International Ecolinguistics Association

Article

"Todo está conectado y todo tiene vida": Language(s) of environmental care in the Sonoran Desert region

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Abstract

The present study analyzes language that represents environmental care, specifically focusing on speech from people who possess an affinity toward the Sonoran Desert region. Firstly, after providing a brief introduction to the region, an overview of relevant theoretical, linguistic, and social psychological ideas is presented in relation to environmental care. Then, ten semi-structured interviews with environmentally-oriented individuals from two languacultures — White American (E group) and Mexican/Chicanx (S group) — are analyzed using a positive discourse analysis (PDA) to uncover discursive patterns of environmental care. The results of this analysis — whose major codes include *agentive verb use*, *personhood markers*, *I-constructions*, and *we-constructions* — indicate a high degree of overlap between and within groups. According to a descriptive statistical analysis, *we-constructions* and *agentive verb use* were more common than *I-constructions* and *personhood markers*, although the S group's greater use of *I-constructions* is of note. Qualitatively, consultants frequently identified emotive and/or cognitive functions not typically granted to more-than-human beings and perceived a degree of personhood within them, in ways both similar and dissimilar to humans.

Keywords: ecolinguistics; positive discourse analysis; cultural linguistics; desert; Spanish linguistics; English linguistics

1. Introduction

The stereotypical image of a desert is dry and barren, a vicious terrain filled with brush and sand,[1] inhospitable to nearly all life forms. Heat and aridity are constants, and the blazing

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[1] It is of relevance to note that this perception varies from region to region (e.g., in European contexts, the prototypical desert would be the Sahara, and the type of desert in this region would not necessarily fit that prototype). See Eleanor Rosch's (1978) and Jean Aitchison's (1992) works on prototype theory.

sun mercilessly shines upon the land from a cloudless sky. Perhaps the saguaro cactus, pale and green with two curved arms, is scattered in clusters across the otherwise empty space. Water and life are scarce; dust and decay are plenty. This desert is, in the minds of many, lifeless.

Etymologically, the word "desert" derives from the Latin *desertum*, which roughly translates to "thing abandoned".[2] In its modern Western usage, this connotation has persevered, with depictions of the desert in popular media suggesting its existence as a place in which people are abandoned to perish, and as a place that has been abandoned by life itself. In reality, however, this perception of the desert — a perception distributed widely[3] across the Modern Western cultural cognition[4] — is evidentially false.

Let us consider the case of the Sonoran Desert, considered to be one of the hottest — if not *the* hottest (Weiss & Overpeck, 2005) — desert in North America. While it is true that water is relatively scarce, many forms of life that reside there flourish under the present climate conditions. In addition to the various types of cacti beyond the saguaro, the Sonoran Desert is home to the palo verde, yucca, mesquite, desert willow, agave, and creosote bush, to mention only a few. Animals — among them the rattlesnake, javelina, and coyote — reside here in plenty as well. In fact, according to the National Park Service (2023), approximately 60 species of mammals, 350 bird species, 20 amphibian species, 100 reptilian species, 30 native fish species, and 2,000 plant species have been identified in the Sonoran Desert. *Homo sapiens*, too, have lived in this region for millennia, despite its purportedly difficult climactic conditions. From the Indigenous peoples[5] who have resided here since time immemorial to the Europeans who have colonized it during the last few centuries, humans can evidentially survive and thrive in this allegedly "hostile" terrain.

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[2] Oxford English Dictionary.

[3] Various popular television programs, such as "Spongebob Squarepants", and movie series, such as "Indiana Jones", exemplify this conceptualization.

[4] Though the Modern West refers to a Western European cultural zone that was borne from the centuries preceding and including the Renaissance, Reformation, and Enlightenment (Taylor, 1989), those who embody the cultural cognition of the Modern West now are predominantly European Americans and Canadians (Kitayama et al., 2022).

[5] Accounts of precisely how long and from what genealogical origins people came are highly contentious between Western scientific and traditional Indigenous sources. On the Western scientific side, archeologists have found evidence of human settlement as early as 2100 B.C.E. (Byrd, 2014), but one of the earliest initial groups of people known to have resided in the Sonoran Desert are the Hohokam, who are estimated to have lived here as early as 300 C.E. (Chenault, 2016). Today, the Hohokam are largely known for their widespread irrigation systems, as well as for their disappearance from the region around 1450 C.E. (Pande & Ertsen, 2014). It would seem fitting, then, that archeologists have named these people the "Hohokam" posthumously, a word which derives from the O'odham *huhugam*, meaning "ancestors" or "those who have vanished". Within the Modern Western cultural cognition, this definitory explanation aligns with the expectation for the desert to be a place where life ultimately perishes. Among the O'odham, however, this word actually indicates a continuity between those who have gone and those who remain, illustrating their belief that they themselves are Hohokam — or Huhugam — descendants (Hill, 2018). This linguistic marker of continuity weaves nicely with O'odham origin stories, which share in common the belief that they have lived in this region since time immemorial.

To rectify negative perceptions of the desert, this study seeks to analyze the discourse of humans who exhibit environmental care in their daily activities (e.g., work, volunteer, and/or leisure). Specifically, a positive discourse analysis (PDA) is employed to locate linguistic codes that exemplify this environmental care. Following a researcher positionality statement, relevant strands of cultural linguistics, ecolinguistics, and social psychology are reviewed in the following three sections to provide context for the framework of this study.

2. Researcher positionality statement

Because my research engages with cross-linguistic and cross-cultural studies, it is important for me to explicitly indicate my own linguistic and cultural identifications (and to use the personal pronoun "I" in doing so). I am a White American whose native language is English. I learned Spanish in high school and college, and my motivation for doing so was to be able to communicate better with the large Latinx population in the Phoenix (and greater Arizona) area. Ideologically, I was influenced by my once-radical-to-everyone-but-me mother, who personally implemented a recycling program at work that entailed her bringing it home with her every day, as well as by my undergraduate studies in sustainability. I am therefore biased toward pro-environmental thought, as well as (cautious) optimism and (liberal) questioning of the status quo.

Additionally, I recognize that I have been granted many opportunities to engage meaningfully with nature, both at home and beyond, which is a privilege that many cultural and socioeconomic groups receive differentially (and often inequitably). While I resist the temptation to homogenize the experiences of any specific group, I believe this discrepancy is valuable to acknowledge, particularly since it may have influenced the nature and outcomes of this study. Overall, I seek to understand the stories and perspectives of nature-loving people in my home geographic area that come from two cultural backgrounds — White American and Mexican/Chicanx[6] — while remaining cognizant of our shared and different identities and beliefs in the process. The goal of my work is to share empowering and sometimes unconventional perspectives, painting the most nuanced and accurate portrait possible of my consultants and their ideas, in order to share a myriad of ways of thinking and being with nature.

3. Cultural linguistics

The field of cultural linguistics originated with the work of Gary Palmer and Farzad Sharifian. Palmer (1996) first proposed that cultural knowledge is represented within schemas that organize reoccurring information, and that the shared nature of this information often determines narrative structure and prevalent beliefs within a given

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[6] The border between Arizona and Northern Mexico is treated as arbitrary for the purposes of this study; therefore, consultants from this cultural group were born on both sides of the border and have direct experiences with both.

cultural context. In addition to studying the conventional imagery evoked by discourse — a goal which is peripheral to the present research — Palmer's (1996) cultural linguistics is also interested in the folk ontologies and worldviews that define "the essential nature of things" across cultures (p. 8). Palmer (1996) further argues that grammatical theories and classification systems that lack cultural context are deficient, meaning that language needs be understood as culturally contextual, thus echoing a soft Whorfian perspective of language.[7] This idea that language is a culturally mediated container of worldviews is a foundational assumption of the present research.

