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Space as space and space as grammar

An anthropological journey through gesture(d) spaces

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Research on narratives in an Australian language demonstrated surprising facts about speakers' spatial orientation and knowledge both in the insistent use of morphologically hypertrophied spoken directional terminology and in accompanying gestures. Pursuing comparable phenomena in a Mayan language from the other side of the globe revealed correspondingly complex gestural devices for communicating about location and direction but with very different kinds of support from speech. Evidence from a new sign language, emerging in the same Mayan context, suggests that mechanisms for signing about space both resemble and depart from the gestural practices of the surrounding speech community. In particular, they invoke spatial "frames of reference" not used by speakers to sign about location and direction, and they employ signed "spatial grammar" to express syntactic argument structure.

Keywords: frame-of-reference, spatial cognition, emerging sign language, deixis, orientation, Tzotzil, Mayan, Guugu Yimithirr, Paman

As an anthropologist whose interest in the gesture spans four decades, I welcomed the chance offered by our editors to contribute to a collection dedicated to the anthropology of gesture. In this essay I will revisit my own first foray into gesture studies, and in particular into the use of space as both a semiotic vehicle and a conceptual domain in an Australian community, a topic which led me to reconsider analogous phenomena in a Mayan village in Mexico. That interest, in turn, informed more recent research on an emerging first-generation sign language in the same Mayan community. The sign language, for its part, drew me directly back to gesture. It is this circular history that I intend to rehearse here. Along the way I will also revisit a recent concern for space and orientation in which gestural research has had an important role to play: the theory of spatial "frames of reference" and their links to linguistic categories (Levinson, 2003; Levinson & Wilkins, 2006).

Oriented gestures in Guugu Yimithirr

I first took a simple Super 8 video camera to the Hopevale Aboriginal Community near Cooktown, in far north Queensland, Australia, in 1980. My friends and fictive kinsmen in this erstwhile Lutheran mission were descendants of indigenous people first removed from the environs of Cooktown in the 1880s when Bavarian missionaries decided to try to protect them from the ruinous influences of European and Chinese settlers in that remote goldrush town. By 1980 my Hopevale friends had already spent almost a decade trying to teach me their language, Guugu Yimithirr (hereafter GY), and something of their history. In fact, my main motive for bringing the camera was to try to capture not only the voices but also the faces of the oldest people in the village as they reminisced about the community.

One person I particularly intended to film was old man JB. My principal GY teachers had selected themselves by virtue of being "true" GY people, descended from lineages undeniably linked to the land delimited by the mission boundaries, as the government had drawn them a century before. My teachers had in turn sent me to specific people like JB, whose Aboriginal stepfather also hailed from the heartland of GY territory and who was, in fact, a "traditional owner" of the very site where the Hopevale village now stands. Everyone said that JB was a great storyteller. I hoped to film his stories but also to find out how he had gained that fame.

On June 4th, 1980, several old men sat down in front of my video camera on the verandah of the old Curio Shop at Hopevale to record some of JB's reminiscences, including one well-known story he had told many times before. It had a pointed moral about the personality of the Lutheran missionary who had ruled the community with an iron fist from the end of the 19th century until the Second World War, when most of the people had been shifted a thousand kilometers south from the original mission station at Cape Bedford. Those who survived returned to the new site at Hopevale only in the 1950s. JB recounted a boat trip he had taken as a youth with an older man from the mission to deliver clothes and food to a coastal outstation north of Cape Bedford, the mission site. Caught in a squall, the boat capsized, several kilometers from shore, and the two men had to swim for their lives through shark infested waters. Reaching the coast, they sought clothing and food with a family living in another small outstation nearby, and then they walked through the night back to Cape Bedford. The missionary, annoyed, immediately sent them walking back again to try to rescue what was left of their cargo.

One well-known feature of many Australian languages is an insistent system of lexical roots denoting cardinal directions. GY has four such roots, which refer not to idealized points on the horizon but to whole quadrants of the sky or of the landscape, morphologically inflected with a variety of locative, directional, and

perspectival cases which denote motion towards or from points in a particular quadrant, edges, trajectories, vectors of motion, and so forth. The system is complex and ubiquitous, used for both micro and macro space – everything from a snake on the path (which may be just east of you, moving northwards, say) to a distant country (Mexico, for example, from the perspective of north Queensland, or the trajectory of someone going from there to Italy – see Haviland, 1979, 1998) For people who have not grown up internalizing such compass directions, the GY system is challenging – so much so that native speakers often did not bother to use it at all around, say, Australian English speakers, who prefer body-centric right and left direction giving (which has no easy equivalent in GY), or even around younger Hopevale people, some of whom they considered to be hopelessly disoriented.

