distinctions between the wild and the domestic (Harris 1980:84), incestuous and normal sexual relations (Isbell 1978), and even nature and culture (Platt 1978). These accounts share a basis in the generalities of structured associations rather than in the idiosyncrasies of contextualized practice, and as a consequence confine their explanation to the analogic terms of structural analysis. Instead of locating the practices they describe within the social relationships they both emerge from and shape, they are destined to represent them as surface variations of an underlying, universal structure, or as Harris writes, as “an interesting example of the enormous variety of ways that the themes we associate with nature and culture can be represented” (71).

As universalizing and relativizing accounts, symbolic-structural analyses fall short of offering insight into what it means for herders to inhabit their particular position in Río Negro. Likewise, they offer no account of a mechanism by which symbolic associations or underlying structures actually come to bear on social life. In contrast, if herders' social positions—and any symbolic associations they carry—are understood as the accretion of actual practices and experiences, there is no need for an intermediary mechanism. Herders' ability to communicate

with hirka is then primarily contextual and pragmatic rather than symbolic and conventional. Further, the causal factor in this pragmatics is nothing more than the herders' quotidian and habitual practices,⁷¹ as this perforce entails the cultivation of a social relationship with hirka.

Compared to symbolic structures, this pragmatics—based merely on habitual patterns of practice and sociality—is capable of explaining much more easily why what appears as a shared structure of beliefs or presuppositions yields social heterogeneity rather than homogeneity. In concrete terms, while both herders and farmers share a similar evaluation of hirka, this evaluation comes to bear on their lives in distinct ways not because of its internal logic, nor because of cognitive universals, but rather because of parallel social and spatial distinctions in practice. Because herders are frequently in proximity to the hirka—they literally work on the surfaces of the hirka's bodies—they are compelled to engage in social relationships with them by means of offerings of coca, cigarettes, and alcohol. In contrast, farmers use these media of sociality primarily to forge and reinforce social bonds among one another in the course of collaborative agricultural labor. As a result, in the agricultural context of Río Negro's towns, herders are the preferred intermediaries for communicating with hirka from a distance—they alone have the necessary, strong social bonds with hirka. Herders' privileged relationship with hirka is thus a causal result of their habitual interactions with hirka, itself a result of the spatial extension of their quotidian labor. By the same token, the spatiality of herders' daily work can also be understood as a condition for framing interactions with unfamiliar actors with respect to the landscape of Río

⁷¹ These practices include language and thought. Chapters 3, 4, and 5 explore the ways linguistic and cognitive habits articulate with herders' environmental practices.

Negro, providing a means of acting and thinking outside of the dominant, racist social field that frames residents as underdeveloped and powerless.⁷²

In this chapter, I have answered why herders alone can communicate through divination with *hirka* by means of following the idiosyncrasies of spatial and social relations among the relevant persons involved: herders and *hirka*. This approach was only possible after yielding to the local definition of *hirka* as social persons. Without initially opening the analysis to local terms in this way, it would have only been possible to look at interactions among herders and farmers, leaving *hirka* as either material or ideal, but not socially real. In this case, the characteristics of *hirka* would have been defined either in terms of material science, or in terms of belief, symbolism, or arbitrary cultural rules. Instead, by allowing *hirka* to be defined methodologically as persons, the analysis offers not only a socially, materially, and experientially grounded account of *hirka*, but also distinguishes their role as participants in a social relationship that transforms the lives of herders and provides others in Río Negro access to a locally anchored social field.

As in the following chapters, this chapter demonstrates how the particular relationship between people and their environments plays a causal role in shaping one aspect of human life. Here, I've shown how this relationship constitutes some of the conditions of sociality in Río Negro. In Chapter 3, I show how it shapes the use of the Quechua language to describe spatial relationships by virtue of speakers' embodiment of their orientation and position within the landscape. In Chapter 4, I turn to deixis, a domain of language that is fundamentally social,

⁷² Stein made a similar, if negatively framed, observation in his ethnography of of Hualcán (located north of Río Negro in the Río Santa watershed), when he wrote about rituals carried out by patrons of local glaciers, rocks, and waterfalls, "witchcraft beliefs form an effective barrier to social relations outside the community and supplement the class cleavages which already exist between Indians and non-Indians. Communication and social action are thereby limited" (1961:331). I argue rather that such practices (not beliefs) serve to constitute locally and externally grounded *frames* for action, and not *boundaries* between socio-economic classes.

arguing that Río Negro Quechua speakers' use of demonstrative pronouns is anchored not only in the dynamics of social interaction, but also in the sense of space they come to embody through their interactions with *hirka*. In Chapter 5, I present the results of an experimental study of nonverbal spatial thought that offers evidence that while Quechua speakers generally prefer to represent spatial relationships with respect to the surrounding environment, herders are significantly more likely to do so than farmers.

Chapter 3: The sense of space: Ancash Quechua spatial language and Frames of Reference (FoRs)

1. Introduction: Speaking with the landscape

Angélica sat between the woven sticks fencing in the corral and the waist-high door to the kitchen, a brown tabby cat dozing in her lap as she humored my questions with a patient smile.

“And do mountains speak?”⁷³

“Ah, sure, they speak. Sure, they speak. Sure, they live. The mountains live. Ah, it’s said they live.”

“How do they speak, the mountains?”

“They call to one another....”

“Who do they speak with?”

“Mountains among mountains.... For example, they say Collawasi Mountain and this mountain call to one another.... And they say that a long time ago these Waraakuy Bulls would come out during the new moon. From across yonder from across here, they say, they would be out fighting during the new moon. The grandmothers would watch. But now it’s not seen. By any chance someone has gone out at night during the new moon?”

Back then, she explained, the women would spend all night up in the fields, watching over the animals left penned there to manure them. Under the new moon they would hear Qitsqay, the

⁷³ The following dialogue is translated from a transcript in Ancash Quechua (see Appendix 1).

round hill at the western end of Huaripampa, call out to its twin, Collawasi, perched on the opposite side of the Santa River, crashing along far below. The two mountains would insult and challenge one another, even come to blows. The Waraakuy Bulls, the mountains' avatars, would emerge and fight one another. But now no one needs to spend nights up in the fields; they are fertilized with nitrogen instead of manure and the grandmothers sleep in houses in the town. Who could testify to the clash of mountains beneath the new moon?

At first glance, this looks like a typical story about the loss of tradition in a rapidly modernizing agrarian community. But Angélica's story is not about *typical* places and their generalizability, but rather about *particular* places with proper names, histories, and social positions. The role of these places in her narration therefore merits an analysis of the interactions relevant to these people and places, rather than one that presupposes a "macro" scale of generalizable geopolitics (Carr & Lempert 2016). To start, consider how the specific mountains, Qitsqay and Collawasi, articulate intertwined sociological, ecological, and personal facts.⁷⁴ They are the representative landmarks of two communities—Huaripampa and Collawasi. These communities belong in turn to two different mountain ranges: the Cordillera Blanca and the Cordillera Negra, on the western side of Río Santa.⁷⁵ Second, at a more personal level, Angélica's daughter married a man from Collawasi, tying their family economically to the opposing community. From the crest of Qitsqay—where the family plants potatoes and ties up its donkeys—they can see the entire town of Collawasi across the valley, even watch a funeral procession or a wedding, and hear the accompanying music. The tense conversation between these mountains echoes the connection that people in Huaripampa feel to Collawasi through their senses, their families, and their economic needs and aspirations.

⁷⁴ The relationship between Quechua narrative and its social context is frequently overlooked by scholars, despite being a central aspect of its production of meaning (Mannheim & Van Vleet 1998).

⁷⁵ The "White Mountain Range" and the "Black Mountain Range."

My goal in this chapter is to show that this social and geographical connection is constantly presupposed by Huaripampinos' linguistic and bodily engagement with spatial relations. Huaripampinos, along with residents of other parts of the Río Negro watershed, maintain a constant awareness of their position and orientation with respect to an extensive territory. This grounds their use of language and gesture—indeed it is a prerequisite for even the most basic verbal interchanges in Huaripampa. In fact, a closer look at the very way Angélica imparted her ideas illustrates this ubiquitous, internalized sense of place and orientation with respect to the surrounding landscape. For example, while speaking, she gestured in the air around her. As she said that the Waarakuy Bulls would come out from “across yonder” and “across here,” her hands momentarily became the bulls, darting toward her body first from the left, then from the right. But in fact, the labels “left” and “right” are inappropriate, a fact I could appreciate only after studying a video-recording of the narration and comparing it with satellite images from Google earth. Despite the fact that we had been sitting in a small area surrounded by high, adobe walls and overhanging roofs, the movements of Angélica's hands perfectly aligned with the actual paths that the Bulls would have followed to meet halfway between Qitsqay and Collawasi.

Angélica tells a story about mountains that speak to one another, but in doing so, her narration is dependent on the semantics of words, the position and movement of her body itself, and the physical characteristics of the surrounding landscape. In fact, her actions contradict what might seem to be the overt point of her story—that traditional knowledge of the landscape is lost. Instead, another message emerges. Language, landscape, and bodies are intimately connected in Río Negro. In the narrated events of Angélica's story, it is the mountains that speak to one another, but in the narration's enactment, the mountains' speech and actions are manifest through the narrator's oriented, emplaced body. Angélica's narration depends on her awareness of her

body's orientation and placement in the landscape. While it is framed within a discourse about the collapse of tradition—a very common one in Negro—the narrative also conveys Angélica's sense that the intimate engagement of humans with the landscape is of critical cultural importance. In this chapter and the next, I delve analytically into Angélica's intimation, arguing that the embodied sense of space that Río Negro residents glean from their environmental experience is presupposed in the structure of everyday communication. Likewise, in the penultimate chapter, I argue that environmental experience also directly bears on habits of thought. In this sense, Angélica's concern with the loss of tradition can be understood in a new light, for there *is* a real threat that the loss of a practical connection with it will resound in the very conditions of speech and thought—both for people and mountains.

This connection between body and landscape is linked to characteristics of spatial description in Quechua. In this chapter, I introduce the argument that Quechua speakers in Río Negro have a *corporeal sense of space*—an awareness of the body's placement and orientation in a landscape not necessarily accessible to other senses—that incorporates the physical landscape they have come to know through their engagements with it. Thus, alongside presumably innate cognitive aspects of language like linguistic competence, speakers' socialization into this corporeal knowledge of the landscape plays a critical role in Quechua verbal interaction. Furthermore, Quechua speakers' sense of space entails a particular way of being in the world in which shared experience of an extensive territory forms a presupposed contextual common ground. This way of being in the world introduces a break from the phenomenological tradition that includes Merleau-Ponty, Benveniste, Schutz, and Bühler, as it suggests that the perceiving body is already oriented to a physical world that extends far beyond the limits of the senses rather than encountering the world along lines of perception that move outward from individual bodies.

1.1. Spatial Frames of Reference (FoRs) and the corporeal sense of space

This chapter describes the characteristics of spatial reference in the Quechua language spoken in the Río Negro watershed. The description of the arrangement, location, orientation, and movement of objects in space in any language presupposes certain attributes of the speaker's body. For example, "the cup is on the left side of the table" presupposes that the lateral halves of a person's body project out into the space around them, whereas "the cup is in my left hand" does not. The characteristics of spatial description in Quechua described in this chapter provide a more striking example, presupposing a sense of space distinct from that in English and most European languages. Specifically, Quechua speakers habitually prefer descriptions such as "the cup is on the Mt. Shaksha side of the table," which presuppose participants' awareness of their bodily orientation with respect to a fixed landscape usually inaccessible to the senses. In contrast, the equivalent English expression, "the cup is on the left side of the table," presupposes participants' body's own orientation as the fixed element.

In what follows, I provide evidence that Quechua spatial orientation, in actual practice, draws on an interactional field shared among participants and grounded not only in the *social* context of verbal interaction, but also in participants' corporeal sense of space. That is, it is grounded in their awareness of their orientation and position in a surrounding, if not immediately perceptible, environment. Hanks (1990) argued that the use of language for the most basic forms of indexical reference was "sociocentric," and that indexical forms made reference not by means of inherent semantics, but rather by a number of embedding fields, including primarily a "corporeal field" and a "social field" (2005). The analysis in this chapter concludes that Quechua spatial language is indexically tied to a context embedded in relations not only between persons,

but also between persons and parts of their environments. In other words, Quechua speakers in Río Negro have a corporeal sense of space that can be best understood as incorporating both speakers' bodies as well as their sense of orientation and place in a contextually construed landscape of named places extending far beyond the immediate surroundings. Considering that named places are social persons in Río Negro (Chapter 2), it should not be surprising that relations among persons and relations among persons and places are simultaneously evoked. I elaborate more on this simultaneity in Chapter 4.

The analyses I use to explore the importance of the landscape in spatial language draw on structured elicitations and interactions that constitute two separate studies of spatial description. The results of both studies emphasize elements of spatial orientation that remain in the background of previous research on spatial language and cognition (e.g., Danziger 2010; Levinson 2003; Majid et al 2004; Pederson et al 1998). I then identify a basic type of spatial description in Quechua, illustrated with an example from a video recording of a verbal interaction among speakers engaged in a typical pastoral activity. The Absolute frame of reference (FoR) described in research so far has focused on the characteristic of absolute coordinates fixed in the landscape, but glosses over the difference between the use of a speech-participant or an external object as a secondary reference point. To address this neglected distinction, I propose a new FoR—the Embodied Absolute FoR—that has not previously been described. It uses fixed, geocentric coordinates, but is grounded in the speaker's body. I begin by reviewing two typologies that have been proposed to analyze spatial orientation (Levinson 2003; Danziger 2010) and the intellectual trajectory of this body of research.

2. FoRs in spatial orientation

FoRs are the underlying systems that orient spatial representations in language and thought, providing a means of interpreting otherwise ambiguous descriptions such as “in front of the car,” “on the left side of the desk,” or “down from the school.” They do so by specifying the assignment of the Ground, Anchor, and coordinate system. For example, a Relative FoR uses the speaker’s own body as an anchor for coordinates (front, back, left, and right), and projects this onto a linguistically specified ground from which to search for the referent. Thus, “On the left side of the desk” specifies a search area projected from the desk with an egocentric coordinate system. In contrast, an Absolute FoR uses a fixed coordinate system anchored in some aspect of the physical world such as river flow or cardinal directions, which is projected onto a linguistically specified ground. In this FoR, “down from the school” can specify a search area projected from the school according to a coordinate system either abstracted from the overall slope of the landscape or fixed to local topography (Palmer 2015).⁷⁶ This kind of frame is in fact the standard way of describing spatial relations in a number of languages, including Quechua.⁷⁷

These descriptions correspond to two of the three types of FoRs in the typology described by Levinson (2003). Levinson’s three-part typology (see Section 2.1) is the result of articulating a number of related and overlapping distinctions observed in different disciplines (26). The most

⁷⁶ Terrill and Burenholt (2008) suggest that the latter in fact involves no FoR, and is rather what they call an “orientational strategy” to solve the problem of spatial description. Palmer (2015), however, shows that there is no operational difference between local, ad hoc coordinates and those that are abstract and generalized. Another possible classification drawing on typological observations of Mesoamerican languages makes finer distinctions between Geomorphic, Landmark-based, and Absolute FoRs (O’Meara & Pérez Báez 2011). For the purposes of this study, I follow Palmer (2015) in using an inclusive definition of the absolute FoR. Chapter 5 includes a more complete discussion of this issue.

⁷⁷ For example, Arremte speakers use terms corresponding to four cardinal directions (Wilkins 2006:54), Tzeltal speakers use uphill and downhill (Brown 2006:263), and Yéli Dnye speakers use a combination of wind direction and an inland/upland distinction (Levinson & Wilkins 2006:542).

important of these to the analysis of Quechua are “relative vs. absolute” and “egocentric vs. allocentric.”

Levinson traces the relative/absolute distinction to Newton’s definition of space as a three dimensional grid with a fixed origo in the center. Newton himself contrasted this to the “relative” concept of space he considered natural to human thought. The legacy of this separation of human intuition from scientific insight can be traced further back to the renaissance and Descartes’ philosophy.⁷⁸ Henceforth, relative conceptions of space have often been understood to be part of humans’ natural, universal, and innate knowledge, while absolute conceptions are the result of analytic thought, measurement, and scientific developments (Wassmann 1994). The concern of the spatial language and cognition research program of scholars like Wassmann and Levinson was to combat this assumption, as it contradicted recent linguistic and psychological findings showing that many languages described spatial relations in absolute terms where European languages would have used relative terms.

The egocentric/allocentric distinction, on the other hand, is most prominent in the brain sciences and the psychology of conceptual development. O’Keefe and Nadel’s (1978) work used the distinction to explain how rats developed cognitive maps, and was taken up by the Mosers in their Nobel prize winning work (Moser et al 2008) that identified neural mechanisms for cognitive maps. Their work suggested that rats develop allocentric maps—that is, maps framed without reference to the body—by means of integrating egocentric images or measurements. Likewise psychologists have commonly understood egocentrism as an innate predisposition in humans, such that it is only through later conceptual development that allocentric perspectives

⁷⁸ For example, see Latour (1999) and Deacon (2013).

arise.⁷⁹ This construal of the egocentric/allocentric distinction most closely follows Kant's philosophy, defining absolute space as a form of innate knowledge nevertheless grounded in the relative space accessible to experience (1991). As in the Cartesian-Newtonian split, relative frames retain primacy, casting languages that lack or avoid relative frames as deficient or even impossible.

While within these intellectual trajectories the primacy of one side or another of their respective dichotomies are actively debated, the distinctions themselves remain intact. Absolute and relative remain polar opposites, as do egocentric and allocentric. However, a closer look at linguistic findings demonstrates a much more complicated range of possibilities for spatial representation (Terrill & Burenhult 2008; Bennardo 2009). As I show in this chapter, drawing on Danziger's specification of the distinct criteria involved in the classification of FoRs (2010), some allocentrically anchored FoRs are tied both to speakers' bodies *and* the external world. The importance of these hybrid FoRs has been obscured by the persistent dichotomization of egocentrism and allocentricism. The split is not merely conceptual, but also corresponds to the formulation of research questions and methods.

At their core, these dichotomies relate to the split between subjectivity and objectivity, a problem deeply embedded both in anthropological critique and the study of language.⁸⁰ As Irvine (1989) pointed out, the Saussurean tradition has taken the separation of signs and their objects for granted. Keane (2003:410) underlined the importance of the shift toward a Peircean semiotics, observing that the Saussurean trajectory entailed an a priori separation of subject and object and obscured the connections between semiotic and historical processes. While the Peircean approach

⁷⁹ For more on this, see Piaget (1928; 1954:104), Piaget & Inhelder (1948), Miller & Johnson-Laird (1976), and discussion in Levinson (2003:29).

⁸⁰ See Shore (2012:112) for a closely related discussion of the allocentric-egocentric distinction in terms of objectification and subjectification.

to signification has been valuable to social critiques for its ability to overcome the subject/object distinctions embodied in hegemonic power relations and the texts they produce (e.g., Daniel 1996; Inoue 2003), its opening of semiotic processes onto the world is of equal value to an inquiry into linguistic and cultural articulations of language, body, and landscape.

Along these lines, the analysis of Quechua I present here highlights the fact that the “ego” of the egocentric frame refers to *particular bodies*, just as the allocentric frame ultimately requires reference to a particular environment. This underscores an important side of most discussion of the egocentric-allocentric distinction: it is treated essentially as a subjective-objective distinction.⁸¹ As Levinson (2003) writes, “the egocentric frame of reference would then bind together various body-centered coordinate systems with an agentive subjective being, complete with body-schema and distinct zones of spatial interaction” (29). While this aspect of orientation falls outside the scope of Levinson and his colleagues’ agenda, it is critical in drawing out the sociological relevance of spatial orientation. The conflation of egocentric orientation and subjectivity is also arguably at the root of the absence of attention previous research has paid to the role of the geocentrically oriented body and its subjective affordances in previous research on orientation. Because the work has been concerned with distinguishing allocentric and egocentric types, and because the egocentric was seen as the subjective type, there was no analytic room for a subject—and therefore for a body—in the allocentric. Ironically, this non-corporeal, non-subjective point of view (or Frame of Reference) is precisely the scientific perspective that

⁸¹ As will become clear below, this is in large part because the FoR typology has attended primarily to the role of the Anchor. While egocentric and allocentric FoRs are indeed distinguished by the presence of the Anchor in or outside of a speech participant, respectively, the variable location of the Ground—especially in the Absolute FoR—complicates any neat division of FoRs into subjective and objective types.

emerged in the renaissance (Latour 1999) along with the very ideas the research program intended to obviate.

The remainder of this section describes the fundamentals of spatial orientation in language—drawing primarily from Levinson’s and Danziger’s frameworks—in order to frame the data I’ve gathered among Quechua speakers, and in order to draw out its linguistic and sociological significance.

2.1. Classifying FoRs

Levinson’s typology suggests that the FoRs used in the languages of the world can all be classified as one of three types—Absolute, Intrinsic and Relative (2003:53)—which I define below. Levinson draws on a number of attributes of spatial descriptions in order to distinguish these three FoRs: systems of labeled angles (e.g., right, south, back, etc.), coordinates, points (figure, observer viewpoint, landmark, etc.), and anchoring systems (e.g., slope, landmarks, coastline, sunrise, etc.) (40). He describes each of the three FoRs qualitatively and in terms of the logical relations among these attributes, focusing particularly on points. His typology nonetheless collapses some important distinctions, some of which Danziger (2010) incorporated into a revised typology (see section 2.4). In order to make these distinctions apparent, I will explain Levinson’s typology in relation to the three components of spatial descriptions shared with Danziger’s typology.

The three components of spatial descriptions are Figure, Ground, and Anchor. Using the following utterance as an example, I define them below:

“The tree is to the left of the cow (from my point of view)”

Figure: The referent of the utterance (the tree)

Ground: The object/place in relation to which the figure is located (the cow)

Anchor: The origo of the coordinate system that orients the description (the speaker)

The Intrinsic, Absolute, and Relative FoRs, as defined by Levinson, each involve a particular arrangement of Figure, Ground, and Anchor (see Figure 10). The distinction between egocentric (Relative) and allocentric (Intrinsic and Absolute) FoRs is defined particularly in relation to the Anchor: descriptions with coordinate systems anchored outside the speaker are “allocentric.” For example, in an Intrinsic interpretation of the description, “the tree is behind the cow,” the Figure (the tree) is located in reference to the cow’s inherent shape, and is thus framed in reference to a coordinate system whose Anchor is located outside the speaker—in the cow itself. Likewise, in an Absolute interpretation of the description, “the tree is on the mountain side of the cow,” the figure is located in reference to a landscape feature, and is thus also framed in reference to a coordinate system with an Anchor outside the speaker, this time the mountain. In both cases, the tree is located by projecting the respective coordinate systems out from the cow, which is therefore the Ground. The difference between Intrinsic and Absolute thus boils down to the location of the Anchor in the referent object itself or elsewhere. What they have in common is the lack of reference to the speaker—thus the shared label “allocentric.”

The Relative FoR, in contrast, uses a coordinate system anchored in the speaker, and is thus considered an “egocentric” frame. In the Relative description, “the tree is to the left of the cow,” the figure is related to the speaker’s inherent sides, thus the coordinate system has its Anchor in the speaker. The cow then serves as the Ground from which to project the direction defined by these egocentric coordinates.

In sum, Levinson’s typology defines three FoRs, each distinguished by the location of the coordinate system’s Anchor (Danziger 2010: 169). The Intrinsic FoR has its Anchor in the Ground object, the Relative FoR has its Anchor in the speaker, and the Absolute FoR has its Anchor outside the Figure-Ground-Speaker relation.

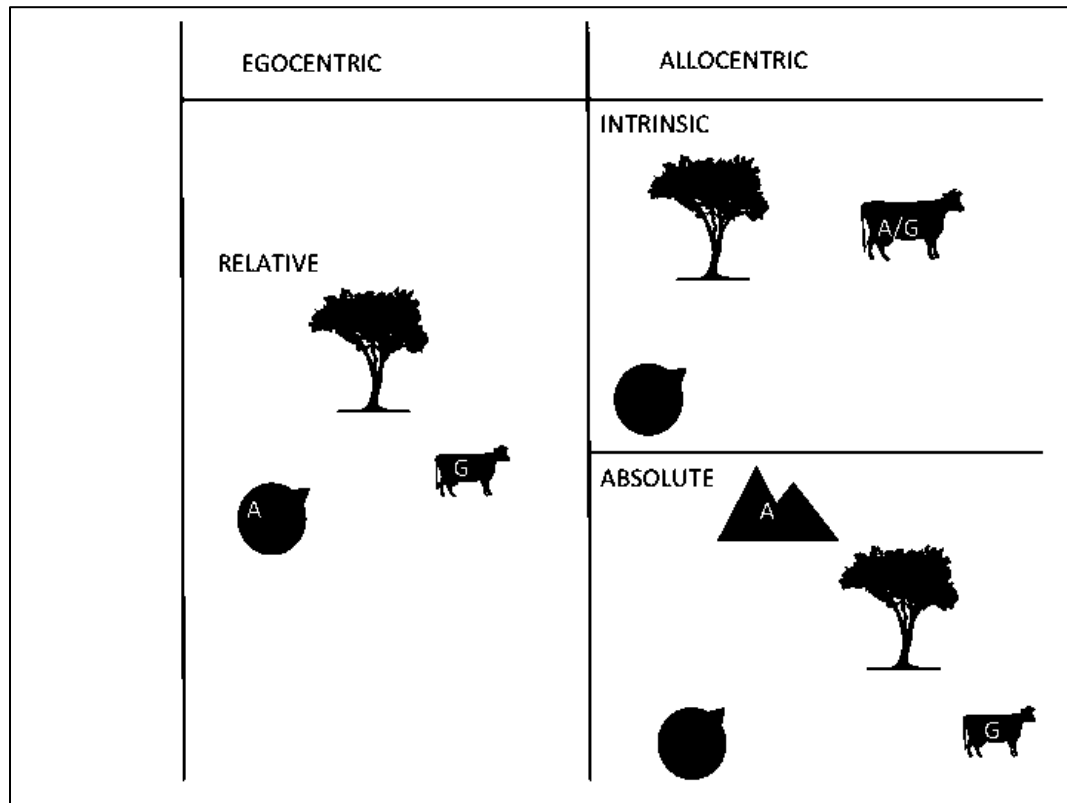


Figure 10. Figure, Anchor and Ground in three FoRs.

Note:

A = Anchor. G = Ground.

Example descriptions:

Relative: The tree is to the left of the cow

Intrinsic: The tree is behind the cow

Absolute: The tree is inland of the cow

2.2. Anchor, Ground, rotation sensitivity, and the Direct FoR

While the location of the Anchor is central to Levinson’s typology, it remains simply as one element among many, and is not further analyzed. Danziger (2010), however, demonstrates that the rotation of the Anchor alone consistently falsifies descriptions in all three FoRs (Table 3) and identifies two parameters in relation to its use in spatial descriptions. It is either located in a speech-situation participant or not (egocentric vs. allocentric), and it is either part of the Ground or not (binary vs. ternary). Danziger shows that when Levinson’s three FoRs are placed in relation to these parameters, a structural gap appears (Table 4).