Sharifian (2011) later built upon these initial ideas and coined the term *cultural conceptualizations*, which are comprised of categories, schemas, and metaphors that derive from the ever-evolving communication between members of a cultural group within a (semi-)shared conceptual world. These cultural conceptualizations, therefore, are stored heterogeneously in the minds of members and cannot be reduced to the knowledge or perspective of any given individual. Based on this premise, Sharifian (2011) coined the idea of *cultural cognition*, which, as opposed to individual cognition, is theorized to be composed of cultural conceptualizations and language. Sharifian and Palmer (2017) later term the nexus between cultural conceptualizations and language one's *languaculture*, which is hypothesized to contain a basic cultural cognition. The concept of languacultures is particularly relevant to the current study, specifically in its implication that a language is fundamentally altered in its use across cultures.

Cultural linguistics, therefore, posits that language can be wielded to convey multiple different cultural cognitions, thus signifying that words and phrases in the *same* language may hold different connotative meanings cross-culturally (Sharifian, 2011; Sharifian & Palmer, 2017; Gwiazdowska, 2023). That being said, there is also considerable evidence from adjacent fields that words and phrases often considered to be equivalent between *different* languages also do not fully capture the conceptual richness of their cross-linguistic counterparts (Šipka, 2015; Wierzbicka, 1997). In light of the present study's focus on both English(es) and Spanish(es), the heterogeneity of words and phrases both within and between languages is equally important.

In sum, cultural linguistics provides a relevant theoretical framework for analyzing cultural conceptualizations, both intra- and inter-linguistically, in the present study. However, in practice, cultural linguistics research is often based on arbitrary selections of

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[7] Linguistic anthropology, an idea that originated with Franz Boas (1920), is best known by the Sapir-Whorf Hypothesis, which posits that the way one sees the world is shaped and constrained by one's language (Kay & Kempton, 1984). Though valid criticisms of this perspective have arisen (e.g., Sapir's contrasting a [falsely] uniform European vs. Indigenous culture, based on comparisons made between American English and Hopi), a weaker form of linguistic relativity that postulates a connection between language and thought without resorting to a deterministic belief system of constraint has been plausibly proven (e.g., Kashima & Kashima, 1998; Boroditsky, 2001; Winawer et al., 2007). This Neo-Whorfian approach is highly relevant to the present study; however, this relevance is more closely linked to its employment in the field of cultural linguistics, as opposed to anthropological linguistics. For more information on linguistic anthropology, see Duranti (2001).

language chosen by the researchers of any given study (Šipka, 2019), thus calling into question their genuine significance to the languaculture as a whole. This study, therefore, seeks to approach the analysis of consultants' language production with greater procedural rigor than traditional cultural linguistics research by utilizing qualitative (i.e., discourse analysis) and quantitative (i.e., word frequency counting) methods that analyze the language documented in the study. These methods are partially inspired by the field of ecolinguistics, which is explored in the following section.

4. Ecolinguistics

Ecolinguistics is a relatively new field of study that seeks to understand how patterns of language shape how people perceive and act within the more-than-human world. Its aims are particularly aligned with this study's primary topic of inquiry (i.e., studying peoples' perceptions of their relationships with the more-than-human world via their language production). Early scholars that inspired the formation of ecolinguistics include Michael Halliday (1990) and Louise Chawla (2001), who proclaimed that certain language structures are harmful to human and more-than-human life. Subsequent research has since focused on the lexical analysis of certain words that shape and reflect dominant (Western) environmental perspectives (e.g., Goatly, 2000; Rosenfeld, 2019). Studies like these inform the quantitative portion of this study, which seeks to identify patterned word usage within and between languacultural groups and analyze their valences as they relate to consultants' perspectives.

In general, ecolinguistics research has often studied harmful language (according to one's own ecosophy[8]) via critical discourse analysis (CDA), a method which seeks to unveil power relations and inequalities between different groups (Fairclough, 1995) (e.g., Mühlhäusler, 2003; Knight, 2010). Stibbe (2018), however, has criticized the field's overreliance on CDA and negative critique on the grounds that uncovering destructive language is futile if one is not equipped with beneficial language to replace it. To rectify this imbalance, Stibbe (2018) therefore proposes the use of PDA to analyze ecologically beneficial features of language. Originally conceptualized by Martin and Rose (2003) and Macgilchrist (2007), PDA seeks to analyze discourse in a way that "tell[s] positive stories about the world, and then promote[s] these features in order to contribute to beneficial change in society" (Stibbe, 2020, p. 421). Examples of ecolinguistic research that utilizes PDA include studies on eco-friendly language in a BBC environmental program (Ponton, 2022); ecologically engaged voices in YouTube vlogs (Sokól, 2022); and ecocultural

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[8] Because ecolinguistics' normative orientation is toward "preserving relationships which sustain life" (Alexander & Stibbe, 2014, p. 105), Stibbe (2021) proposes working with these stories by measuring them against one's own ecosophy, or one's own particular "philosophy of ecological harmony or equilibrium" (Naess, 1994, p. 124). Though one could argue that this line of research is flawed in its anchoring of the researcher's own ecosophical values, the present study builds upon the belief that the final product of research is always shaped by the researcher's values, and therefore sees merit in making these values explicit in the process.

identities in Indigenous American writing (Stibbe, 2020). Thus, this study utilizes PDA for the qualitative portion of this study, which seeks to analyze four different types of language (e.g., *agentive verb use*, *personhood markers*, *I-constructions*, and *we-constructions*) that exemplify environmental care.

Two of these four types are further influenced by theories in social psychology. The following section, therefore, explores the major psychological concepts relevant to this study.

5. Social psychology

One of the best-studied phenomena in social psychology is that of intergroup relations, and this line of research is relevant to how people conceptualize both themselves and the wider world around them. Research pertaining to intergroup relations can perhaps be traced back to sociologist William Sumner's (1906) early ideas about the nature of humans as being both unitary in general yet discriminatory in its tendency toward preferencing one's own group over others. Specifically, Gordon W. Allport's (1954) seminal work *The Nature of Prejudice* posited a reason for this tendency, stating that "man has a general propensity toward prejudice … [that] lies in his natural tendency to form generalizations, concepts, categories, whose content represents an oversimplification of his world experience" (p. 27). Allport's (1954) explanation is supported by Tajfel, Billig, and Bundy's (1971) popular Minimal Group Paradigm, which posits that people will choose to favor their ingroup even in the absence of resource competition.

Relatedly, Turner et al.'s (1987) self-categorization theory adds the idea that people tend to perceive outgroup members as more homogenous than ingroup ones, and also defines three levels of abstraction of the self: the "I" (individual identity/self), the "we" (social identity/ingroup), and the salient outgroup (the other/outgroup). In the Modern Western cultural zone (see Kitayama et al., 2022 for a list of cultural zones), one's individual identity tends to triumph over one's social identity under cultural patterns of independent self-construal (Markus & Kitayama, 1991), and this individual identity is often distinguished by differentiating oneself from a prototypic "other" (Karniol, 2003). The Latin American cultural zone, on the other hand, tends to form interdependent self-construals in which individual identities are contextualized within the various relationships comprising one's social identities (Kitayama et al., 2022; Salvador et al., 2023).