It was no surprise, therefore, that JB, telling the shipwreck story, made profligate use of GY directional terms: sailing north and west up the coast, swimming south from where the boat capsized to reach the nearest beach, looking back north from the shore to where he and his companion could see shark fins cruising where they had just swum, watching the sun set in the west, and walking back east to the mission. That is how such a story ought to be told in GY, and I realized that part of his skill as a narrator was involving his interlocutors in the scene by conjuring the detailed landscape for them, fully oriented already in their own minds.

What I did not expect, until I sat down to look with some care at the videotapes, was JB's gesturing. On the one hand, it seemed predictable enough that when he talked about local people – even those by then departed – he would point or look at nearby places that suggested a local social geography, populated by individuals, their houses (or former houses), or other places that could be associated with them. Unsurprising as well was his use of pointing gestures *in place of* spoken references, since the names of deceased family members are often avoided in GY talk, and an indirect reference via an indication is an appropriate alternative. Similarly, when he described watching the sunset as he and his companion started to walk back to the mission after the shipwreck, he gestured and looked toward the west, precisely in the direction one would see the sun going down.

There were, however, two surprises. The first were what I have called "transposed" gestures (Haviland, 1996). When JB described looking back from the beach toward the capsized boat and seeing a giant shark fin "*thumbuurrgu gunggaarr thaday ngaliigu gaday* (going straight to the north right where we had come from)", he did in fact both look and point north. From where he was actually sitting at the time, telling the story at modern Hopevale, the place where the boat capsized many years before was not *gunggaarr* "to the north". That is, relative to the Curio shop where he narrated the story the boat had *not* capsized to the north but in fact rather far to the east. Instead it was from the vantage point of the remembered spot they had swum to on the beach – to which he was, as it were,

mentally transposed – that he invited his interlocutors to calculate in which direction he saw the shark fin. Of course, JB's liberal use of GY directional terms left his well-oriented and highly knowledgeable companions little room for doubt about what and where he was describing. They knew that he could NOT mean "north from modern Hopevale" but must instead mean "north from there, where I am talking about". Moreover, his gestures conjured the whole scene for them, placing them onto that beach, and virtually surveying the ocean with his eyes.

Realizing that JB, and in fact virtually all the old men trying to teach me GY, oriented what I came to call "referential gestures" by the compass, either directly or via transposition, was the first surprise. It fueled my growing interest in gestural practices more generally and their links to talk. I described GY directional terms and corresponding gestural precision in a variety of conference papers, especially in conversation with my colleagues in a working group on "Language in Cultural Context" then convened at the Australian National University (ANU) in Canberra. His interest piqued, Steve Levinson, a member of the ANU working group, decided to check the matter for himself. In 1982, on his own trip to Hopevale, he sought out JB and filmed his stories, including another account of the capsized boat, told to one of the same men who had been in JB's audience at the earlier telling. There was a crucial serendipitous difference, however. Whereas in my 1980 film at the Hopevale Curio shop, JB had been facing toward the west, in Levinson's 1982 film JB and his interlocutor were seated outside JB's house, facing north – something I could establish from the geography of the village and confirm by the consistent pointing directions that accompanied spoken GY directional terms in JB's filmed performances.

With this comparative filmed evidence, came the second surprise, a more profound eureka moment. Even when JB did *not* use explicit GY directional terms, there was nonetheless evidence in his gestures of the directional precision with which he was evidently recounting other aspects of the shipwreck story. The most striking example was his answer to a companion's question in the 1980 film. Perhaps imagining a storm at sea involving a tiny tornado or cyclone, one of JB's interlocutor asked, "Did the boat move like this?" As he spoke, he made a swirling anticlockwise motion with a downward facing finger. (See Figure 1.)

JB replied that the boat "was lifted," illustrating with a complex two-handed gesture. From a rest position with both hands on his knees (1 in Figure 2), he drew them in toward his body, right hand over the left (2 in Figure 2), then circled the left hand above the right as he pushed both hands forward (3 in Figure 2), and ultimately moved both hands down again (4) in front of his body, presumably illustrating how the boat was twisted as it flipped over.

