'*This* Uphill': How Manual Gestures Supplement Fixed Bearing Descriptions in San Juan Quiahije Chatino

Kate Mesh

January 6, 2017

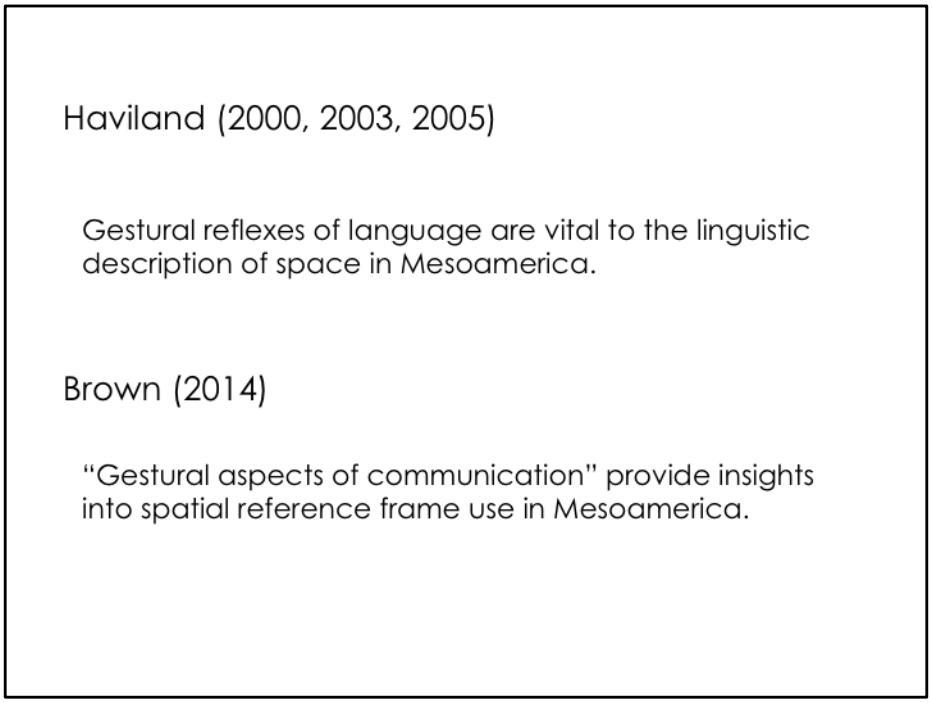
91st Meeting of the Linguistic Society of America

TEXAS
The University of Texas at Austin

This talk is about language use by hearing nonsigners in the San Juan Quiahije municipality, the same setting for Lina's talk. The same research site, but this is the moment when the "Sign and Gesture" session pivots from sign to gesture.

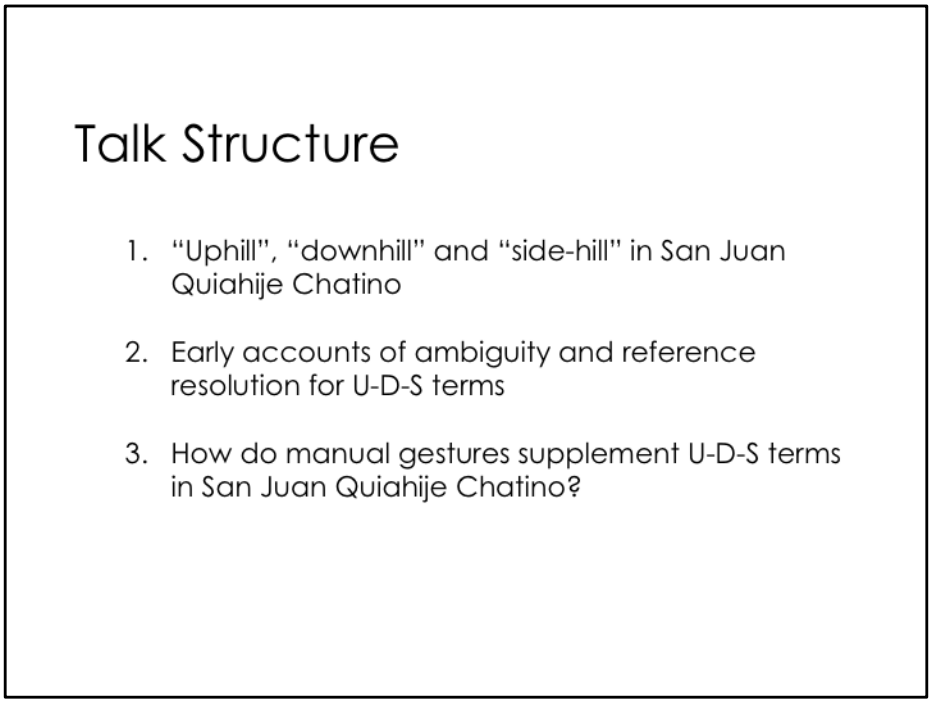
When I talk about gestures in this presentation, I will operating under the assumption that language has a gestural reflex and a spoken reflex.

John Haviland was one of the early adopters of this view, and he argued in particular that gestural reflexes of language are vital to communication about space in Mesoamerica. This is an argument that I will be elaborating in today's talk.



Brown, whose seminal research on Uphill-downhill systems is a focus of today's talk, does not, I think, share this assumption about the linguistic nature of gesture, but nevertheless argues that gesture is a crucial component of communication in Mexico and in the larger Mesoamerican linguistic area.

With that as a backdrop, let me introduce the structure of today's talk.



I'll be introducing spoken linguistic expressions "uphill, downhill, side-hill" as they are used in San Juan Quiahije Chatino, and taking some time to describe a problem that the use of these terms introduces for reference resolution. I'll take some time on this topic to be sure that the sign linguists, gesture researchers, and meso-americanists in the room are on the same page about the nature of the problem.

From there... (introduce literature and proposed solutions to the ref. Ambiguity problem, then return to SJQ to see how gestures which are absent from the original account actually function to resolve the ambiguity of U-D-S terms.)

1. “Uphill”, “downhill” and “side-hill” in San Juan Quiahije Chatino

San Juan Quiahije Chatino

- Otomanguean, Zapotecan, Chatino
- Oaxaca, Mexico: San Juan Quiahije Municipality
- ~3700 speakers (INEGI 2014)

[typical intro]

A standard use of the term "downhill" in San Juan Quiahije Chatino

ni qya…tyqya hasta tyiku kwi

toward down…descending to the river [named]"Seven"