Studies specifically focusing on relationships between humans and the more-than-human world, such as the present one, are highly relevant to research on intergroup relations and self-construals. Evidence of objective differences between species (e.g., Shipman, 2010), for example, has often promoted the idea of a hierarchy of species in which certain species' lives matter more than others (Caviola, Everett & Faber, 2019; Wilks et al., 2021). This can be compared to the earlier concept of ingroup favoritism, with group membership often being based on perceived similarities that a person shares with another (human or more-than-human) entity. Interestingly, a study on human–animal relationships

posits that the emotional perceptions we feel toward other species are highly dependent on their ability to arouse "anthropomorphic projections" within us, defined as the "attribution of human traits, emotions, or intentions to non-human entities" (Miralles, Raymond & Lecointre, 2019, p. 1). While certain species in particular may come to mind as objective inspirers of greater anthropomorphic projections — perhaps dogs or horses — these examples are culturally dependent (i.e., dogs and horses are anthropomorphized specifically in U.S. contexts, but not among all cultural contexts) (Caviola et al., 2019; Gade, 1976). In fact, it is this typically perceived *dis*similarity between "humans" and "nature" that often relegates latter's categorization to the farthest level of subjective abstraction, as identified within Turner et al.'s (1987) self-categorization theory: the "I" (self — singular), the "we" (humans — plural), and the salient outgroup (nature — singular).

This homogenization of nature as the salient outgroup — the ultimate "other" — is based in Cartesian philosophical ideas about the fundamental divide between "humans" and "nature" that have largely influenced the cultural cognition of the Modern West (van Lier, 2004; Rout & Reid, 2020). Indigenous cultural perspectives, on the other hand, often conceptualize nature as plural, where the more-than-human world is both part of the "we" and entwined with the "I" (Kimmerer, 2013; Rout & Reid, 2020). While there is sparse research on Latin American cultural conceptualizations of nature,[9] its unique integration of influences from both Modern Western and Indigenous worldviews is of interest to study further (Kitayama et al., 2022). The present study, therefore, seeks to identify linguistic evidence of ingroup/outgroup designations and construal patterns relating to the distance between humans/the natural environment, as measured by discourse regarding the self in relation to nonhuman beings, both within and between environmentally-oriented individuals from two languacultural groups. Concretely, this manifests in two of the four qualitative linguistic analysis points being *I-constructions* and *we-constructions*, as will be defined more in depth in the methodology section.

6. Methodology

6.1. Consultants

I interviewed a total of ten consultants: five identified as White American and five identified as Mexican/Chicanx (see Table 1). All consultants ($n = 10$) have lived in the Sonoran Desert region their entire lives. Moreover, all consultants ($n = 10$) were fluent in English; however, all five Mexican/Chicanx consultants ($n = 5$) spoke Spanish as a dominant and/or heritage language as well. Finally, all consultants ($n = 10$) provided anecdotal evidence of their close engagement with the natural environment, via paid, volunteer, educational,

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[9] This is true in the context of cross-cultural psychology; however, there are numerous books on Latin American eco-criticism concerning how nature has been reconceived, exploited, degraded, and sometimes saved in recent stages of global capitalism. See Barbas-Rhoden (2011), DeVries (2013), and Saramago (2020) for examples of some of these ideas.

and/or community work.

To protect consultants' identity, the only individually identifiable data I collected were their names and languacultural group. Then, as a further precaution, I asked all consultants to provide a pseudonym of their choice to be used as their alias for this study. The table below provides a list of these pseudonyms and their group (e.g., E group for White American interviews in English and S group for Mexican/Chicanx interviews in Spanish and English[10]).

Table 1: Consultants

Pseudonym	Group
Alexis	E
Angie	E
Bob	E
Fern	S
Green	S
Manu	S
Maria	S
Opuntia	E
Ravelyn	E
Violet	S

The following section describes the procedures utilized in working with consultants.

6.2. Procedures

Before conducting this study, I sought and obtained Institutional Review Board (IRB) in August of 2023 (STUDY00017688). Following this approval, I recruited consultants via word of mouth and internet flyers. The procedure itself consisted of semi-structured consultant interviews as the sole means of data collection, which I chose over structured interviews to provide consultants the opportunity to expand on sub-topics beyond the initial set of questions. I gave all consultants the interview protocol in advance to give them time to prepare, and I interviewed each one in a dominant language of theirs (i.e., White American consultants were interviewed in English, while Mexican/Chicanx consultants were interviewed in Spanish and English). The interview protocol consisted of seven questions pertaining to consultants' formative experiences and current practices with the more-than-human world, as well as their stories about them. One of the questions also included four sub-questions addressing different narrative domains (i.e., familial, religious/spiritual, media-based, and experiential). Due to the semi-structured nature of the interviews, I queried additional questions that followed the threads of consultants' unique

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[10] All interviews with S group consultants involved a degree of code switching; however, Spanish was the dominant language in every case.

responses as well.

Every interview was documented in real time via an audio recording, and once completed, I used Microsoft Word to transcribe the recording into written format. Each interview was first automatically transcribed by the software's dictation tool and was then finalized via manual editing. The analysis of these transcriptions is detailed in the following section.

6.3. Data analysis

I employed a mixed-methods analysis to analyze the interviews. Firstly, I coded interview transcriptions in the computer software program *HyperRESEARCH* (2015) for language[11] that marked the presence of an affinity to the more-than-human world, according to a list of pre-defined linguistic codes. These features included adjectives, agentive verbs, prepositions, I-relationships, we-relationships, other-relationships, object pronouns, and subject pronouns. Furthermore, I coded each of these features separately for five different types of more-than-human beings: animals, plants (including fungi), nonliving beings, non-specified nonhuman beings, and desert/nature (see Table 2 for each category, with examples).

Table 2: More-than-human being categories

Category	Examples
Animals	dogs, javelinas, snakes, fish, insects, birds
Plants	trees, bushes, herbs, flowers, grass, fungi
Nonliving Beings	sun, water, sand, rocks, canyons, washes
Non-Specified Nonhuman Beings	species, things, all, everyone, everything
Desert/Nature	deserts, forests, beaches, landscapes, nature

Notably, I coded language per utterance;[12] therefore, if a consultant said the same thing more than once, each individual utterance was counted as its own individual instance. After conducting the first round of coding in *HyperRESEARCH*, I imported all codes into Microsoft Excel, where they underwent a second round of coding to consolidate and showcase only positive linguistic features to better align with the aims of this study. The final major codes I chose were *agentive verb use*, *personhood markers, I-constructions*, and *we-constructions*. During this round of coding, I also inductively coded each of the instances within a major code into sub-themes (see Table 3 for each major code and their sub-themes, with examples [in English when possible, for non-Spanish-speaking readers'

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[11] Because this study analyzes how consultants speak, I coded language whether it referred to the consultants' own actions or actions of others described by them. For example, if a consultant spoke about another person trying to reduce waste, this was still counted, due to it being language produced by the consultant regarding something they observed.

[12] Because a sentence is difficult to measure in spoken discourse, many linguists use the term "utterance" to describe a chunk of speech that represents the start and end of a thought.

convenience]). Lastly, all data were separated by languacultural group.

For the quantitative analysis, I counted and analyzed the frequency of each major code using descriptive statistics. For the qualitative analysis, I conducted a PDA to analyze sub-thematic threads.