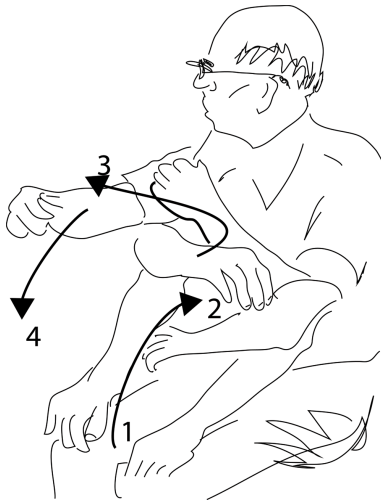**Figure 1.** JB's interlocutor asks, "Did the boat move like this?"

Figure 2. JB, in the 1980 film, shows how the boat was first lifted

Then, as he said in GY "it did like that," JB again showed the boat lifting as he brought both hands into his body and up (Figure 3, left) and then pushing them sharply out and down again (Figure 3, right).
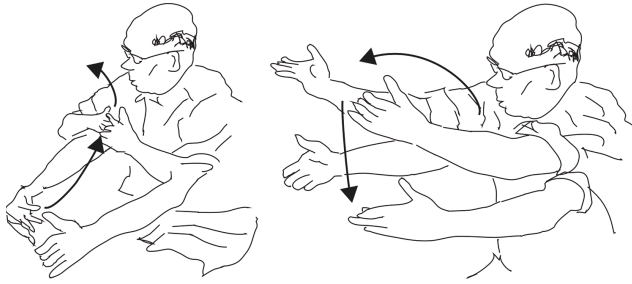
Figure 3. The boat lifts and flips over, 1980 version

Even though he used no spoken GY directional terms here, let's assume for the sake of argument that JB's gestures were still precisely oriented. Because he was sitting in front of the Curio shop facing to the west, his movements alone would suggest that the boat flipped from east to west.

In Levinson's 1982 film, on the other hand, where the storyteller sat facing north, portraying the same boat flip would presumably require a different sort of gesture. And, indeed, in the 1982 telling, JB used his body in a quite different way. As he described a big storm coming up, and a huge wave that covered the boat, his interlocutor asked, "So where was the boat then?" In this version of the story JB describes how a huge storm appeared as they were turning back in a southerly direction. The waves began to rise until a kind of hole appeared in the sea. His interlocutor asked: "So where was the boat then?" JB replied, "it was lost", at the same time moving his left arm up and forward, palm inward, as he also moved his right arm, which had been diagramming the "hole" in the water, still farther to the right, also turning it palm inward. He seemed, thus, to be representing the two sides of the boat (Figure 4, left side). As he made the sound "Fuu!" he dropped his left arm, raised his right arm, and flipped the right hand downward, presumably illustrating the capsizing boat (Figure 4, right side).
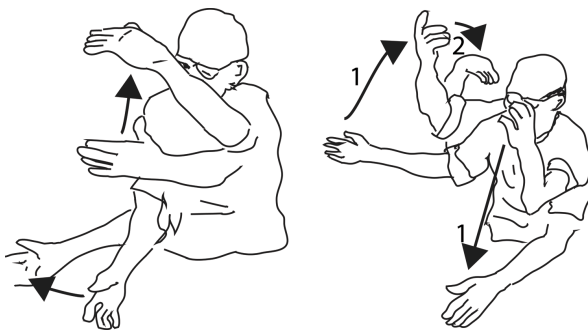

Figure 4. In the 1982 film, facing north JB says, "The boat was lost", and shows it capsizing in the water as he says "fuu!"