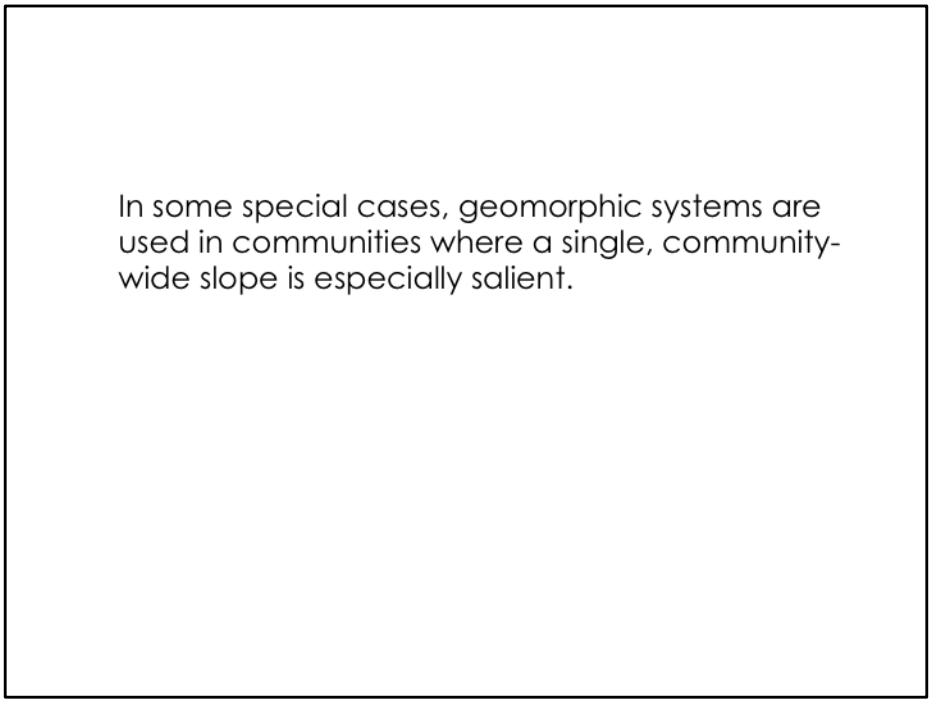
Let's start with an example of the standard use of the term "downhill" in SJQ Chatino. Here in this photo you see most of a couple from the San Juan Quiahije municipality (they asked to have their faces obscured for public talks so you can't see quite all of them.) They are participating in an interview about the location of landmarks in the community, and the interviewer has just asked them how to reach the community's evangelical church. The man at the left of the photo provides a route description that ends in this phrase:

The speaker in this case lives in the town of San Juan, one of two communities in the Quiahije municipality. His home is near the top of the mountain on which San Juan rests, and he is being interviewed at home. Technically speaking, nearly every location in San Juan is below him given the location of his home. So you can imagine, based on his route instructions, that the river in question might in any of the locations marked by a yellow pin here, or here, or here….but in fact the river is here, in the spot marked by the blue pin. Interestingly, his use of the term "downhill" should prompt a Chatino speaking listener to search for the referent in just the area where the blue pin is affixed, and in a moment we'll see why.

Linguistic expressions like "uphill" and "downhill" are part of a **geomorphic** spatial reference system, in which the positions of entities are described **relative to the local topography** (Bohnemeyer & O'Meara 2012)

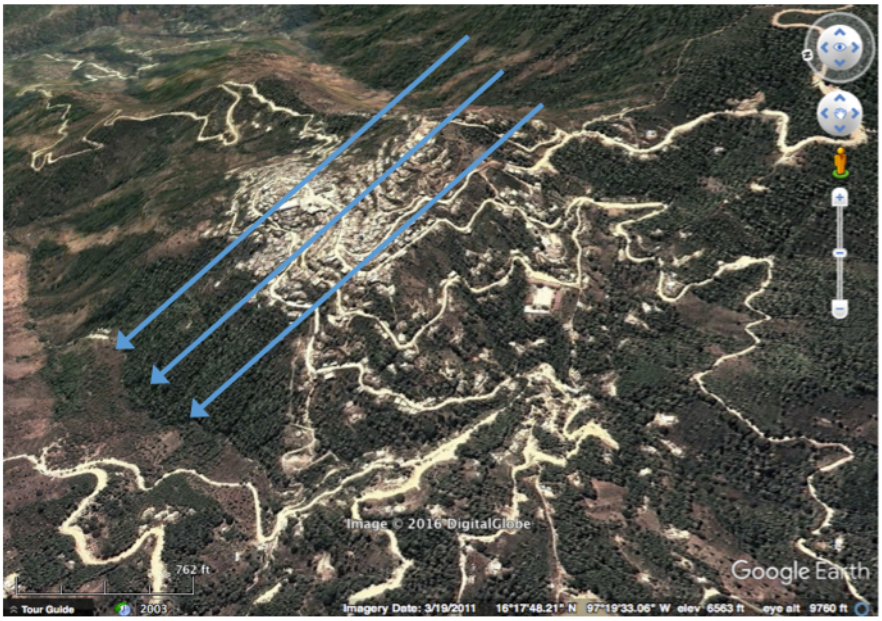
"The river is **downhill** from the house"

These expressions are part of a **geomorphic** spatial reference system, in which the positions of figure and reference object are described relative to the local topography. It's worth noting that this is true of the expression downhill where it occurs in English, as well. You and I can't use the term meaningfully without making reference to some salient local hill. So in this respect, our geomorphic of the term "downhill" does not differ substantially from that of Chatino speakers.

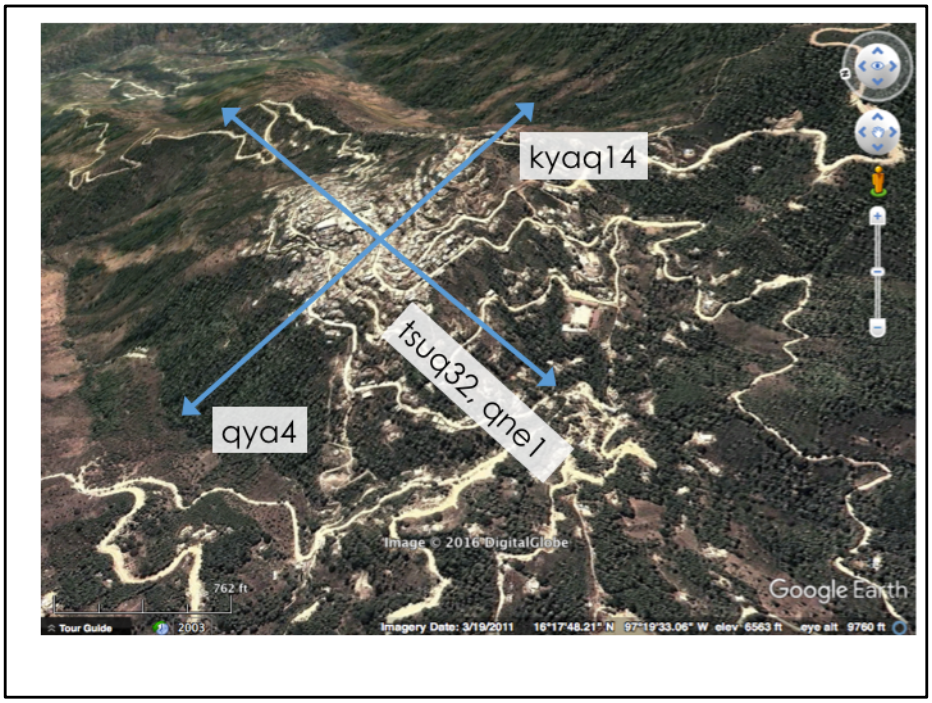


The situation becomes different, however, in cases where a community is situated along a uniquely salient slope. This is the case in San Juan Quiahije, where the community is built along the side of a mountain. People in the community live in houses and shop in stores and visit their neighbors and sell their surplus harvest, all in the context of having to move along the slope. It is natural in this community to conceive of your day in terms of movement uphill and downhill, for many reasons, not least of which physically taxing to navigate the terrain