Table 3: Major codes

Major Code	Sub-Theme (Definition)	Example[13]
Agentive Verb Use	Benevolent (an action that supports other beings in some way)	They all start out for the first like several decades of their lives, you know, **supported by other plants** that are there for a reason.
Agentive Verb Use	Benign (an action that does not support or harm other beings)	The javelinas come up and **walk around**.
Agentive Verb Use	Malevolent (an action that harms other beings in some way)	I think it was the mollies had babies, Mom told me, okay, like what we need to do is go get some seaweed for the babies to hide in, because otherwise **the parents will eat them**.
Personhood Markers	Pronouns (a pronoun typically used for humans)	I try to honor the Bermuda grass, 'cause I'm like, **you** survived a lot.
Personhood Markers	Nouns (a noun typically used for humans)	An inconveniently brutal summer that kills off the young **guys**.
Personhood Markers	Verb + a constructions (a grammatical construction typically used for those granted personhood)	Tengo **a** una planta. [*I have a plant.*]
I-constructions	Anthropomorphizing/ Nonhumanizing (an utterance that equates human and more-than-human beings)	The lion's back here, like, yeah, it's in pursuit, but it's **dealing with these very human problems**.
I-constructions	Familial (an utterance that describes a familial relation between human and more-than-human beings)	All species, are they're our **brothers and sisters**.

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[13] Examples for all but the verb + a constructions are provided in English (i.e., from the E group) for the benefit of the non-Spanish-speaking reader. Examples from both groups will be explored extensively in the qualitative analysis and discussion section.

I-construction	Scientific (an utterance that uses Western scientific logic to describe a connection between human and more-than-human beings)	The way that the, that **crabs breathe is similar to the way that our, uh, kidneys filter**.
I-constructions	Scientific/Spiritual (an utterance that uses language that does not fit neatly into spiritual or scientific origins to describe a connection between human and more-than-human beings)	**If we have a soul, I think other things do too. Or if we don't have a soul, then nothing does** like, we're not that special.
I-constructions	Spiritual (an utterance that uses spiritual logic to describe a connection between human and more-than-human beings)	I also am finding more sacredness in the natural world and, you know, the beauty of minerals, and, um, it kind of, tiptoeing into a little bit more of that Pagan space of like, **my energy is part of the world's energy**.
We-constructions	Emotional Sympathy/ Connection-Based (an utterance that describes emotional understanding toward more-than-human beings)	So I guess, having this bear growling outside my tent at 3:00 in the morning trying to get my food was like, oh, yeah, **I bet he's really hungry**.
We-constructions	Knowledge-Based (an utterance that describes the possession of knowledge about/ideals for helping more-than-human beings)	**I think if people realize the impacts that they're actually having on the world**, and, you know, how people consume, if they actually connect the dots there and they realize, what, when x equals y, what that actually means, **I think that they would, live differently**. And, so I think in a large way, **I try to inspire others in that way, through education.**
We-constructions	Protection/ Stewardship-Based (an utterance that describes protective or remedial action	So I, at least in my upbringing, how, again, how people interact with the desert. I remember my

		taken toward more-than-human beings)	parents were like, hey, **keep the windows closed, keep the door closed, it's hot out there, don't waste, don't waste**.
We-constructions	Reducing Harm-Based (an utterance that describes measures that seek to reduce the harmfulness of an action toward more-than-human beings)	So I feel like just, as a kid, I'd do anything, like, didn't fully recycle or things like that, versus now, like, **try not to use plastic as much**, um, try not to waste food, um, and I'm just more, I guess, conscious of what I'm doing.
We-constructions	Shared Circumstance/ Activity-Based (an utterance that describes a shared circumstance or activity between human and more-than-human beings)	We **played with worms**.

6.4. Limitations

As with any study, this one is not without its limitations. First and foremost, the largest limitation of this study is its small sample size. While the choice to interview fewer consultants and glean deeper insights into their stories is intentional, it also means that these results should not be used to generalize the cultural cognition of an entire group uncritically. Another limitation is the lack of observational data, as linking stories with observable behaviors would provide a more compelling argument for the significance of the conceptualizations identified here. While this has in part been mitigated by the selection of consultants with a proven record of environmental involvement, future research should nonetheless consider incorporating observational data. Lastly, I am not a member one of the languacultural groups (i.e., the S group) that half of my consultants belong to. This limitation has been highly anticipated, which is why consultants received the opportunity to provide their input on my analyses of their interviews. That being said, future research of this kind would benefit from a more diverse research team who come from a variety of languacultural, socioeconomic, and ideological backgrounds.

7. Quantitative analysis

The major code of *agentive verb use* occurred frequently among consultants, with 223 total utterances produced. Slightly more utterances occurred in the E group ($n = 127$); however, the S group produced comparable results ($n = 96$). The major code of *personhood markers*

occurred a total of 38 times, with the E group producing 21 utterances and the S group producing 17 utterances. For the major code of *I-constructions*, there were 57 instances between both groups; however, unlike for the previous two categories, there were significant differences between the two groups: while the E group produced only 16 utterances, the S group produced 41 utterances. Unlike *I-constructions*, the number of occurrences for *we-constructions* were comparable between both groups: 139 occurrences in the E group and 147 occurrences in the S group. By far the most prominent linguistic marker, there were a total of 286 instances of *we-constructions*.

Table 4: Number of utterances per major code

	Total	**E-group**	**S-group**
Agentive Verb Use	*223*	127	96
Personhood Markers	*38*	21	17
I-constructions	*57*	16	41
We-constructions	*286*	139	147

8. Qualitative analysis and discussion

8.1. Agentive verbs

The major code of *agentive verbs* appeared frequently in the data, and primarily in a benign sense (as opposed to a benevolent or malevolent one). Some of the most common examples were the use of verbs describing more-than-human beings as they progressed through their natural life cycle (e.g., "create/crear", "live/vivir", "grow/crecer", "pop up/salir", "survive/sobrevivir", and "die/morir"). This often occurred in the context of animals, plants, and non-specified nonhuman beings going through this cycle in the Sonoran Desert, which many of the consultants were impressed by. Alexis, for example, spoke of how "amazing" it is that "certain plants and animals survive in the desert", while Bob mentioned that it is "inspiring" that "all the creatures who live here are fighting every day to call this place home". This pattern of speech occurs in the S group as well; for instance, Green spoke of her amazement that saguaros only live in the Sonoran Desert, "evolv[ing] to withstand this insane weather, y que viven tanto tiempo" [*and that they live for so long*[14]]. Violet similarly described always having had an interest in "cómo crecen esas plantas y animales" [*how these plants and animals grow*] in the desert. In the E group, but not

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[14] From here on, my personal translations of consultants' Spanish will follow the initial quote italicized in brackets. All translations were approved by consultants.

the S group, there were also many instances of describing animal vocalizations (e.g., "at night time you could hear things like coyotes, and, donkeys braying" [Angie] and "I heard coyotes yip yip yip for the first time" [Ravelyn]).

Nonliving beings, on the other hand, were often described by both groups in terms of their physical movement; for example, "[the wind] was like hitting me" (Angie) and "sale el sol [*the sun rises*]" (Manu). Desert/nature, when looking at benign descriptions of basic existence, was often described in terms of their[15] thriving and/or suffering.[16] Violet, for example, expressed the comfort she finds in that "nature can thrive, in like the hardest conditions", while Bob speaks of "hat[ing] to see this place [the Sonoran Desert] suffer".