After dropping both hands, JB looked at his interlocutor and again rotated his hands, left arm from mid position downward, and right hand lifted high and then turned palm down (see Figure 5) as he said, "It got covered up" – that is, sank.
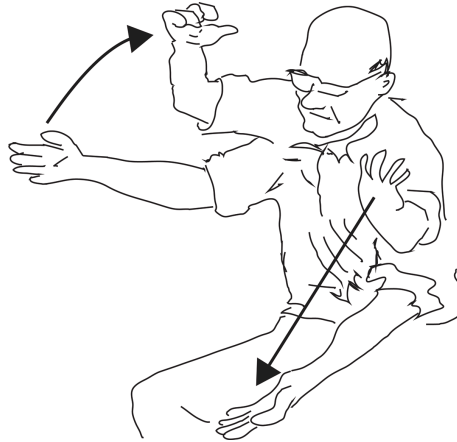

Figure 5. JB a second time shows how the boat "got covered up"

With a dramatically different set of movements, presumably to accommodate the fact that he was sitting at right angles to the direction of the capsizing boat, JB again depicted the flipping motion clearly from East to West. (See Haviland, 1986, 1989, 1993, for more detailed accounts of this yarn and its gestures.)

The surprise, then, was that – although potentially related to the ubiquitous use of spoken directional words in GY – directional precision in gesture was *not* necessarily tied to speech, but could instead characterize non-spoken aspects of depiction in what have been called "composite utterances" (Enfield, 2009) even when those utterances contained no explicit directional words. The apparent spoken GY preoccupation with geocentric orientation, that is, could also be expressed through gesture, regardless of accompanying speech. This realization, in turn, suggested that various aspects of communicative action, including gesture, might systematically (and customarily or even obligatorily) express cultural and cognitive predispositions, quite independent of the typological features of spoken languages.

Tzotzil directional precision in gesture

Long before venturing to Australia, I had already done intensive research in highland Chiapas, Mexico, where in the 1960s I began long-term study of the Tzotzil (Mayan) language spoken in the community of Zinacantán. Tzotzil has no system of cardinal directional terms even remotely comparable to the hypertrophied system of GY. In fact, in some sense it has no "system" of "cardinal directions" at all: no set of unambiguous lexical roots that denote cardinal points or quadrants. Acutely aware of the movements of celestial bodies and their effects on cultivation, health, and happiness, Zinacantecs have various expressions based on the path of the sun and on geographic features to talk about east and west. In Zinacantec Tzotzil, the 'east', for example, is *ta maleb k'ak'al* 'where the sun sets', or *ta olon* 'below'. However, there is no unambiguous way in normal speech to refer to or distinguish the north or the south. (In some dialects of Tzotzil reference can be made to, say, the left hand side of the world, looking toward the east, as a way of denoting the north. But such a device is not, to my knowledge, employed in ordinary Zinacantec Tzotzil.) The world is full of known locations, both near and far, and these plus the anatomies of reference objects, calculated both intrinsically (e.g., the mouth of a cave) or relative to an observer's perspective (the back of a mountain – i.e., the side opposite to the one facing me) allow for quite precise description of locations and trajectories. But except for a generalized awareness of where 'up' and 'down' (i.e., East and West) are, Zinacantecs do not seem, in talk, to worry much about cardinal directions.

Armed with the insights from GY, however, I started paying much closer attention to Zinacantec gestures than I had before. One striking feature of Zinacantec direction giving that had previously puzzled me rose again to my attention. Consider the following scenario. My *compadre* Martín once instructed me how to make my way, unaccompanied, from our mountain village to his cornfields, a place I had visited only once before in his company. Getting to the fields would require abut a five hour journey, by vehicle and on foot, to an area near a large man-made lake in "hot country," the lowlands of central Chiapas. In brief, he told me I should hop on a passing truck to the metropolis of Tuxtla Gutiérrez, the state capital a couple of hours away. I should then make my way on foot to a certain bus station. From there I should board a bus traveling to a named distant town and ask the driver to let me off at a specific *ranchito* along the road. "There", he told me, "you get off the bus, and it's that way", pointing off to the horizon. Because I vaguely remembered getting off the bus at that same spot on our previous trip, crossing the highway and heading down a ravine, I swallowed my confusion and assumed I could find my way, even if I couldn't really understand what he meant. Having puzzled through JB's GY stories, however, it finally occurred to

me what perhaps should have been obvious: that my compadre intended for me to transpose his directions – that is, to apply the absolute compass direction he indicated (from the origo of his yard in the village) to the lonely spot on the road he imagined me to be reaching. Whether that is what my compadre had actually meant is hard to reconstruct, but in the films I made thereafter of Zinacantecs interacting they did in fact gesture in ways very like those of the GY speakers, despite the absence of corresponding directional words in Tzotzil.[1]