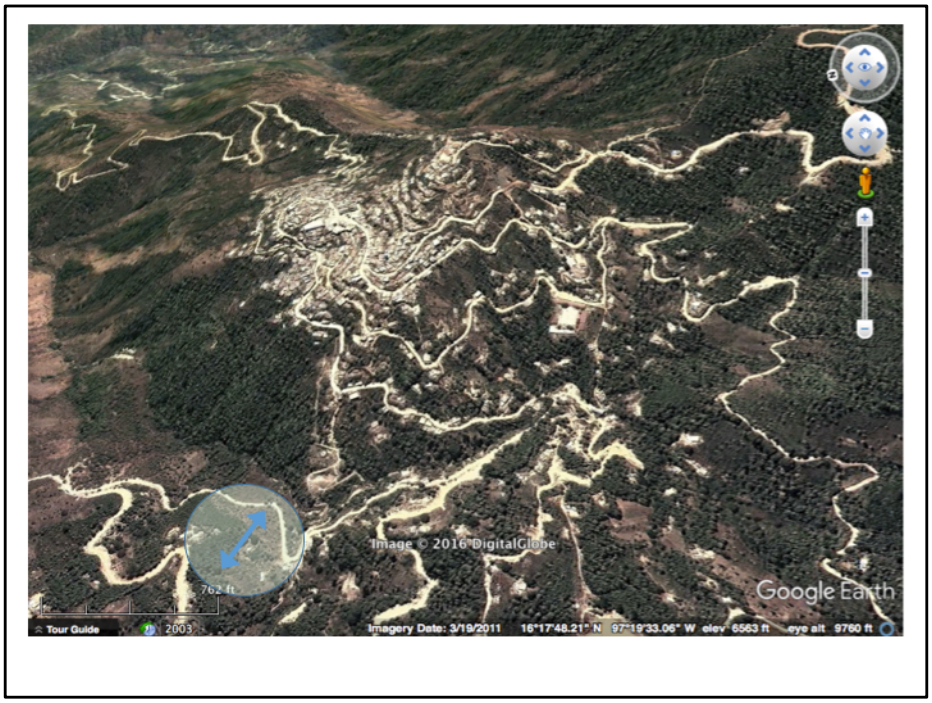
Now as I observed earlier, because San Juan is located on a mountain, it is technically true that when you are situated at the mountaintop every direction you turn could be considered downhill. But you can see from this image that the buildings in the community are largely constructed on one side of the mountain, and a major road connecting the community to a nearby farming hamlet winds up this side of the mountain.



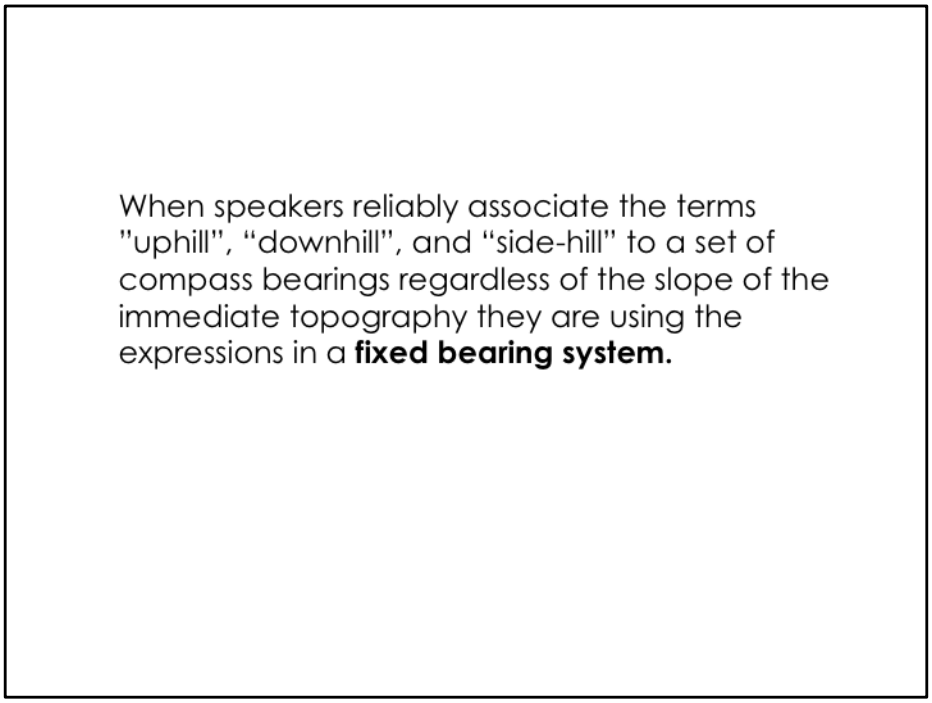
This makes one slope in the community particularly salient: one that runs roughly south-north, with south being uphill and north being downhill. Speakers become accustomed to referring to items in the north as “downhill” of items in the south, and over time, this system has been abstracted from the local topography to function as a cardinal direction system.



in place of North, South, East, and West, speakers use expressions equivalent to ”downhill”, “uphill” and “side-hill”. The terms themselves are kyaq14 for “uphill”, qya4 for “downhill”, and the two terms tsuq32 and qne1 both used to refer to either side of the transverse.

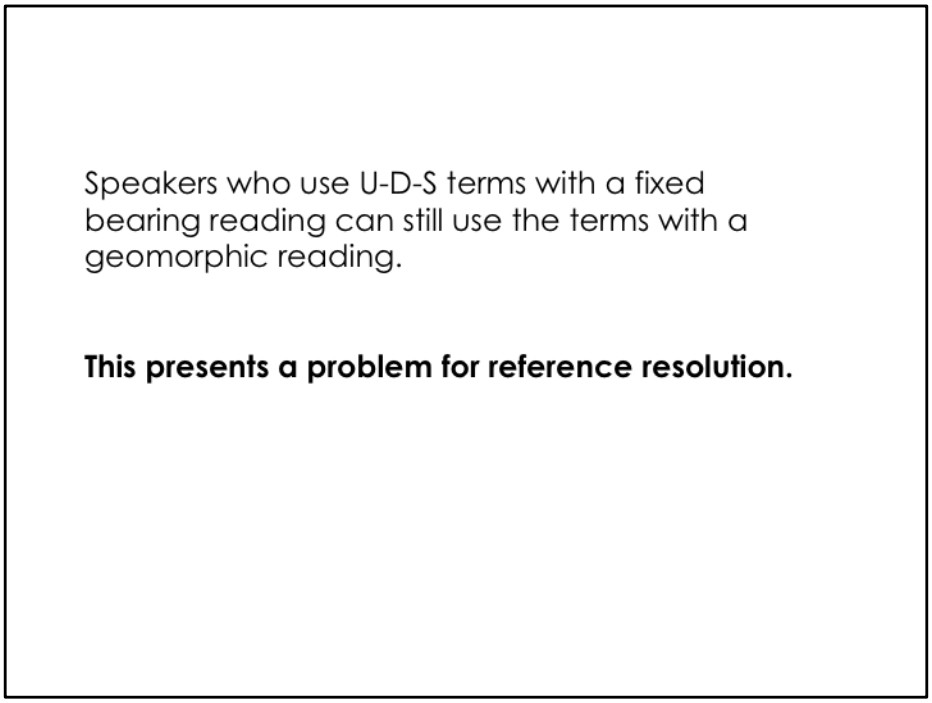


This system has been abstracted from the local topography in the sense that a speaker may stand on the banks of the river that we first heard our speaker describe, an area at the base of the mountain on a near-perfectly horizontal plane, and refer to the two sides of the river as “uphill”, meaning roughly south, or “downhill”, meaning roughly North.