As a whole, these types of speech are relatively common in the everyday use of both languages. Other benign verbs, however, described social functions of more-than-human beings that are not as commonly spoken of. Green, for example, states: "yo hablo con las plantas todos los días" [*I speak with the plants every day*]. Her use of *with* as opposed to *to* indicates a participatory function on the part of the plants, which is also demonstrated in Manu's assertion that trees "comunican como si están platicando" [*communicate as if they were chatting*] through their root system. The linguistic provision of a social function to more-than-human beings occurred in the E group in similarly unconventional ways. Opuntia, for example, described the challenge of "get[ting] the javelinas to have a block party" in more urban landscapes, while Bob offered the following humorous quote: "All the natural cycles here are like, bro, where is my drink of water? Where is my food? What is going on here?". These utterances allude to the recognition of broader emotive and/or cognitive functions of more-than-human beings, the latter of which other quotes indicate directly. On the emotive end, Manu mentioned learning that when one tree in a network dies, the others "se ponen tristes" [*they become sad*], while Alexis indicated deeply caring about "how the snake feels" when considering the how she acts in their shared world. On the cognitive side, Bob also described the reason for trees having "really big spikes and poison in their leaves" as being that "they don't wanna get gnawed on [and] they don't wanna get taken advantage of". More philosophically, Green marveled over the question "what has [the saguaro] seen? What does it know?" as a means to express her fascination with their capacity for memory.

In the E group, there was an additional reoccurring benign theme of lacking control over more-than-human beings. Angie, for instance, described a frightening encounter with the ocean as sparking the realization that nature is an "untamable, wild thing" that she gets to be a part of, whereas Bob described having the following epiphany during a guided night hike: "I mean you just turn on the lights in the human built environment and that, you have control over it, whereas in that situation, like, you don't control the moon. You don't

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[15] In an effort to avoid both objectifying and genderizing this being, I choose to use the singular they in this analysis. This will also apply to all other more-than-human beings who are not specifically gendered by a consultant.

[16] These are considered benign because the acts of thriving and suffering themselves do not intentionally direct benevolence or harm toward other more-than-human beings.

control what these rattlesnakes are doing or whatever." This notion reflects the history of British and American nature writing emphasizing a wilderness that is not (or should not be) manipulated by humans (Buell, 1995). In the S group, on the other hand, there is a reoccurring benign theme of more-than-human beings being deserving of gratitude and regard. This is exemplified by Maria's assertion that "si tenemos la oportunidad, de tomar algo de la Tierra, siempre le tienes que decir gracias" [*if we have the opportunity, to take something from the earth, you always have to tell them thank you*], which is agentive in the sense that it assumes the earth's ability to understand. Green's description of how she tells each leaf "thank you for your service to the plant" whenever she prunes her plants implies a similar notion. This aligns closely with the reciprocity ethic present in many Indigenous cultures (Kimmerer, 2013), which supports the notion that (some) S group consultants have been influenced by their Indigenous roots.[17]

Consultants from both groups also described more-than-human beings as being particularly benevolent and malevolent actors. On the benevolent end, the two primary characterizations of more-than-human beings were based around their 1) cooperative helpfulness (among both groups) and 2) sacrificing themselves for the good of another (within the S group only). A strong example that illustrates cooperative helpfulness is Opuntia's description of plants as "work[ing] together in every way" to sustain the desert ecosystem, as well as his later claim that "the participation and cooperation of every organism is very important". More abstractly, Angie described her church's garden in the following manner: "The garden is life, and, it reflects life, and that helps shape life." From the S group, Manu explained that when you look closely, it becomes clear that "todo está ayudando al resto" [*everything is helping the rest*], while Violet highlighted "nature's" kindness toward humans in the following quote: "It wasn't gonna judge me, por lo que tenía" [*for what I had*], and "me ha salvado muchos tiempos" [*they have saved me many times*]. Other utterances, in turn, homed in on a type of saviorship that comes at the expense of the agentive more-than-human being. Maria spoke of this on a personal level, explaining how when a cow is butchered on her family ranch, she says "gracias, que diste tu vida" [*thank you, for giving your life for mine*], a linguistic construction that implies a sense of choice and understanding on the part of the cow. Manu, on the other hand, focused on trees sacrificing for one another in his explanation that when a tree gets an infection, those close to them "empiezan a dar las nutrients" [*start to give them their nutrients*].

Malevolent agency, in contrast, was primarily characterized in three ways: 1) harming discrete human beings, 2) harming discrete more-than-human beings, and 3) harming the more-than-human world. The first theme often occurred when discussing desert rattlesnakes; for instance, in Opuntia's description of how he avoids "getting bitten by rattlesnakes" and Manu's recollection of finding a rattlesnake with his family and thinking, "nos iba a morder" [*it was going to bite us*]. An example of a nonliving being exhibiting this

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[17] Some consultants in the S group are connected to their Indigenous heritage, but none speak an Indigenous language. It is relevant to note that not all S group consultants spoke of an Indigenous connection.

type of agency can be found in Bob's assertion that "the sun, the heat, all that stuff, it'll it'll eat your lunch". Some examples of the second characterization include Opuntia's warning that "cinnamon mold decays the roots, and then flashes the whole tree dead", and Ravelyn's memory of her mom telling her that "the parents [the mollies] will eat them [their babies]". The third characterization is exemplified in the assertions that farmers introduced plants to Arizona that "sacaron todos los nutrients de la tierra" [*took all of the nutrients from the land*] (Manu), that "el zacate usa tanta agua" [*grass uses too much water*] in Arizona (Green), and that the Dixie Fire "raged" and "burned up" the surrounding land (Bob).

8.2. Personhood markers

The major code *personhood markers* appeared marginally in the data; therefore, more examples can be explored within each sub-theme. The most frequent of these was noun use, which can be divided into three primary label types: nondescript, familial, and platonic. Nondescript nouns were the most prevalent, including the labeling of plants and animals as "guys" (Green, Opuntia), "beings/ser vivientes" (Green), and "nonhuman entities" (Ravelyn referring to all more-than-human beings). Familial labels included "mother" (Alexis referring to dogs, Violet referring to nature), "brothers and sisters" (Bob referring to all human and more-than-human beings), "children" (Opuntia referring to trees and their offspring), and "widow" (Ravelyn referring to a fish). Platonic labels consisted purely of the term "friends/amigos", referring to both animals (Maria, Ravelyn) and plants (Angie, Manu).

Pronoun use was the second most common sub-theme, and though it primarily applies to the English language,[18] consultants from both groups used them. The uses were as follows: "he/him" (Bob and Ravelyn, both referring to animals), "she/her" (Opuntia referring to an animal, Violet referring to mother nature), singular "they/their" (Alexis referring to an animal), "you"[19] (Angie and Green, both referring to plants), and "my"[20] (Bob in speaking on behalf of the natural cycles). The verb + a construction, on the flipside, only occurs in Spanish, and is typically used to refer to people and pets (i.e., beings deemed as having personhood). This regular use occurs three times when referring to pet animals, thus affirming their personhood (Fern, Maria); however, there are three instances of this construction that could be deemed nonstandard: 1) Maria's story of getting to "ver a los animals" [*see the animals*] when referring to non-domesticated ones, 2) Violet's musings about wanting to "ver al mundo"[21] [*see the world*], and 3) Fern's "tengo a una planta" [*I have a plant*]. While the last example gives a plant the status of a pet (who is given personhood),

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[18] See the following two footnotes for examples in which pronouns could have been used equivalently in the Spanish language, but weren't.

[19] Though the Spanish equivalent *tú* could have been used among S group consultants, it was not.

[20] Though the Spanish equivalent *mi* could have been used among S group consultants, it was not.