	<i>Description remains true after rotation of...</i>			
	Anchor	Figure-Ground Array	Ground	Speaker
ABSOLUTE	No	No	Yes	Yes
RELATIVE	No	No	Yes	No
INTRINSIC	No	Yes	No	Yes

Table 3. Rotation sensitivities of the three FoRs

	Allocentric	Egocentric
Ternary	Absolute	Relative
Binary	Intrinsic	∅

Table 4. Danziger’s typology of the three FoRs.

The structural gap is due to the fact that there is no category for a FoR in which the Anchor is simultaneously in the Ground and in a speech participant. This is the case in a statement such as: “the milk is in front of me,” where the coordinate system is indeed anchored in the speaker, but where the speaker also serves as the Ground object. Levinson’s Intrinsic FoR collapses all descriptions in which the Anchor is in the Ground, regardless of whether the anchor

is a speech participant or not. At the same time, it also defines any description with the Anchor in the speaker as Relative. For this reason, descriptions like “the milk is in front of me” are ambivalent between Relative and Intrinsic. Danziger’s typology makes this explicit, and labels the case in which a speech participant is both Ground and Anchor as the “Direct” FoR:

	Allocentric	Egocentric
Ternary	Absolute	Relative
Binary	Intrinsic	Direct

Table 5. Danziger’s typology including the Direct FoR.

The Direct FoR also has its own type of rotation sensitivity: it is falsified if either the speech participant or Ground is rotated (since they are one and the same). For example, take: “the milk is in front of me.” If I rotate, the milk is no longer in front of me. In the remainder of this chapter, I will draw on this four-term typology for the sake of clarity in analyzing the use of FoRs in Quechua spatial descriptions. Though she doesn’t explicitly do so, Danziger’s typology makes it possible to emphasize the role of the Ground. Because she introduces a FoR in which the Ground is located in a speech-participant, it is worthwhile to consider if there might be other such FoRs, grounded in speech-participants, but with Anchors located elsewhere. The following two sections explore this possibility in Ancash Quechua. First, Section 3 demonstrates the prevalence of FoRs with allocentric anchors in Quechua. Section 4 then illustrates the simultaneous use of an egocentric Ground in a single FoR. Thus, just as a closer inspection of the Anchor revealed important facts about the organization of FoRs, so does a closer look at the Ground.

3. FoR preferences in Quechua

Quechua speakers have an overwhelming preference for the use of allocentric FoRs—that is, FoRs with allocentric Anchors—in spatial description. I provide evidence of this with the results from two studies (Sections 3.1. and 3.2.). I make two main observations drawing on this evidence. First (Section 3.3.), speakers always use allocentric FoRs (including both Intrinsic and Absolute FoRs) to describe the relationship between two objects in space, and almost exclusively the Absolute FoR to describe relationships involving large distances, or of the orientation of individual objects in tabletop space. Second (Section 3.4.), spatial descriptions that have a possible egocentric interpretation, such as “left,” “right,” “front,” and “back,” were only used in this way by participants under 14. “Left” and “right” terms were extremely rare in general, and were only used among adults to describe the intrinsic left and right sides of objects with a canonical horizontal direction of movement (e.g., animals or vehicles).

3.1. Study 1 – “The Cow and Tree Game”⁸²

This study involved structured interactions between pairs of Quechua speakers ($N = 24$, $M_{\text{age}} = 38$, $SD = 20$, 12 female, 12 male, age range = 9-72), all of whom were residents of the neighboring communities of Huaripampa and Canray Grande.

The goal of the study was to facilitate functional spatial descriptions designed by and for native speakers. Participants sat side by side before a table. Each participant had one model tree and one model cow on the surface before them (see Figure 11). An opaque divider (plastic or textile) was placed so as to block each participant’s view of the other’s face, hands, and models. The facilitator (myself) arranged the model cow and tree in a particular configuration in front of

⁸² This task is an adaptation of the “Man and Tree Game” developed at the Max Planck Institute for Psycholinguistics, Nijmegen (Pedersen et al 1998).

one of the participants. This participant was then directed to explain this arrangement to the partner so that the other would be able to recreate the same arrangement with his or her own models. The other was allowed to ask a question for clarification. Each participant took eight to twelve turns directing in this way, and then the two participants switched roles for the next eight to twelve turns.



Figure 11. “The Cow and Tree Game.”

All sessions were video-recorded and subsequently transcribed and coded. In order for participants to provide sufficient information to their partners, they had to describe at least two aspects of the arrangement: the orientation of the cow itself, and its relation with respect to the tree (or vice versa). Consequently, each description was coded according to the FoR used to characterize the orientation of the cow itself, and of the relationship of the cow with respect to the

tree (or vice versa).⁸³ Finally, each description was coded according to whether it led the other participant to an accurate arrangement or not.

3.2. Study 2 – “Spatial Algebra”

This study consisted of structured elicitations of spatial descriptions. The study was conducted with 18 participants ($M_{\text{age}} = 44$, $SD = 18$, ten female, eight male, age range = 14-79). Elicitation sessions were on average between eight and nine minutes, and were video recorded, totaling just over 2.5 hours. During each elicitation, I asked an average of 25 questions. The total number of questions was 478. The recordings were made over the course of two years, and thus reflected my own growing knowledge of local place-names and my ability to pose question that would draw out finer spatial distinctions.

The elicitation consisted of two kinds of questions. Below I provide the template for these questions in Quechua and English. In them, I use G to indicate the Ground, or the place from which a direction is calculated, F to indicate the Figure, or place to which a direction is calculated, and W to indicate the particular word used to characterize the direction.

Question Type 1 constitutes 196 of the total number of questions, while Question Type 2 constitutes the other 282.

Question Type 1: G-pita maymantaq aywankiman F-man chaanaykipaq.

Which way (toward where) would you go from G in order to arrive to F?

Question Type 2: G-pita W-man aywar, maymantaq chankiman.

Going W (lit., toward W) from G, to where would you arrive?

⁸³ I only coded for the three FoRs of Levinson’s typology; there were a negligible number of descriptions using a Direct FoR.

The words used for W in Type 2 consisted of the following set, glossed roughly here:

<i>rara</i>	up, high
<i>hana</i>	up, above
<i>uma</i>	up, top
<i>witsay</i>	uphill
<i>ura</i>	down, below
<i>uray</i>	downhill
<i>hawa</i>	down, root
<i>ruri</i>	down, inside
<i>tsimpa</i>	front, facing
<i>frenti</i>	front, facing
<i>kinray</i>	skirting
<i>washa</i>	side
<i>qipa</i>	behind
<i>waqta</i>	beyond
<i>derecha</i>	right
<i>izquierda</i>	left

The set of words used by participants to describe the direction elicited by Question Type 1 varied only in that /qipa/ was never used. It should also be noted that /derecha/ was used only once, and /izquierda/ twice.

3.3. Preference for allocentric FoR

The results of Studies 1 and 2 show an overwhelming preference for the use of allocentric FoR's to describe the spatial orientation and arrangement of a Figure. Specifically, out of the descriptions made by participants in Study 2, only 4 utterances utilized an egocentric FoR (2%). Of these four, three were made by the same participant. Likewise, in study 1, among the 16 participants⁸⁴ over 14 years of age,⁸⁵ only two participants ever used an egocentric FoR.⁸⁶ The following two sections provide detailed descriptions of each study's results with respect to FoR preference.

3.3.1. FoR preference in Study 1

Study 1 was composed of a total of 188 trials spread among 11 pairs of participants (n = 22). For each participant, each description made to guide their partner was divided into parts pertaining to the orientation of the model cow, and to its relation with respect to the model tree. Each of these parts was counted as Absolute, egocentric, or Intrinsic with the value of 1. In some cases, the part contained two frames (but never three), in which case the value for each was 0.5. Because the number of descriptions and parts made by each participant varied, two scores were devised to standardize the results. The first score was created so as to contrast allocentric

⁸⁴ The results of two of the 18 participants over 14 years of age were not included due to wind noise, several interruptions, and because only six descriptions were made during the session.

⁸⁵ I use 14 years as a cutoff for age only because the next oldest participants after 14 were 22 and then 30 years old.

⁸⁶ The first of these participants only used an egocentric FoR in one out of eight descriptions, while the second used it more consistently. A possible explanation for this exception is that these came from the only two sessions in which an adult's partner was not over 14 years old. The adult participants may thus have thought to design their descriptions in the way preferred by their partners. Some support from this interpretation comes from the observation that the participant who used egocentric FoRs more consistently in study 1 only made use of allocentric FoR's in study 2.

(Absolute or Intrinsic) with egocentric FoR's, while the second score was created to evaluate the frequency of Intrinsic FoR's alone. Each score was calculated for both parts of each participants' descriptions as well as in total, leading to the following six scores assigned to each participant:

Allocentric scores (0-1: 1 = allocentric, 0 = egocentric):

- Allo** Average allocentric score across all descriptions
- Allo.O** Average allocentric score on parts describing orientation of model cow
- Allo.R** Average allocentric score on parts relating model cow and tree

Intrinsic scores (0-1: 1 = Intrinsic, 0 = not Intrinsic):

- Int** Average intrinsic score across all descriptions
- Int.O** Average intrinsic score on parts describing orientation of model cow
- Int.R** Average intrinsic score on parts relating model cow and tree

Table 6 presents the averages for each score across all participants:

	N	Mean	Std. Deviation
Allo	22	.91	.14
Allo.O	22	.92	.17
Allo.R	22	.90	.20
Int	22	.32	.20
Int.O	22	.09	.17
Int.R	22	.58	.41

Table 6. Study 1 – Averages for scores across all participants.

It is already clear from this descriptive analysis that there is a strong overall preference for allocentric FoR's (Allo-total = .91), and that this preference does not vary with respect to the parts of descriptions focusing on the cow's orientation or the relation between the cow and tree.

However, the use of the intrinsic FoR is much more frequent in the part of descriptions that refers to the relation between cow and tree. This is because of the common use of intrinsic parts of the cow to locate the tree, as in descriptions like (3):

(3) *Qipanchawnam monti shaaraykan.*

‘And the tree is standing behind [the cow]’

In this utterance, the orientation of the cow itself has just been described and the cow is thus focal, and implied as the ground. The arrangement of the speaker, cow, and tree and the designation of Figure (F), Anchor (A), and Ground (G) are illustrated below (arrows indicate the directions that speaker and cow are facing):

SPEAKER →	TREE	COW →
	F	A/G

Note that here the description “behind” can lead to two possible interpretations. In an intrinsic interpretation, “behind” identifies the rear part of the Ground itself—namely the cow's tail end—so that the tree would be in the area project outward from there. This interpretation corresponds with the arrangement the speaker was describing, as well as the arrangement her partner produced upon hearing the utterance.

A relative interpretation, in contrast, would locate “behind” in the area occluded by the Ground—in this case the area on the far side of the cow from the speaker. This would yield a different arrangement:



But Intrinsic descriptions do not account for all such cases. Absolute FoR’s were often used when the tree stood at one of the cow’s sides, rather than its head or tail, as there were no relevant intrinsic characteristics.⁸⁷ These strategies are illustrated in examples (4) and (5):

(4) *Montipa hawanchaw.*

‘[The cow is] beneath the tree.’

[DOWNHILL/WEST]

A

←COW

F

Speaker →	TREE
	G

(5) *Montinam kaykan colegio laadunchaw.*

‘And the tree is on the school side [of the cow].’

[SCHOOL]	Speaker →	TREE	COW ↓
A		F	G

⁸⁷ Some participants identified the left/right sides of the cow, but always in an intrinsic FoR. This is explained in greater detail in section 3.4.

In examples (4), and (5), knowledge of the surrounding landscape is used to identify which side the tree or cow is on. In (4), the speaker is facing north, putting the cow on the west side of the tree. Though the table is flat, and the street where the building is located runs *uphill* to the west, this direction is canonically associated with DOWN, which provided the speaker a means of characterizing the side of the tree where the cow stood, and led his partner to the correct arrangement. In (5), it is the presence of a prominent landmark, the local school, which indeed was on the side of the cow where the tree stood, though obscured by walls at the moment. These two descriptions both involve instantiations of an Absolute FoR. The rotation test demonstrates this: if the speaker or the ground is rotated, the statements remain true, whereas if the figure-ground scene (cow and tree) are rotated as one (equivalent to rotating the landscape itself, which serves as the Anchor in an Absolute interpretation), the statement is falsified.

Age also played a significant role in the preference for FoRs in this study. Table 7 presents the scores of participants 14 years of age and younger and of those over 14, showing a near total preference for allocentric FoR's among adults⁸⁸:

⁸⁸ The table also shows that the difference in the use of the Intrinsic FoR for parts of descriptions pertaining to the cow's orientation as opposed to the relation between the cow and tree is only present among adults. This is discussed more in Chapters 4 and 5.

		N	Mean	Std. Deviation
14 and under	Allo	6	.72	.11
	Allo.O	6	.77	.26
	Allo.R	6	.67	.26
	Int	6	.24	.23
	Int.O	6	.22	.21
	Int.R	6	.25	.32
Over 14	Allo	16	.98	.05
	Allo.O	16	.98	.06
	Allo.R	16	.99	.03
	Int	16	.34	.18
	Int.O	16	.04	.13
	Int.R	16	.70	.38

Table 7. Study 1 – Scores of participants by age.

Dividing the results by age makes it possible to appreciate the near total preference for allocentric FoRs among adults. It also shows that the difference in the use of the intrinsic FoR for parts of descriptions pertaining to the cow's orientation as opposed to the relation between the cow and tree is only present among adults. The relevance of the results regarding the intrinsic frame will be explored more in Chapters 3 and 4.

Table 8 shows the results of an independent samples t-test to test the statistical significance of the effects of age on the use of allocentric FoR's in this study:

	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Allo	7.90	20.00	.00	.26	.03
Allo.O	3.00	20.00	.01	.20	.07
Allo.R	5.21	20.00	.00	.33	.06

Table 8. Study 1 – Effects of age

The difference in the use of allocentric FoR's among participants above 14 years of age ($N = 16$) and below 14 years of age ($N = 6$), across both parts of descriptions, is highly significant, $t(20) = 7.90, p = <.01$. This result varies little for the parts of descriptions referring to the cow's orientation $t(20) = 3.00, p = .01$ and the relation between the cow and tree $t(20) = 5.21, p = <.01$.

In sum, Study 1 provides evidence for a strong preference for allocentric FoR's in spatial descriptions. Furthermore it shows that this preference is nearly categorical among adults. Finally, it shows that of the two allocentric FoR's, the Intrinsic FoR is frequently used to describe the relation between adjacent objects in tabletop space, while the Absolute FoR is strongly preferred for describing the orientation of individual objects in tabletop space.

3.3.2 FoR preference in Study 2

The results of Study 2 come from 18 participants' responses to a total of 454 questions,⁸⁹ and demonstrate a strong preference for the absolute FoR. As detailed in section 3.2 above, Question 1 asked participants for a spatial description to characterize the relationship between two given places (Figure and Ground), while Question 2 asked participants to name some place (Figure) that fits a given spatial relationship to a given place (Ground). Analysis of the relation between the places on a topographic map of the region made it possible to determine the sense in which the given spatial relationship was interpreted, and thus the FoR used in that interpretation. The Absolute FoR characterized 98% of the 194 responses to Question 1 and 93% of the 224 responses to Question 2.

Below is a typical example of an instance of Question 1 and a response using the absolute FoR:

⁸⁹ 24 responses were not included in the analysis because they either were not interpretable or referenced places whose locations I did not know.

(6) Q: *Sawan Ruri tsakapita maymantaq aywankiman Wanchaman chaanaykipaq.*

‘Which way would you go from Sawan Ruri bridge in order to arrive to Wancha?’

R: *Uraypam kutimunki Sawan Ruripitaqa.*

‘You come back down from Sawan Ruri.’

Uraypam kutimunki Wantsaman chaanaykipaq.

‘You come back down in order to arrive to Wancha.’

The word “uray,” meaning “downhill” or “to go downhill,” is used twice in this response to identify the direction of the path from Sawan Ruri to Wantsa. Wantsa is the highest neighborhood in the community of Huaripampa, and Sawan Ruri is a river valley separating the community from the neighboring Canray Grande. To travel from one community to the other, as many residents do on a daily basis, it is necessary to follow a steep path down about 100 meters to a bridge over the river, then climb another 100 meters or so back up to the other side. Thus the path from Sawan Ruri to Wantsa is a steep climb, and anything but “downhill.” This illustrates the fact that uphill and downhill constitute a generalized absolute coordinate system for Quechua speakers in this area, according to which Wantsa can be described as “downhill” from Sawan Ruri.

The four egocentric responses to Question 1 included two uses of “waqta” (beyond) and two uses of “izquierda” (left). The fourteen egocentric responses to Question 2 responded to six questions with the word “waqta,” four with “qipa” (behind), three with “izquierda,” and one with “derecha” (right). It is important to remember that these words were only actually chosen by the

speaker in Question 1, as I provided the word characterizing the spatial relation for Question 2. I will go into further detail on the use of “izquierda” and “derecha” (left and right terms borrowed from Spanish) in section 3.4 below.

Do the relative responses to my questions that contained “waqta” and “qipa” constitute evidence of the use of a Relative FoR in Quechua? “Waqta,” is a word with a significant deictic element. It means most closely “behind,” in the Relative sense of “beyond.” However, while taking a speech participant’s location as the origo (and thus the anchor), it also can only be used to refer to a Figure *outside* of the deictic field relevant to the interaction. For example, “waqta” was never used by participants in Study 1, as the Figures described (the model cow and tree) were always within the deictic field of the interaction. In this sense, it differs from English “behind” and “beyond” in that it cannot be used to locate objects in tabletop space.

While participants actively used “waqta” to classify certain spatial relations in Study 2, subsequent analysis revealed that they never used “qipa.” In Study 1, however, “qipa” was used to indicate the rear end of the model cow. This indicates that “qipa” has *only* an intrinsic use in Quechua—that is, it can only be used to label parts of an animate body. I included “qipa” in 16 elicitation questions. 12 of the responses to these questions could not be interpreted as either allocentric or egocentric and thus were excluded from analysis.⁹⁰ However, four responses were classified as egocentric because they corresponded to the use of “waqta.” It seems that some participants were charitable enough with me to analogize “qipa” to “waqta” when presented with what must have been to them an anomalous question.

In sum, Study 2 provides further evidence that an absolute FoR is preferred to speak about relations in space. While Study 1 addresses relationships close at hand to participants, Study 2

⁹⁰ Recordings also demonstrate longer pauses and looks of confusion in response to questions that applied “qipa” in this way, suggesting that this use was in fact ungrammatical.

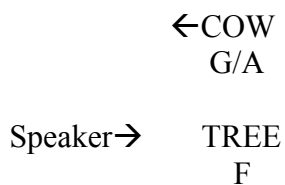
addresses relationships between places at great distances, and most often inaccessible to participants' senses.

3.4. Limitations and restrictions of the use of “left”/”right” terms

Studies 1 and 2 demonstrate the strong preference for the Absolute FoR among Quechua speakers in Río Negro. How can we then understand the use of words meaning “left” and “right?” In Study 1, several participants used the Spanish loans “izquierda” and “derecha.” Yet, only participants 14 years old and under used these in an egocentric FoR. Adults, in contrast, only used the terms to indicate the Intrinsic left and right sides of animate bodies (or models of them in this case). Example (7) illustrates this usage, while Example (8) illustrates the distinct arrangement that would correspond to a Relative interpretation of the same utterance:

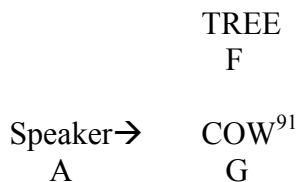
(7) *Laadu izquerdachaw montin.*

‘The tree is on the left side [of the cow].’



(8) *Laadu izquerdachaw montin.*

‘The tree is on the left side [of the speaker].’



⁹¹ The direction of the cow would have to be specified separately in this case.

In Study 2, one participant used the term “izquierda” twice. Both instances were in response to questions in which the plaza in the departmental capital, Huaraz (one hour away by minibus), was the Ground. The description “left” can only be deemed accurate if the origo is located in the speaker once he has arrived at the Ground. In this sense, this is a Relative FoR, as rotation of the speaker would render the statement false. However, while this appears to draw on the Relative FoR, the orientation of the relative coordinate’s Anchor (the projected speaker) is given by his movement along a fixed path, and is thus subsumed in a fixed coordinate system. Furthermore, the use of “left” is common in Spanish and thus fits the social context, as one would normally go to the plaza of Huaraz to take care of legal or administrative paperwork in Spanish, not Quechua.

In sum, left and right terms in Quechua are limited to use in the Intrinsic FoR among adults except in very rare cases. Among children 14 years or younger, the use of these terms in an egocentric FoR is more common.⁹²

4. Spatial descriptions in situated interaction

The results of the analyses of structured elicitations underscore the prevalence of allocentric FoRs, and the Absolute FoR in particular, for Quechua spatial descriptions. However, they cannot be taken as a complete picture without considering how spatial language is used in everyday interactions. In such situations, a large amount of information is taken for granted. The place where a conversation occurs and the particular individuals involved determine much of what needs to and needs not be said. For this reason, I frequently found the evaluation of spatial language confounding during my first months of fieldwork (see Chapter 4, Section 1). For

⁹² The significance of this observation is elaborated in Chapter 5.

example, when two neighbors who have known each other all their lives converse over a beer on the corner, a barely noticeable eye-movement or flick of the head can be equivalent to an entire spatial description, complete with a Figure, Ground, and Anchor. But without the necessary background information, it is impossible to evaluate the spatial frame involved. Nevertheless, situated spatial descriptions, however condensed, are ultimately the phenomena that must be explained, and not the idealized contexts modeled through experimental studies.

Luckily, there are archetypal instances in which background information has a circumscribed role, such as collaborative searching. This is a common activity among herders in Rio Negro, who often find themselves in the position of having to identify individual animals among shrubs and boulders from a great distance.⁹³ Language is an indispensable tool for this task, as are pointing gestures and the landscape itself. By coordinating words and gestures to surrounding places, a nearly impossible task becomes manageable. Of course, different languages have distinct ways of doing this, and so it is crucial to look at a specific instance in Quechua. As the analysis of the example below shows, in such instances Quechua speakers in fact use a FoR that is not included in Levinson's *or* Danziger's typologies, and which combines an egocentric Ground with an allocentric Anchor.

The speaker of the utterance in (9) is sitting beside a companion on a glacial moraine ridge looking at an opposing mountainside. He and his interlocutor are engaged in the common activity of accounting for cattle in Ruriq canyon. Figure 12 below depicts the landscape the speaker refers to in order to give an idea of the difficulty of the task of identifying individual animals in a distant field of rocks, boulders, and scrub. The utterance in (9) is also accompanied by a prominent

⁹³ Chapter 2 includes a more detailed account of herders' work.

index-finger point (Figure 13) toward the facing slope, which reaches its held position by the underlined syllable in the transcript below, and is held for the remainder of the utterance.

(9) *Kay hawan hirkan-chaw puka hina ka-n.*

This below slope -LOC red like be-3.

‘There is a reddish [cow] here on the slope below.’



Figure 12. Slope with rocks, boulders, and grass.



Figure 13. Pointing gesture.

To begin with, we need to identify the Figure, Ground, Anchor, and coordinate system used in this utterance. The Figure is the reddish cow (the “cow” here is indicated by its color, as Quechua noun phrases can take adjectives as heads). The Figure is located in relation to the prepositional phrase, “hirkanchaw,” (on the slope), so we could technically consider the Figure to be “the reddish [cow] on the slope.” However, this clearly does little to locate the cow in question. In order to locate it, it must be related to another object or speech-participant—a Ground—using some coordinate system. In this case, the word “hawan” (below) invokes the vertical slope of the landscape as a coordinate system that has its Anchor in the topography of the surrounding environment.

Now, if this were a typical Absolute description, we would expect some other object, and not a speech-participant, to serve as the Ground. This would be the case if the speaker had instead said, “There is a reddish cow on the slope here below the tree.” However, this is not the case.

Rather, the Ground from which the coordinate system is projected is in fact simply the speaker's body, which provides the reference point from which to project the direction "below." Because the Ground is in a speech-participant, this is not an instance of the Absolute FoR in either Levinson's or Danziger's typology. According to Danziger's typology, the location of the Ground in a speech participant characterizes the Direct FoR. Yet, if the example here had involved a Direct FoR, the Anchor also would have been located in a speech participant. Such an utterance would be more like "There is a reddish cow on the slope in front of me." The crucial difference in such a description is the absence of reference to the surrounding landscape.

The FoR used in (9) thus seems to elude classification. The following section explains the necessity for the addition of a fifth FoR to account for this type of utterance. This FoR is characterized by its combination of an egocentric Ground with an allocentric Anchor. Thus, while the coordinate system is given by something *outside* the Figure-Ground-Speaker relation, it is nevertheless projected out from a speaker. In this sense it serves as a more true opposite to the Relative FoR than does the Absolute; while the Relative FoR *externalizes* the speaker's bodily coordinates (left/right/front/back) onto another object, this fifth FoR *incorporates* external coordinates. For this reason, I have called it the "Embodied Absolute FoR."

4.1. The "Embodied Absolute" FoR

The Embodied Absolute FoR has a clear place in FoR typologies when these take into account differences in the Ground, and not only the Anchor. Such differences have important consequences for spatial orientation, but are not explicitly elaborated in Levinson's or Danziger's typologies. Specifically, when the Ground is egocentric—that is, when it is located in a speech-participant—it has different properties depending on whether the Anchor is also egocentric or not.

With respect to the Anchor and Ground, only the following is clear from Danziger’s typology:

1. If the Anchor is egocentric (as in the Direct and Relative FoRs), then the rotation of the Ground also constitutes rotation of the Anchor, and thus alters the description’s truth conditions.
2. If the Anchor is allocentric (as in the absolute and intrinsic FoRs), then the rotation of the Ground has no effect on the description’s truth conditions.

However, there is a difference between the Intrinsic and Absolute FoRs that is obscured in this account. Because the Intrinsic FoR is binary, the Anchor is always in the Ground, and because the Intrinsic FoR’s Anchor is by definition allocentric, its Ground must also be allocentric. This is not the case in the Absolute FoR. Because this FoR is defined as ternary and as having an allocentric Anchor, the Ground may be either egocentric or allocentric. Thus, there is in fact a structural space for two types of Absolute FoRs—one with an egocentric Ground and one with an allocentric Ground. I will refer to these from now on as “Absolute” and “Embodied Absolute.” Their properties are illustrated in Table 9 below:

	ANCHOR	GROUND
ABSOLUTE	Allocentric	Allocentric
EMBODIED ABSOLUTE	Allocentric	Egocentric

Table 9. Anchor and Ground of Absolute and Embodied Absolute FoRs.

Figure 14 below provides a graphic depiction of where the Embodied Absolute FoR fits in Danziger’s typology. Example descriptions are given in (8-12).