When speakers reliably associate the terms "uphill", "downhill", and "side-hill" to a set of compass bearings they are using the expressions as **fixed bearing terms.**

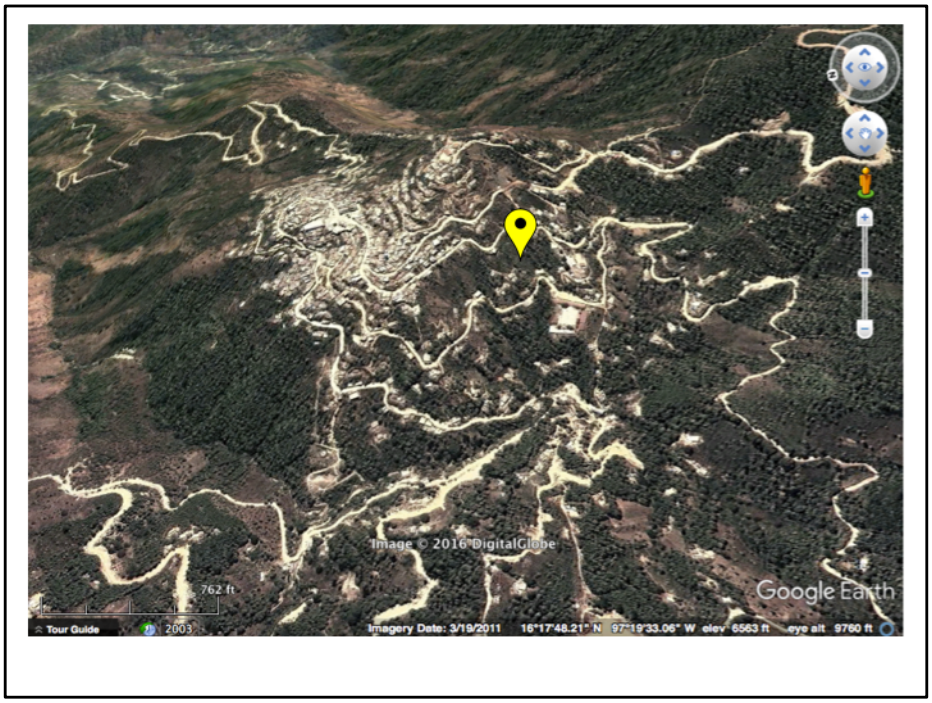
This is precisely what the speaker is doing in our original example. He is answering the question, how do you get to the Evangelical Church, and in giving route directions he instructs the listener to move "towards down" by which he means "move roughly northward"



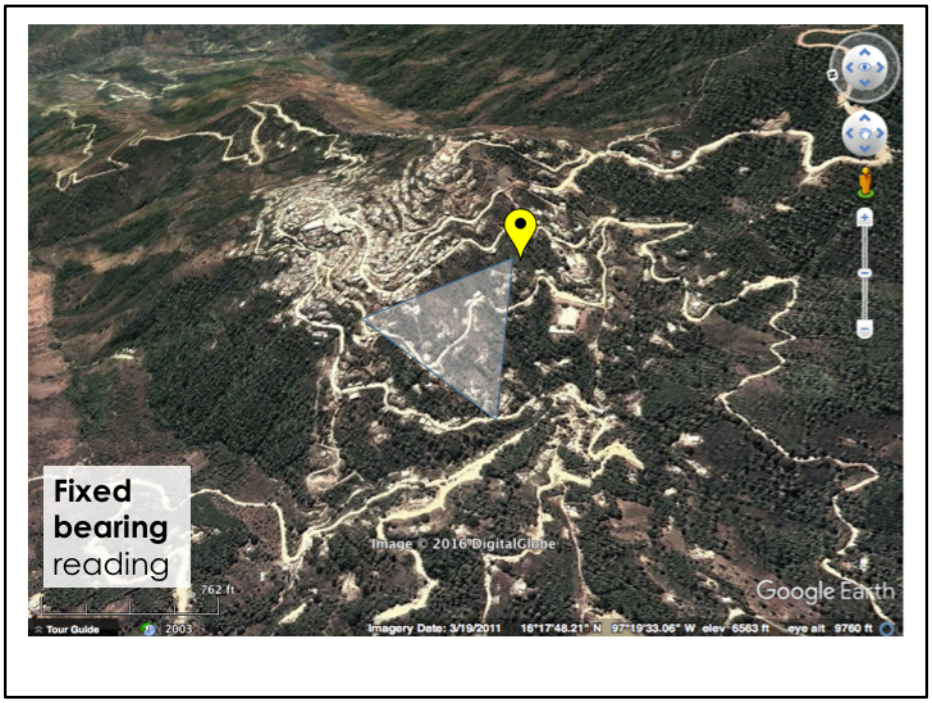
The presence of a fixed bearing system does not prevent speakers from using "uphill", "downhill" and "side-hill" with the standard geomorphic sense:

they can still use the terms refer to positions on less salient local inclines in the community.

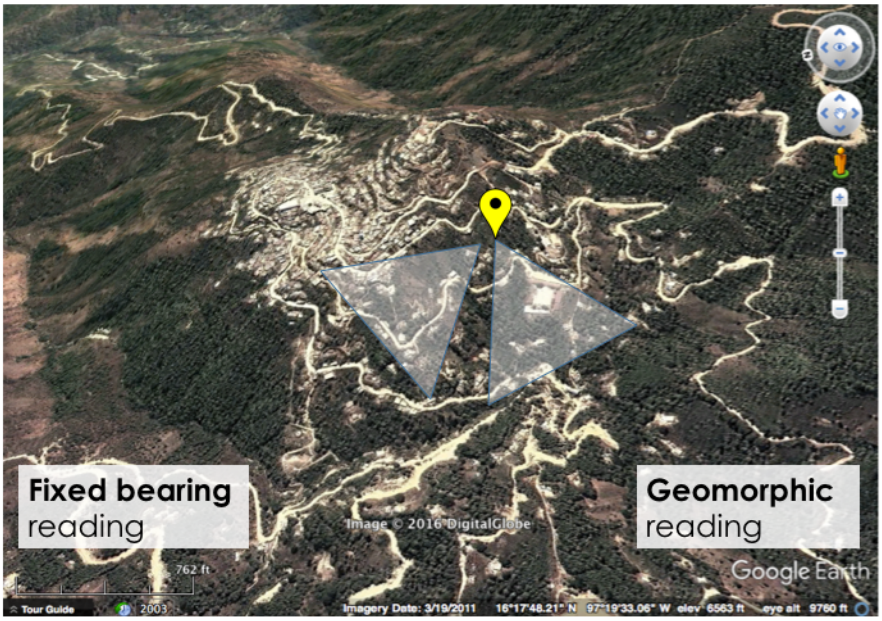
This is precisely what the speaker is doing in our original example. He is answering the question, how do you get to the Evangelical Church, and in giving route directions he instructs the listener to move "towards down, descending to the river called Seven".