[21] This phrase is standardly used when referring to the people (i.e., humans and their cultures) of the world, whereas in Violet's case, it was in reference to seeing the natural world.

the first two ascribe this personhood to non-pet animals (which aligns with Maria's later comparisons between human and animals) and desert/nature (which aligns with Violet's persistent use of the term of "mother nature").

Unsurprisingly, the majority of utterances under the major code *personhood markers* refer to animals, who are often (but not always) recognized as persons in Western languacultures. Surprisingly, however, a decent number of utterances refer to plants as well, which is less commonplace among Western languacultures. The following quote from Green illustrates how this tension between what is thought and what is common manifested itself in real time: "Every time I like, cut my plant, imma be like, I tell *them* I tell *them* I tell *it*, thanks" (emphasis added). This linguistic struggle reiterates the uncommonality of granting personhood to more-than-human beings among both languacultural groups, but perhaps, in confluence with all of the examples above, suggests its burgeoning prominence.

8.3. I-constructions

The first two major codes (i.e., *agentive verbs* and *personhood)* allude to the presence of more-than-human care by virtue of their recognizing agency and personhood within nonhumans — an act that is uncommon in Western languages and practices — despite the fact that all consultants have been influenced by Western ideals to a significant degree. The remaining two major codes, on the other hand, allude to specific types of connections based on the psychological principles of self-identification (*I-constructions*) and in-group identification (*we-constructions*). To begin with *I-constructions*, consultants demonstrated an affinity that is grounded in recognizing the inherent connection that more-than-human beings have with themselves, in the sense that the separation between them is unsettled in some way. This occurs in five primary ways: 1) anthropomorphizing/nonhumanizing, 2) familial, 3) scientific, 4) scientific/spiritual, and 5) spiritual.

The first of these occurs when a consultant equated human and more-than-human beings, either through anthropomorphizing nonhumans or "xyz-o-morphizing"[22] based on their unique conceptualizations of what it essentially means to be like a certain nonhuman entity.[23] In some instances, consultants drew a comparison of likeness, such as in Bob's description of humans' ability to "be like a tree" by being present and still, and Maria's "quiero ayudar como la vaca" [*I want to help like the cow*] in reference to how all parts of the cow are usable (and therefore deeming the cow inevitably helpful). In other instances, this manifests as consultants drawing comparisons of fundamental sameness; for example, in Maria's parallel, "el animal que seas, la persona que seas" [*the animal you are, the person you are*] as a biological fact, and Bob's discussion of "reanimalizing your [human] brain" in the

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[22] See Morton (2013) for the idea of a cup "cup-o-morphizing" a human, which explains the reverse of anthropomorphizing something (i.e., instead of a cup being anthropomorphized, a human is "cup-o-morphized")

[23] Important to note is that this work does not consider anthropomorphization to be a negative phenomenon, nor does it consider it to be necessarily false.

context of hunting for food. It is of note here that this sub-theme is relatively infrequent, not well distributed, often referring to commonly-accepted notions of what it means to be each given nonhuman entity, and largely alluding to humans being animals, the latter of which is a notion that is accepted and promoted in Western science (though not Western popular culture). Though the familial sub-theme implies similar notions, the two instances of its occurrence are more tied to Indigenous and posthumanist strands of thought.[24] These two instances include Violet's "yo veo la naturaleza como familia" [I see nature as family] and Bob's "all species are our brothers and sisters".

The last three sub-themes — scientific, scientific/spiritual, and spiritual — occurred much more frequently, and they differ from the first two in that they draw from evidential assumptions about the world to explain human and more-than-human connections (as opposed to using direct similes, equalizing humans/nonhumans, or mentioning familial connections). The first sub-theme speaks of empirically (in the Western scientific sense) proven similarities between human and more-than-human beings. Ravelyn, for example, explained how "the way that the, that crabs breathe is similar to the way that our kidneys filter", while Violet remembered how excited she was to learn that "los atoms que, que temenos" [*the atoms that, that we have*], "that we're made up of, are found in everything else. Like the, we have, we share chemical makeups that are very similar to other plants, other animals, biomes." The spiritual sub-theme, on the other hand, draws directly from spiritual concepts to draw comparisons; for example, in Manu's assertion that "todo hasta las plantas, y los animales, y los humanos tienen, ah, un espíritu" [*everything from plants, and animals, and humans have, ah, a spirit*] and Ravelyn's belief that her energy "is part of the world's energy".

Scientific/spiritual utterances occur at the nexus between the two in that they reference ideas from both. Ravelyn, for example, stated: "If we have a soul, I think other things do too. Or if we don't have a soul, then nothing does." Similarly, Green explained her perspective on plants as follows: "I don't know if they have like a spirit or like something, but I do believe they have like an energy and like, they're alive like literally they're alive but also like, in the sense that we're alive." Additionally, all five S group consultants and one E group consultant expressed the idea that human and more-than-human beings are inextricably connected, or "one". Some iterations of this include: "No es que yo me haya, me haya puesto Dios en el mundo para hacer eso [controlar el mundo], es más como, yo soy parte del sistema" [*It's not that I was, I was put in this world by God to do that (control the world), it's more like, I'm part of the system*] (Fern), "I think, like we are of, we are of creation, we're of nature like, yeah. We're adherent to the same laws, and if creation is not flourishing, we're not flourishing" (Angie), and "todo está conectado y todo tiene vida" [*everything is connected and everything has life*] (Manu).

Interestingly, when drawing from scientific and spiritual ideas distinctly, consultants

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[24] See Luther Standing Bear's (2006) common ancestor story and Donna Haraway's (2016) multispecies kinship, respectively.

tended to focus on discrete beings (e.g., crabs, plants, animals, biomes), or at least provided examples of the "everything" they spoke of. When speaking in the gray area, on the other hand, consultants often focused more on more abstract beings (e.g., everything, nothing, creation). While this pattern occurred among both languacultural groups, the S group produced many more *I-constructions* under these three sub-themes overall, thus suggesting a potentially more widespread belief of inherent connectedness between human and more-than-human beings. This is perhaps linked to the prevalence of religious syncretism[25] in shaping Mexican Catholicism (Pardo, 2004), which some might argue is more embedded into Mexican culture than Christianity as a whole is in White American culture (due to the country's founding on a separation between church and state). It is more likely the case, however, that this quantitative skew was influenced by the fact that all S group consultants (and only two E group consultants) cited being directly influenced by Indigenous and/or other non-Western spiritualities that have undergone various degrees of syncretic change themselves (e.g., Radding, 2013; Shanley, 2013).

8.4. We-constructions

Of all the linguistic devices used to illustrate environmental care, *we-constructions* were by far the most common. In contrast to *I-constructions*, this major code encompasses affinities that illustrate humans' support of and/or connection to more-than-human beings while maintaining a distinction between the two. More specifically, this code manifests in the following sub-themes: emotional connection/sympathy-based, knowledge-based, protection/stewardship-based, reducing harm-based, and shared circumstances/activity-based. The first two sub-themes refer to utterances that demonstrate affective and cognitive affinities that do not support direct action taken, whereas the latter three focus on actual actions (mitigative, adaptive, and general shared action, respectively).[26] Emotional

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[25] During the colonial period — which arguably continues to the present day (Dunbar-Ortiz, 2023) — Indigenous animist, nature-based spiritual worldviews came into contact with European notions of transcendental divinity, thus resulting in hybrid cultural creations. Importantly, according to Radding (2013), these creations "emerge/[d] from negotiation between beings, rather than being merely geographies of domination" (p. 193), a point that is further emphasized in her assertion that, while domination has certainly played a large role in characterizing Indigenous ways as uncivilized, the adoption of colonial beliefs and practices did not only occur under force and duress. The purpose of making this point explicit is to acknowledge the validity, variety, and complexity of current Indigenous worldviews and cultural hybrids that exist today. One example of cultural syncretism can be found in one Tohono O'odham cosmology that centers around "the duality of Sa:nto himdag [the saint way] and Jiawul himdag [the devil way]", in which the devils imagined as "the spirits of cowboys" wreak havoc in response to "irreverence or mistreatment of livestock and wild animals", and whose mayhem could be remedied by "the intervention of shamans through devil songs" (Radding, 2013, p. 208). This perspective combines elements of both Christian (i.e., the duality of the saint and devil) and traditional Indigenous (i.e., the responsibility toward nonhuman beings and the importance of shamans) traditions.