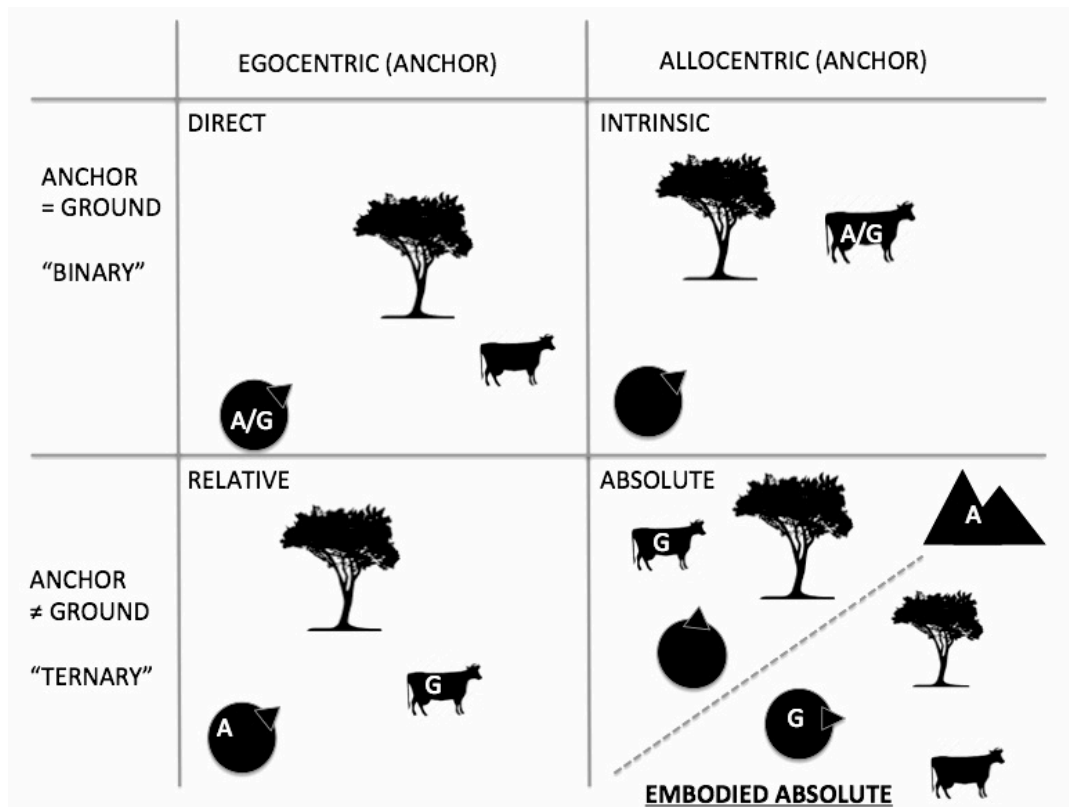


Figure 14. Figure, Anchor and Ground in five FoRs, including the Embodied Absolute FoR.

(10) DIRECT: “The tree is in front of me.”

(11) RELATIVE: “The tree is to the left of the cow.”

(12) INTRINSIC: “The tree is behind the cow.”

(13) ABSOLUTE: “The tree is on the mountain side of the cow.”

(14) EMBODIED ABSOLUTE: “The tree is on the mountain side (of place of speech).”

The important distinction here is that if the Ground (speaker) in an Embodied Absolute description like (14) rotates, there is no effect on the description's truth-value, whereas in a Direct description like (10), the statement is no longer true. This difference can be reformulated in terms of the Deictic Origo—the anchor for the interactional “here-now-I” (Bühler 1990:117). While both kinds of descriptions depend on the indication of a Deictic Origo, they differ in its constitution. The Deictic Origo in a Direct FoR is coterminous with a coordinate system that rotates and changes position along with the Origo itself, since the coordinate system is anchored in it. In contrast, the Deictic Origo in an Embodied Absolute FoR is merely a position, and its relationship to its coordinate system must be constantly calculated. In this sense, we can say that the Direct FoR's Origo is itself egocentric whereas the Embodied Absolute FoR's Origo is allocentric, despite having an egocentric Ground.

Another way to think about the Deictic Origo of a FoR is as the speaker's bodily *sense of space*. Speakers using egocentric (either Direct or Relative) FoR's must conceive the Figure they describe in relation to their own bodies' position and orientation. However, there is no need to be aware of that position or orientation with respect to anything else in the world. In contrast, speakers using an Embodied Absolute FoR must be aware of their position with respect to a landscape composed of relevant cues such as the position of the sun, slope, wind direction, and salient, fixed landmarks like mountains, towns, and buildings.

Considering the example of the Embodied Absolute FoR above (9), Quechua speakers, at least in the Río Negro watershed, have a *bodily and linguistic sense of space* that is (at least at times) both sociocentric and geocentric. It is sociocentric because, as Hanks (1990, 2005) argues, the Deictic Origo of any utterance is the result of the kinds of social interactions relevant in the

speaker's social milieu.⁹⁴ However, I contend it is also *geocentric*, as Quechua speakers use a FoR that grounds their awareness of a landscape of fixed paths and places in their bodies. This stands in total contrast to the sense of space involved in the use of the Relative FoR, where speakers maintain an awareness of the inherent orientation of their own bodies—without respect to the surrounding world—in order to transpose it onto that world.

The directionality of the coordinate system's transposition in the Embodied Absolute FoR constitutes another striking difference from the other FoRs. The Embodied Absolute involves a transposition from world to body, whereas in other FoRs, it is onto some object in the world—either from a body or from the world itself. Some FoRs involve no transposition. The Anchors and Grounds of Intrinsic and Direct FoRs are identical. These FoRs require merely a speaker and a Figure, hence Danziger's label, "secondary." Transposition occurs only in the FoRs that Danziger refers to as "tertiary" FoRs—the Relative and Absolute. These involve the transposition of the coordinate system onto a third object, the Ground. In the Relative FoR, the coordinates of the body are transposed onto some Ground object—for example a tree in relation to which the Figure of a cow is located. Likewise, in the Absolute FoR, geocentric coordinates such as north and south are transposed to a Ground object. In both cases, the Ground object is something in the world. The Relative FoR involves a transposition from the body out to the world; the Absolute involves transposition—or more accurately a transduction—from generalized geocentric coordinates onto some object in the environment. In contrast, the Embodied Absolute transposes environmentally anchored coordinate onto the Ground of the speaker's body; in other words, it involves a transposition from world to body. This idiosyncrasy provides a concrete example of linguistically mediated embodiment. It also presents a challenge to the phenomenological

⁹⁴ This dimension is explored more thoroughly in relation to analyses of verbal interactions in the following chapter.

privileging of the body as a primordial site of knowledge and experience. If the body that grounds the subjectivity speakers bring even to simple acts of referential communication has already taken on characteristics of the world—for example through orientation and location—then there is no support for the claim that individual bodies are inherently prior to the environment in lived experience.

5. Conclusion

Quechua speakers' situated use of spatial language makes use of both their extensive knowledge of the surrounding world *and* their awareness of their bodies' positions within it. The common use of a spatial FoR that includes both allocentric and egocentric elements (its Anchor and Ground, respectively). I suggested that this “Embodied Absolute FoR” had been left out of current typologies of spatial orientation because of a tendency to conflate egocentric orientation with subjectivity, and by corollary conflate allocentric orientation with objectivity. In this view, body-centered orientation such as that used by English speakers corresponds to a subjective, embodied perspective, while environment-centered orientation such as Quechua's is associated with an objective, non-corporeal perspective. The impracticality of this approach is evident; clearly speakers of all languages have bodies. At the same time—and as I explore at length in the next chapter—bodies ground human experience in diverse ways. The existence of a form of orientation that is anchored in the landscape, transposed to the body, and then projected back out onto the environment reveals a concrete example of how bodies come to *ground* human experiences of and interactions with their environments. Moreover, it shows how language serves as the substance, as it were, of this relationship between human body and nonhuman environment.

Because of its incorporation of both the human body and its environment, the particular characteristics of the Embodied Absolute FoRs reveal some of the broader sociological implications of spatial orientation. Like all FoRs, it entails a particular way of orienting to the world for the people that habitually speak, think, and move with it. Previous research on spatial language and cognition has shown how speakers who habitually use Absolute FoRs must maintain a constant awareness of their bearings in an absolute coordinate system. However, the use of the Embodied Absolute FoR in particular also entails a sense of one's own body that incorporates that environmental awareness. This can be seen, for example, in Quechua speakers' common use of gestures that not only use the body to represent parts of the landscape, but also align with their actual locations, as in this chapter's opening example (see Chapter 4, also Shapero 2014:1203). Social interactions among Quechua speakers thus involve a constant play of semiotic connections among their gesturing bodies, speaking selves, and the surrounding world. For this reason, participating in fluent conversation with Quechua speakers in Río Negro requires more than just linguistic competence—it also requires socialization into an embodied knowledge of an expansive and meaningful landscape.

These aspects of Quechua spatial language seem to echo Merleau-Ponty's suggestion that the perceived object is not distinct from the perceiving body, but rather linked to it through the perceptive movement outward from body to object (1968:114). However, the nature of this kind of spatial representation also illuminates two important breaks from this phenomenological tradition that also includes Benveniste, Schutz and Bühler. First, perception of the world originates in a body that may already be oriented within it. Hanks (1990) already made the point that Merleau-Ponty's "corporeal schema" must be modified to include not just individuals but the social relationships among parties to an interaction. This chapter suggests a further expansion, as

perception does not move outward to connect the object to the ego of an individual body, or even a “sociocentric” body, but rather originates in a body that is already articulated with and oriented to the surrounding world. Second, the examples in this chapter and the next show that the parts of the world taken for granted by Quechua speakers as sensually present are not limited to lines of sight or touch, but can extend far beyond enclosing walls. The articulation of language, body, and landscape that underlies simple spatial reference creates a habitual, intersubjective world in which distant places are treated as phenomenally present. This fact is also illustrated in the use of gesture and demonstrative reference described in the next chapter.

The corporeal sense of space underlying Quechua orientation also serves as a bridge connecting linguistic descriptions of the Quechua language with observations of cultural patterns in the Andes. For example, Andean settlements and monumental architecture tend to be oriented toward important parts of the landscape, such as mountain deities or cardinal directions (Bauer 1998, 1995; Herrera 2005, 2003; Davis 2011; Núñez and Cornejo 2012). Andean anthropology has also frequently noted the landscape’s social and political importance. For example, in his account of religious pilgrimage, Sallnow writes that “power in the Andes was always spatial, mapped out across the variegated natural environment and thus appearing to issue from the landscape itself” (1987:97). As early as the sixteenth century, extirpators of idolatry like Jose de Arriaga targeted sacred mountains and bodies of water (51). This connection between sociality and the landscape has political implications as well. For example, Poole argued that the territorial associations of and within Andean communities are defined not in terms of permanent ownership, but rather in relation to a given social group’s activities (1984:149). Moreover, in contemporary Peru, indigenous people’s claims to territorial sovereignty are staked in their ability to instantiate traditional bonds to the landscape (de la Cadena 2010). Particularly in Ancash, rural communities’

understandings of their relationship to glaciers and lakes plays an important but often overlooked role in environmental conflicts, such as Duke Energy’s control of the glacial meltwater in Lake Parón (Carey et al 2012), and the state’s management of high pastureland within the Huascarán National Park/UNESCO Biosphere (see Chapter 2).

The fact that Quechua speakers’ representations of space make reference simultaneously to their own bodies and to the world around them helps to understand how speakers like Angélica bring an expansive landscape to life not only through narrated events, but also through gestures that treat this landscape as immediate and sensually present. The analyses here show how the intimacy between the speaking body and the landscape is mediated by habits of language use; it is also clearly something experienced by speakers. Angélica’s use of language and gesture instantiates the phenomenon, but she also poignantly addresses it when she expresses her concern for the fate of that very same environmental intimacy. She asks, “Who now has ever been out at night during the new moon,” implying that without this experience, the vociferous battle between Qitsqay and Collawasi is relegated to mere hearsay.⁹⁵

In Chapter 2, we saw that this concern is also central to herders’ ritual practices. At the beginning and end of the interaction from which example (9) was taken, the speaker addressed the surrounding landscape in second person while offering coca, cigarettes and alcohol. He refers to the three participants as the orphan grandchildren of a nearby *awichu*, or “grandfather”—a mummified ancestor that has turned to stone—and asks for its care. Likewise, another woman, in a high pastureland on the other side of the watershed, spoke of how she would offer *tuqush*⁹⁶ pudding to the glacier, asking it to adopt her as its grandchild, when leading her sheep into the

⁹⁵ The observation that the story is hearsay is also grounded in the narrator’s systematic use of the reportative evidential enclitic *-sh(i)*.

⁹⁶ *Tuqush* is a preparation of potato in which it is left for a long period to ferment in a spring, ultimately developing veins of penicillin and a distinctive odor.

highest pastures at the glacier's foot. These people's words and actions express a perception of their intimate relation to the landscape—described in terms of adoptive familiarity—as critical to their physical safety and success as herders.⁹⁷ In the next chapter, I show how this treatment of the landscape as an immediate presence is routinized in simple pointing gestures and demonstrative reference. In Chapter 5, I show that Río Negro herders with extensive experience in the highest pastures are more likely to remember objects within arm's reach in terms of coordinates fixed in the landscape than agriculturalists with less environmental experience. Angélica's concerns with the fate of environmental intimacy in Río Negro are well founded indeed—without the continued engagement with the landscape, part of the context that grounds their communicative practices may in fact move out from beneath their feet.

⁹⁷ Indeed, the ritual performance of fosterage described in Chapter 2 parallels actual practices of child circulation in the Andes, as both are means of establishing and transforming social relationships (Leinaweaver 2008:83).

Chapter 4: The distant here: Spatial common ground in Quechua demonstrative reference

1. Introduction

When I began to study the use of spatial Frames of Reference in everyday conversations in Río Negro, I came up against an immediate obstacle. In the vast majority of cases, people seemed to communicate locations and directions following a principle of least effort. On countless occasions, a quick eyebrow flash, a tiny glance, and the demonstrative pronoun “kay”—which could be roughly translated as “this”—was all it took to convey the relevant spatial information. Consider, for example, two farmers sitting in the grass, resting after harvesting a small plot of potatoes. One asks the other, “Where are you going now?” The other quickly glances east, raises his eyebrows, and replies, *kayman*—“toward here.” His interrogator nods in comprehension—his friend is headed to his cousin’s field on the other side of Don Juan Mountain to help out with their harvest.

A verbal interchange like the one above is only possible because the participants know one another well. The possible answers to the question “where are you going now?” are not limitless, but rather pertain to a small set defined by habits and routines that both know, and know the other knows. Yet the success of this interchange also depends on a similarly shared and assumed knowledge of the whereabouts of the conversation with respect to the local territory. Just

as using “uphill” and “downhill” appropriately to refer to east and west requires a constant sense of orientation and position in the Río Negro landscape, this minute pointing gesture also can only manage to distinguish among the possible destinations if both interlocutors know where they are in relation to them. But why use the so-called “proximal” demonstrative pronoun, “kay?” It struck me as odd that speakers consistently used a word roughly equivalent to English “here” or “this” when signaling distant places that were often invisible from their current position. It called to mind pointing out my home *on a map*—“I live here”—but was not at all how I would point out my home *without a map*, much less from somewhere far away. Clearly the concept of distance, presupposed by the traditional “proximal” and “distal” labels for Quechua demonstrative pronouns, was not a decisive factor in this conversation.

Indeed, a consensus has emerged among linguistic anthropologists and anthropologically-minded linguists that demonstratives do not categorically indicate the distance between participants and referents. First, drawing on an ethnographic and linguistic study of Yucatec Mayan referential practice, Hanks’ (1990) foundational critique of the distance-based account (which he called the “spatialist” account) proposed instead that demonstratives indicate or project their referents’ *accessibility*.⁹⁸ In subsequent work, Hanks further developed an account of how deictic reference is embedded in social fields (2005, 2016). Enfield (2003) similarly argued against a “spatialist interpretation.” Through an analysis of the situated use of demonstratives in video-recorded verbal interactions among Lao speakers, he suggested that they do not contrast in categorial spatial terms (proximal vs. distal), but rather form an “informativeness scale”⁹⁹ in

⁹⁸ Hanks’ (1990) approach to demonstratives, and to deixis more generally, goes far beyond this point to make a more fundamental argument that deixis is sociocentric rather than egocentric. I will return to this point later in this chapter.

⁹⁹ Enfield takes the notion of informativeness scale from Levinson (2000).

which “proximal” and “distal” meanings of demonstratives result from the pragmatic enrichment of their relatively strong or weak (respectively) semantic specificity (87).

This approach to demonstratives, and to deixis more generally, emphasizes the fact that demonstrative reference often has little to do with selecting a referent—indeed, “they provide virtually no identifying information as to the objects picked out” (Hanks 2005:195). Rather, the specificity of indication is the result of enrichment by other aspects of interaction and its embedding context (e.g., Enfield 2003:83), as in the example of the two farmers above. While the categorial semantic properties of demonstratives do not constitute their indicating capacity, such semantic properties instead qualify the very acts of reference in which they occur, allowing participants to position themselves and their interlocutors with relation to the their referents and to one another (Hanks 2005:211; Du Bois 2007:148). To use demonstratives, then, is perforce to engage in social actions and to participate in social relations. The de-emphasis of space as a constituent of the categorial, semantic role of demonstratives, then, is concomitant with a heightened emphasis on subjectivity and intersubjectivity, and is thus consonant with the pragmaticist tradition stemming from Peirce’s approach to meaning.

But are these two parallel trends that de-emphasize space and emphasize sociality mutual and necessary conditions to one another? While the emergent consensus is that distance—undeniably a spatial concept—does not provide the source of demonstrative distinctions, this does not preclude forms of spatiality *other than* distance, nor does it preclude a role for space *other than* as a categorial “text default” (Agha 2007). Nevertheless, the development of research on demonstratives has led to an implicit dichotomy between subjectivity and space. This dichotomy itself is seemingly ratified by the fact that research on spatial language has also—for distinct reasons discussed in Chapter 3 (Section 2)—led to the same division. These two lines of

investigation and debate thus constitute a division of scholarly labor in which demonstrative reference and spatial orientation become distinct domains for studying the roles of sociality and spatiality, respectively, in language.¹⁰⁰

In the course of my research on spatial language in Ancash Quechua, I quickly came up against this dichotomy. While my focus was on spatial language, I found that descriptions of location and direction frequently included demonstrative pronouns. In fact, much of the everyday usage of spatial communication that I observed consisted of nothing more than demonstrative pronouns and/or gestures, as illustrated in the opening vignette. Because my overriding interest was not in spatial language itself, but rather in its foundation in habitual patterns of practice and experience, I saw no reason to exclude the use of demonstrative pronouns, especially considering their frequent use as acts of reference to parts of the local landscape. Indeed, the patterns of usage that I observed could not be explained in terms of relative distance. Yet, considering that Quechua speakers habitually use the landscape to orient spatial descriptions, I became interested in the role of space in a fundamentally social domain of language like demonstrative reference.

In this chapter I treat spatiality not as a categorial *semantic* property that distinguishes demonstrative forms, but rather as part of the common ground—that is, the knowledge participants reciprocally presuppose as shared in an interaction—with respect to which speakers select among demonstrative forms with minimal semantics (Enfield 2003). In doing so, I follow the work of linguistic anthropologists and cognitive psychologists who have argued that

¹⁰⁰ Burenhult (2008) provides evidence from Jahai of demonstratives that encode angular, spatial distinctions that are categorial and pragmatically inviolable. While he proposes that this evidence stands in contrast to the tendency to de-emphasize the role of space in studies of demonstratives (100), his study leaves this de-emphasis unquestioned for demonstrative systems that *do not* involve such categorically spatial richness. Nevertheless, his study underlines the important fact that the kinds of spatial orientation involved in demonstrative use is variable and cannot be taken for granted.

demonstrative forms are semantically minimal (Hanks 2005; Enfield 2003, 2009; Sidnell and Enfield 2016) and establish reference by means of other phenomena that accompany the act of reference such as gesture (Enfield 2009; Piwek et al 2008; Cooperrider 2015), common ground (Clark et al 1983), and the embedding social field (Hanks 2016). At the same time, I bridge the scholarly division of labor between spatiality and sociality by demonstrating that Quechua speakers' *spatial* awareness of their position and orientation in the local landscape constitutes a crucial domain of the *socially* constituted common ground¹⁰¹—one which includes mountains as social beings—that informs the alternation of demonstrative forms in verbal interactions. Put simply, and in the terms used in the previous chapter, I overcome the spatial-subjective dichotomy by analytically acknowledging that subjective acts of reference take place in intersubjective environments—that is, in a physical world apprehended by speakers as a meaningful environment in relation to intersubjective social actions (see Chapter 1).

The first part of this chapter analyzes Quechua demonstrative pronouns, drawing on an interactional analysis of their situated use in two conversations about the local landscape. The resulting analyses show that relative distance does not offer analytic purchase on the selection of demonstratives, supporting the view that their semantics are minimal. The spatial interpretations of demonstratives are not primary here, but rather emerge together with social interpretations through contextual enrichment (Enfield 2003) and their embedding in a social situation and field (Hanks 2005, 2016). In the second part of the chapter, I turn to the co-occurrence of demonstrative pronouns and pointing gestures, drawing on statistical analyses of nearly 400

¹⁰¹ Rather than defining common ground merely as speakers' shared knowledge and presuppositions (e.g., Clark 1983, 1996; Hanks 2005; Enfield 2009; Sidnell & Enfield 2016), I define it more strictly along the lines of Theory of Mind—that is, not *all* that speakers share, but only that which they are *mutually aware* of sharing. In this sense, common ground is itself already socially constituted and constituting.

instances of demonstrative reference drawn from a corpus of elicited and conversational speech. The analysis gives evidence that so-called “proximal” and “distal” demonstratives pattern significantly with the presence or absence, respectively, of pointing gestures. Furthermore, the so-called “proximal” demonstrative, “kay” is often used to refer to distant referents not visible from the gesturer’s location.

In a recent study, Cooperrider (2015) examined the use of English demonstratives in an experimental task in which pairs of participants helped one another to identify novel objects on screens at varying distances. Some pairs were given laser pointers to aid their descriptions, while others used manual gestures. The results demonstrated two significant correlations. First, when pointing—whether with hands or laser pointers—participants were more likely to also use demonstratives. Second, participants were more likely to use “proximal” demonstratives when pointing with the laser rather than their hands, irrespective of the distance of the indicated referent. Cooperrider interprets these findings to suggest that ambiguity plays a critical role in the way speakers select demonstrative forms, so that “proximal” forms are used to indicate that an act of reference is unambiguous, while “distal” forms indicate the opposite. Ambiguity is of course a relative notion, and perhaps an artifact of the minimal common ground involved in lab experiments. In fact, it is precisely the role of common ground that I find compelling about Cooperrider’s findings. If we compare the English-speaking college students in the unfamiliar setting of a lab to the two Río Negro farmers in the opening example, the crucial difference is the common ground they share with respect to the interaction they are engaged in. Now, considering the fact that the Quechua “proximal” demonstrative is used frequently with pointing gestures to distant, invisible places, I suggest that the source of unambiguity, or alternatively of accessibility (Hanks 2005), in the common ground is a rich, embodied sense of space. In other words, because

Río Negro Quechua speakers are aware of their location and orientation with respect to an expansive constellation of named places—and presuppose that their interlocutors both share this awareness and presuppose the same of them—the way in which they select demonstrative forms in terms of their indication of contrasts in accessibility or relative ambiguity is substantially different from the way that English speakers would, as the latter do not share such a rich spatial common ground.

2. What is the role of space in Ancash Quechua demonstrative reference?

2.1. The Ancash Quechua demonstrative paradigm

Demonstratives in Ancash Quechua do not differ substantially from those in other Quechua languages. There are three forms, one of which has two pronunciations: “kay,” “tsay/hay,” and taqay.” Due to a regional process of monophthongization, the diphthongs in all forms are pronounced instead as a long “e,” so that the forms are pronounced as [kɛ:], [tɕɛ:]/[hɛ:], and [taqɛ:]. The two variants “tsay” and “hay” are, to the best of my knowledge, in free variation. There may be some underlying distinction, but I have not conducted a focused analysis on this question, and no obvious criterion presents itself in the cases analyzed here. Because individual speakers do use both forms, in Río Negro they do not seem to be regional variants, as some dictionaries suggest (e.g., Parker 1976).

The three demonstratives are substantives—they can function either nominally as pronouns, or may instead modify nouns or verbs. The forms can carry a wide array of

morphological markings, including case markers and enclitics. When the demonstrative pronouns are affixed with case markers, they generally take on a locative meaning (Table 10).¹⁰²

Case	Kay	Tsay/Hay	Taqay
-pa Genitive/perlative	kaypa <i>"By/around here"</i>	tsaypa <i>"By/around there"</i>	taqaypa <i>"By/around yonder"</i>
-chaw Locative	kaychaw <i>"(In/at) here"</i>	tsaychaw <i>"(In/at) there"</i>	taqaychaw* \emptyset
-ta Accusative	kayta <i>"To here"</i>	tsayta <i>"To there"</i>	taqayta* \emptyset
-man Allative	kayman <i>"Toward here"</i>	tsayman <i>"Toward there"</i>	taqayman* \emptyset
-pita/-piq Ablative	kaypita/kaypiq <i>"From here"</i>	tsaypita/tsaypiq <i>"From there; and then"</i>	taqaypiq <i>"From yonder"</i>
-yaq Limitative	kayyaq <i>"Until here"</i>	tsayyaq <i>"Until there"</i>	taqayyaq* \emptyset
-wan Comitative	kaywan <i>"With this"</i>	tsaywan <i>"With that"</i>	taqaywan* \emptyset
-naw Similitude	kaynaw <i>"Like this"</i>	tsaynaw <i>"Like that; and then"</i>	taqaynaw* \emptyset

Table 10. Demonstratives with case markers.

Note: Items marked with * were not attested.

While the pronoun “hay” often refers to a location when affixed with case markers, it contrasts with “kay” in that it takes on a discursive function instead in sentence-initial position. For example, marked with the ablative case /-pita/, “haypita” (“from there”) is used like English “and then” to signal temporal sequence in narrative. “Hay” also can take a number of other

¹⁰² A more complete study of morphological conditions in contexts where demonstratives serve as modifiers rather than pronouns is beyond the scope of this chapter, but initial observation suggests that the morphological restriction of “taqay” is limited to its occurrence as a pronoun. That is, when used as an adjective, the noun that “taqay” modifies may take case suffixes that “taqay” itself cannot take.

suffixes for a similar narrative effect. In addition, the evidential suffixes “-m(i)” and “-sh(i)” are frequently added—either alone or in conjunction with case markers—to distinguish hearsay from direct experience.

For the most part, previous descriptions of Quechua languages, including Ancash Quechua, simply gloss these three forms with the Spanish demonstratives “este,” “ese,” and “aquel” (see Table 11). These uncritical glosses tacitly describe the demonstrative pronouns in the “spatialist” terms of proximity to participants.

Quechua	Common Spanish gloss	English translation of gloss
Kay	Este, esto, esta	This (close to speaker)
Tsay/hay	Ese, eso, esa	That (close to addressee)
Taqay	Aqué!, aquello, aquella	That (close to neither participant)

Table 11. Common glosses for Quechua demonstratives in Spanish and English.