Consider the case of a child who lives in the area of San Juan here on the side of the mountain. The child arrives home and asks her mother where her father has gone, and the mother says: he went downhill.

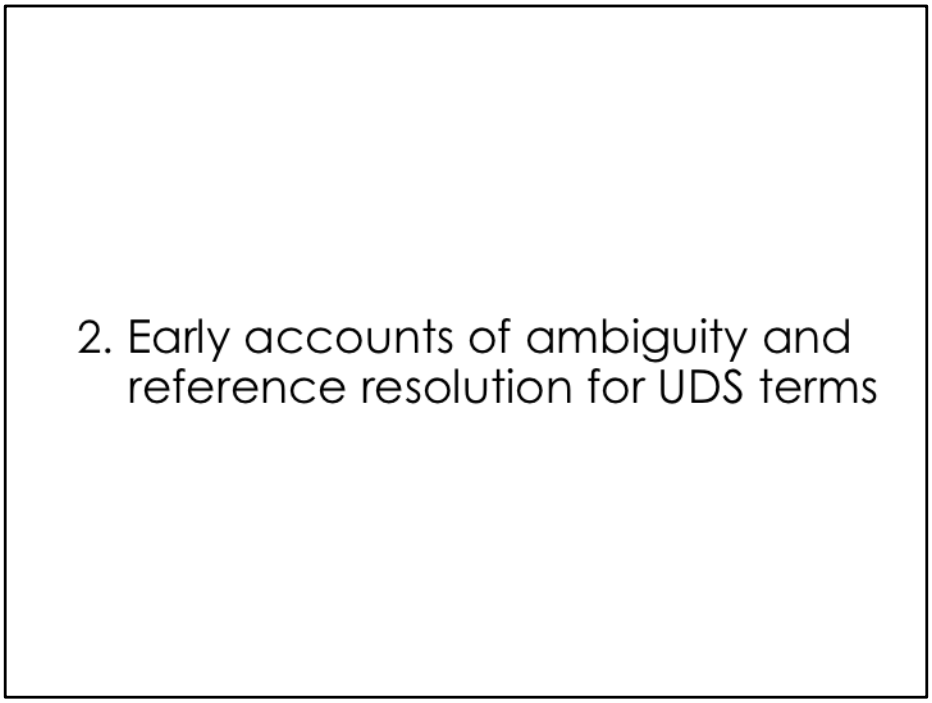


On a fixed bearing reading of the term “downhill”, the child would assume the father is somewhere to the North.

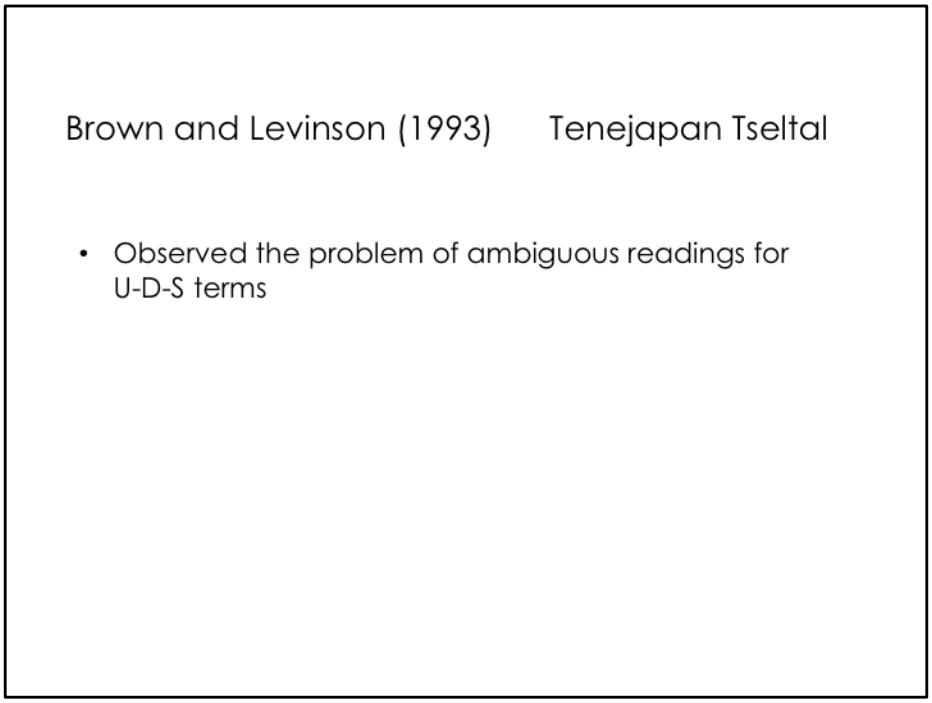


On a geomorphic reading of “downhill”, the child would assume the father is somewhere to the West, since the landscape drops in a sharp declination in this direction. Given that both readings are available, what is the child to conclude?

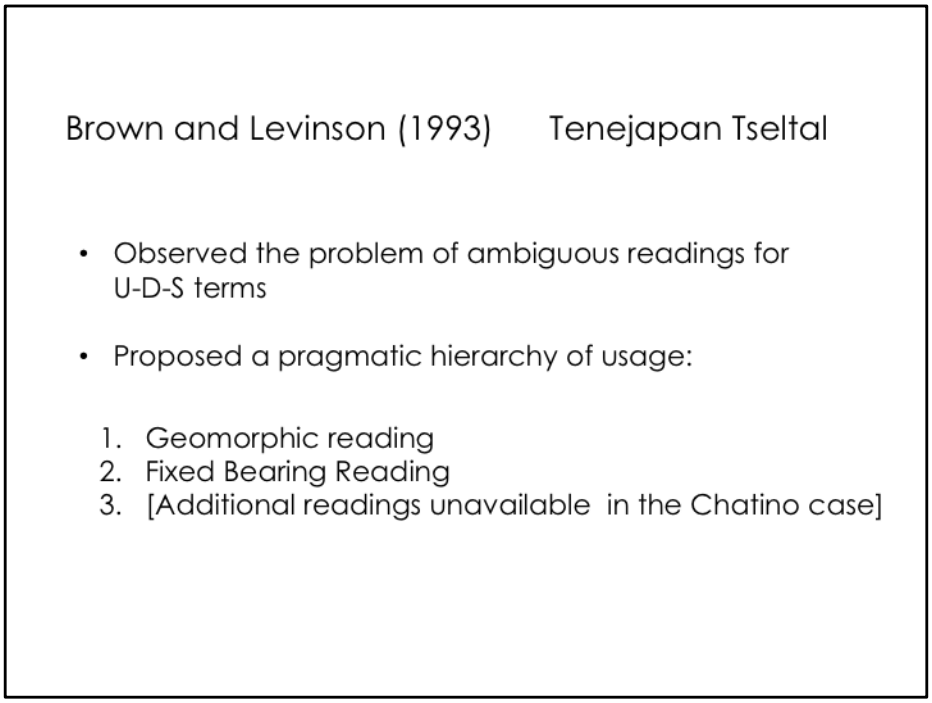
In the next section of the talk I’m going to briefly outline an early proposed solution to the problem of ambiguous readings for U-D-S terms. Then we’ll return to San Juan Quiahije to see a strategy that speakers used to disambiguate readings of these terms in talk about the locations of local landmarks.