[26] This does not mean that affective and cognitive affinities were not linked to action-based affinities or vice versa, but rather that the main point of the utterance was one over the other.

connection/sympathy-based *we-constructions* were particularly frequent, and most often occurred in the context of feeling sympathy for a more-than-human being's experience. Alexis, for example, mused "how a snake feels, where they live, you know … I kind of think about things like that", which is similar to Manu's story of not being able to understand killing animals for non-survival reasons when "se puede ver, puede ver algo que está viviendo por su viviendo" [*one can see, can see something is just living their life*]. This sympathy also extends to plants; for example, in Green's description of how "se me hace" [*it makes me*] "like, sad" to throw away a leaf during plant pruning and Angie's aside that she tries to "honor" the invasive Bermuda grass around her garden because they "survived a lot".

While this sympathy was most common for discrete beings, consultants tended to speak more generally of a "connection" to more abstract beings (e.g., non-specified nonhuman beings and desert/nature). Maria, for example, spoke of how grateful she was that "todavía tenemos esa conexión" [*we still have that connection*] to nature in her rural hometown, while Bob described hiking the Grand Canyon in his early twenties as "the very first time that I had, I had felt that connection to the land". This discrepancy perhaps derives from the more frequent designation of personhood to animals and plants, while more abstract more-than-human beings are perceived more as networks of many beings.[27] This would support the notion that people are more likely to feel sympathy toward more-than-human beings who inspire anthropomorphic projections (Miralles, Raymond & Lecointre, 2019). All beings, however, were spoken about equally in terms of love and appreciation, especially among S group consultants. Some examples of this included: "se tienen que respetar y también like, tener ese amor" [*one has to respect and also like, have that love*] for the desert (Green), "tengo un gran respeto y amor por todos los lugares naturales" [*I have a huge respect and love for all natural places*] (Violet), and "me encanta de las plantas" [*I love plants*] (Fern). The greater presence of these utterances among S group consultants could be due to the higher levels of emotional expression documented in Latin American cultures (Salvador et al., 2023).

The knowledge-based sub-theme was less common overall, and it focused more on consultants' specialist knowledge about more-than-human beings as well as their belief that education would inspire others to care. In regard to the first, Opuntia provided various examples of his deep knowledge of plants, including keystone species and their "proper orientations", while Maria noted that after living her entire life in the desert, "sé reconocer, los diferentes tipos de vida que existen dentro de este entorno" [*I know how to recognize, the different types of life that exist within this environment*]. Because of various consultants' own recognition of the link between their knowledge and connection to the more-than-human world, they also spoke in support of spreading this knowledge to others. Some examples of this ethic include: "I'm super proud of the conversations I was able to have, by creating the dialogue around sustainability as a decision challenge" (Ravelyn), the government "nos

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[27] See Bruno Latour's (2007) Actor Network Theory (ANT) for more information on this notion.

tienen que enseñar, cómo, cuidarlo" [*they have to teach us, how, to take care of it*] (Fern referring to nature), and "I think if people realize the impacts that they're actually having on the world, and, you know, how people consume, if they actually connect the dots there and they realize, what, when x equals y, what that actually means, I think that they would, live differently" (Bob).

Of the action-oriented sub-themes, the least frequently occurring one was shared circumstance/activity-based. This sub-theme typically appeared in the context of consultants doing something with animals. Green, for example, said that she and her mother "jugamos con los" [*played with the*] "hermit crabs" at the beach, while Ravelyn reminisced about "going car camping" with her dog. The reason for this skew is likely because animals are typically perceived as able to do things *with* human beings more than the others among both languacultures, although there is linguistic evidence of these other more-than-human beings being seen as possessing their own agency in earlier analyses as well.

Reducing harm-based utterances, which were similarly infrequent, typically described concrete actions consultants would take to reduce the harmfulness of their actions. This most commonly manifested as attempts to reduce the harm of one's consumption; however, the manner in which this was done looked different between both groups. On one hand, the E group focused more on consuming *less* and *more locally*. Some examples of this effort included: "I try to purchase things that are, you know, grown closer to home than far" (Opuntia); "I try not to use plastic as much, um, try not to waste food" (Alexis); and "[people are] going to be more mindful about like electricity use and stuff, because AC is really expensive" (Bob). The S group, on the other hand, tended to focus on *mindful treatment* of animals and plants when using them for food or recreation. Instances of this ethic included: "es necesario pedir permiso a las plantas" [*it's necessary to ask the plants permission*] before taking them (Maria); "cuando sacas un pescado, puro lo ves y lo metes otra vez al mar" [*when you catch a fish, you just look at it and then you put it back into the sea*] (Manu); and "puedo cuidar a mi propio animal, y, empezar haciendo comida como de, no sé, hamburguesas de una vaca que crié" [*I can take care of my own animals, and, start making food from like, I don't know, hamburgers from a cow that I raised*] (Fern). While not the focus of this section, it is of note that many of the E group consultants' examples were influenced by familial lessons rooted in "science" and school, while S consultants were more influenced by familial lessons rooted in "spirituality" and religion. This supports the earlier reasoning that the E group's predominantly Western influence and the S group's blended Western and Indigenous influence is relevant here.

The final sub-theme of protection/stewardship-based *we-constructions* was by far the most popular among both languacultural groups. Among both, this often manifested as general statements of protection and care. Sometimes, these would be paired with notions of reciprocity, often when referring to the broader desert/nature. Some examples of this included: "la vida … siempre va a estar allí para protegerte, y eso es, eso es por qué yo creo que deberías protegerla, a ella también" [*life … will always be there to protect you, and that's why,*

that's why I think you should protect her, her too] (Violet); "estás en un lugar donde, se tiene que mantener así porque te gusta jugar, en el agua, y, te la pasas bien entonces lo quieres cuidar" [*you are in a place where, it needs to be maintained like this because you like to play, in the water, and you enjoy it so you have to take care of it*] (Fern); "there's a lot of space within religion for, environmental care to be like paired with human care" (Angie); and "I actually started working for a trail crew, building part of the Arizona Trail. I, you know, after my through hike, I wanted to, give back, and, feel some level of stewardship" (Bob). This notion also came up when consultants discussed their careers, as many of them work in an industry tied closely to more-than-human beings. Ravelyn, for instance, spoke of realizing she wanted to work with marine life because they "might be in danger or it might need protection, and that sounded like a job [she] could do", which is similar to how Green mentioned loving her work in the water industry because "es algo que se tienen que proteger y cuidar" [*it is something that needs to be protected and cared for*].