For example, another compadre, Antonio, in 1991 described for me how he made the regular journey from his home in Zinacantán to Cancún, at the northeastern tip of the Yucatán peninsula.[2] He appeared to point by dead reckoning or "as the crow flies" toward the nearby places he described: San Cristóbal, the turnoff at the road leading north to Palenque, and so on. As he described more distant points, however, he switched from using direct line of sight vectors, to transposed directional gestures. For example, to describe the place on the road where, near the Caribbean coast, the highway turns northward past the turnoff to Chetumal (see Map 1), he starting by pointing to the ground, saying, "we get to the turn off to Chetumal".
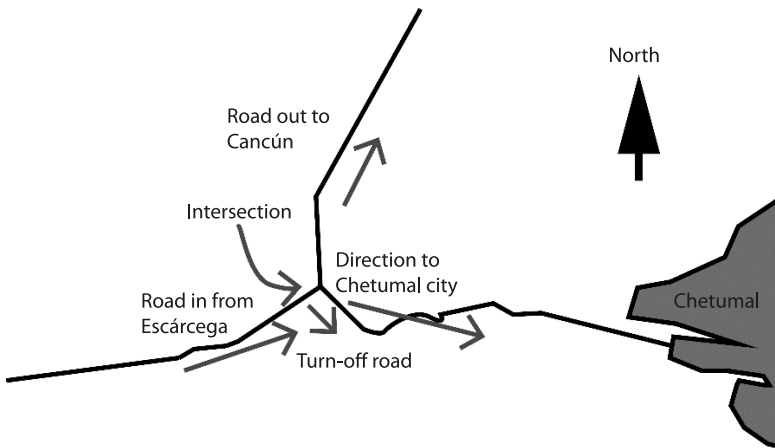
Map 1. The turn off to Chetumal

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1. LeGuen (2011a, b) develops the same theme for the speech practices of speakers of Yucatec Maya.

2. See Haviland (2000d, 2005) for more detailed treatment of this route description and its gestures.

Sitting in my yard in the village, with his shoulders oriented on a line from west to east, he then turned his body clockwise and looked off slightly to the east south-east, also pointing slightly to the right and back with the outstretched fingers of his right hand, before looking back at his interlocutor. (See Figure 6, left side.) "Chetumal is that way", he said. He thus indicated an angle just a bit south of east, which, from where he was sitting, would not have led to Chetumal at all.

Ten years later, in 2001, trying to study Tzotzil gestures with greater precision,[3] I filmed Antonio again as he described the same route (although by that time he had not traveled it for several years). In the later telling he again imagined passing by the Chetumal intersection, and he gestured as shown on the right in Figure 6 as he said "This is how the road to Chetumal goes."
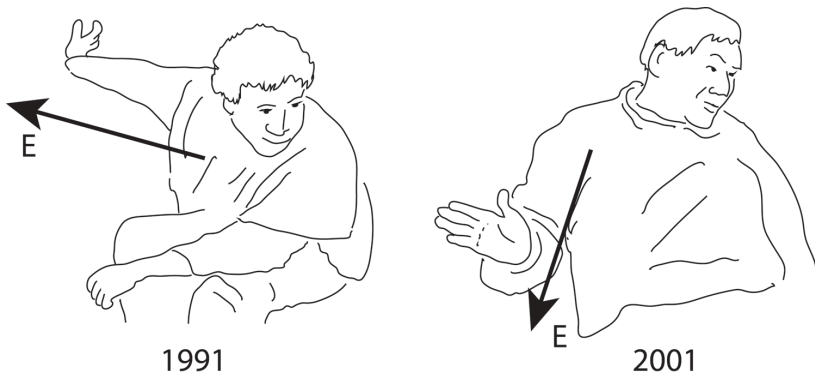

Figure 6. "Chetumal is this way."

In the 1981 film I used only a single camera. However, because of how Antonio was seated in my yard, I can calculate roughly in which he direction he pointed. In the 2001 film I used four video cameras, all carefully calibrated to allow precise reckoning of Antonio's pointing gestures. In both tellings, if Antonio is transposing cardinal directions onto the imagined Chetumal intersection, he places the turnoff to the city at almost exactly the same angle: about 100^0 or just south of east.