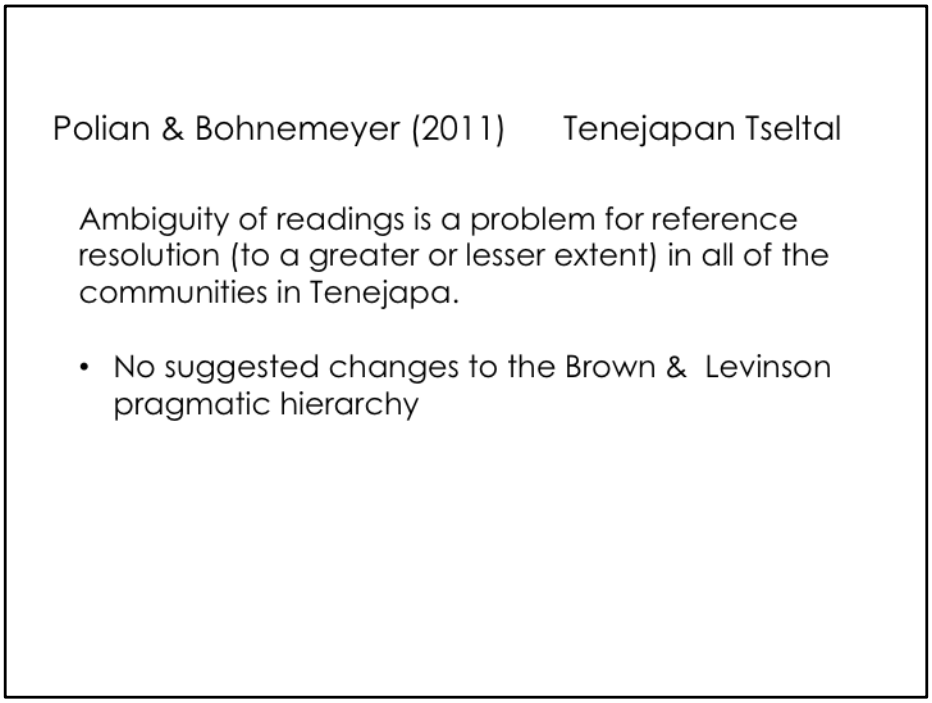
In the next section of the talk I'm going to briefly outline an early proposed solution to the problem of ambigous readings for U-D-S terms. Then we'll return to San Juan Quiahije to see a strategy that speakers used to disambiguate readings of these terms in talk about the locations of local landmarks.



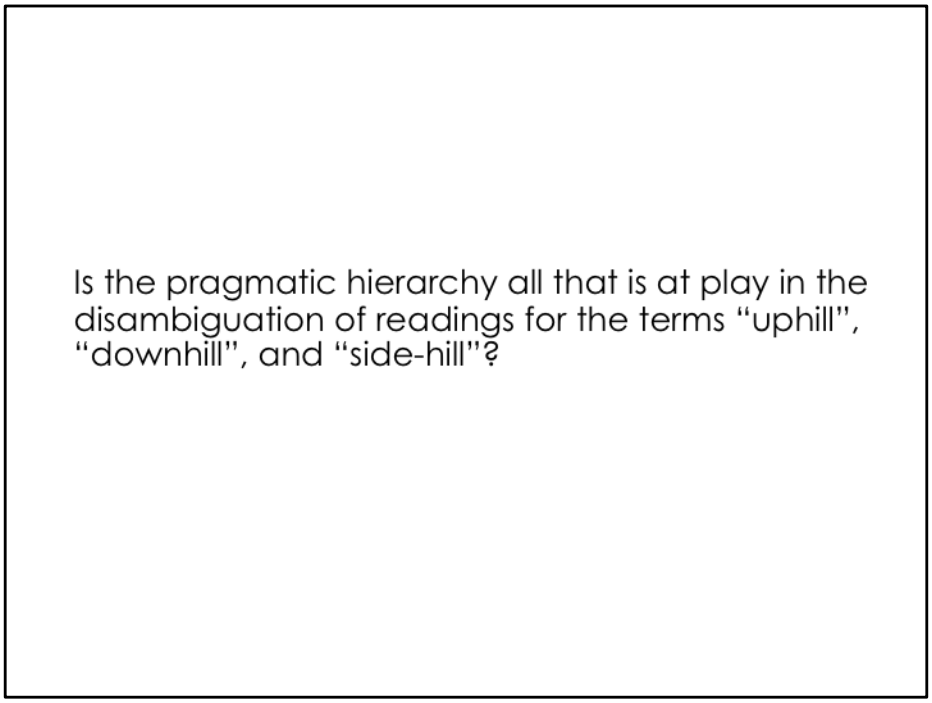
In 2003, Brown and Levinson made the first account of U-D-S terms being abstracted to form a fixed bearing system in a community of Tseltal speakers in Chiapas, Mexico. They observed exactly the problem that we encountered with ambiguous readings for the terms ”up”, “down” and “transverse” in Tseltal, and they say that this problem occurred in conversation about referents at the landscape scale and at the small scale. Notably in the Tseltal case there were three readings for the terms, rather than the two available in Chatino.



1. Brown and Levinson proposed that Tseltal speakers may make use of a "pragmatic hierarchy" in order to determine which reading of a given term was intended. They suggested that speakers may safely assume that any salient local incline is under discussion. Assume a geomorphic reading where possible. In cases where items are are not positioned on or near a salient slope, assume a fixed bearing reading.



In 2011 Polian & Bohnemeyer brought a spatial language elicitation task to Tseltal speakers in multiple communities in the Tenejapa municipality. They found that not all slopes are created equal, and that speakers in communities with less perceptually salient major slopes were less likely to use a fixed bearing reading when performing a referential communication task in small-scale space.



I think that the answer here is no, for a reason that I hope is immediately obvious to you after you watch the video of our original speaker describing the location of the church to the North of his home.

Brown, Levinson, Polian and Bohnemeyer all acknowledge the prevalence of pointing gestures in communities where fixed bearing terms are used—and Levinson and Brown have both written about the use of pointing in Tseltal communities. But none of the research to date speaks to the question of how pointing gestures contribute to reference resolution for fixed bearing terms in particular.

ni qya…tyqya hasta tyiku kwi

towards down…descending to
the river [named]"Seven"

Brown, Levinson, Polian and Bohnemeyer all acknowledge the prevalence of pointing gestures in communities where fixed bearing terms are used—and Levinson and Brown have both written about the use of pointing in Tseltal communities. But none of the research to date speaks to the question of how pointing gestures contribute to reference resolution for fixed bearing terms in particular.