More specific examples of protection/stewardship revolved around the following three types of actions: providing resources, preventing harm, and helping recover from harm inflicted by others. The first type occurred most often among S group consultants referring to plants and animals. Manu, for example, explained the process of a coral restoration project that he and his partner took part in: "cuando nadamos, le pones un poco de pegamento, y lo pones ahí a una roca, y ahí empieza a crecer más, ¿verdad? Y también, puede ser una casita por un pescado" [*when we swim, you put a little piece of coral, and you put it there on a rock, and then more begin to grow, you know? And also, it can be a little house for a fish*]. In another example, Fern provided the following list of items that she packed for a long hike with her dog: "empaqué una mochila que tenía, como que, una lámpara, agua, pollo, para mi perro, um, y, también un snack como un granola bar" [*I packed a backpack that had, like, a lamp, water, chicken, for my dog, um, and, also a snack like a granola bar*]. Many E group consultants, on the other hand, spoke of preventing harm of more-than-human beings through specific actions. Opuntia, for example, provided the following anecdote about his work:

> I recognize that, you know, most of the areas that are like, heavily irrigated or covered in grass are just kind of not meant to be that way. Then I have like my clients and stuff, I try to influence them to go to things that require less water.

Bob, in a similar vein, explained his perspective on preventing the tragedy of the commons:

> If everyone takes a little bit more than they're supposed to and no one's being, or, you know, no one is actually stewarding over that, everyone loses, and everyone has diminishing returns. Whereas if we are all responsible, good stewards, we all win and we all can have more.

Both groups, on the other hand, spoke of the ways in which they seek to help more-than-

human beings recover from harm done by others. When discussing the lack of potable water in many Mexican regions, for example, Fern said, "podemos empezar a dar dinero hacia este tipo de limpiezas, y empezar a limpiar nuestra agua" [*we can start to give money to this type of cleanings, and start to clean our water*]. A water-related example from the E group was Alexis's story about cleaning trash out of a local lake:

> I got a fishing net out of my garage, grabbed some trash bags and then I drove back. That way I could, you know, take it back with me. And so I spent like an hour or two, just like trying to fish out any trash like could, in that little lake.

Removing trash or litter was a common restorative act taken by consultants; for example, in Bob's "yeah, it might not be your garbage or whatever, but you're still a steward of this land. You need to take care of it", and Green's "fuimos a Sedona a ser litter lifters en el um highway. Así vamos caminando y agarramos la basura" [*we went to Sedona to be litter lifters on the um highway. So we went walking and we picked up the trash*]. Finally, as was the case for general protection, other consultants spoke of the restorative work they did as part of their jobs. Alexis, for example, told the story of an initiative she and her co-worker took to reduce waste at the restaurant they worked at:

> For like a few weeks, we just kept track of how much waste there actually was and then we showed it to [the CEO], and he was like, oh my gosh. And so we were like, can we start, like composting or something? And so, he was actually like, very open to the idea.

Green, in a broader sense, spoke of her job, which is largely grounded in water infrastructure design, in the following way: "me siento tan privilegiada poder estar en, un trabajo que yo siento es muy importante" [*I feel so privileged to be able to be in, a job that I feel is very important*].

9. Conclusion

There are various ways in which a person's language can illustrate their care for the environment. Of the four major linguistic codes analyzed in this study, *we-constructions* and *agentive verb use* were the most common, whereas *I-constructions* and *personhood markers* were less common but still impactful. This skew in commonality likely exists because in both English and Spanish, it is much more common to speak of cooperating with more-than-human beings as distinct entities (*we-constructions*) than it is to speak of one's selfhood being connected to them (*I-constructions*), just as describing a more-than-human being's actions (*agentive verb use*) is much more common than using the same lexical items that one would use for humans (*personhood markers*). Another interesting split to note is that for the two purely linguistic markers — *agentive verb use* and *personhood markers* — animals and plants

were the favored subjects, while for the psychologically-based markers — *I-constructions* and *we-constructions* — desert/nature was favored. This is perhaps because beings that are seen as discretely singular are more likely to be given agency and personhood, while a broader desert/nature (and in the case of *I-constructions,* non-specified nonhuman beings) that are seen as more encompassing of many discrete beings is more likely to evoke sentiments of identity merging and cooperation.

Interestingly, while both groups produced a similar number of *we-constructions*, there was a much higher occurrence of emotional sympathy/connection-based *we-constructions* among the S group. This could perhaps be related to higher levels of emotionality within many Latin American cultures (Salvador et al., 2023). Also interesting is that, while desert/nature *we-constructions* were favored by both groups over plant ones, the S group used comparatively more plant *we-constructions* while the E group used comparatively more desert/nature *we-constructions*. This could be a languacultural difference related to a tendency to assist discrete more-than-human beings over a broader desert/nature concept; however, this would likely only apply to the sub-theme of reducing harm (which refers to utterances that express an effort to minimize harm rather than provide benefit), as this is the only sub-theme (aside from emotional sympathy/connection) in which this difference is observed in a specific category.

Unlike the relatively even overall number of *we-constructions*, the S group produced many more *I-constructions* than the E group. It is relevant to note here that the spiritual/scientific sub-theme, which is comprised of statements blending notions from Western science and various spiritual traditions to describe humans' connection to the more-than-human world, is what composed over half of the S group's utterances. This demonstrates a potential languaculturally-based greater ease or acceptance in combining the two domains, which is often done in non-Western contexts (e.g., Cajete, 2000). The E group's languaculture, on the flipside, perhaps is influenced more by the common Enlightenment era notion that science and religion are incompatible with one another (Ferngren, 2022). However, as has been mentioned before and will be mentioned again, due to the small sample size of this study, these broader languacultural insights are preliminary at best.

Moving on to the purely linguistic markers, most instances of *agentive verb use* among both groups were descriptions of benign, or neutral, actions. In a way, this category of agentive verbs describes a lesser degree of agency, since for an action to be colored benevolently or malevolently, there must be intention attached to one's perception of it.[28] When looking at benevolent and malevolent *agentive verb use*, it is interesting that the S group favored benevolent verbs while the E group favored malevolent verbs. In essence, because these sub-themes are valence-based and therefore subjective, this shows that, among this pool of consultants, the E group is more likely to describe more-than-human beings' agency as a threat to others whereas the S group is more likely to describe them as a help to others.

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[28] See Jane Bennett's (2010) vital materiality for an interesting perspective on nonhuman being agency.

Finally, *personhood markers* are much more closely related to language structure than any other major code. Nouns that ascribe personhood to more-than-human beings (i.e., those typically used to describe humans) exist in both English and Spanish, and they are used accordingly in similar proportions between both groups across more-than-human being and sub-theme. However, pronoun differentiation in the third person singular between persons and non-persons only exists in English (e.g., *he/she* versus *it* in English as compared to the generic *él/ella* in Spanish); therefore, because the S group's interviews contained significantly less English, there were less instances of this sub-theme. In fact, the S group's inclusion in this sub-theme at all, along with their use of verb + a constructions for more-than-human beings, support the idea that both languacultural groups use this marker to a similar degree.

This particular study focused on a small number of consultants, conducting in-depth interviews to allow for a deep exploration of their ways, while still providing plenty of viewpoints for readers to chew on. Future research would benefit from larger interview pool and a diverse research team comprised of both members and non-members of each languacultural group. Even still, based on this study alone, decision makers should take seriously the number of times consultants corroborated research that highlights the biodiversity and vitality of the Sonoran Desert, and advocate for halting the destruction of land that occurs under the guise that the desert is flat and lifeless, anyway. Moreover, this study can serve as an example that there are many different ways to speak about the more-than-human world with regard. May this reminder illuminate a myriad of potential pathways toward developing an ethic of environmental care.

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