Some linguists have elaborated on the similarity more explicitly. Yábar-Dextre, for example, claims that the three demonstrative pronouns in Ancash Quechua are parallel to the personal pronouns, so that “kay” indicates a referent close to the speaker, “hay” indicates a referent close to the addressee, and “taqay” indicates a referent close to neither (1985:71). This is consistent with the traditional account of demonstrative reference in Spanish. Weber gives a slightly different account of Huánuco Quechua’s demonstrative pronouns (the same as Ancash Quechua’s), suggesting that they indicate referents that are respectively “close,” “intermediate distance,” and “distant” from the speaker (1996:77). This view is also shared by Manley et al’s characterization of demonstrative pronouns in the Quechua language family in general (2015:11).

Yet another account holds that “kay” is proximal while “chay” is non-proximal (Adelaar 1997:137). To my knowledge, no description of any variety of Quechua has departed significantly from the spatialist account.

2.2. Critiques of spatialist accounts of demonstrative reference

The “spatialist” picture that pervades linguistic descriptions of demonstrative reference in Quechua (Parker 1976; Weber 1996:77; Cerrón-Palomino 1987; Adelaar 1997; Yábar-Dextre 1985:71) tacitly anchors deictic reference in the speaker, thereby asserting that Quechua demonstrative deixis has an egocentric frame of reference. Yet considering the importance of allocentric frames elsewhere in Quechua spatial language (e.g., as described in Chapter 3) as well as other critiques of the “spatialist” account (e.g., Hanks 2005; Enfield 2003), demonstrative reference merits a more thorough analysis. In this chapter I present a description of Quechua demonstrative deixis and its relation to spatial gesture through micro-analyses of video-recorded, real-time verbal interaction and a quantitative study of a corpus of demonstrative usage, also video-recorded. The results indeed contradict the “spatialist” account.

My analysis follows other work in linguistic anthropology (e.g., Hanks 1990, 2005, 2016; Enfield 2003; Sidnell & Enfield 2016) in departing from the traditional characterization of demonstrative pronouns like “this” and “that” in terms of spatial meanings (proximal and distal). This “spatialist” interpretation takes a scheme of indexical relations to speaker and sometimes addressee for granted.¹⁰³ Instead of taking demonstratives as categorically indexing spatial relations to speech participants, and thereby tacitly accepting a rather complex spatial semantics, I

¹⁰³ A similar tendency to assume a particular indexical relationship to speech participants at the expense of the specific grammatical characteristics of the forms themselves led to a misunderstanding of inclusivity in the Quechua person system (Mannheim 1982:153).

consider their relationship to the embedding context, including co-occurring gestures, the physical location of referents, the ongoing interactional text in which they are situated, the propositional content emergent from that text, and the social and cultural values of that propositional content. The analyses that follow reveal a number of striking regularities in these relationships, supporting Hanks' claim that one consequence of semantically minimal theory of deixis is a highly regular covariation of deictic signs with particular interactional contexts (2005:195). The analyses in this chapter further extend the domain of covariation from interactional context to the physical environment and its embodiment in the gesturing speaker's body.

The results of my analyses corroborate the move away from space, as they suggest that the semantics of Quechua demonstrative pronouns are minimal, and do *not* include a conceptually complex spatial scheme such as participant-indexical proximity. Instead, I consider the capacity of demonstrative pronouns to refer to spatial proximity a secondary, emergent meaning, albeit sometimes conventionalized as a "rule of thumb" (Hanks 2005). On the other hand, it is critical to recognize that demonstrative pronouns' referential capacity is not fully dependent on their semantics, but also relies on their articulation with the location and orientation of participants' bodies (including gestures) on the one hand, and on the other, contextual dynamics in the ongoing interactional text and social situation (Hanks 2005, Silverstein 2003a, Levinson 2004, Agha 2007). While Enfield argues that the spatial characteristics of the deictic "here" are secondary to the "dynamics of human interaction" (2009:33), this chapter suggests that participants' sense of orientation to and location in physical space can play a productive role in such dynamics. In this sense, space plays a primary role in demonstrative deixis, not as a categorial semantic characteristic, but rather as a constituent of the common ground that situates its use, at least in Río Negro.

The following two sections present analyses of deixis and gesture in situated interactions. Both were video-recorded interactions involving native Quechua speakers from Huaripampa. For both examples I provide transcriptions of the original Quechua text as well as translations to English.

2.3. Spatial meaning as the result of the pragmatic enrichment of demonstratives

Angélica and Donato are an older couple that live in the northwest corner of Huaripampa with their daughter and three grandchildren. They are one of the first two families I met in Huaripampa on my initial visit in 2010, and have always welcomed me warmly into their home. Donato is the finest Quechua storyteller I have met. As a child he accompanied his father travelling broadly to sell and trade goods in the Cordillera Blanca and the Cordillera Negra, and continued to do so as a young man. Angélica holds forth as adamantly and eloquently about ritual interactions with the surrounding mountains as she does about the younger generations' lack of interest in such things. She also prepares the most delicious *picante de cuy* I've had the fortune to taste. In the current conversation, we're sitting in a small patio used for entertaining guests, grinding chiles, and washing and drying laundry. The patio is surrounded by the kitchen to the north, the pig pen to the east, the bedroom to the west, and the unpaved street to the south (Figure 15).

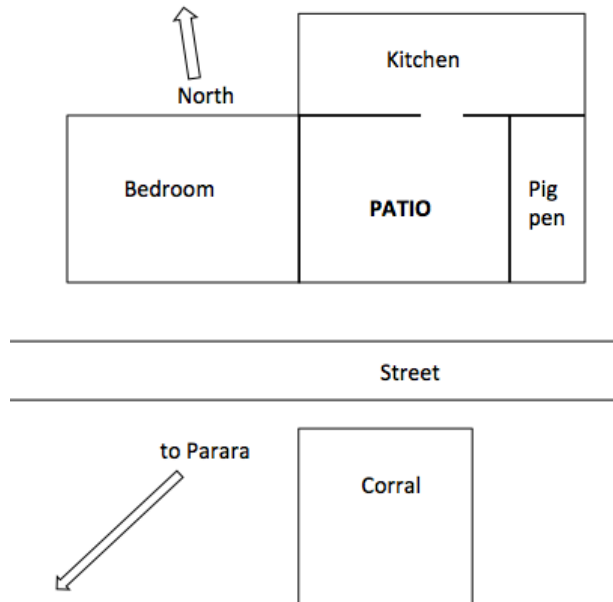


Figure 15. House layout.



Figure 16. Map of house, corral, and Parara.

In the part of the conversation from which the following examples are drawn, I have been asking Angélica about her household’s animals. We have already spoken of cows and donkeys, and I’ve just asked her about sheep (Quechua demonstratives and their English equivalents are marked in bold):¹⁰⁴

Angélica	1	Uushan taqay Pararachaw kaykan	<i>The sheep are in yonder Parara.</i>
Joshua	2	Parara	<i>Parara.</i>
Joshua	3	Ayka uushakunata	<i>How many sheep [are tied up]?</i>
Angélica	4	Chusku haychaw wataraykan. < Kaychaw kaq ¹ wan> pitsqa.	<i>Four are tied there. Five with the one¹ here. 1: Index finger point with left hand over left shoulder, palm up, toward corral.</i>

In line 1, Angélica explains that the sheep are in a place called Parara, roughly 500 meters uphill to the west of the current location (see Figure 16). I continue to inquire about the number of sheep, and in line 4, Angélica indicates that there are five. Four are tied up, *haychaw*, or “there,” and one *kaychaw*, or “here.” Angélica uses *haychaw* anaphorically to refer to Parara, while *kaychaw* indicates the corral across the road from the house, approximately 50 meters downhill to the south of the current location (see Figure 16), with the aid of a pointing gesture. Looking only at lines 1-4, it is possible to gloss the distinction between “hay” and “kay” in terms of proximity, as the corral is much closer than Parara. However, this account becomes less useful considering the rest of the transcript:

¹⁰⁴ In transcripts, superscript numbers indicate the timing of the gesture with relation to the text. Arrow brackets indicate the timing of the beginning and end of the associated movement. If the gesture lasts for the length of a syllable or longer, the co-occurring text is underlined.

Joshua	5	Huk sitiyan mitsikunki uushakunata	<i>Do you graze the sheep to another place?</i>
Angélica	6	A, uushakuna aywan huk laaduchaw huk laaduchaw watarayyar pastuchaw ari	<i>Yeah, the sheep go to and fro while tied up in the pasture, sure.</i>
Joshua	7	Shakshatapis	<i>To Shaksha also?</i>
Angélica	8	Mana hay kunata apaatsu. Mana comunidad kar apaatsu	<i>I don't take them to those [places]. Not being [of] the community, I don't take them.</i>
Angélica	9	Mana comunidadtsu kayaa	<i>We're not [of] the community.</i>
Angélica	10	A, comunidadllam hallqataq mitsiyan	<i>Yeah, only the community grazes the hallqa.</i>
Angélica	11	Chikikuyan sinuqa, manam consintikuyantsu	<i>They'll be jealous otherwise, they won't allow it.</i>
Angélica	12	Mana comuneerutaqa	<i>Not to one who's not a comunero.</i>
Angélica	13	Kayllachaw nuqa mitsikuu.	<i>I only graze here.</i>

In line 7, I ask Angélica if she also takes her sheep to Shaksha, which refers both to a prominent glaciated peak and to the area of the *hallqa* pastureland beneath it, between 6 and 11 km northeast from the current location. Angélica responds in line 8 that she doesn't graze her sheep *there*, using again the demonstrative pronoun “hay.” She continues to explain in lines 8-12 that the reason is because these pastures are for the community (Comunidad Campesino Canray Grande), of which she and her husband are not members. Thus, in line 13, she tells me that she grazes her sheep “kayllachaw,” or “only here.”

Examining the use of “kay” and “hay” in this interaction, there is clearly no absolute scheme of proximity and distance that informs their use. In line 4, “hay” designates Parara while “kay” designates the corral across the street. However, in lines 8 and 13, “hay” is used to refer to distant Shaksha while “kay” refers not only to the corral, but now to Parara as well. If we assume for the moment that proximity and distance do in fact inform the use of “kay” and “hay” (whether in their semantics or as pragmatic rules of thumb), then we must also accept that this usage is dependent on an underlying context or frame that sets the appropriate expectations for a relevant scale for judging relative distances.

With this consideration in mind, it becomes clear that there is a change in the relevant scale in this interaction, as referents of the two deictic forms shift over its course. In the first part of the interaction, the frame is related to the ongoing text and the participants’ bodily orientation and location in space, as “kay” and “hay” are opposed not only through their reference to distance and proximity, but also by their reliance on anaphora and gesture, respectively. The first use of “hay,” referring to Parara in line 4, is not accompanied by any gesture or other clue that could be used to determine its referent. Thus, if we accept for now that “hay” makes reference by means of indicating relative distance, we are still a long way from having determined a specific location. However, once we include discourse as well as the physical world in the realm of possible referents, Parara is immediately singled out.¹⁰⁵

Regardless of their ability to single out referents, demonstrative pronouns—as deictic forms—serve the parallel purpose of accomplishing social action in interactions. They do so primarily by providing a semiotic structure for aligning participants, propositional content, and co-occurring linguistic signs. For example, the use of demonstrative pronouns in the second part

¹⁰⁵ It should be noted that the reliance of demonstrative reference on context is by no means an idiosyncrasy of Quechua.

of the interaction relies on anaphora as well as the social distinction of community membership emergent in the propositional content, that is, in the “features of utterance significance that are abstractable from matters of interactional anchoring” (Agha 2007:4). One way of thinking about the social meanings of deictic terms is thus as metaphors that extend from the basic spatial implications involved in their way of selecting referents with to their proximity to speakers and/or addressees. In this example, the greater physical and social distances associated with the Shaksha pastures are indeed parallel. However, the social distinction emerges as propositional content *before* the deictic form “hay” is used to indicate Shaksha. In this context, it would be hard to argue that the social significance is a figurative “trope” (Silverstein 2003a:208) on spatial meaning encoded in the demonstrative pronouns. Rather, I would argue that the opposite is the case. This coincides with the observation that the informative function of demonstratives is often overemphasized, and that they more frequently serve to align speakers with respect to referents and to one another (Hanks 2005:211; Du Bois 2007:148).

This is a subtle point, as even critiques of the spatialist interpretation of deixis still give precedence to its role in selecting between potential referents (e.g., Enfield 2003:87). However, it is crucial to keep in mind that the way speakers position themselves through deictic reference is not isolated, but rather part of a number of parallel semiotic patterns in the interactional text—that is, the real-time, structured “doing things with words” (Silverstein 1992, 1996) that constitutes language as social action, as opposed to its decontextualizable denotational content. These parallel patterns themselves inform deictic reference in this interaction, as they provide a schematic necessary for determining the relevant spatial scale in which “kay” and “hay” can come to distinguish relative distance at all. Rather than denoting specific places, as the demonstratives did at the start of this segment of interaction, “kay” now refers to “*here* where *I* am” while “hay”

refers to “*there were they are.*” While this is a potential and perhaps normative use of the deictic forms, it relies on the contribution of co-occurring signs in the interaction.

For example, consider the patterning of personal reference throughout the interaction. In lines 1-7, Angélica uses only third person in verbs, and no personal pronouns. While in line 5, I use the second person with the verb “mitsiy” when I ask Angélica if she grazes her sheep elsewhere, Angélica response remains focused on the sheep, employing third person once more to do so. However, a change occurs at line 8 after I ask whether she grazes her sheep at Shaksha. The response switches to first person to indicate that she does not graze them *hay*, or “there.” She reiterates this in the second part of line 8, while explaining that this is because she is not a member of the Community. Then, in line 9 she includes her husband as well, using the plural first person, while in lines 10 and 11, she refers to the Community, using the plural third person. All of this has the effect of focalizing a distinction in person not previously present in the interaction.

In sum, a spatial semantics of distance offers little help in interpreting the use of demonstrative forms in this segment of conversation. In the first four lines of the conversation, such an interpretation is plausible, but runs into the problem of the shifting scope within which “proximal” and “distal” may be distinguished. In the rest of the conversation, however, the demonstrative forms pattern with other signs in the interactional text such as person markers as well as with meanings emergent in the text’s propositional content in order to accomplish more complex communicative work. Namely, Angélica ultimately uses “kay” to refer both to her corral across the street as well as Parara—a hillside half a kilometer away—in order to emphasize the *social* distinction between her pastures and those of the Community in Shaksha.

2.4. Spatial interpretations of demonstratives depend on interactional spatial frames

The analysis above showed that Quechua demonstrative pronouns are not primarily used to refer to the distance between their speakers and referents. Rather, they are semantically minimal signs that align with oppositions in the ongoing interactional text (Silverstein 2003a) and in the propositional content emergent in the verbal interaction. The following example provides further support for this observation, and moreover shows the importance of this semantic flexibility in providing participants a collaborative means of signaling shifts in the interactional frames in relation to which signs are used and interpreted as referring to direction, orientation, and location, which I will refer to as *spatial footing*. Agha (2005:55) pointed out that Goffman's concept of footing—the alignments through which participants (and referents) of different types (speaker, writer, audience, eavesdropper, etc.) are included and/or excluded from an interaction (1981)—is not limited only to the alignment of speakers in the interaction, but also of larger social types and categories. The notion of “spatial footing” signals the proposition that participants also align themselves in relation to the surrounding physical world using words and gestures. The previous segment of conversation demonstrates this fact, as social meaning and spatial scale emerge together and by means of the same interactional moves. In my analysis of the following conversation, I show how the oppositions among demonstrative forms themselves provide basic means of signaling shifts in spatial footing.

In this example, Angélica's husband, Donato, is sitting between parcels of land at Parara (see Figure 17). Just before this segment of the recording, Donato had spoken of an enchanted, “chukaru” (wild) lake, and I had asked what he knew about the lake at Pamparahu, the glacial source of Ruriq Canyon. He responded that it was indeed also “chukaru,” but that it nevertheless

produces fish. In the segment analyzed below,¹⁰⁶ Donato is explaining how fish that come down the river from Pamparahu Lake are killed when the river joins another that is contaminated (see Figure 18).¹⁰⁷



Figure 17. Looking east by northeast across Huaripampa from the speaker's point of view.

¹⁰⁶ For the sake of clarity, I have excluded several gestures that mark emphasis. I have also included photographic illustrations of each transcribed gesture in Appendix II, as they are more complex than the previous example, and can also serve to illustrate their precise nature and, by the same token, the depth of the speakers' embodied sense of space.

¹⁰⁷ The speaker describes the contamination as a kind of poison, but this is a frequent way of describing a recent form of natural water pollution caused by glacial melting's exposure of heavy metals to run-off waters.

Donato	1	Haychawqa usuariokuna hay waakayuqkunanam MinisteRío Agriculturapita ari semillata apaykur Pescaduta muruyashqa	There [Pamparahu], the <i>usuarios</i> , those who already have cattle, have brought seeds from the Ministry of Agriculture and sown fish.
Donato	2	Haychawqa trucha kanmi	There are trout there .
Donato	3	<Haymi kay ^{1a} kay ^{1b} kay ^{1a} <u>riopaqa</u> ^{1c} <u>mitad rio</u> ² <pitaqa <u>shamun pesca</u> ³ <dito <u>kay ruriman</u> ⁴	Then this... this... by this river, from halfway down the river, the little fish come this way downstream....
			1: Index finger point back and forth between two positions (1a to 1b), with small circle traced with finger on last point (1c).
			2: Index finger shifts slightly downward (from position at 1d to position at 2) then back up again.
			3: Flat hand, palm down, slowly moves down and to the west.
			4: Index finger point moving downward
Donato	4	<Pero ⁵ < taqay <u>Canray Chicopa kaqnam</u> <u>tsayqa</u> ⁶ >	But yonder where it's already part of Canray Chico, that [place]...
			5: Index finger point
			6: Index finger point
Donato	5	Alcaparosta continin tsaynam pescadupa malnin wanutsin, <sino kay Olleros <u>uraychaw kan</u> ⁷ >man pes[cado truchita]	Contains poison, so fish disease kills [them], otherwise there would be fish, little trout, below in Olleros here .
			7: Index finger point, whole arm moving from point at river confluence down and westward
Joshua	6	[Ahh]	Ahh.

Donato	7	Aha, <haynam taqay tinku ^{8a} <u>encuentruchawna</u> ^{8b} > wanutsillan <pobre llullu pescaditokunata	So, once in yonder meeting [of two rivers], it just kills the poor, tender little fish.
			8: Index finger point (8a), arm nearly fully extended, then middle finger added to represent river confluence (8b).
Donato	8	<u>Entonces kannatsu urachaw</u> ⁹ >	So, there are no longer any below.
			9: Flat hand, palm moves quickly down and to the west, whole arm extended.

To begin with, a cursory examination of the use of the three demonstrative forms to indicate referents at various distances in this segment of conversation clearly demonstrates the forms' semantic flexibility in terms of spatial meaning. However, a closer inspection of their sequence in the interaction reveals that this flexibility in referential capacity allows participants a convenient way of shifting the spatial footing. In line 3, Donato refers to the river confluence (though at this point he only characterizes it as "halfway down the river"), 7 km away from the place of interaction (see Figure 18), with "kay" four times in a row, while in Line 4 he switches to refer to the same referent (the river confluence) with "taqay." Subsequently, he uses "kay" in line 5 to refer not to the *tinku*, but instead to the adjacent town, Olleros, less than a kilometer away. In the proximity-based "spatialist" interpretation, "kay," "hay," and "taqay" form either a cline from closest to furthest or align with speaker, addressee, and non-participant. However, as in the previous example, these interpretations are clearly not present here. To illustrate, the furthest referent in the segment, Tarawra Lake (19 km away), is designated with "hay," and while the closest, Olleros (<1km away) is indicated with "kay," the referent located between these, the *tinku*

(7 km away), is indicated first with “kay,” and then with “taqay.” Clearly proximity has a very inconsistent relationship to demonstrative reference here.

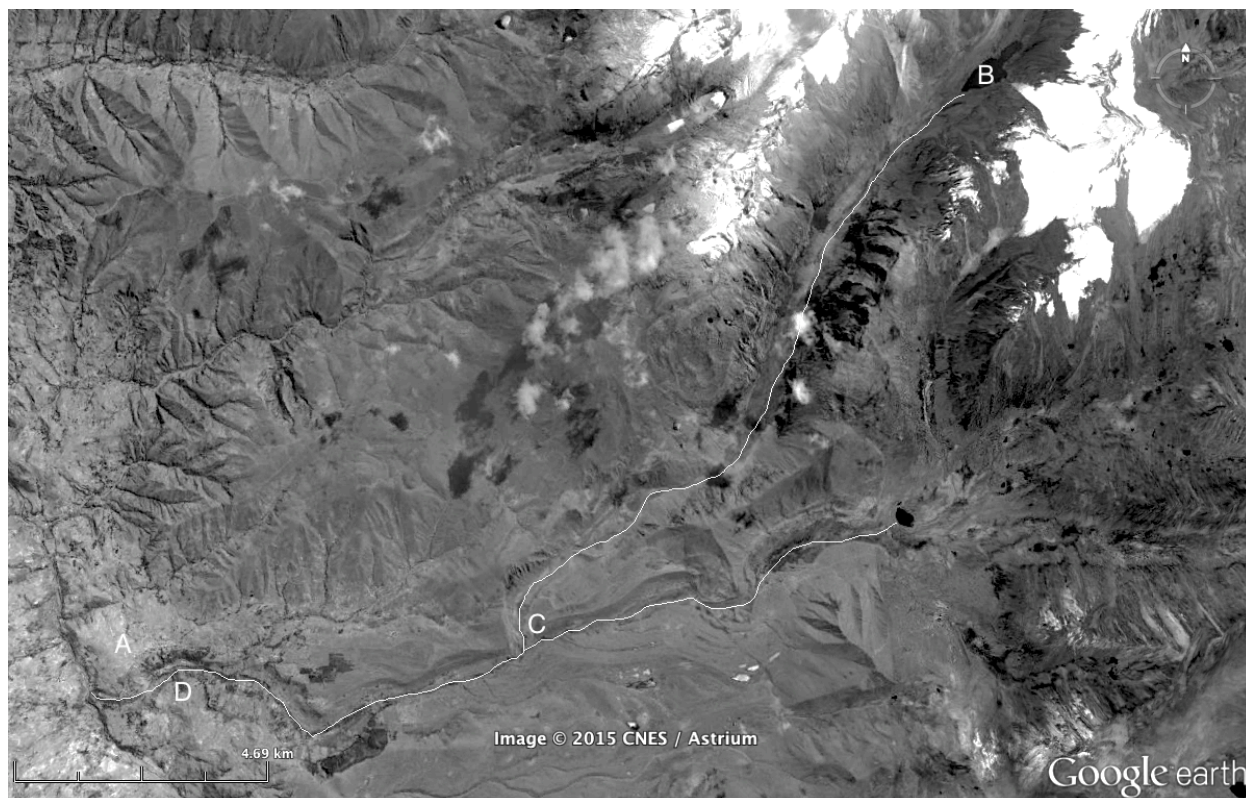


Figure 18. Map of places mentioned in transcript.

Note:

A: Location of recording: Parara (Huaripampa, District of Olleros, Province of Huaraz)

B: Tarawra Lake (Pamparahu, Ruriq Canyon, District of Olleros, Province of Huaraz).

C: *Tinku*, or river confluence (District of Canray Chico, Province of Recuay)

D: Olleros (Seat of Olleros District, Province of Huaraz)

However, the use of two different demonstrative forms to refer to a single referent makes sense if we consider that the availability of three positions in the demonstrative paradigm provides a means of signaling shifts in spatial footing. For example, Donato uses “taqay” in Line 4 to indicate the river confluence, while he used “kay” in the previous utterance (Line 3). By placing the same referent into a different position in the demonstrative paradigm, Donato

essentially resets the frame, so that he can use “kay” to refer to a new referent. In this case, in the subsequent utterance (Line 5) he uses “kay” to indicate “below Olleros.” Here it’s useful to ask *why* Donato might have wanted to reset the frame in this way. As the corpus study below will show, “kay” is the preferred demonstrative when indicating referents with pointing gestures, so in order to point out “below Olleros” in Line 5, it was useful to Donato to reset the frame in this way.

However, it turns out that “taqay” is also used frequently with pointing gestures. Why then didn’t Donato simply use “taqay” in line 5 rather than using it in line 4 to reset the frame? Or, alternatively, why did he use “taqay” rather than “hay” in Line 4 to signal a shift in spatial footing? Consider the surrounding text. In the same utterance with which Donato indicates the river confluence with “taqay” (Line 4), he also characterizes it as part of Canray Chico. Canray Chico itself belongs to the neighboring province of Recuay and was involved in a violent territorial conflict with Huaripampa and Canray Grande after the disintegration of the SAIS (Social Interest Agrarian Society) Atusparia cooperative, formed during the agrarian reform (I later learned that Donato remembers this incident vividly). In contrast, in Line 5, the new referent indicated by “kay” is Olleros, the seat of the district of the same name, also the district to which Huaripampa and Canray Grande belong. Once again, propositions entailing social distinctions emerge together with deictic ones.

Considering these details, it becomes clear why “taqay” is chosen to signal the shift in footing rather than “hay,” as the former indicates a referent that is *outside* of the relevant place defined as the location of the deictic origo, while the latter refers specifically in relation to the ongoing interactional text. While the river confluence was indeed already part of the ongoing text, and thus a valid referent for “hay,” the contrast between Olleros and Canray Grande is precisely

the kind of boundary-crossing distinction that seems to be encoded in the distinction between “kay” and “taqay.” Thus, this segment of conversation shows how switching the positioning of a referent in the demonstrative paradigm simultaneously frees its prior position and signals a corresponding shift in perspective. Furthermore, the specific positions used depend not on distance but rather on the emergent context, that is, the temporally unfolding “real time utterance production and interaction” (Hanks 2015:3), including linguistic signs, gestures, and propositional content.

The two analyses in this section suggest that a semantically minimal account of Quechua demonstrative pronouns—in other words, a pragmaticist that links their meanings to the semiotic dynamics of their embedding contexts—provides a better description of their use in verbal interaction than a spatialist account. However, the absence of a fixed referential domain is not a negative phenomenon, but rather affords a versatile system of oppositions well suited to verbal interaction. In the first example, I showed how demonstrative forms patterned with interactional text and to align the spatial distribution of referents with social distinctions in the propositional content. In the second example, I showed how the system of oppositions constituted by the Quechua demonstrative system allows speakers to signal changes in footing not just with respect to alignment among participants, but also between participants and the surrounding world. In the second example, the co-occurrence of gestures and demonstrative forms played an important role in motivating shifts in spatial footing. Indeed, aside from the use of spatial Frames of Reference to orient spoken spatial descriptions—discussed in detail in Chapter 3—pointing gestures serve as a primary way with which speakers align to the world around them. The following section turns to gestures and their co-occurrence with demonstrative pronouns.

3. The co-occurrence of demonstrative pronouns and gestures

The previous analyses of verbal interaction demonstrated several characteristics of Quechua deixis and gesture. Importantly, the traditional “spatialist” approach to Quechua demonstratives—defining demonstrative reference in terms of proximity to participants—fell short of accounting for their use in interaction. In contrast, it appeared that the distinctions among the three basic forms “kay,” “hay,” and “taqay” formed a semantically minimal demonstrative paradigm that made no reference to proximity. As interactions unfold, the use of demonstrative forms begins to pattern with the use of person reference (also deictic in nature), other linguistic cues, and the interaction’s propositional content.¹⁰⁸ As this occurs, it becomes increasingly more difficult to isolate the contribution of demonstrative forms as categorial linguistic elements from the progressive changes of the social and verbal interaction that provide their context (Agha 2007).