3. How do manual gestures supplement U-D-S terms in San Juan Quiahije Chatino?

Data

- 'Local Environment Interviews' (Kita 2011)
- 29 SJQ Chatino Speakers (15 Spanish bilinguals)
- 6h 39m of footage
- For utterances *accompanied by a pointing gesture*,
  - Speech transcribed and translated
  - Referent locations mapped
  - U-D-S readings identified
  - Pointing was coded as veridical or non-veridical

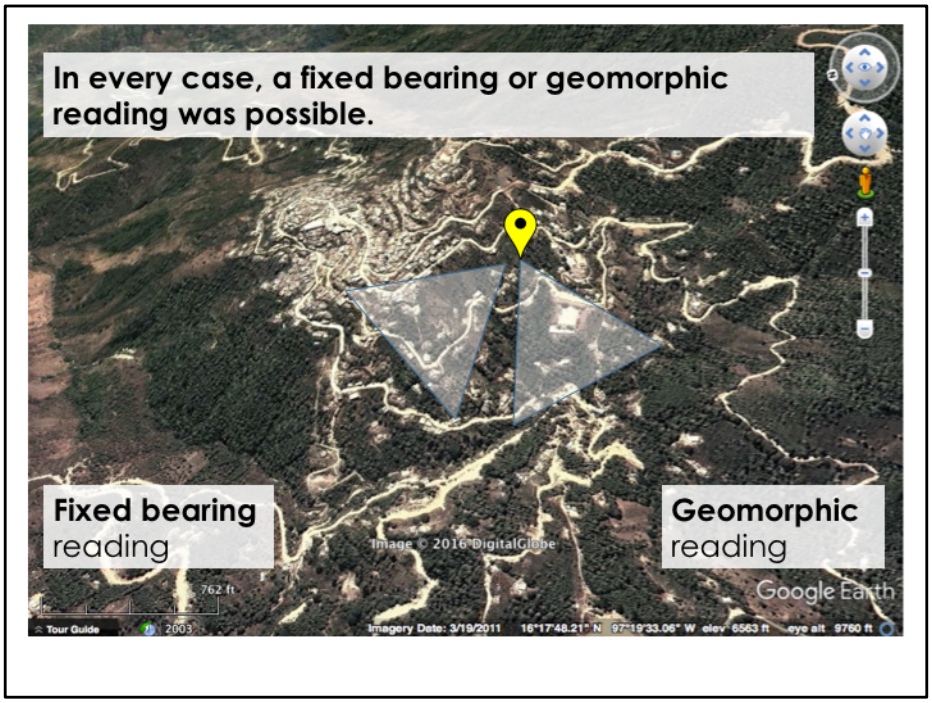
Data for this study were drawn from 6 hours 39 minutes of video recorded 'local environment interviews' (following Kita 2001) conducted with 29 QC-speaking participants distributed across two communities in the Quiahije municipality: San Juan, from which I drew the images for today's talk, and Cieneguilla Interviews lasted between 7 and 30 minutes, during which speakers described local landmarks and the routes taken to reach them. The data were originally collected for a study on pointing in Quiahije Chatino, and for the original study only those spoken language expresions that accompanied pointing gestures were transcribed. It was anticipated that pointing gestures would be accompanied by Chatino demonstrative expressions (roughly equivalent to 'here,' 'this' and 'there', 'that'). This was true for many gestures, but a remarkably high number of gestures were accompanied by fixed bearing terms. Because of the nature of the data collected, I won't be talking today about what motivates a speaker to employ or withhold a gesture alongside fixed bearing terms. Rather, I'll consider the characteristics of utterances in which pointing gestures and fixed bearing terms are combind.

Results:

215 tokens of pointing gestures accompanied by "uphill", "downhill", and "side-hill" terms

- 30 of these excluded from analysis due to indeterminate reference

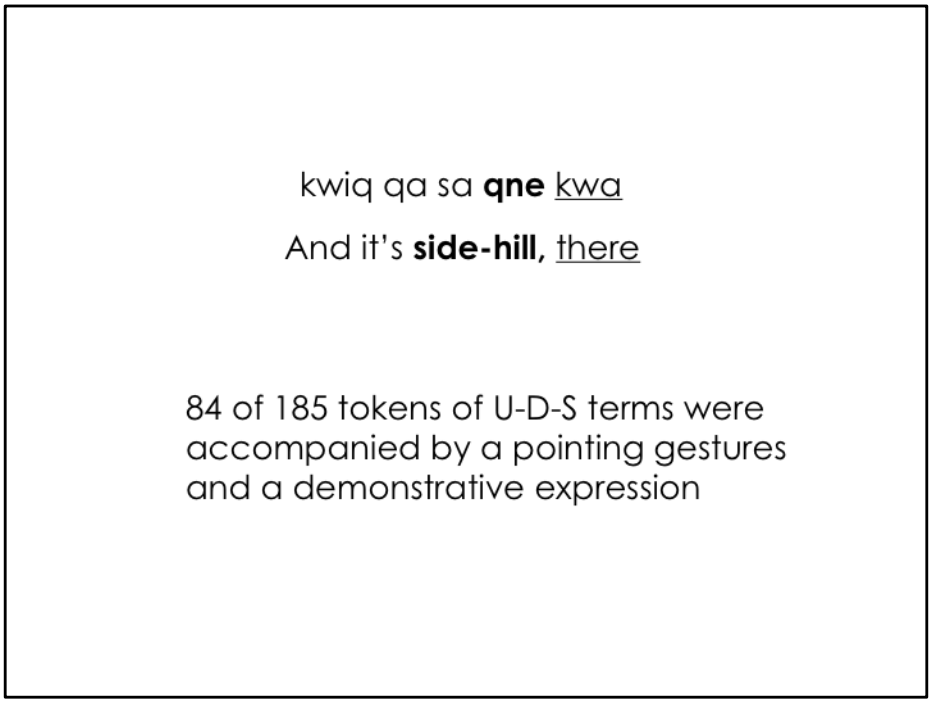
"indeterminate reference"…for example when a place name was used and research assistants could not identify the place on a map.



Recall the problem of ambiguity: for every instance of a fixed bearing term, if the interlocutor did not know the location of the referent they could assume either a fixed bearing reading or a geomorphic reading. That is, the problem of ambiguity was present for every token of a U-D-S term.

And in every case, the pointing gesture was veridical and resolved any potential reading ambiguity

kwiq qa sa **qne** kwa
And it's **side-hill,** there



It's an open question how the combination of an U-D-S term and a demonstrative affects the sense of the utterance. But we know that demonstrative terms are frequently coupled with pointing gestures and work jointly to direct listeners to a more-or-less circumscribed search space. Chatino speakers take advantage of this relationship when joining a demonstrative expression to an UDS term and coupling this new expression with a pointing gesture.

Haviland (2000, 2003, 2005)

Pointing plays a critical role for talk about space because:

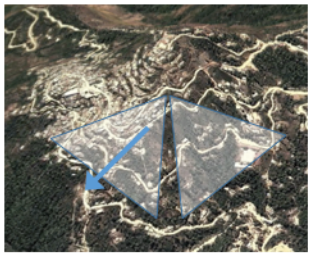
- It is more "directionally precise" than U-D-S terms.