Such directional accuracy – both line of sight and transposed – is a consistent feature of Zinacantec gestures, at least for men of my compadre's generation and older. These are people who tramped all over their region, up and down mountain

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3. The second filming was part of a multidisciplinary project (National Science Foundation KDI program, Grant No. BCS-9980054, "Cross-Modal Analysis of Signal and Sense: Multimedia Corpora and Tools for Gesture, Speech, and Gaze Research", Francis Quek, Principal Investigator), led by Francis Quek and David McNeill, to try to model gestures in three dimensions by computer, using synchronized videotapes from multiple angles.

trails, across lowland fields, and all the terrains in between, going to work, hauling cargo on foot or via horseback, cultivating fields, gathering wood and medicinal plants, or hunting wild game. Their knowledge of the territory is wide-ranging, exact, and detailed, from important waterholes and creeks, or specific microclimates, right down to individual trees and their histories, or named rocks and their locations and orientations. The same elderly *compadre* Martín who long before had directed me to his distant cornfield with transposed pointing, in his last years when he was almost totally blind described for me the major geographical landmarks that defined the important named regions surrounding his village. Sitting indoors in his kitchen, he gestured with precision in "as-the-crow-flies" directions to each of the places he mentioned, some of which were dozens of kilometers away and directly visible only from areas far removed from the valley where his home lay encircled by mountains.

This direct and carefully calibrated pointing resembled what he had done, in filmed conversation with a younger man several years before losing his sight, as he described the locations of caves, individual houses, and other natural features of significance on walking paths now mostly long forgotten in this era of vehicular transportation. Moreover, in that earlier conversation[4] he interspersed direct pointing gestures with those that relied instead on conceptual transposition. For example, he described the main track from his village to the nearest *mestizo* town of San Cristóbal, a 25 km. walk. Following that path, one would after several hours come to the house of a long deceased man – known to the younger interlocutor only by name. At a place just east of that house one would also find another now lost path branching off to the north. As he described where the second path began – *ta yak'ol sna Konkoron* 'above (i.e., east of) the house of Konkorón' – he used the conventional metaphor for 'east' in which the sun rises 'above' (that is, in the east) and moves 'below' (to the west) despite the fact that the turnoff is topographically on a steep downward slope from the house to the nearest village, and thus, in that sense, much lower in altitude than the house. At the same time he gestured not towards the house or path he was describing (which lay as the crow flies somewhat to the south of where he was facing) but directly east: a gesture thus transposed to the imagined spot on the path he had reached (see Figure 7).
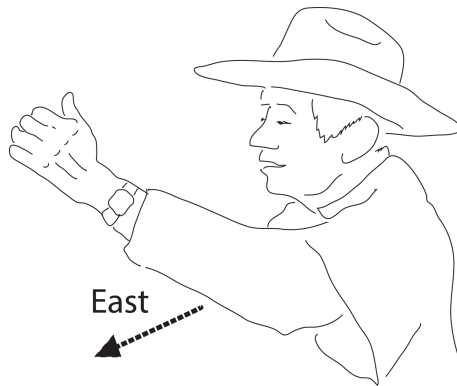
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4. Described in more detail In Haviland (2013).

Figure 7. "East of Konkoron's house"

Pointing and direction in Z, an emerging Zinacantec sign language

Fast forward to 2008, when I began research on a phenomenon about which I had long known but was previously reluctant to study. The same compadre who had made the regular trip to Cancún, Antonio, had a large family. Three of his four youngest children were born profoundly deaf. They were the only deaf people in the entire village, and they had never met other deaf people or had contact with any sign language other than their own. Inspired by the work of colleagues on other emerging sign languages (see, for example, Meir et al., 2007), I decided I could no longer responsibly ignore the challenge of the apparently new (sign) language emerging before my very eyes. I asked my compadre if I could record his children's signing to try to understand how it worked.

One obvious feature of this new language, which I dubbed Zinacantec Family Homesign, or Z for short, was its inventory of place names, or, better, its lack thereof. How did the Z signers talk about places? One can assume that the gestural practices of the surrounding community of Tzotzil speakers constituted visible resources from Tzotzil interaction available to the Z signers. Not surprisingly the deaf siblings made elaborate and precise use of directional pointing gestures as toponymic proxies. For example, Figure 8 is a drawing of the three deaf signers identifying the town where a photograph I had shown them was taken, the neighboring Tzotzil *municipio* of Chamula. (I had shown them the photo and asked them to identify what was in it, then asking if they knew where it was.) Their oriented pointing gestures (with slightly different handshapes) – using "as-the-crow flies" precision, plus an elevated arm to signal that the place named is relatively distant – stand as conventional referential indexicals to denote the town. By the