Considering the complications of apprehending the categorial affordances of demonstratives *in situ*, one way of enriching my Quechua demonstrative reference is to determine whether the patterns I observed in individual interactions are consistent across a greater number of instances. This presents a problem, however, as deictic forms are particularly resistant to decontextualization. Therefore, a corpus analysis only considering the relation between deictic forms and their referents would yield little useful information. For example, what would be the appropriate way of choosing a scale with which to judge whether proximity was a significant factor in the use of deictic demonstratives? There is no good answer to this question, as the scale is defined in relation to signs in the text and situation *other than* deictic forms themselves most of the time—or even, I would argue along with Hanks (2005:210), *all* the time. However, if gestures

¹⁰⁸ The latter intersection is what Hanks (2005) refers to as the deictic field’s embedding in the social field.

are included in the analysis, they provide a constant anchored in specific parts of the context—namely participants’ bodies and the physical world. Moreover pointing gestures and demonstratives are co-organized and arguably constitute a coherent whole (McNeill 1992; Kendon 2004; Enfield 2009; Cooperrider 2015).

With these considerations in mind, I analyzed a corpus of speech totaling 61 minutes, involving verbal interactions with three participants: Donato (Trial A), Anita (Trial B), and Paulina (Trial C).¹⁰⁹ These interactions consisted of a combination of open-prompt interviews and naturalistic conversation. My analysis looked specifically at the co-occurrence of manual gesture with the deictic demonstratives “kay,” “hay,” and “taqay.” The corpus includes a total of 383 deictic expressions, 130 of which co-occurred with manual gestures. The analysis addresses the questions presented in Section 3.1 below.

3.1. Is there a patterned relationship between Quechua deixis and gesture?

The analyses in this section address several questions about the relationship between Quechua deixis and manual gestures. First, is there a significant tendency to use manual gestures with one or another of the three demonstratives? A traditional analysis of deictic demonstratives along the lines of proximity does not suggest any such correlation, as gestures can be used just as easily to indicate nearby as well as distant referents. Furthermore, we have already seen that Quechua speakers frequently use pointing gestures to indicate distant locations. Considering the above analyses of the use of deixis in verbal interaction, I hypothesized that the categorial distinction between “kay” and “hay” is not one of distance. Considering the patterns of co-

¹⁰⁹ All speakers spoke Quechua as a first language. Donato and Anita learned Spanish later in life, while Paulina is Quechua monolingual. Donato lives in Huaripampa; Anita lives during part of the year in Huaripampa, and part of the year at a *manada* above Canray Grande; Paulina lives in a *manada* in Qutukancha, a hallqa region above Canray Chico.

occurrence between demonstrative forms and pointing gestures, I argue that while reference to distance is not a semantic characteristic of Quechua demonstratives, speakers' sense of space—their location and orientation within their environment—does indeed play a substantial role in their alternation.

First, the findings below show that “kay” facilitates reference to an object in relation to one or more speech participants' *bodies*. Thus, “kay” can be used just as well to mark referents with quite different spatial relations to the speaker. For example, “kay” occurs frequently both when signaling distant locations with a pointing gesture and when referring to the participants' actual location without pointing gestures. It is thereby used specifically for exophoric reference—that is, to indicate referents outside the text. In contrast, “hay” facilitates reference to an object not in relation to a speech participant's body, but rather in reference to the ongoing text (i.e., endophoric reference). It can thus be used for anaphora or cataphora.¹¹⁰ Finally, I suggest that “taqay” is similar to “kay” in that it facilitates reference to objects in reference to the body, but with the additional implication that the referent is beyond the bounds of the speaker's location, as defined elsewhere in the interactional text (or, alternatively, the pairing of “taqay” and its referent can itself presuppose the appropriate boundaries).

Second, I look more specifically at the co-occurrence of geographically accurate spatial gestures with demonstratives. I do so in order to control for metaphoric gestures that refer to the text as if it were extended in the world, like counting items on a list on the finger's of the hand or pointing to different propositions as if they were arrayed in space. In order to examine this scenario, I conducted a separate analysis within the set of demonstratives co-occurring with

¹¹⁰ It is important to recognized that anaphora or cataphora can be used creatively, implying that a referent in the text is already present, or soon to be mentioned, even when this is not actually the case.

gestures to determine whether there was a tendency for spatial gestures in particular to co-occur with one or another of the three demonstratives.¹¹¹ As above, and for the same reasons, a traditional analysis of demonstratives along the lines of relative proximity does not suggest any such correlation. Thus, my finding of a correlation here lends support to my description of Quechua demonstratives.

I conducted a third and final analysis in order to eliminate the possibility of a grammatical confound. To do so, I examined whether the morphological context of the deictic demonstratives analyzed had any bearing on the results, focusing specifically on the longest recording. I first considered cases in which demonstratives were used without any morphology, analyzing the results in terms of co-occurrence with gesture in general, and then with spatial gesture. If some grammatical marking were in fact at the root of any association between gesture and demonstrative type observed in the first two analyses, then the association should disappear in an analysis of only cases without gesture. However, it could be argued that it is specifically in the unmarked cases (those un-accompanied by gestures) where the morphological association appears, and so I also examined demonstratives suffixed with the locative case marker – CHAW.¹¹² I chose the locative case, as it is where I would most expect to see some influence on

¹¹¹ Interestingly, all of the spatial gestures in the corpus were geographically accurate—that is to say, there were neither relative nor transposed absolute gestures. In contrast, non-spatial gestures did not for the most part refer to actual locations, but to propositions and referents in the text. There were no spatial gestures made to non-existent places, such as locations in a text. These “textual gestures” instead took the form of fist-to-palm gestures, counting on fingers, and mimicking (iconic) gestures. In fact, in the majority of cases in which “kay” was used with non-spatial gestures, it was both marked with the comparative suffix “-naw” and accompanied by mimicking (iconic) gestures (e.g., “kaynaw pukllayaa,” “we play like this.”).

¹¹² There were not sufficient numbers to allow for robust analyses of all possible morphological combinations. Sub-classifications also raised too many questions to provide useful variables because of the complexities of combinations of nominal case-markers and enclitics, several of which have deictic components themselves.

the use of gesture, and spatial gesture in particular. If this were in fact true, the results should indicate a *lack* of association between demonstrative types and gesture in this case.

3.2. Do gestures co-occur more frequently with particular demonstrative types?

In order to test the first prediction—that gestures occur more frequently with “kay” and “taqay” than with “hay”—I contrasted the percentages of instances of each of the three demonstratives that were and were not accompanied by manual gestures. Tables 12-14 show the frequency of each demonstrative and the percentages of instances that were or were not accompanied by gestures in Trials A-C, respectively. Table 15 shows the combined percentages across all three trials. I conducted Pearson chi-square tests to determine if the proportion of demonstratives accompanied by gestures varied significantly across the three types. For Trial A, the results suggested that demonstrative type was a significant factor in the co-occurrence of gesture, $c^2(1, N = 247) = 52.28, p = < .01$. Likewise, in Trial B demonstrative type was also a significant factor, $c^2(1, N = 50) = 14.63, p = < .01$. Trial C also yielded similar results, $c^2(1, N = 81) = 24.76, p = < .01$. Finally, a Pearson chi-square also confirmed a significant association between gesture and demonstrative type across all three trials, $c^2(1, N = 378) = 92.09, p = < .01$.

	Trial A		
	N	Gesture	No Gesture
Kay	47	62%	38%
Hay	184	17%	83%
Taqay	16	75%	25%
Total	247	30%	70%

Table 12. Co-occurrence of demonstrative forms with gestures on Trial A.

	Trial B		
	N	Gesture	No Gesture
Kay	10	90%	10%
Hay	38	29%	71%
Taqay	2	100%	0%
Total	50	44%	56%

Table 13. Co-occurrence of demonstrative forms with gestures on Trial B.

	Trial C		
	N	Gesture	No Gesture
Kay	42	69%	31%
Hay	37	14%	86%
Taqay	2	50%	50%
Total	81	43%	57%

Table 14. Co-occurrence of demonstrative forms with gestures on Trial C.

	Trials A-C		
	N	Gesture	No Gesture
Kay	99	68%	32%
Hay	259	19%	81%
Taqay	20	75%	25%
Total	378	34%	66%

Table 15. Co-occurrence of demonstrative forms with gestures across Trials A-C.

3.3. Do spatial gestures co-occur more frequently with one or more demonstrative types?

In order to test the second prediction—pertaining to spatial gestures¹¹³ in particular—I contrasted the percentages of instances of each of the three demonstratives that were accompanied by specifically spatial gestures with those accompanied by non-spatial gestures. These tests thus involved a subset of the sample tested in the previous section, namely instances of demonstratives

¹¹³ I use “spatial gestures” to refer to those gestures involve some spatial relation in their mode of signification. This encompasses all pointing gestures used to indicate the location of referents located in the physical world regardless of hand-shape. Nearly all such gestures in the current study were made with one of three hand shapes: 1) index finger extended to point, with remaining fingers retracted toward palm, 2) tip of thumb used to point, with hand closed in fist, and 3) all fingers extended to point, with hand flat (usually also moving to indicate a path).

co-occurring with gestures. Tables 16-18 show the frequency of each demonstrative in this subset and the percentages of instances that were or were not accompanied by specifically spatial gestures in Trials A-C, respectively. Table 19 shows the combined percentages across all three trials. I conducted Pearson chi-square tests to determine if the proportion of demonstratives accompanied by spatial gestures varied significantly across the three types. For Trial A, the results suggested that demonstrative type was a significant factor in the use of spatial as opposed to non-spatial gestures, $\chi^2(1, N = 73) = 40.89, p = < .01$. Likewise, in Trial B demonstrative type was also a significant factor, $\chi^2(1, N = 22) = 12.06, p = < .01$. Trial C differed from trials A and B, as the results indicated that demonstrative type was not significantly associated with the co-occurrence of spatial as opposed to non-spatial gestures, $\chi^2(1, N = 35) = 1.49, p = .47$. Finally, a Pearson chi-square also confirmed a significant association between demonstrative type and the co-occurrence of spatial and non-spatial gestures across all three trials, $\chi^2(1, N = 130) = 51.95, p = < .01$.

	Trial A		
	N	Spatial Gesture	Non-spatial Gesture
Kay	29	76%	24%
Hay	32	9%	91%
Taqay	12	100%	0%
Total	73	51%	49%

Table 16. Co-occurrence of demonstrative forms with spatial gestures on Trial A.

	Trial B		
	N	Spatial Gesture	Non-spatial Gesture
Kay	9	78%	22%
Hay	11	9%	91%
Taqay	2	100%	0%
Total	22	45%	55%

Table 17. Co-occurrence of demonstrative forms with spatial gestures on Trial B.

	Trial C		
	N	Spatial Gesture	Non-spatial Gesture
Kay	29	79%	21%
Hay	5	100%	0%
Taqay	1	100%	0%
Total	35	83%	17%

Table 18. Co-occurrence of demonstrative forms with spatial gestures on Trial C.

	Trials A-C		
	N	Spatial Gesture	Non-spatial Gesture
Kay	67	78%	22%
Hay	48	19%	81%
Taqay	15	100%	0%
Total	130	58%	42%

Table 19. Co-occurrence of demonstrative forms with spatial gestures across Trials A-C.

3.4. Morphological factors

I conducted a Pearson's chi-square test for an association between demonstrative type and the co-occurrence of gesture in the subset of instances with no morphological markings, drawn from all three trials. The results indicated that a significant association persisted in this subset, $\chi^2(1, N = 202) = 37.82, p = < .01$. I then tested the association between demonstrative types with the use of specifically spatial gestures, also in the subset of instances with no morphological markings.

Likewise, the results indicated a persistently significant association, $c^2(1, N = 76) = 31.25, p = < .01$.

Next, I tested the set of demonstratives affixed with the locative case marker, -CHAW. The results indicated a significant association between demonstrative type and the co-occurrence of gesture, $c^2(1, N = 56) = 12.70, p = < .01$, as well as the use of spatial as opposed to non-spatial gestures, $c^2(1, N = 22) = 15.17, p = < .01$.

3.5. “Kay” co-occurs significantly more with manual gestures than “hay.”

The first analysis tested for significant associations between the three deictic demonstratives and the co-occurrence of manual gestures. For each of the three recordings analyzed, I found a significant association (in all cases, $p = < .01$), and this of course was also the case in the aggregated test of all three recordings ($p = < .01$). There were, however, some differences among the recordings. In the first two recordings, for example, there were many more instances of “hay” than of the other two demonstratives, while in the third recording they were similar. It is also important to point out that the second and third recordings each included only two instances of “taqay.” It is therefore hard to make any strong conclusions about its relationship to gesture. However, the discrepancy in the co-occurrence of gestures with “kay” and “hay” is clear from the percentages alone—the aggregate study shows that overall, 68% of all instances of “kay” were accompanied by manual gestures, in contrast to only 19% of instances of “hay.” In sum, the first analysis clearly demonstrated a significant association between the use of the demonstrative “kay” and co-occurring manual gestures. However, it was also necessary to examine whether this association pertained specifically to geographically accurate spatial

gestures, as many manual gestures that accompany demonstrative reference do not indicate the location of the corresponding referent.

To this end, the second analysis tested for a significant association between demonstrative type and the co-occurrence of spatial gestures in particular. The test was conducted on a subset of the cases previously analyzed: cases involving demonstratives accompanied by manual gestures. This made it possible to contrast spatial with non-spatial gestures, avoiding the ambiguity that would arise from treating the *absence* of any gesture as equivalent to the *presence* of a *non-spatial* gesture. In contrast to the first analysis, the proportion of instances of “kay” and “hay” was similar in the first two recordings. Furthermore, in these two recordings, the percentage of instances of “kay” accompanied by spatial gestures was higher (76% and 78%), and that of “hay” was lower (9% in both recordings). In both cases, the association proved significant ($p = < .01$). The third recording, however, yielded distinct results. While the percentage of instances of “kay” accompanied by spatial gesture was high (79%), “hay” *always* occurred with spatial gestures. It should be noted here that, in contrast to the other two recordings, there were very few uses of “hay” co-occurring with gestures at all—only five such instances, as opposed 29 instances of “kay.” Because of this disproportion, the results of the test for this recording did not yield a significant association ($p = .47$). Nevertheless, when aggregated with the other two recordings, the overall results did yield a significant association ($p = < .01$). Specifically, 78% of the gestures with which “kay” co-occurred were spatial, whereas spatial gestures accounted for only 19% of those co-occurring with “hay.” Furthermore, while there were few instances of “taqay,” (20 in the entire sample) all of the gestures that co-occurred with this demonstrative (15) were spatial.

The consistency in the results of the first two analyses indicates a clear association in the co-occurrence of gestures—and specifically of geographically accurate pointing gestures—with

the demonstrative “kay,” but *not* with “hay.” Though relatively infrequent, “taqay” was similar to “kay” as it also tended to co-occur with spatial gestures. One further question remained, however. Did the morphology modifying the deictic forms have any role in this association? In order to take this possibility into account, I conducted several further analyses for each recording. First, I looked at the subset of demonstratives without any morphological affixation (a little more than half the total sample). The association between demonstrative type and gestures in general, as well as specifically spatial ones, was still significant ($p < .01$), suggesting that even in the absence of morphological marking, the same relationship persisted. Furthermore, I tested the same associations for those demonstratives marked with the locative suffix –CHAW, and derived the same results ($p < .01$) for both gestures and specifically spatial gestures. Therefore, even when “hay” was marked with the locative suffix, it still was not significantly associated with the use of gestures indicating its referent’s location.

3.6. What difference do co-occurring pointing gestures make in the use of “kay?”

While there is a significant correlation between the use of “kay” and the co-occurrence of gestures, spatial or otherwise, it is not a categorical pattern. There were a number of instances in which “kay” was unaccompanied by gesture. Due to the contrastive nature of the tests, the studies above do not make much of this fact, however, the use of “kay” in actual interactions like those analyzed in the previous section as well as those from which the corpus was drawn makes sense of this distribution. Namely, the gesturally unmarked use of “kay” relies on the *location* of the body of one or more participants to locate the exophoric referent; in contrast, co-occurring pointing gestures serve to mark reference made with respect to the *orientation* of speakers’ bodies

(Table 20).

Line	Co-occurs with pointing?	Referent	Distance from speaker	Visible to speaker?
1:4	Yes	Corral	Across the street	No
1:13	No	Area that includes place of interaction and Parara	Contiguous	Yes
2:3	Yes	River confluence	7 km	No
2:5	Yes	Olleros	<1 km	No

Table 20. Referents of *kay* with and without pointing gestures.

In the conversations from which the data for Trials A-C were drawn, the same pattern was present (see Table 21). Specifically, out of 62 instances in which the demonstrative “*kay*” did not co-occur with pointing gestures, 50 of these referred specifically to an area that contained the speakers’ current location. For example, some of these referred to a dwelling, a *manada* (pastoral compound), a named sector such as Puqu, a hill such as Qitsqay, or a town such as Huaripampa, in or on which the conversation took place. However, of these, 22 co-occurred with some manual gesture that did not qualify as pointing. For example, ten were accompanied by a punctual, downward motion of the hand close to the speaker’s body, six were accompanied back-and-forth or circular gestures of the hand in the air around or before the speaker’s body, five were accompanied by gestures of emphasis such as hitting the fist against the knee or palm or counting fingers, and one was accompanied with a punctual movement of the speaker’s hand toward her

body. Of these, all but the emphasis and self-ward¹¹⁴ gestures presumably indicate the present location.

Co-occurs w/ pointing	# of tokens	% of referents contiguous with place of interaction	% of referents visible from place of interaction	Distance from place of interaction	
				mean	median
No	62	81%	71%	0km	0km
Yes	33	21%	30%	2.7km	1km

Table 21. Co-occurrence of *kay* with pointing gestures.

Furthermore, the 12 instances that did *not* refer directly to the speakers’ location were all in some way parasitic on the current location in time or space. For example, six of these instances referred specifically to an action indicated by an iconic gesture, such as weaving pieces of straw, and were marked with the suffix *-naw*, which indicates similarity. Three of these instances referred to the conversation itself as an object, two referred to the present time (e.g., “these days”), and one referred to some qualities of the current situation, objectifying them as “poverty.” These last three cases all make reference in relation to qualities accessible to the speakers because of their spatial or temporal location.

Critically, none of the above cases are *oriented* in any strict sense. While they are all precisely *located*, the actions, qualities, and events they refer to, as well as the bodily movements they sometimes recruit in the process, are all orientation-free. In contrast, of the 33 instances in

¹¹⁴ Interestingly, the self-ward gesture mimicked a gesture made by the speaker on her previous turn, when she spoke the word *parseelaakunam* (“my parcels”). On this first instance, the gesture was repeated twice, apparently mirroring both the first person possessive marker and the plural marker. On its second occurrence with the demonstrative *kay*, it seems to reiterate this meaning, clarifying the identity between two overlapping referents of *kay*, as the current location and as the speaker’s parcels of land.

which “kay” did co-occur with pointing gestures, 26 involved bodily movements precisely oriented toward referents that ranged from 10 meters to 10 kilometers from the speakers’ bodies. These referents could not be construed as places in which the speaker was speaking, even when very close at hand. For example Isidora referred to a dwelling roughly 10m away with “kay,” simultaneously pointing at it, while elsewhere she referred to the *manada* in which both she and the nearby dwelling were located with *kay* but without a pointing gesture. However, such perceptually accessible referents constituted a minority of these cases. Referents were visible to the speaker in only four of the 26 instances in which *kay* co-occurred with pointing gestures to indicate referent other than the speaker’s location (there were also two references to a place whose visibility I could not determine). These four visible referents were spread out among the range of all 26 cases, from 10 m to 10 km from the speaker. The twenty remaining referents were not visible from the speaker’s position, either because they were indoors or because the referents were obscured by the landscape itself. These ranged similarly from 0.2 to 9 km from the speaker.

The remaining seven instances in which “kay” co-occurred with pointing gestures referred to the speaker’s current location. However, these pointing gestures also shared similarities to the non-pointing gestures that often co-occurred with “kay” when referring to the speaker’s current location. Specifically, two of these involved a pointing hand-shape moving in a circle in the air, and five involved a pointing hand-shape aimed toward the ground at the speaker’s feet. These pointing gestures are clearly not oriented, and not surprisingly, they occur when the reference is to an area contiguous with the speaker’s location.

4. Speaking and pointing with the oriented body

At first glance, it's not surprising that “kay” does not refer to the location of the speech event when accompanied by the gesture of an outward pointing hand—it would of course seem very strange to find that a group of people habitually gestured in directions unrelated to their referents.¹¹⁵ However, what is relevant here is the fact that the same form, “kay,” is used for both reference to the location of the speech event and for reference to places elsewhere, often distant from and invisible to the speaker. If “hay” is a clearly opposed form in the demonstrative paradigm, why not use it to mark this seemingly salient distinction? If the saliency or accessibility of referents is an important factor in choosing between demonstratives (Enfield 2003; Fillmore 1982; Hanks 2005; Piwek et al 2008), or alternatively their ambiguity (Cooperrider 2015), then we would have to conclude that, for these Quechua speakers, distant, imperceptible landmarks are as immediate—salient, accessible, and unambiguous—as the very location of the speech event from which they are indicated.

This observation suggests an ethnocentric bias in the analysis of demonstrative reference. For speakers with a fairly limited awareness of their location and orientation within a landscape of named places—and more importantly, whose interactional common ground lacks this awareness—distinctions of ambiguity, salience, and accessibility will generally map onto a scheme of radial distance from the speaker. Even if this mapping does not amount to a categorical distinction, it will often be the case that the further away a referent is, the less accessible and salient and the more ambiguous it becomes. In contrast, when speakers share a rich, embodied

¹¹⁵ It's worth pointing out, however, that my reflexive awareness of my own gestures toward perceptually inaccessible referents do in fact seem to be habitually unrelated to their actual locations. This is presumably because of the temporal cost associated with orienting myself well enough to point to them accurately.

sense of space, the criteria of saliency, accessibility, and ambiguity potentiates a different set of general distinctions.

What is the shared source of immediacy in the various uses of “kay?” It can refer to the place where the speaker speaks, or to all the places like it, or to the present moment, or to the kinds of clothes on the speaker’s body in that moment. Such uses in the data analyzed above were sometimes accompanied by a downward point or with a finger or hand circling in the air. Alternatively, “kay” sometimes referred to the motions of the speaker’s hands themselves, drawing others to observe how they mimic the actions of preparing food or weaving straw. However, if speakers can assume that their own bodies and those of their interlocutors are oriented to the landscape, they can also refer to noncontiguous places with the aid of a finger pointing out into the world. For the same reason (that is, because they rely on shared *knowledge* of the landscape rather than shared *access* to it), speakers can use this combination of *kay* and pointing gesture to indicate visible referents just as easily as those obscured by walls, vegetation, or mountainsides.

What makes all of these uses salient and accessible is the way they ground the act of reference in the speaker’s body. If there is anything certain in our infinitely defeasible verbal interactions—which perhaps only in dreamed and fictional conversations achieve their idealized form as precise communications of thoughts and emotional states—it is that speakers speak from their bodies. The body offers us the certainty of its presence in the here and now, and when it embodies a sense of orientation to a fixed constellation of named places, it extends that interactional bedrock into the *terra incognita* of the world beyond commonly associated with Bühler’s here-now-I (1990:117). Pointing out into the world and saying, “Here,” Quechua speakers do more than simply project a fabricated immediacy: they recruit the body’s own

potential for immediacy. They can do so because their bodies and their words are already oriented to the world in such a way that their own habits of movement are also already contiguous with the world into which they point.

What kinds of referents are left then for the ambiguous affinities of “hay?” If language stands in contrast to the body’s immediacy instead as a volatile and mutable projection, then it is no surprise that endophora—the self-referential meta-language of verbal place-holding—constitutes the consistent function of this demonstrative. Indeed, anaphora and cataphora—the two forms of endophora—constitute basic uses of “hay” in Quechua.¹¹⁶ Because these references often coincide with referents in the world, “hay” can thus appear at first glance to have some kind of spatial meaning in contrast with “kay.” However, as I’ve shown, there is no principled reason to accept this explanation other than the assumption that the bodies that ground demonstrative reference are severed from the world around them and require the spatial semantics of demonstratives to reach out beyond their blindness. This is simply not the case in Río Negro, and when speakers’ bodies are oriented to their environments as they are here (in Río Negro), the distinction between the two basic demonstrative forms affords speakers a means of marking whether reference is made by virtue of the speaker’s body or not. Put simply, in Río Negro, space—in the form of speakers’ embodied sense of orientation and location within their

¹¹⁶ Kockelman (2013) describes a similar difference between the “two conjoined joint-attentional processes” that characterize “human-specific modes of intentional communication” in the following way: “if the first sign causes your head to turn, the second sign, *itself the object of the first sign*, causes your mind to search” (23). For Kockelman, the first of these two attention-directing signs has “proximal object” which then serves as a sign of a “distal object.” Yet, as I have argued in this chapter, the *head-turning* process of signification is grounded in the body, and its object is only as proximal as the boundaries of the embodied environment, while the *mind-searching* process of signification is only proximal in contrast. Needless to say, the two process map clearly onto exophoric and endophoric reference.

environment—plays an important role as a contextual factor in the use of Quechua demonstrative pronouns.

4.1. The body environmental

But *which* body is it that lends its immediacy to this kind of referential practice? Certainly it is not the cellular body, nor the vascular body, nor the genetic body, for these bodies are far from immediate in our conscious awareness, at least without specialized tools designed to translate the imperceptible to the perceptible and coordinated practices that render its leaky multiplicity objectifiable as an individual whole (Mol 2002; Mol & Law 2004). Indeed, invoking such bodies begs the question: are Quechua speakers in Río Negro then somehow *closer* or *more connected* to their bodies? Such a claim is clearly problematic, as it surreptitiously begins to fit heterogeneous details into a neat mold that opposes and aligns body and mind, nature and culture, rendering Quechua speakers closer to nature as it renders them closer to their bodies, and at the same time further from an illusory cultural apogee.¹¹⁷ In fact, any notion of a single, universal body shared by humans will likely fall into a similar trap, even if we rigorously forge our universal bodies in the terms of local corporeal cosmologies.

In contrast, if we define the body in *semiotic* terms—that is, as constituted by meaningful signs rather than ontological objects—then its presence may be its only universal quality.¹¹⁸ Beyond presence, what is *there* in the body will always depend on *who* is interacting with it in a

¹¹⁷ It may also lead to separating gesture and language in such a way as to undermine the entire basis of my argument.