I began this talk by describing the work of John Haviland on gesture and speech in Mesoamerica. Haviland wrote about the use of pointing gestures alongside uphill-downhill terms in Zinacantán Tzotzil, another language used in southwest Mexico in the state of Chiapas. Haviland observed that U-D-S terms drew interlocutors' attention to a quadrant in space, while the accompanying pointing gestures provided a level of "directional precision" that assisted listeners in reference resolution.

Haviland (2000, 2003, 2005)

Pointing plays a critical role for talk about space because:

- It is more "directionally precise" than U-D-S terms.
- **It functions to resolve the ambiguous readings of U-D-S terms**



Today's talk posited a second motivation for using pointing gestures alongside these terms: pointing functions to resolve the ambiguous readings of U-D-S terms, making a second contribution to reference resolution.

Directions for Future Research:

- Analyze a dataset containing with *all* U-D-S terms transcribed in order to determine what motivates the use of these terms:
  - With pointing gestures
  - With demonstrative expressions
  - Alone

…i.e, a study with sufficient data to support an analysis of the **co-organization** of pointing, dem. expressions, and U-D-S terms.

References

Brown, P., & Levinson, S. C. (1993). 'Uphill' and 'downhill' in Tzeltal. *Journal of Linguistic Anthropology*, *3*(1), 46-74.

Brown, P. (2014). Gestures in native Mexico and Central America: The Mayan cultures. In Müller, C. (Ed.). *Body-Language-Communication* (Vol. 2). Walter de Gruyter. (pp. 1206-1215)

Campbell, L., Kauffman, T., Smith-Stark, T.C., 1986. Meso-America as a linguistic area. Language 62 (3), 530–570.

Enfield, Nicholas J. *The anatomy of meaning: Speech, gesture, and composite utterances*. Vol. 8. Cambridge University Press, 2009.

Hanks, W. F. (1990). *Referential practice: Language and lived space among the Maya*. University of Chicago Press.

Haviland, J. B. (2000). 1 Pointing, gesture spaces, and mental maps. *Language and Gesture*, 2, 13.

Haviland, John B. "How to point in Zinacantán." *Pointing: Where language, culture, and cognition meet* (2003): 139-170.

Haviland, J. B. (2005). Directional precision in Zinacantec deictic gestures: (cognitive?) preconditions of talk about space. *Intellectica*, *2005*(2-3), 25-54.

References

INEGI. (2014). Perspectiva estadstica oaxaca. Instituto Nacional de Estadstica y Geografia Mexico City.

Kita, S. (2001). Locally-anchored spatial gestures, version 2: Historical description of the local environment as a gesture elicitation task. In *Manual for the field season 2001* (pp. 132-135). Max Planck Institute for Psycholinguistics

Levinson, S. C. (2003). *Space in language and cognition: Explorations in cognitive diversity* (Vol. 5). Cambridge University Press.

Polian, G., & Bohnemeyer, J. (2011). Uniformity and variation in Tseltal reference frame use. *Language Sciences*, *33*(6), 868-891.

Talmy, L., 2000. Toward a Cognitive Semantics. Concept Structuring Systems, vol. 1. MIT Press, Cambridge, MA.


Questions or comments?
Please contact me at:
kmesh *at* utexas *dot* edu

Yep, that's me.

Extra Slides for Q&A

In **every** case, the pointing gesture was veridical and resolved any potential reading ambiguity

kwiq wa nya ngyan **twen qiya…**

that is how we go in the **downhill road…**

Brown, Levinson, Polian and Bohnemeyer all acknowledge the prevalence of pointing gestures in communities where fixed bearing terms are used—and Levinson and Brown have both written about the use of pointing in Tseltal communities. But none of the research to date speaks to the question of how pointing gestures contribute to reference resolution for fixed bearing terms in particular.

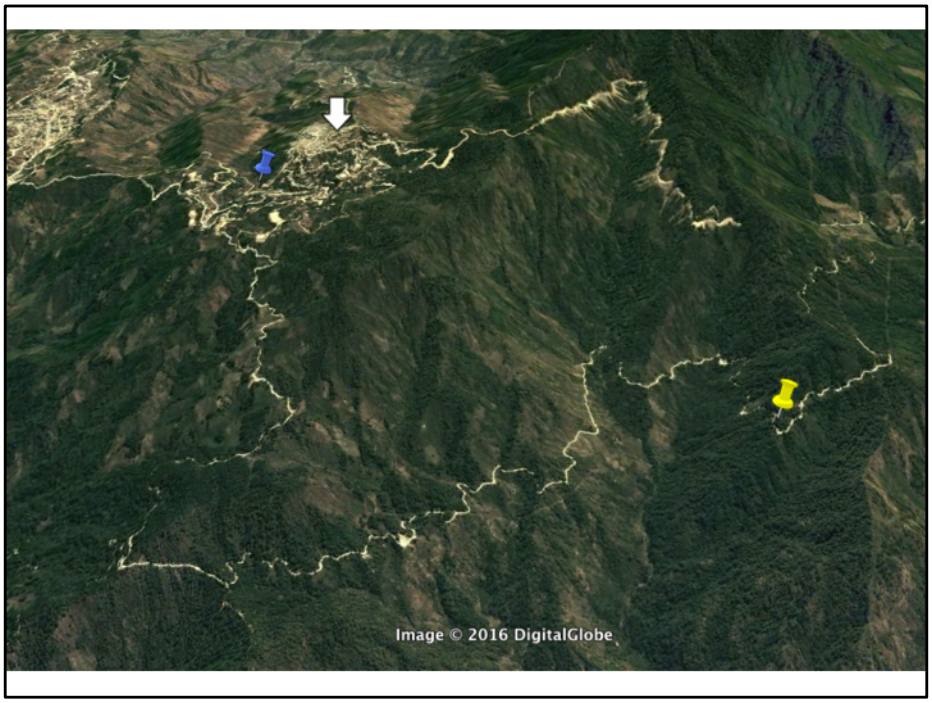
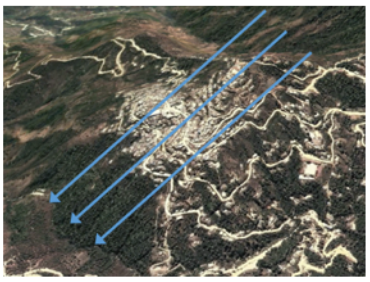


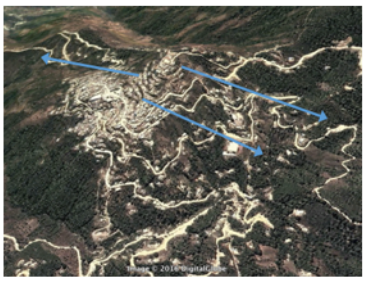
Image © 2016 DigitalGlobe

I'll show you why Chatino speakers would naturally presume that the speaker of the phrase "it's downhill" was referring to an entity within this delimited search space, and then talk about whether the speaker could be assumed to specify any of these areas under any circumstances.

In every case either a geomorphic or a fixed bearing reading was possible



158 consistent with a fixed bearing reading or an aligned geomorphic reading



27 consistent with a geomorphic reading *not* aligned to the fixed bearing system

…that is, there were plausible interpretations with the opposite reading to the one used in every case.