¹¹⁸ Interestingly, this definition of body may also have the unintended but perhaps welcome consequence of generalizing the term body to refer not only to animals, but also to any collection of materials that coalesces as a subject or actor in relation to an environment simultaneously defined in the same coalescence. Bodies, then, may have some theoretical advantages over organisms in thinking about environments as meaningful.

meaningful way. For this reason, when Paulina contorts her body and bends her wrist back to point over her shoulder toward Atuq Waqanqa canyon (Figure 19), one of the most salient characteristics of her body beyond its mere presence is its orientation and location. This contrasts markedly with my own body whose orientation and location in relation to the constellation of named places in Río Negro was far from clear to me during much of the time I spent there. As a result, I felt something *physically lacking* in my body—not its genetic material, and not its cellular structure, but rather its semiotic capacity to align with the landscape. You could say that among Río Negro Quechua speakers, to the extent that I was lost in the world, I was just as lost in my own body.



Figure 19. Pointing to Atuq Waqanqa.

Leaving the body semiotically open to the world in its role as the mediator of interactional common ground is crucial not only for avoiding ethnocentric assumptions about social relations,

but also for reconsidering universalizing assumptions about grammar and cognition. For example, in a recent paper, Diessel wrote:

The universality and frequency of demonstratives are closely related to their communicative function to establish joint attention, for which speakers of all languages employ an egocentric coordinate system that is anchored by the speaker's body at the time of the utterance. (2014:128).

Diessel's argument relies on his assertion that demonstratives cannot be used outside of egocentric Frames of Reference, and that they in fact render geocentric descriptions deictic. The body presupposed in this argument is closed to the world, and must be connected to it through the use of signs. Diessel assumes that communicative behavior is the unique domain of signification, and reduces the body to the individual subject of this behavior. In so doing, he also forecloses any possibility of the kind of intersubjective body that embodies social relations that Hanks (1990) describes, and likewise the possibility of the kind of environmental body that embodies spatial relations, as I have described here.

Beyond the problem of the limits on the body's universalizability, Hanks perceived another problem in placing the body at the center of referential practice. Namely, the body presupposes the individual, obscuring "the interactive foundation of body space" (1990:84). This critique, in fact, is central to his approach to deixis more generally. Both in "Referential Practice" (1990) and in his more recent work on the subject (e.g., 2005; 2016), he is preoccupied with establishing, defining, and delimiting the ways that deixis is embedded in social interaction and context. In order to do so, he sketches a rich cultural portrait of the Maya body in terms of its

conception in shamanic practice and its articulation with local cosmology, grammatical patterns, and moral evaluations (1990). He then goes on to argue that referential categories, such as those involved in the use of demonstratives, are “embodied in aspects of activities that are not traceable to the body” (86).

Hanks’ point is important—the “body space” that becomes meaningful for the purposes of referential practice is already “culturally saturated” (94). What I am arguing here is not in contrary to the intersubjective, interactional, and cultural foundations of deixis, which Hanks, Enfield, and Silverstein (respectively) have very convincingly established. Rather, I am simply pointing out that the world in which reference occurs is not composed only of other humans, but also of their intersubjective environments. Likewise, the intersubjective body is not constituted merely by social relationships, but also by spatial relationships. Hanks wrote, “embodiment takes place not only when the body is the focal object referred to but, more pervasively, when the body belongs to the ground from which reference takes place” (132). For this very reason, grounding deixis sociocentrically rather than egocentrically should not necessary preclude the “apparent self-evidence of pointing to the ground one stands on” (134). While Hanks himself is preoccupied with his argument that such self-evidence belies the social embeddness and situatedness of reference, once we accept his argument and step beyond its rhetoric, the spatial and the intersubjective can then be seen as having virtually parallel positions in the practice of reference. Moreover, when the ground to which the referring and embodying body belongs is populated not merely by humans but also by places, as in Río Negro, then we should expect that any separation between them is likely the result of concerted discursive and material effort rather than an initial condition.

This understanding of demonstrative reference circles back on a point I made in Chapter 2. The fact that the named places that constitute the Río Negro landscape are social persons significantly erodes the principled grounds on which sociocentric and geocentric forms of embedding can be distinguished. For example, knowing a person well in Río Negro is not just knowing one's social connectedness through relations of mutual obligation and debt, hierarchy, or kin, but is also knowing *where* that person resides and habitually works; likewise, knowing a place well does not merely consist of the ability to locate it, but depends also on the same social connections of mutual obligation, debt, hierarchy, and kinship. So, just as we can speak of our social relationships as embodied because of our bodies' participation in interactions that ground those relationship, so we can speak of spatial relationships as embodied in the same way when our bodies have participated in the process of getting to know a place, whether simply physically as when we move about our environment getting to know the lay of the land, or also socially as when herders in Ruriq canyon address ritual offerings to the peaks that surround them. And when spatial and social relationships are embodied for the same reasons, acts of reference that presuppose embodied social relationships—such as those that involve demonstratives and pointing gestures—must also presuppose embodied spatial relationships.¹¹⁹

¹¹⁹ This also raises some important questions. If there is no principled reason to assume an a priori separation between the social and spatial embedding of demonstrative reference, is there any principled reason to give primacy to one or the other, or to even treat them as distinct? And is this a matter to be deferred to a neurobiological eschatology or can it be resolved simply by a semiotic approach to the environment that follows the habitual practices through which a group of people engages their environment, including all meaningful things regardless of their “natural” or “cultural” origins or of their biological status as life or simply matter?

5. Conclusion: From the distant here to the disembodied here

Instead of a summary conclusion, I want to illustrate how my analysis of Quechua demonstrative pronouns can be used to account for a segment of text that has previously been interpreted in “spatialist” terms. To do so, I reconsider Willem Adelaar’s (1997) discussion of deixis in the Huarochiri manuscript. The Huarochiri manuscript is a document from around the turn of the seventeenth century. It is one of the few non-pastoral colonial texts in Quechua. The circumstances of its authorship are complex (Durston 2007), and though it appears to be southern Quechua, it was composed in the highlands close to Lima, an area where languages in the Central Quechua branch of the language family, Ancash Quechua among them, are spoken.

In Adelaar’s analysis, he suggests that the distinction between the two demonstrative pronouns, “cay” and “chay,”¹²⁰ is one of proximal and non-proximal (1997:137). Along these lines, he argues that “cay” is always used to indicate the speaker’s location, while “chay” is a “more neutral” pronoun that does not require the referent to be in the speaker’s proximity. Nevertheless, Adelaar retains a spatial meaning at the core of the distinction between the two pronouns. A closer look at some of the material he uses to illustrate this point reveals that proximity is not a consistent factor in their use, suggesting that the analysis of Quechua demonstratives I present in this chapter better explains this material. For example, consider the following segment of the manuscript from Adelaar’s analysis (I have italicized the relevant demonstratives and their translations):

chaysi *chay* quintecunaca anchatac *cay* checacunacta chicnircan. (Salomon & Urioste, chap. 11, sec. 153)

¹²⁰ “Cay” is the colonial spelling of “kay,” while “chay” is a dialectal variant of “tsay/hay.”

Adelaar's translation: *Those* Quintis held *these* Checas in extreme contempt. Or: The Quintis *there* held the Checas *here* in extreme contempt. (Adelaar 1997:138)

Adelaar's account of demonstratives seems to make sense here, as the Quintis were an ethnic group mainly residing in Huarochiri, at some distance from the location at which the manuscript is believed to have been written, in the village of San Damián de Checas. However, consider the text immediately preceding Adelaar's example:

Ñaupá pachaca *cay* checaconapas quintes carcan quintecunap sullca huauquen (Salomon & Urioste, chap. 11, sec. 153)

Salomon & Urioste's translation "In early times, they say, *the* Checa were Quinti, the younger brothers of the Quinti."

There is no evidence in the text that makes it possible to determine whether "cay" indicates a non-proximal referent or is simply anaphoric in nature, as the referent, "checas," was the focus of the preceding sentence. Nevertheless, it seems clear enough that "those Quintis" refers not to "those Quintis over there in Huarochiri," but simply to "those Quintis of whom these Checas were the younger brothers." The latter interpretation is simpler, as it only includes information already present in the text. Furthermore, as I've shown in this chapter, spatial distinctions that line up with social distinctions, as they do in this case, are distinguished not by

“kay” and “chay,” but rather by the inside/outside distinction that pertains between “kay” and “taqay.”

However, a complete analysis of demonstrative reference in this text is inherently problematic. The circumstances of the manuscript’s authorship are not well known, and one distinct possibility is that it was assembled from fragments dictated to a scribe (Durston 2007:231). If the manuscript is even partially the transcript of an oral text, some of the demonstratives may in fact have been accompanied by pointing gestures that would have changed their interpretation, but were hence lost in the written text. With this possibility in mind, we are led to consider the different potentials of demonstrative reference between face-to-face interaction and printed or written text. In socially embedded interactions, as I have argued above, the presence of speakers’ bodies, their location and orientation to a surrounding world, and their ability to make physical gestures alongside speech together constitute a pragmatic horizon that significantly shapes the way demonstrative pronouns are used.¹²¹ In reading, however, none of these are factors. The reason is not merely their absence—readers and writers still have present bodies, located and oriented to some world, and may gesture freely—but rather the absence of the assumption that any of this serves as a possible relevant context for demonstrative reference.

Finally, and to return to the starting point, the centrality in Quechua demonstrative reference of the body environmental—that is, the body that is oriented to an intersubjective environment and thus at once social and spatial—belies the distinction between spatiality and subjectivity that pervades studies of deixis, and regiments their relationship to studies of orientation. Bodily presence always potentiates social *and* spatial orientation and location, but the

¹²¹ Hanks (2016) uses the term “horizon” to describe the part of a social field relevant to a referential theme embedded in it. Here I have expanded the term to include both the intersubjective and environmental aspects of social fields.

spatial is only activated to the extent that there is an embodied sense of space, as in the Río Negro context. Whether it is because such cases have not constituted the basis for the study of deixis, or because the presumed dichotomy between spatiality and (inter)subjectivity has obscured the relevance of spatial orientation in the study of deixis as a social practice, the importance of space in the common ground that informs demonstrative reference has been treated as either obvious or absent. Yet, as I have argued here, in some cases, spatial orientation is not merely one among many elements of this common ground, but contributes substantially to the way that Río Negro Quechua speakers use demonstrative pronouns.

Chapter 5: Thinking with the environment: Spatial

Frames of Reference in cognition

1. Introduction

Humans engage with space through mental representations, linguistic descriptions, and physical actions ranging from walking to celestial navigation and instrument-guided flight. These cognitive, linguistic, and practical engagements with space are related in complex ways. Even a single step requires some representation of starting position, destination, and trajectory. Likewise, a description of this movement requires the presupposition of both a coordinate system and perspective. Research in psychology and linguistics has focused particularly on the relationship between grammatical and cognitive representations of space, suggesting a strong link between them (e.g., Boroditsky & Gaby 2010; Brown & Levinson 1993; Danziger 2011; Haun et al 2011; Hermer-Vazquez et al 1999; Levinson 2003; Majid et al 2004; O'Meara & Pérez Báez 2011; Pederson et al 1998; Shusterman et al 2011; Shusterman & Spelke 2005).

However, this research leaves the role of differing physical engagements with space as an open question. In the previous chapters, I showed how patterns of environmental practice shape social life, political action, and the common ground presupposed in the use of spatial language, demonstrative pronouns, and pointing gestures. This chapter in turn raises the question of how humans' engagements with and experience of their surrounding environment affect their cognitive

and linguistic representations of space. This question has been addressed in more recent work by examining the relationship between topographic features, linguistic characteristics, and performance on cognitive tasks (Bohnmeyer et al 2014; Marghetis et al 2014; Palmer 2015; Polian & Bohnmeyer 2011). The results suggest that topography—for example the alignment of riverine or slope-based orientation systems (Polian & Bohnmeyer 2011)—does play a role in shaping the specifics of spatial reasoning, while maintaining that language remains the primary predictor of the cognitive representations of space. Yet, while these studies have taken the role of topography more seriously, they share the cross-linguistic and cross-cultural emphasis of prior research.¹²² Polian & Bohnmeyer, for example, are concerned specifically with contesting Li & Gleitman's (2002) strong case for environmental determination of FoR usage (2011:889). In order to make this case, they consider FoR use in four communities that represent variation across population geography (roughly urban vs. rural) and a dialectal distinction. In contrast, Marghetis et al (2014) compare two communities that differ in landscape (also roughly urban vs. rural) as well as extent of bilingualism, showing that both have an influence on the use of FoRs in spatial cognition. In all cases, the topographic factors they examine are coterminous with the contrasted populations, and thus they do not address *variation* among individuals' interactions with the world around them. In contrast, I embark here from the premise that in order to better understand the role of the environment in spatial cognition, it is necessary to examine its variability in relation to human practice within a single geographically and linguistically defined

¹²² Pederson (1998) shows a correlation between variation in performance on linguistic and non-linguistic spatial tasks across several communities in the Madurai district of Tamil Nadu. However, he also notes that the linguistic sub-groups (Relative and Absolute) correlate with urban and rural environments (p. 114). The present study differs in that it focuses on variation in environmental experience rather than type and in that this variation does not coincide with linguistic variation.

population. This goal is supported by the ethnographic and linguistic research presented in Chapter 2, 3 and 4.

I address this question through a study of the use of spatial Frames of Reference (FoRs) for nonverbal memory.¹²³ FoRs are the underlying systems that orient spatial representations in language and thought, providing a means of interpreting descriptions that would otherwise be semantically underspecified such as “in front of the car,” “on the left side of the desk,” or “down from the school.” They do so by specifying the assignment of the ground, anchor, and coordinate system. For example, a Relative FoR uses the speaker’s own body as an anchor for coordinates (front, back, left, and right), and projects this onto a ground from which to search for the referent. Thus, “on the left side of the desk” specifies a search area projected out from the desk with an egocentric (i.e., speaker-centered) coordinate system. In contrast, an Absolute FoR uses a fixed coordinate system anchored in some aspect of the physical world such as river flow or cardinal directions, which is projected onto a ground. In this FoR, “down from the school” can specify a search area projected from the school according to a coordinate system either abstracted from the overall slope of the landscape or fixed to local topography (Palmer 2015).¹²⁴ One consequence of the difference between Relative and Absolute FoRs is that as the speaker moves in relation to his referent, Relative descriptions must change, while Absolute descriptions remain stable.

The question of the effect of experience on linguistic and cognitive representations of space falls at the intersection of two fields of research. The first of these takes the cross-linguistic

¹²³ Chapter 3 includes a more detailed, critical examination of spatial FoRs.

¹²⁴ Terrill and Burenhult (2008) suggest that the latter in fact involves no FoR, and is rather what they call an “orientational strategy” to solve the problem of spatial description. Palmer (2015), however, shows that there is no operational difference between local, ad hoc coordinates and those that are abstract and generalized. Another possible classification drawing on typological observations of Mesoamerican languages makes finer distinctions between Geomorphic, Landmark-based, and Absolute FoRs (O’Meara & Pérez Báez 2011). For the purposes of this study, I follow Palmer (2015) in using an inclusive definition of the Absolute FoR.

diversity of grammatical resources for descriptions of space as a point of departure. English speakers, for example, habitually relate their surroundings to the left and right sides of their bodies (Relative FoR), while Quechua speakers rely primarily on fixed, geocentric coordinates and landmarks (Absolute FoR) to describe motion and location (see Chapter 3). A body of cross-cultural research in linguistics and psychology has identified a strong link between such linguistic characteristics and behavior on non-verbal tasks involving spatial memory (e.g., Boroditsky & Gaby 2010; Brown & Levinson 1993; Danziger 2011; Haun et al. 2011; Levinson 2003; Majid et al 2004; O'Meara & Pérez Báez 2011; Pederson et al 1998).

Another body of research has given evidence for the argument that language provides crucial input for the development of human spatial cognition beyond the basic abilities we share with other animals (e.g., Hermer-Vazquez et al 2011; Shusterman & Spelke 2005). Specifically, humans have an innate ability to represent location with respect to the distance and direction of environmental boundaries (Hermer & Spelke 1996; Learmonth et al 2012; Lee & Spelke 2010), also shared with rats (Cheng & Gallistel 1984; Tommasi & Thinus-Blanc 2014) and ants (Wystrach & Beugnon 2009). However, humans alone are able to maintain more complex representations that encode the locations of objects in relation to other, nonadjacent objects. Hermer-Vasquez et al (2001) showed that the ability to remember the location of a hidden prize in relation to a freestanding landmark emerges between 5-7 years of age, and was significantly correlated with language development. Shusterman et al (2011) further demonstrated that specifically goal-oriented language, relating the hidden prize to the landmark, significantly aided children's ability to locate the prize.

The combined results of these two areas of research suggest a developmental sequence. Humans are born with a genetically given capacity to remember locations in relation to basic

environmental geometry (Hermer & Spelke 1996; Learmonth et al 2001; Lee et al 2012; Lee & Spelke 2010). As they begin to develop more sophisticated linguistic abilities, they gain the ability to remember locations in relation to landmarks (Shusterman et al 2011). At first, these are limited to “direct” relations. That is, they simply encode locations *at* landmarks. Then, between 5-7 years of age, children begin to represent “indirect” relations, in which locations are not contiguous with the referential landmarks (Lee et al 2012; Lee & Spelke 2010). However, to remember “indirect” relations, a FoR is required, and the ways that FoRs are used to remember these “indirect” relations is partly shaped by the specific pattern of FoRs used in the child’s developing language.

This developmental sequence raises a question that has not been adequately addressed. While prior research has shown that language plays a significant role in shaping patterns of spatial cognition, and helps to account for cross-cultural variation, we know little about the role played by human groups’ distinct ways of engaging practically with space—for example those of pilots, urban shop-owners, farmers, and shepherds. Can differing ways of engaging with the environment also help explain the variability of FoRs in adult spatial cognition? Previous research on cross-linguistic variation in spatial cognition suggested that cultural and environmental factors were not *sufficient* (Haun et al 2011; Levinson 2003:193; Majid et al 2004:110; Mishra et al 2003:379) to explain linguistic patterns. In these studies, cultural and environmental types were controlled for, and thus not treated as a dimension of variation within the linguistic groups they compared. Consequently, the argument was limited to the claim that environmental and cultural types alone do not determine FoR use in language or cognition.¹²⁵ As I argued in Chapter 3, because this work

¹²⁵ The types used by Majid et al. (2004) are also themselves problematic, as they correspond to a coarse level of description that merely distinguishes broad categories such as “collectivism vs.

was focused primarily on the relationship between language and cognition, controlling for environmental and cultural types, it has not explored the roles such factors might play within a single, culturally or linguistically defined group.¹²⁶

There is an important consideration that makes it necessary to examine the role of environmental experience in the use of FoRs more closely. Many of the original studies suggest that the use of the Absolute FoR requires speakers to maintain a constant sense of their orientation with relation to the surrounding environment, even when indoors or far away from contextually relevant landmarks (Brown 2008:159; Haviland 1998:30; Levinson 2003:243). However, humans do not appear to have an innate ability to achieve this level of orientation (Levinson 2003:277), and speakers of languages that *do not* rely on Absolute FoRs do not habitually use them to remember large scale spaces (Beusman 1996 [cited in Levinson, 2003:272]), instead “piloting” their way along paths with reference to egocentrically anchored images (Gallistel 1990). Regardless of the possible causality of the link between the preference for FoRs in language and cognition, the use of a Relative FoR—English-speakers’ use of “left” and “right,” for example—requires the very specific experiential input of learning to differentially distinguish one’s own lateral halves. In contrast, an Absolute FoR—defined broadly to include descriptions with both ad-hoc and conventionalized coordinate systems (Palmer 2015)—seems to require not only the particular experiences of the environment needed to establish coordinates or landmarks, but also continual attention to one’s surroundings to keep track of one’s own orientation within an externally anchored coordinate system. The necessary input varies according to the nature of the

individualism,” five general modes of subsistence, and ten types of environment (Majid et al 2004:112).

¹²⁶ Another reason for this is the assumption that Absolute or environmentally anchored FoRs are objective, as opposed to the subjectivity of Relative or participant-anchored FoRs. I develop this critique at length in Chapter 3.

Absolute system. For example, wind direction (Levinson & Wilkins 2006:542), sun position (Núñez & Cornejo 2012), or watershed orientation (Brown 2006:263) all may provide relevant information.

The importance of this experiential, non-linguistic input, suggests another possible factor that may contribute to the shaping of FoR preferences alongside language structure. While linguistic patterns may support a habitual pattern of FoR use, this may be accompanied by a requirement for experiential input from speakers' own bodies and/or surrounding environments. It may also be accompanied by a requirement for socialization into this pattern of experience. If these linguistic and experiential inputs are equally important, or if the experiential input is primary, a certain threshold of environmental experience may be necessary for the maintenance of a predominantly Absolute pattern of FoR use. The following hypothesis can thus be formed:

Particular environmental experiences are necessary for the habitual use of an Absolute FoR. Thus, linguistically similar individuals with dramatically different environmental experience should demonstrate different patterns of nonverbal Absolute FoR use.

Until now, few studies have been able to provide data that could address this hypothesis because the cultural and environmental variations have mostly been cross-linguistic. Two exceptional studies—one contrasting urban and rural communities of Tamil speakers in a single district (Pederson 1998), and another contrasting Hindi spoken in village and city contexts (Mishra et al., 2003)—suggested some environmental influence on both spatial description and nonverbal memory. However, while the study distinguished variability among individuals in terms of verbal description, environmental factors remained coterminous with the sub-populations

studied. The experiment I present in this chapter provides a large sample that differs in several ways from previous studies. First, it includes participants who are speakers of the same variety of Ancash Quechua and are all residents in the same community. Second, participants are also distinguished by fine-grained differences in environmental experience. As I described in Chapter 2, many members of the community spend or have spent considerable periods herding in the high pastures like Ruriq and Waraqayuq, while others have little to no experience herding and are not familiar with the high pastures, spending most of their time working in the heavily farmed hills around Huaripampa and Canray Grande.

1.1 Research setting

The study presented here was conducted specifically in and with residents of the Populated Center of Huaripampa. Chapters 1 and 2 include a detailed account of this sociological and cultural context.

1.2 Ancash Quechua spatial grammar¹²⁷

Ancash Quechua speakers have an overwhelming preference for allocentric FoRs—that is, the Absolute and Intrinsic FoRs—in spatial description.¹²⁸ While the Intrinsic FoR is preferred in a particular small-scale context, as described below, the Absolute FoR is preferred for large-scale descriptions as well as other small-scale contexts. Rather than a fully abstracted, conventionalized coordinate system such as cardinal directions, speakers draw on a number of other strategies that

¹²⁷ This section provides a review of the linguistic aspects of Ancash Quechua most relevant to the study presented in this chapter. Chapter 3 provides a more detailed description of the language's spatial grammar.

¹²⁸ For the details of the study on Ancash Quechua spatial language see Chapter 3. The preference for allocentric FoRs is also manifest in spatial gestures, which are geocentric by rule (see Chapter 4, and Shapero 2014).

rely on fixed landmarks or a generalized sense of local topography for describing spatial relations in the Absolute and Embodied Absolute FoR (see Chapter 3). Conventionalized or situational landmarks (Mishra et al 2003) and a number of slope terms serve as the most frequent means for describing spatial relations in both tabletop and large-scale space. The use of slope frequently coincides with the local terrain, but can also be used in direct contradiction. For example, the path that steeply climbs nearly 100 meters up from the Sawan river valley to the highest neighborhood in the town of Huaripampa can be described as “downhill” because it goes westward, the canonical direction associated with downhill slope. Example (1) illustrates this:

(1)

Uray-pa-m kutimu-nki Sawanruri-pita-qa Wantsa-man chaa-na-yki-paq
 down-GEN-EV return-2 Sawanruri-ABL-TOP Wantsa-DAT arrive-NOM-2-PURP

“From Sawanruri you return downward in order to get to Wantsa.”

There are terms for “left” and “right” attested in Ancash Quechua, but they are not in use in the Río Negro watershed. Nevertheless, speakers do sometimes use Spanish borrowings to label the sides of things with inherent directions of movement (e.g., cars and animals), as in example (2).

(2)

Waaka-pa derecha laadu-n-chaw monti shaa-ra-yka-n
 cow-GEN right side-3-LOC tree stand-STAT-CONT-3

“The tree is standing at the cow’s right side”

Such utterances draw on the Intrinsic FoR, and are distinct from the use of left and right terms in the Relative FoR (absent in Ancash Quechua), as the coordinate system defining “right side” is grounded neither in the speaker or the referent figure (the tree). In other words, designations of left and right within the Intrinsic FoR are view-independent, while those in the Relative FoR are view-dependent (Haun et al 2011:72). In Ancash Quechua such descriptions are limited to specific conditions, such as those present in elicitations in which pairs of participants had to communicate the arrangement of a model cow and tree hidden from their partners.¹²⁹ In these elicitations, Intrinsic “right” and “left” were still only rarely used. The more common use of the Intrinsic FoR was to describe front/back relations, as in example (3) below.

(3)

Monti waaka-pa qipa-n-chaw shaa-ra-yka-n
 tree cow-GEN rear-3-LOC stand-DUR-CONT-3
 “The tree is at the cow’s rear”

The use of Intrinsic and Absolute FoRs in this type of elicitation had a very regular distribution. Descriptions instantiating the Intrinsic FoR such as the one above were used almost exclusively for describing the location of a referent that is in a sagittal relationship to a ground with fixed sides (e.g., the tree is at the rear or head of the cow). The use of intrinsic left or right to describe the position of the tree when located at the cow’s side is a rare exception to this rule: the predominant description in such cases uses the Absolute FoR to select the appropriate side of the

¹²⁹ This structured elicitation, described in detail in Chapter 3, was based on the “man and tree game” (Pederson et al 1998).

cow, as in “Monti uma laadunchaw shaaraykan” (the tree is standing at its [the cow’s] uphill side). Likewise, the Absolute FoR was used to describe the orientation of the cow itself, as in “waaka uraman rikaraykan” (the cow is facing downhill) or “waaka Ruriqman rikaraykan” (the cow is facing Ruriq [Canyon]).

In sum, Ancash Quechua speakers in the Río Negro watershed have an overwhelming preference for allocentric FoRs. Within this overall pattern, an Absolute FoR is preferred for describing large-scale relations and some small-scale relations, while an Intrinsic FoR is preferred when an object that has sides fixed with respect to an inherent direction of movement, such as an animal or vehicle, can serve as a ground for the referent figure.

2. Methods

The experiment described here was a slight modification of the “chips task,” originally described in Levinson (2003, p. 159).¹³⁰ The aim of this task was to test whether participants remember spatial relationships in an allocentric (Absolute or Intrinsic) or an egocentric (Relative or Direct¹³¹) FoR. This was done by means of a selection task in which participants chose one of four cards depicting an arrangement of two circles matching a stimulus seen previously at a 180-degree rotation. Absolute and Relative FoRs are distinguished from Intrinsic and Direct FoRs by the transposition of the coordinate system onto an object other than the figure. Because the “chips task” relies on rotation, it only tests whether participants remember the array of cards in relation

¹³⁰ I chose the “chips task” rather than the “animals in a row” task (Pederson et al 1998) for two reasons. First, the latter assesses only relations on the transverse axis, and thus provides a less complete picture of possible spatial relations. Second, the “chips task” generally yields more variable results (Mishra et al 2003), allowing me to look more closely at the influence of other factors.

¹³¹ Danziger (2010) introduced the Direct FoR in order to account for descriptions with non-transposed egocentric coordinates, such as “the glass is in front of me.”

to themselves or not and is not sensitive to transposition. For this reason, the “chips task” only distinguishes allocentric and egocentric FoRs.

2.1. Participants

The study included 97 participants. All participants in this study ($N = 97$, 53 women, 44 men, $M_{\text{age}} = 24$, age range: 8-77 years)¹³² were residents of Huaripampa, district of Olleros, province of Huaraz, Ancash Region, Peru, and belonged to Quechua speaking households. I removed three participants’ data (two men, ages 18 and 73, and one woman, age 65) because more than three of their responses were coded “untypable” (see section 2.3 below), which I took to indicate miscomprehension of the task.

In addition to age and gender, I measured two other variables: language ability, and extent of experience in the highland pastures in the *hallqa* region (3,700-4,700 masl).

I used two means to assess language ability during testing, though only one was used to define the variable. I began with the initial assumption that all participants were Quechua speakers, as they all came from Quechua-speaking households. I thus gave the minimal instructions for the task in Quechua. However, some younger participants displayed or expressed incomprehension of these instructions. In these cases, I repeated instructions in Spanish. I also asked participants in a post-test questionnaire if they spoke Quechua. I grouped participants who received instructions in Spanish as Spanish-dominant bilingual/Spanish speaking ($N = 22$, 15 women, 7 men, $M_{\text{age}} = 11$, age range = 8-17), and all other participants as Quechua-dominant speakers ($N = 72$, 37 women, 35 men, $M_{\text{age}} = 26$, age range = 8-77). It should be noted that in the Andes, Quechua speakers and non-speakers alike generally perceive Quechua as a domestic

¹³² Ages were given in years.

language, and consider Spanish to be the appropriate language for interaction with outsiders and in official contexts. This suggests that some or all members of the group classified as Spanish-dominant may in fact have been fully bilingual or even Quechua-dominant bilingual.¹³³ Also for this reason, the groups were defined only by the instructions that participants received, and not the explicit self-judgments that likely qualified the social context rather than individual linguistic competence.

I assessed the second variable—environmental experience—by means of a series of questions asked to each participant at the conclusion of the study activities (see Appendix 3). The questions addressed the extent, content, and consistency of participants' experience in the *hallqa*. Due to a number of political and sociological factors (see Chapter 2), participants fell into two distinct groups. One group ($N = 40$, 19 women, 21 men, $M_{\text{age}} = 30$, age range = 8-77) spends either two or more consecutive nights per week, or two or more consecutive months per year in the *hallqa*. The other group ($N = 54$, 33 women, 21 men, $M_{\text{age}} = 17$, age range = 8-46) has made, at the most, only sporadic single-day visits to the *hallqa*. While there were a number of participants with significantly *more* experience in the *hallqa*, due to sociological factors there were none who fell into an intermediate category.

2.2. Materials and procedures

The aim of this task was to test whether participants remember spatial relationships in an allocentric or an egocentric FoR. To access this distinction, the task required that the participant rotate 180 degrees after seeing the stimulus at table I to table II, where I asked them to select a matching image from a set of four (Figure 20). The stimulus at table I was a square card with two

¹³³ For more details on the sociolinguistic situation in Río Negro, see Chapter 1.

adjacent circles—a large white circle and a small black circle; at table II there were four identical cards, each rotated in a different direction so that the small black circles were to the north, south, east, and west.

I first showed each participant a stimulus alongside the set of four cards at table 1, and asked to identify the matching card while the stimulus remained uncovered. Once participants grasped the task, I covered the arrangement of four cards, and asked them to remember the stimulus. I then covered the stimulus and uncovered the four cards and asked them to select the matching card. I repeated this three times. This method of training established understanding of the task with the least reliance on any explicit verbal instructions (see Appendix 3).

After training, participants then completed eight trials, consisting of a fixed order that repeated each possible rotation of the stimulus twice, and was identical for all participants. The array of cards on table II was identical in all trials. The two tables were in separate but adjacent rooms in order to increase the reliance on memory and to eliminate the possibility that participants would orient to physical features of the room itself. Likewise, locating the task indoors assured that participants would not fixate on prominent, visible landmarks. For this reason, allocentric responses suggest that participants did not merely relate the orientation of cards to their immediate surroundings, but rather to an internalized sense of bearing. To control for the possible existence of a “weak” or “defective” Absolute axis (Levinson, 2003, p. 207), I conducted half of the participants’ tests at a 90-degree rotation. Thus, for half the participants, the two seating positions were at the west and east side of the two tables, while for the other half, the positions were at the north and south side (see Section 3.6). At the end of the eight trials, all participants were asked a series of simple questions (see Appendix 3).

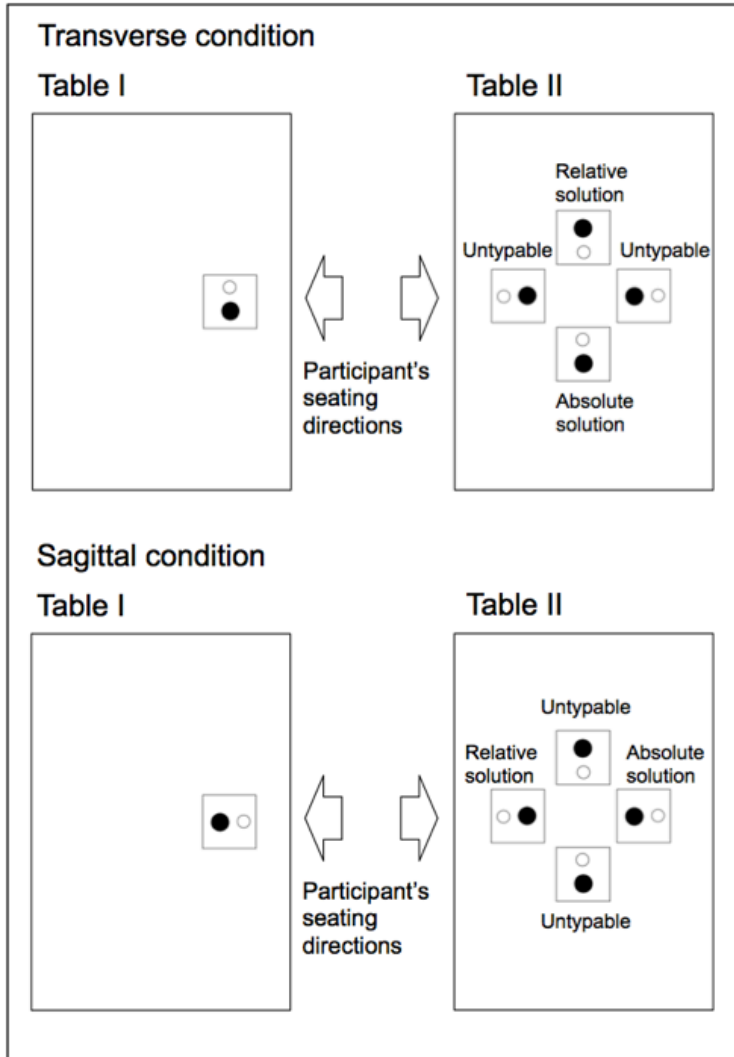


Figure 20. Setup for “Chips Task.”

2.3. Coding

Figure 20 illustrates how participants’ choice at table II reflects the FoR underlying their memory of the stimulus. The egocentric solution involves a representation framed with reference to the body, for example, with the white dot adjacent to the participant. Such responses were coded as EGOCENTRIC. The allocentric solution involves a representation framed with reference to the world, for example with the black dot on the east. Such responses were coded as

ALLOCENTRIC. All other responses were coded UNTYPABLE. Arrays parallel to the line of sight (front-back, or east-west in the illustration in Figure 20) are *sagittal* while those perpendicular to the line of sight (left-right, or north-south here) are *transverse*. Untypable responses resulted when participants chose cards corresponding to the transverse axis after seeing a sagittal stimulus, or vice versa. Such responses accounted for only four percent of all responses.

I assigned each participant an “egocentric-to-allocentric Gradient” (EA Gradient) score between 0 and 1 that ranked their responses from completely egocentric to completely allocentric. I calculated the Gradient (G) by assigning a value of 1 to allocentric responses (A), a value of 0 to egocentric responses (E), and a value of 0.5 to untypable responses (U), and then calculating the mean across the 8 trials [$G=(1A+0E+0.5U)/8$]. Assigning untypable responses a value of 0.5 made it possible to include these “errors” without contributing to the overall allocentric or egocentric tendency of each score. This score is based on the RA Gradient proposed by Levinson (2003:176-178).

Furthermore, I characterized each response as either sagittal or transverse (see Figure 20). The set of eight stimuli given to each participant consisted of four sagittal and four transverse arrangements. To capture this difference, I calculated two separate EA Gradients for the four transverse trials and the four sagittal trials.

3. Results

First, I assessed all participants’ performance on the chips task in terms of the overall EA Gradient as well as for sagittal and transverse trial types (Section 3.1). Then, I tested the effects of language ability and herding experience in the *hallqa* region on participants’ performance (Sections 3.2 and 3.3). I also performed additional analyses to determine whether these results

may be explained by the factors of gender (Section 3.4) or age (Section 3.5). Last, I tested whether the two types of trial orientation may in part account for differences in EA Gradients (Section 3.6).

3.1. Preliminary analyses

The mean EA Gradient across all 94 participants was 0.37 (SD = 0.33). I also calculated two separate EA Gradients to test whether performance on sagittal and transverse trial types was equivalent. Table 22 shows the mean EA Gradient across all participants as well as on sagittal and transverse trials.

EA Gradient	N	Mean	Std. Deviation
Sagittal Condition	94	.25	.37
Transverse Condition	94	.49	.40
Overall	94	.37	.33

Table 22. Mean Egocentric Allocentric (EA) Gradients.
Note: Scores range from 0-1.

The mean EA Gradient for sagittal and transverse trial types varied considerably. In the transverse condition, participants were twice as likely to use an allocentric FoR. A one-sample t-test confirmed that the difference between the transverse and sagittal trial types ($M_{Difference} = .24$, $SD = .41$) was indeed significant, $t(93) = 5.69$, $p < .01$. The following analyses test whether these means vary with respect to participants' environmental experience, language ability, gender, age, or trial orientation.

3.2. Environmental experience

The first factor I tested was environmental experience. To begin, I tested the overall effect of the herding experience factor across all participants ($N = 94$, 52 women, 42 men, $M_{\text{age}} = 23$, age range: 8-77). An independent samples t-test indicated that the overall EA Gradient for participants with extensive herding experience ($M_{\text{Overall}} = .46$, $SD = .31$) was significantly higher than those with limited experience ($M_{\text{Overall}} = .30$, $SD = .33$), $t(92) = 2.36$, $p = .02$. However, to test this factor's effects on performance on this task, it was necessary to examine only the group of participants in the Quechua-speaking group ($N = 72$, 37 women, 35 men, $M_{\text{age}} = 26$, age range = 8-77). Table 23 demonstrates the relationship between language and herding experience. Most important here is that only three participants were both Spanish-dominant and had significant herding experience in the *hallqa* (two female participants, 14 and 17 years old, and one male, 17 years old).

Herding experience	Spanish-dominant	Quechua-dominant	Total
Limited	19	35	54
Extensive	3	37	40
Total	22	72	94

Table 23. Language ability and herding experience.

An independent samples t-test indicated that the overall EA Gradient for Quechua-dominant speakers with extensive herding experience ($M_{\text{Overall}} = .49$, $SD = .31$) was significantly higher than for those with limited experience ($M_{\text{Overall}} = .31$, $SD = .34$), $t(70) = 2.43$, $p = .02$. I repeated the test for sagittal and transverse trial types as well. The EA Gradient in the transverse

condition for individuals with extensive herding experience in the Quechua-dominant group ($M_{Transverse} = .64, SD = .37$) was significantly higher than for those with limited herding experience ($M_{Transverse} = .40, SD = .42$), $t(70) = 2.53, p = .01$. However, the EA Gradient in the sagittal condition for individuals with extensive herding experience in the Quechua-dominant group ($M_{Sagittal} = .34, SD = .40$) was *not* significantly greater than for Quechua speakers with limited herding experience ($M_{Sagittal} = .21, SD = .35$), $t(70) = 1.46, p = .15$. These results indicate that the effect of environmental experience was significant only in the transverse condition.

3.3. Language ability

The next factor I examined was language ability. As demonstrated in Table 23, only 3 of the 40 participants with extensive herding experience were Spanish-dominant. Testing language ability thus required that the analysis be limited only to the group of speakers without extensive herding experience ($N = 54$, 33 women, 21 men, $M_{age} = 17$, age range = 8-46).

An independent samples t-test indicated that the overall EA Gradient for Quechua-dominant participants with limited herding experience ($M_{Overall} = .31, SD = .34$) was not significantly different than for Spanish-dominant participants with limited herding experience ($M_{Overall} = .30, SD = .31$), $t(52) = .14, p = .89$. I repeated the test for sagittal and transverse trial types as well. The EA Gradient in the transverse condition for Quechua-dominant participants with limited herding experience ($M_{Transverse} = .40, SD = .42$) was also not significantly different than for Spanish-dominant participants with limited herding experience ($M_{Transverse} = .41, SD = .36$), $t(52) = .04, p = .97$. Likewise, the EA Gradient in the sagittal condition for Quechua-dominant participants with limited herding experience ($M_{Sagittal} = .21, SD = .35$) was not significantly greater than for Spanish-dominant participants with limited herding experience

($M_{Sagittal} = .18$, $SD = .33$), $t(70) = 1.46$, $p = .15$, $d = .09$. These results indicate that the effect of language ability was not significantly related to performance on the task. It is important to note here that the nature of the language ability tested here is not the same as that tested in previous work on spatial language and cognition, as it represents a dimension of variability within a single language community (see discussion, Section 4.2).

3.4. Gender

After establishing that environmental experience, but not language ability, was significantly correlated with participants' behavior on this task, I considered three other factors: gender, age (Section 3.5), and trial orientation (Section 3.6).

An independent samples t-test showed that female participants ($N = 52$, $M_{age} = 25$, age range = 8-66) and male participants ($N = 42$, $M_{age} = 20$, age range = 8-77) had very similar mean EA Gradients ($M_{Overall} = .37$ and $.38$, respectively), $t(92) = .17$, $p = .87$. Examination of the sagittal and transverse cases yielded similar results. In the transverse case, both female and male participants had a mean EA Gradient of $.49$, $t(92) = .07$, $p = .943$. In the sagittal case, female participants had a mean EA Gradient of $.24$, and male participants $.25$, $t(92) = .22$, $p = .83$.

A Pearson chi-square test indicated that the percentages of Quechua-dominant and Spanish-dominant participants did not vary significantly by gender, $\chi^2(1, N = 94) = 1.92$, $p = .17$. Likewise, another Pearson chi-square test indicated that the percentages of participants with little or extensive herding experience in the *hallqa* also did not vary significantly by gender, $\chi^2(1, N = 94) = 1.72$, $p = .19$.

3.5. Age

Age as a factor in environmental experience was only tested in the Quechua-dominant group due to the distribution of data explained in Section 3.2. A preliminary independent samples t-test suggested that in the Quechua-dominant group ($N = 72$), participants with extensive herding experience in the *hallqa* ($N = 37$, $M_{age} = 31$, $SD = 20$, age range = 8-76) were significantly older than those without ($N = 35$, $M_{age} = 20$, $SD = 13$, age range = 8-46), $t(70) = 2.74$, $p = .01$.

However, there were no participants over 46 years old who did not also have extensive herding experience. I thus conducted a further independent samples t-test with participants under 46 years old, to test whether the age difference found in the first test was specifically attributable to the group of participants over 46 years old. The results indicated that age was no longer significantly correlated with environmental experience in the age range of 8-46 ($N = 63$), $t(61) = .39$, $p = .70$. I then conducted a last independent samples t-test in this age range to test whether the correlation between environmental experience and performance on the task persisted. The results indicated that even in the reduced age range, participants with extensive herding experience ($N = 28$, $M_{Overall} = .47$, $SD = .29$) remained significantly more likely to have higher EA gradients than participants with limited experience ($N = 35$, $M_{Overall} = .31$, $SD = .34$), $t(61) = 2.03$, $p = .05$. The localization of this correlation in the transverse condition also persisted, $t(61) = 2.44$, $p = .02$. . Likewise, I still found no significant correlation in the sagittal condition, $t(61) = .88$, $p = .38$.

I also examined the possibility of a relationship between age and language ability. Again, for the reasons given in Section 3.2, age as a factor in language was only tested in the group with extensive herding experience. A preliminary independent samples t-test suggested that in the group of participants with extensive herding experience ($N = 54$), Quechua-dominant participants ($N = 35$, $M_{age} = 20$, $SD = 12$, age range = 8-46) were significantly older than Spanish-dominant

participants ($N = 19$, $M_{age} = 11$, $SD = 3$, age range = 8-16), $t(52) = 3.24$, $p < .01$. However, there were no participants over 16 years old in the group of Spanish-dominant participants. I thus conducted a further independent samples t-test to determine whether the difference found in the initial test was specifically attributable to the group of participants over 16 years old. The results indicated that language ability persisted as a significant factor for age in the age group of 8-16 ($N = 40$), $t(38) = 2.32$, $p = .03$. The significant relation between language and age is most likely related to sociolinguistic dynamics discussed in Section 4.2. However, this does not pose a problem for the hypothesis considered in Section 1, as I only tested environmental experience as a factor among the group of Quechua-dominant participants.

3.6 Trial orientation

It was necessary to determine whether some of the variation in participants' performance could be due to the possibility that the north-south axis was more weakly encoded in the generalized, slope-based coordinates used in the linguistic system, as these most closely correspond to the east-west axis (for a similar case, see Levinson, 2003, p. 207). To test this possibility, I employed two types of trials. Half of the participants ($N = 47$, 25 women, 22 men, $M_{Age} = 23$, Age range = 8-77) participated in Trial A: The sagittal axis was aligned with the east-west axis, and transverse with north-south. The other half ($N = 47$, 27 women, 20 men, $M_{Age} = 22$, Age range = 8-65) participated in Trial B: The sagittal axis was aligned with the north-south axis, and the transverse with east-west. Because the sagittal axis is considered the strong Absolute axis in general, if the possible strong Absolute east-west axis in the language was responsible for variation in performance, it would be expected that the greatest disparity between sagittal and transverse cases should appear on Trial B, with the sagittal stimuli most egocentric and transverse

stimuli most allocentric. A score of axial difference was calculated by subtracting each participant's EA Gradient score for the sagittal condition from their score for the transverse condition. An independent samples t-test indicated that the difference between participants' performance in sagittal and transverse cases in Trial A ($N = 47$, $M_{Difference} = .29$, $SD = .38$) was not significantly different from the difference between performances in Trial B ($N = 47$, $M_{Difference} = .19$, $SD = .42$), $t(92) = 1.18$, $p = .24$. In fact, as indicated by the respective means, the difference was greater on Trial A, though not significantly so.

4. Discussion

I tested the hypothesis proposed in Section 1 in the population studied here by determining whether environmental experience proved to be significantly correlated with the preference of FoRs used to remember spatial arrays. The results supported the hypothesis, suggesting that environmental experience can play a decisive role in the shaping of FoR use in spatial cognition. Furthermore the results showed that the higher allocentric tendency found to be associated with extensive herding experience in the *hallqa* couldn't be explained by gender, age, trial orientation, or other linguistic differences.¹³⁴ However, it is important to emphasize that the results do not provide positive evidence with respect to whether linguistic characteristics shape spatial

¹³⁴ Some reviewers of an article presenting this study in the journal, *Cognitive Science*, suggested the use of a mixed model analysis (Shapiro 2016). A generalized linear regression with repeated measures for trials in place of the EA gradient yielded results consistent with those reported above, with environmental experience and sagittal/transverse trial type as the only factors significantly correlated with an increased likelihood of allocentric response. Because of the small number of Spanish-dominant participants with significant herding experience, I could not test for an interaction between language and herding experience in the mixed model. Instead, I tested a three-group model comparing all Spanish-dominant participants as a reference group to Quechua-dominant participants with and without herding experience. The results showed a trend of increasingly greater probability of allocentric response from the Spanish-dominant group to the Quechua-dominant groups, with the Quechua-dominant group *with herding experience* the only group significantly more likely to give allocentric responses.

cognition, as I am not presenting coordinated data on FoR preference in language. Furthermore, because the sample is drawn from a single linguistic, social, and geographical community, the linguistic contrasts are subtler than those that have been shown to be associated with cognitive differences. At the same time, this makes it possible to look specifically at the role of variability in environmental experience within a single population.

4.1. Sources of variability in the data

At first, the finding of a relatively low rate of allocentric responses ($M_{\text{Overall}} = .37$) seems to contradict the assertion in previous studies that Absolute type languages such as Quechua are associated with allocentric performance on spatial memory tasks (Levinson 2003; Majid et al 2004; Pederson et al 1998). However, it is important to bear in mind that in many of the cases that have been examined before, Absolute languages show more variation than Relative languages. For example, 95% of Dutch speakers preferred Relative FoRs (Levinson 2003:181), whereas 84% of Arrernte speakers preferred Absolute, and 74% and 19% of Tzeltal speakers coded Absolute and untypable, respectively (180). In cross-linguistic comparison, however, this difference in consistency has proven insignificant. Furthermore, considering the near-categorical absence of Relative FoR use in speech, it is likely that most egocentric solutions were instead instances of the Direct FoR. This interpretation is further supported by the context of use, in which the participant is only asked to remember the arrangement, and is not primed for rotation. This raises the question of whether the egocentric tendency would decrease in a test condition in which participants practiced both selection with and without rotation compared to the current condition in which only selection without rotation was practiced. Finally, the use of the Direct FoR for thought, even in a strongly allocentric language, should not be surprising considering Danziger's

argument that the Direct FoR, unlike the Relative and Absolute, is universally present in all languages (Danziger 2010:180).

Terrill & Burenhult (2008) proposed an alternative explanation for the high degree of variability in FoR preference in linguistic descriptions in a number of languages, including Jahai and Lavukaleve. Speakers of these languages describe the orientation of objects in tabletop space rather than location with respect to one another. As a result, they use cues that appear heterogeneous within Levinson's definition of FoRs. However, this may sometimes be due to the stipulation that the coordinates presupposed by an Absolute FoR be fixed and abstract. Such languages can be reevaluated along the lines of Palmer's (2015) definition of Absolute FoR as simply relying on an externally anchored coordinate system. Quechua is a good example, as linguistic descriptions of objects in tabletop space demonstrate a preference for orientational characteristics (Terrill & Burenhult 2008), while at the same time relying consistently on externally anchored coordinate systems. In this sense, a preference for orientational descriptions does not contradict the evaluation of a language as Absolute as long as the use of FoR is consistent. For example, Ancash Quechua speakers would describe the orientation of a toy cow by saying that the cow is looking uphill or toward the school, for example, rather than toward or away from a speech participant.

The ambiguity presented by Ancash Quechua speakers' rate of allocentric responses on a cognitive task might not have been of much value for a cross-linguistic study, but the underlying variability alone made it possible to test the hypothesis that experiential input is necessary for the maintenance of an Absolute FoR. Considering the evidence presented in Chapters 2-4, this finding is all the more significant, as it suggests that distinct patterns in language (FoR use) and practice (herders' interactions with the *hallqa* landscape) mutually shape sociologically

distributed patterns of nonverbal cognition. Nevertheless, it remains to be seen if further linguistic variations, such as Spanish-dominant bilingualism or the presence of a weak Absolute or strong Egocentric axis, might account for the variation. Furthermore, it raises the question of what other than the pattern of FoR use in the Ancash Quechua language could account for the variability. A possible explanation is that the preference for the Absolute FoR is cultural, and that simple nonlinguistic representations leave room for speakers to use conceptual resources for producing descriptions in other FoRs, whether drawing on concepts of linguistic or innate cognitive origin. However, previous research has shown that linguistic preference for a particular FoR in languages is born out in cognitive tasks of increasing complexity even when these languages also have the verbal resources to produce descriptions in other FoRs as well (Haun et al 2011:76).

The distinction between sagittal and transverse stimuli was another source of variability. There are two compatible explanations for the finding that transverse stimuli were associated with significantly more allocentric responses. First, an egocentric frame is arguably more salient on the front-back axis than on the left/right. Supporting evidence for this comes from the slow development of left-right terms (Piaget 1928) and their complete absence in many languages (Levinson & Wilkins 2006). Moreover, the “animals in a row task,” another test of spatial memory that involves only the transverse axis, consistently yields higher rates of allocentric responses than the “chips task” among the same populations (Mishra et al 2003:376). Second, considering that languages such as Ancash Quechua that don’t use left-right terms in the Relative FoR tend to use Absolute FoRs in nonverbal memory tasks (Majid et al 2004), the transverse axis would be expected to be the most allocentric. Indeed, the results indicated that participants were significantly more likely ($p < .01$) to use an allocentric FoR to remember transverse stimuli. This suggests that there is an associated distinction in both language and cognition between the use of

FoRs between sagittal and transverse axes. Nevertheless, the mean EA Gradient on transverse cases for all participants was just under .5, indicating that a great deal of variability remained unexplained. The remaining analyses demonstrated that this variability was best explained by the proposed hypothesis, namely that environmental experience shapes FoR preference.

4.2. Environmental experience and language ability

The findings suggested the validity of the initial hypothesis that environmental experience shapes the preference for FoRs in spatial cognition. Specifically, I found that participants with more extensive herding experience in the high pasturelands surrounding the community were more likely to use an allocentric FoR to remember the stimuli. In contrast, when language ability was tested as a factor in performance, no significant difference was found. I also conducted half of the participants' trials at a 90-degree rotation in order to test for effects due to the possibility that the language encoded only a strong north-south or east-west axis, but not both. The results, however, indicated that this difference had no significant relation to performance. Clearly, there may be other linguistic factors not accounted for here, and there is no way to rule out the possibility that they were wholly or partly responsible for the variation. Yet, the fact that a non-linguistic factor (environmental experience) did result to be significantly related to the use of FoRs suggests that the hypothesis is indeed correct.

These findings raise the question of what it is about participants with greater experience in the high grasslands that makes them prefer allocentric FoRs for nonverbal memory. There are several candidate explanations, and unfortunately the results provide no sure way to distinguish among them. One possible explanation is simply the amount of time spent outdoors. However, I observed during my fieldwork that both agricultural and pastoral families spend most of the day

outdoors. While this may be a factor in the linguistic preference for the Absolute FoR, it does not seem to be relevant in explaining cognitive variability. A more likely candidate is the size of the territory that participants were familiar with. Pastoral work requires constant and long-ranging movement. On an average day working with herders in Ruriq, we climbed both of the 500-meter high sides of the 9 km long canyon and then followed the river to its source at the canyon's head.¹³⁵

Some previous studies of spatial language and cognition have considered the role of similar non-linguistic factors. For example, a correlation was found between allocentric nonverbal FoR use and rural populations in some languages that are spoken in both urban and rural contexts (Levinson, 2003:189; Pederson 1993, 1998). Li and Gleitman have made the stronger case that FoR preference is a result of circumstantial rather than linguistic factors (2002:290). The latter argument ultimately aims to support the view that language serves to express non-linguistic thought, and is the authors' response to a strong version of linguistic relativity. Setting aside the directionality or strength of the relationship between language and thought, their study is actually similar to that presented in Levinson (2003) and Pederson (1993, 1998) in that none of the studies focus on the actual practices and experiences through which speakers perceive and know their surroundings. The current study differs from both sides of this debate in that it does not presuppose that either language *or* context shape spatial cognition, but rather proposes a particular interaction of the two by testing the effects of an ethnographically sensitive measure of environmental experience within a single community of speakers.

The results of this study must be taken as specific to Ancash Quechua, and even to the community where the study was carried out. The distinct pattern of linguistic ability,

¹³⁵ Chapter 2 includes a detailed narrative account of herding practices that may serve as a more tangible illustration of the kinds and scale of movement involved.

environmental experience, age distribution, literacy, and historical changes in land use all contribute to a unique constellation of variables. Nevertheless, such social and cultural variability is itself a constant in the sense that any population can be expected to have similar idiosyncracies. Also, not all such distinctions may be expected to relate with spatial cognition. For example, a social division between animal husbandry and agriculture within the same geographical boundaries would not seem likely to affect FoR use. On the other hand, a population with a more distinct split between bilingual and monolingual speakers of languages differing in terms of FoR use would provide another perspective on this issue.

Along these lines, a study found that native English speakers living among speakers of Arrernte (an Absolute language) in Central Australia were more likely to use an Absolute FoR on nonverbal tasks than their counterparts living among other English speakers on the coast (Levinson 2003:191). Likewise, Marghetis et al. showed that bilingualism did not account for variability in FoR use among Juchitán Zapotec speakers, as the bilingual community of La Ventosa was consistently allocentric while another—the nearby Juchitán—was highly variable. The authors argue that “spatial reasoning is not reliably predicted solely by a community’s linguistic codes” (2014:5). Rather, they suggest that the variability results from the saliency of topographical features; Juchitán has more dense architecture, obscuring the horizon, and its residents have less necessity to travel than those in La Ventosa. These factors suggest that residents of Juchitán have less recourse to allocentric FoRs in daily life. Cases like these demonstrate that environmental experience and linguistic practice can indeed shape habits of non-linguistic spatial representation, entangling them with situational processes such as social differentiation and environmental change. By focusing on variability in environmental experience

within a single community, the current study provides more concrete evidence supporting this possibility.

4.3. Gender and age

I also tested gender and age as possible alternative explanations for variation in the data. The results indicated no significant relation to gender, ruling out this factor. Age was more complex. Initially, it seemed that the age of participants in the Quechua-dominant group was confounded with herding experience, therefore potentially confounding the correlation between herding experience and FoR preference as well. However, this appeared to be the result of the fact that all Quechua-dominant participants in the age group over 46 had extensive herding experience. The confound between factors was confirmed and then resolved by removing the age group over 46. In this new sub-group (age range = 8 - 46), the significant correlation between environmental experience and allocentric FoR preference persisted. It is still important to point out that this study does not make any specific claims about the relevance of age other than that it is not significantly related to allocentric or egocentric performance on this experiment. Further investigation along these lines, especially with children younger than those included here, would provide a critical complement to the study.

Though age proved to be insignificant in this study, it remained confounded with language ability. In order to further examine fine-grained linguistic difference due to dialectal variation, language change, or multilingualism, the frequently inevitable confound between linguistic characteristics and age must be confronted. Furthermore, even in the community studied, environmental experience and age would likely have been impossible to disarticulate in the 1970's and 80's, when the historical shifts that led to the current situation were emerging (Barker

1980; Mayer 2009). In this sense, the ethnographic research that accompanied this study was invaluable in identifying a reasonable variable to study. Likewise, what was appropriate here would not necessarily be so elsewhere.

4.4. Other social and cultural factors

Literacy has been proposed as a possible factor in the use of FoRs in spatial cognition (Danziger & Pederson 1998; Levinson 2003:194). Danziger & Pederson (1998) provided evidence that distinguishing among mirror images is an acquired trait and is related to literacy, perhaps related to script directionality and the related need to distinguish between mirror-image symbols such as “b” and “d.” Levinson (2003) reported that in Belhare and Tamil (Pederson, 2003), literacy correlated moreover with a difference in FoR use. This difference was found in a task testing for transitive inference, but not in a simple rotation task like the one presented here. Danziger (2011) further explored the possibility that literacy affected the ability to distinguish between mirror images, which are equivalent within an Intrinsic FoR, and determined that literacy was not a relevant factor after all, as both literate and non-literate Mopan Maya speakers did not distinguish between pairs of mirror-image 3D forms. In the population studied here, literacy was not explicitly measured, but in general it is confounded with age.¹³⁶ Since age did not prove to be a significant factor, it is unlikely that literacy would differ, however it remains a question open to further investigation.

Another factor that was not examined, but may in fact be confounded with environmental experience, is social and economic class. However, these categories, along with environmental

¹³⁶ Measuring literacy is a complex task in Río Negro, as the availability, social significance, and methods of public education have changed dramatically there during the lives of adult residents. Furthermore, there is individual variation with respect to reading as opposed to writing.

experience are to some extent mutually constitutive. For example, community members with significant economic resources may choose to pay or accrue debt to another to take care of their herds and pastures. Moreover, residing in the highland pastures reduces the possibility of accumulating wealth through wage labor. Finally, because there is nothing about social class in itself that would lead to an expected difference in spatial cognition other than the associated environmental experience, the more parsimonious explanation is that the latter is the decisive element. The precise nature of this role cannot be determined with the results of this study, but some possibilities were discussed in Section 4.2.

5. Conclusion

Previous studies have shown that language both contributes to humans' ability to orient using landmarks (e.g., Hermer-Vazquez et al 1999; Shusterman et al 2011; Shusterman & Spelke 2005) and shapes the use of FoRs in nonverbal spatial cognition (e.g., Boroditsky & Gaby 2010; Brown & Levinson 1993; Danziger 2011; Haun et al 2011; Levinson 2003; Majid et al 2004; O'Meara & Pérez Báez 2011; Pederson et al 1998). The study presented in this chapter departs from a question raised at the intersection of these two observations: How do humans' habitual engagements with and experience of their surrounding environment affect their cognitive representations of space? The results of the study demonstrate that patterned variation in the environmental experiences¹³⁷ of individuals in a single population is significantly related to variation in preference for allocentric FoRs in a nonverbal memory task. The study raises a number of questions that could be fruitfully explored in future research, and by no means

¹³⁷ Environmental experience is always embedded in cultural as well as linguistic contexts. As such, there is no way to completely tease these layers apart. However, sub-cultural distinctions such as agricultural and pastoral livelihoods entail different forms of access to geographical experience and knowledge.

challenges the possibility that in communities with distinct characteristics, other relevant factors may be found. However, it also demonstrates that experience can play a role alongside language in shaping habits of spatial representation in at least one context.

The present study also raises questions about the nature of the relationships among language, cognition, experience, and culture. How exactly do lived experience and culture come to bear on linguistic and cognitive patterns? The results presented here suggest the importance of this question, indicating that extensive experience with herding in highland pastures was associated with a significantly higher use of allocentric FoRs in nonverbal spatial memory. The factor of environmental experience in itself bridges cultural and natural domains in the sense that it represents a habitual and social pattern of practice that involves a spatially and temporally particular type of engagement with the environment. Similarly, I argued in Chapter 3 that the habitual use of the Absolute FoR in Río Negro requires Quechua speakers to continually orient to the surrounding world. In this sense, both highland pastoralism and the use of the Absolute FoR draw on a similar cognitive ability to keep track of one's position among various landmarks in a fixed coordinate system. While previous studies have generally demonstrated that environmental and social types *alone* do not predict the use of FoRs in language and cognition (Majid et al 2004:112), it remains to be seen whether the nature of the surrounding environment itself affects the particular cues that populations use to establish and maintain their bearings in a fixed coordinate system. Likewise, while there is experimental evidence that the Absolute FoR precedes the Relative in cognitive development among speakers of some Absolute languages (Mishra et al 2003), there is as of yet only anecdotal evidence as to *how* young speakers manage to form geocentric spatial representations.

This study also serves as a point of convergence between research on the emergence of distinctly human forms of spatial cognition (e.g., Learmonth et al 2001; Lee et al 2012; Lee & Spelke, 2010) and the impact of language on its particulars (e.g., Levinson 2003; Majid et al 2004; Danziger 2010). The former research has been especially concerned with distinguishing humans' inheritance from genetic ancestors, our innate abilities, and those that emerge during cognitive and linguistic development. The latter research, in contrast, has focused more on the question of whether and how linguistic structure shapes nonverbal cognition. In contrast, this study steps back to examine part of the context in which language and cognition interact—specifically, the variations in individuals' environmental experiences that may shape their preference for FoRs in nonverbal memory. The results offer evidence suggesting that at least under certain conditions, cultural practices of environmental engagement are a crucial piece of the puzzle.¹³⁸

Reframing this suggestive conclusion in more critical and prescriptive terms, future research on the relation between spatial language, thought, and culture must take local particularities of environmental practice and experience seriously. Yet more plainly: no matter the extent of nuance in a study's grasp of linguistic or cognitive diversity, it will always yield ethnocentric results if the diversity of ways in which the human groups involved engage with their environments¹³⁹ is not treated with the same rigorous level of nuance.

¹³⁸ More specifically, I would further argue that any claim of unidirectional causal vectors between culture and language (i.e., either side of the linguistic relativity debate, weak *or* strong) either involves a generalizing idealization that cordons off practice and experience from language and cosmology (not culture, which is inherently dynamic), or is limited to a context in which geocentric orientation does not ground habitual practices, language use, or thought.

¹³⁹ I am defining the environment here, as in the rest of this dissertation, widely defined as encompassing social both social and spatial relations among humans as well as with places when culturally relevant to do so.

Chapter 6: Conclusion

Each chapter has examined explored a different way in which patterned engagements with the environment shape life in Río Negro, addressing specific questions about sociality, language, body, and thought. As I have indicated throughout the text, the chapters are in dialogue with one another. For example, the only variable that correlated significantly with egocentric and allocentric responses on the experimental task presented in Chapter 5 was the distinction between herders and farmers, a variable whose social and cultural significance in Río Negro is a central to the ethnographic description in Chapter 2. Likewise, my observation of quotidian environmental practices in Chapter 2 are instrumental to the argument in Chapter 3 that the use of spatial language in Río Negro presupposes a shared sense of location in and orientation to a familiar landscape. Chapter 4 in turn builds on this insight to explore how this shared awareness informs speakers' use of demonstrative pronouns that do not directly encode spatial relations.

Despite their interdependence, the chapters also represent separate analytical projects. For each one, I conducted distinct analyses of my field notes, recordings, and experimental results (see Chapter 1, Section 6). This structure helped me to conceptualize a multifaceted problem that lay at the intersection of the domains of language, environmental practice, and cognition, each of which is already complex. As a complement to these inevitably artificial distinctions among the chapters, my concluding goal is to draw out four common threads and tie them back together as overarching themes, as if unraveling a textile to return each color to its original spool. The four colors here are the relationship between spatiality and sociality; the particularities of humans'

engagements with individual places; the role of Theory of Mind in environmental in these engagements; and the intermediate role of language between individual bodies and the environments they share.

1. Spatiality and sociality

In Chapter 4 I noted the disciplinary division of labor that distinguishes demonstrative reference and deixis from spatial language and orientation as social and spatial domains of language, respectively. Instead, I suggested, the social and the spatial are intertwined at every level. Evidence for this claim is spread across each chapter. First, Chapter 2 gives concrete evidence that people in Río Negro form familiar relationships with individual places through the same forms of sociality as with other humans—habitual interactions, co-residence, feeding and care, and reciprocal debt.¹⁴⁰ I also observe here that these relationships are conditioned specifically on patterns of environmental practice such as those that distinguish herders and farmers. In a very concrete way, then, spatial relationships are also social relationships, and vice versa. Chapter 3 goes on to show that the use of spatial language in everyday conversation in Río Negro presupposes this simultaneously geographical and social relationship to the landscape. The reliance on landmarks and the use of words like “up” and “down” as cardinal directions require speakers to maintain a constant awareness of their location and orientation with respect to an extensive territory of named places—what I refer to as an embodied sense of space. Chapter 4 continues along these lines to show that the same “sense of space” grounds speakers’ use of demonstrative pronouns. Specifically, I show that relative proximity or distance cannot explain the alternation of Quechua demonstratives. Instead, spatial interpretations such as distance emerge

¹⁴⁰ This claim is related to that made by Salas Carreño (2016) and Mannheim & Salas Carreño (2015). Chapter 2 includes a more detailed discussion of how my approach builds on theirs.

alongside social ones in relation to the unfolding of individual verbal interactions. Once again, spatiality and sociality are thoroughly intertwined. Finally, in Chapter 5, I offered experimental evidence that there was variability in nonverbal spatial orientation. Specifically, I showed that farmers were more likely to form egocentric representations of spatial relationships, while herders were more likely to form allocentric (or geocentric) representations. I interpreted this as an indication that the distinct spatiality of herders' and farmers' respective environmental practices shapes their basic cognitive habits.

2. Environmental particularities

While this association between social categories and strategies for spatial memory illustrates another way in which sociality and spatiality are intertwined, it also points out that the particularities of humans' relationships with places resonate across domains of human life. These relationships are thus important to study with ethnographic nuance across disciplinary boundaries. The other chapters of this dissertation likewise reflect the importance of recognizing the diversity and specificity of human-place relationships. For example, Chapter 2 observes that just as the relationships humans form among one another are diverse in nature, so are those they form with places. The same distinction between farmers' and herders' environmental practices, which correlates with spatial thought in Chapter 5, first emerges here as the relevant difference for explaining why only a subset of Rio Negro residents—namely herders—communicate directly with mountains through divination. Herders' work takes them into constant co-presence with mountains, and leads them to establish familiar social relationships of mutual debt and obligation. It is this relationship, I argued, that positions them as divinatory intermediaries for mountains. This fact is of broad sociological significance, as it makes it possible to appreciate how herders'

habitual engagements with the environment open a frame for action that grounds interactions with less familiar entities—e.g., state hospitals—in the familiar sociality of the surrounding landscape.

The analyses in Chapters 2 and 5 hinge on variability in the way people relate with places; Chapter 3 and 4 foreground the specificity of these relationships. These chapters argue that the use of spatial language and demonstrative reference in Río Negro presupposes speakers' shared awareness of their location and orientation. This "sense of space" is in no way general. While we tend to think of allocentric or geocentric orientation as objective, and thus as abstracted from the specificity of any particular landscape, these chapters show instead that in reality Quechua speakers in Río Negro orient themselves to a territory of individual, named places. This has concrete linguistic consequences. For example, Chapter 4 shows that this orientation to the particularities of a landscape shapes speakers' use of demonstrative pronouns. Because so-called "proximal" demonstrative are used for referents that are present in speakers' shared common ground, Quechua speakers use these forms even to speak about distant and imperceptible places. I argue that the apparent strangeness of using the pronoun "here" to refer to a distant mountain obscured by a wall is not due to a linguistic difference, but rather to a difference in common ground. In contrast, if the landscape to which speakers oriented did not include its particularities—the places, paths, and contours within it—it would be necessary to develop a uniquely complex theory of demonstrative pronouns to explain their use in Río Negro.

3. Theory of Mind

In the introductory chapter (Section 4), I suggested that the concept of Theory of Mind—the cognitive ability to attribute mental states to self and others (Wellman 2013, Carlson et al 2013)—could help us to reconceive of human-environment relationships as intersubjective. This

claim has three parts. First, it suggests that humans interact with the environment as social entities, and do so with respect to their own social positions. A farmer tills the soil not because of an autonomous impulse, but rather because of his obligations to his family and others, in order to maintain or recover his reputation as a productive member of the community, or for other similar reasons. There is nothing particularly new about this part of the claim. Second, humans also sometimes attribute mental states to the environment just as they do to other humans. For example, in Chapter 2, I describe Río Negro herders' interactions with individual *hirka* in ritual offerings and divination. Speaking or engaging in exchange with a *hirka* involves Theory of Mind, as it not only requires that herders attribute to *hirka* mental states such as enjoyment, appreciation, or debt, but also that they attribute to *hirka* the ability to recognize them as having similar mental states. This is not as uncontroversial as the first part of the claim, but it nonetheless echoes recent research on sentient places in the Andes (Salas Carreño 2016, Mannheim & Salas Carreño 2015; de la Cadena 2015), animism and perspectivalism in the South American lowlands (Viveiros de Castro 1998, 2004; Descola 2013a), and the anthropology of the nonhuman more generally (Kohn 2013; Tsing 2014).

Neither of these parts of my claim about Theory of Mind represents a substantial modification of the theory itself. This is not the case for the third part, which suggests that, in addition to basic mental states such as false belief, intention, or desire, humans also attribute to one another mental states such as awareness of one's position and orientation in the world. In other words, when I tell the person sitting next to me on a bus that he'll turn to the right to get to the library once he gets off, I attribute to him an awareness of the right and left sides of his body. In contrast, if I tell him to turn toward the old post office (which is now an office building), I attribute to him both an awareness of his location at the time he gets off the bus and of the

location of the old post office. In both cases, I also assume that he will similarly attribute to me the ability to attribute all of this to him (unless he seems explicitly dismissive of my directions). Whether this mutual and recursive attribution of spatial awareness is part of Theory of Mind or rather merely a specific kind of interactional common ground is a point to be explored elsewhere. For the material in this dissertation, the relevant point is that speaking Quechua in Río Negro presupposes a great deal of the latter kind of spatial awareness—constant dead reckoning and a rich knowledge of the location of named places. This is one of the central arguments of Chapter 3, while Chapter 4 shows how the use of demonstrative pronouns and pointing gestures likewise rely on this mutually presumed spatial awareness. The most poignant example is the frequent use of the demonstrative pronoun “kay,” which translates to “here” or “this,” when pointing to distant places, even when these are obscured by walls or landscape features. In making such utterances, speakers attribute to their interlocutors a representation of the surrounding world sufficiently detailed to be able to treat the pointing gesture as if it were indicating a place on a map.

4. Language as a bridge between bodies and their environments

The example of the pointing gesture suggests something more than Río Negro Quechua speakers’ mutual assumptions about mental states. It illuminates a concrete way in which language serves as a link articulating individual human bodies with the environments they share. First, language clearly does this in the sense that it gives speakers a shared resource for communicating about the world around them. Yet the signs through which language orients and coordinates our attention to the environment are commonly understood as only arbitrarily connected to the environment. Linguistic anthropologists have drawn on Peirce’s semiotics to show that the associations language makes between signs and things is not arbitrary, but rather at

least partially motivated both in form and use (Peirce 1955; Friedrich 1979; Parmentier 1997; Keane 2003). However, this work has generally focused on socially and politically charged linguistic domains such as gendered language (Inoue 2004), and grammatical agency (Duranti 2014). In contrast, as I pointed out in the introductory chapter, spatial orientation has been neglected in a way that seems to imply its arbitrariness. Or rather, the motivation of the relationship between signs such as the word “up” seems to be relatively stable, as they draw on permanent physical forms.

From this point of view, the connection that language affords us to an environment is none other than a direct reflection of its physical qualities. Instead, in the previous chapter I have shown how social and physical dimensions of environments are interrelated through habitual practice (Chapter 2), language (Chapters 3 and 4), gesture (Chapter 4) and thought (Chapter 5). My own interventions aside, any treatment of the relationship between language and environment as purely material also poses a problem to recent theorization of environments as defined relative to the organisms that engage with them and to the related, cross-disciplinary theoretical movement from space to place (e.g., Bachelard 1969[1958]; Tuan 1977; Foucault 1986; Gupta & Ferguson 1992; Casey 1996; Ingold 2011, 2010¹⁴¹). The problem arises because these approaches claim to theoretically transcend purely materialist definitions of the environment as a set of physical conditions that pre-exist its inhabitants and of space as uniform and neutral in value. However, the solution offered in this dissertation is distinct from the now-standard critique of material spatiality as a non-humanistic; rather, I find that certain indissolubly material (and arguably Cartesian) aspects of space such as position, angle, coordinate systems, and projection

¹⁴¹ Ingold’s approach builds on the earlier writings of James Gibson and Jakob von Uexküll (2010:20).

are in fact crucial for understanding the particular constellations of human-environment engagement.

The argument woven through this dissertation is instead that spatial orientation in communicative language and gestures is not arbitrarily related to the world it represents, nor is it motivated merely by selective attention to a specific set of physical characteristics such as landmarks, topology, or lateral asymmetry. Rather, the use of spatial language, demonstrative reference, and pointing gestures described in Chapters 3 and 4 is grounded in the patterns of experience and practice through which speakers come to know the world around them. The Embodied Absolute Frame of Reference (FoR) described in Chapter 3 provides a concrete example of linguistically mediated embodiment, as it is used to frame descriptions with respect to a coordinate system that is anchored in the environment and project onto the speaker's body. Neither this FoR nor any of the other communicative practices I described, for that matter, would be possible without participants' socialization into a world where people make frequent use of landmarks to orient spatial descriptions, or without the knowledge they gained of the lay of the land by moving through it and observing it over the course of their daily lives. The use of language in Río Negro does not then reflect an arbitrary social contract for labeling the world, nor does it directly reflect the physical characteristics of that world. Instead, it is intimately bound to the ways its speakers engage their surroundings. In this sense, language links humans and environments through patterns of both verbal interaction and cultural practice, two fundamental domains in which individual bodies and acting subjects become intersubjective, socially situated humans.

5. Implications for further research

Combining these four themes leads to several implications that merit further research. Consider these premises: first, basic verbal communication in Río Negro is contingent on a sense of space that is not generalized, but is rather anchored in the particularities of a familiar territory; second, this sense of space is central to both individual and collective modes of thought—that is, in nonverbal representations of space and in the common ground speakers presume as shared in social interaction. The implication of these propositions is that changes in the way people habitually relate to their environments can resonate in language and cognition, and at both individual and collective levels. This implication in turn raises questions about both the past and the future.

First, do differences in spatial language, such as the preference for allocentric or egocentric Frames of Reference, reflect histories of environmental change? This is a provocative question, as it foregrounds emerging research that suggests an association between egocentric orientation and urban environments, and furthermore articulates this possibility with the centralization of populations associated with state formation. It also suggests the question of how quickly environmentally anchored linguistic and cognitive patterns change, and whether some kinds of changes may take longer than others. Second, the implication that environmental changes resonate in language and cognition suggests questions about ongoing changes both in how human populations interact with their environments and about changes in that environment itself. Are there long-term linguistic and cognitive consequences of the growing concern with separating large portions of the planet's surface from human influence through conservation and urban centralization? Are there linguistic and cognitive implications of the acceleration of anthropogenic environmental change?

I have drawn these implications and questions out of observations of language and practice that are not themselves generalizable beyond Río Negro. This is not a caveat—it is directly related to my central argument that environments are relevant across linguistic, social, and cognitive domains of human life not merely because of their symbolic associations or material affordances, but rather because of the nuanced particularities of specific patterns of environmental practice. The broader implications of the study then are not extensions or applications of my findings, but rather templates for studying these questions elsewhere. I do not see any shortcut for a single theoretical model that could predict how environmental changes or population shifts will affect language or cognition. This is in part because the domain of language linked with environmental practice is not the cognitive capacity for grammar—Chomsky’s competence—but rather its situated use. Likewise, the cognitive patterns that will vary with respect to environmental practice are not universal tendencies such as Theory of Mind, but rather subtle and sometimes overlapping differences like the variation described in Chapter 5. In both cases, these ways of speaking and thinking are always oriented and located with respect to particular social and spatial worlds. With this in mind, the broader implication of this dissertation is that detailed ethnographic work is crucial not only to the anthropology of the environment and of language, but that it is also an essential complement to research in any field that asks questions about the relationship between humans and the environments that surround them.

Appendix 1: “Do mountains speak?”

	Quechua	English
Joshua	<i>Hirkakunapis parlanku.</i>	And do mountains speak?
Angélica	<i>A parlan ari. Parlan ari. Kawan ari. Hirka kawan. A kawanshi.</i>	Ah, sure, they speak. Sure, they speak. Sure, they live. The mountains live. Ah, it’s said they live.
Joshua	<i>Imanaw parlan, hirkakuna.</i>	How do they speak, the mountains?
Angélica	<i>Qayanakuyan. Imapis kaynaw kaptin qayanakuyanmi. Qayanakuyan.</i>	They call to one another. They call to one another when they’re like this [turns head from side to side]. They call to one another.
Joshua	<i>Piwantaq parlan.</i>	Who do they speak with?
Angélica	<i>Hirkapura hirka. Hirkapura. Hirkapura hirka</i>	Mountains among mountains. Among mountains. Mountains among mountains.
	<i>Por ejemplo, Collawasi hirka, kay hirkash qayanakuyan.</i>	For example, they say Collawasi mountain and this mountain call to one another.
		<i>Here the speaker’s husband, who had been sitting at her side briefly interrupts, speaking about another matter, then walks away.</i>
	<i>A, haynaw qayanakun, a.</i>	Ah, they call to each other like that, ah.
	<i>Kay waraakuy tuurukunapis unayqa kay llullu killakunachaw yarquqshi.</i>	And they say that a long time ago these Waraakuy Bulls would come out during the new moon.
	<i>Waq frentipitash kay frentipitash peliyakuykayaq llullu killachaw.</i>	They say from across yonder and from across here they would be out fighting during the new moon.
	<i>Awiliitakuna rikaayaq.</i>	The grandmothers would watch.

*Kananqa rikantsu. Akasu llullu
killachaw pitaq yarququn ampipa.*

But now it's not seen. By any chance someone
went out at night during the new moon?

Appendix 2: Pointing gestures



1a.



1b. & 1c.



2.



3.





4.



5.

6.



7.



8.

Appendix 3: “Chips Task” study instructions and post-test questions

The following are the instructions given to participants in Ancash Quechua during training. Each instruction is followed by its English translation in italics:

Kay chusku fichakunapitaqa mayqantaq kay fichawan kikinaw churaraykan.

Which of these four cards is placed the same way as this one?

Kananqa kay fichata allita rikaaraykur yarpanaykipaqmi.

Now, look well at this card for a while in order to remember it.

Kananqa kay chuskupitaqa mayqantaq kikinaw churaraykan.

Now, which of these four is placed the same?

Kananqa kay fichata allita rikaaraykur hay kwartuchawna kikinawta ashinaykipaq.

Now, look well at this card for a while in order to look for the similar one in that room.

Mayqantaq kikinaw churaraykan.

Which one is placed the same?

The following are the questions given to participants in Ancash Quechua at the conclusion of their participation. Each question is followed by its English translation in italics:

Aykataq watayuyqmi kanki.

How old are you?

Maychawtaq taaraaraykanki.

Where do you reside?

Hallqata riqinkiku.

Are you familiar with the hallqa?

Imaypis hallqachawku taaraq kanki.

Have you ever stayed in the hallqa?

Imaytaq hallqachaw taaraq aywanki? Aykataq paqaspaq.

When do you go to stay in the hallqa? For how many nights?

Maypataq. Pikunawantaq. Imakunata ruranaykipaq.

In what part(s)? With whom? In order to do what things?

Hallqachaw imakunataq shumaqmi.

What things in the hallqa are beautiful?

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