same token, Figure 9 shows the signers again signing "Chamula" (that is, referring to its location), but now from the vantage point of their own house in the *cabecera* (or ceremonial center) of Zinacantán. By calibrating their body orientations against their locations (shown on Map 2) one discovers that all three are pointing in the right direction. There seem to be no non-indexical conventionalized toponyms for even very familiar and commonly denoted places: pointing (insistently as the crow flies) is the preferred device, with different handshapes apparently able to suggest points, regions, and directional vectors.
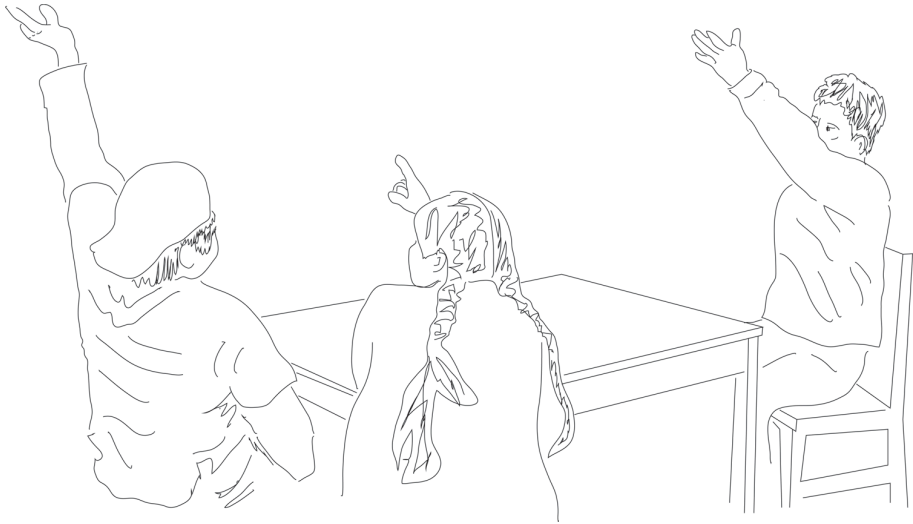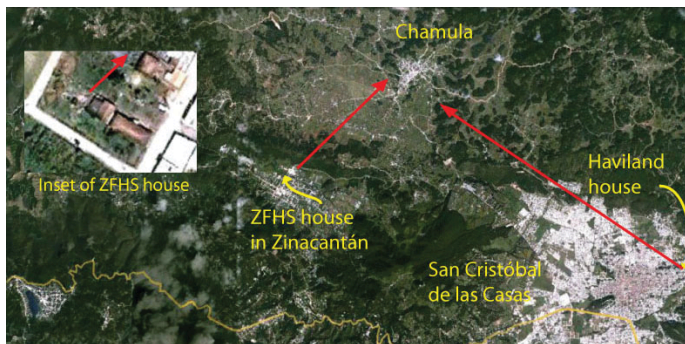

Figure 8. The three Z deaf signers signing "Chamula" while seated in San Cristóbal at the author's house

Figure 9. Composite view of all 3 signers individually locating Chamula from Zinacantán

Map 2. A map of the region showing Chamula, and the two locations where the signers were seated as they signed

Perhaps the lack of conventionalized, non-deictic toponyms in Z explains why, I have found very little unambiguous evidence of transposed pointing in Z signing.[5] If transposition requires first establishing a conceptual origo different from the current here and now onto which absolute directions can be superimposed, having no decontextualized place names would render transposition difficult in Z signing. The Z signers also evince some anarchy in communicative tasks that require re-centering one's own point of view onto that of another person.

However, for both virtual and real places, there is evidence that the deaf Zinacantecs have developed an alternative conventionalization of a deictic distinction that has no parallel in spoken Zinacantec Tzotzil. In my experience, Zinacantecs make no routine use in locative expressions of the Tzotzil words for 'left' and 'right', instead concatenating the words *tz'et* 'left' and *batz'i* 'lit. real, but in this context "right"' with the word *k'ob* 'hand' in order only to distinguish one hand from another. The terms are virtually never used to suggest a division of the horizontal plane of the perceptual world into two body-relative halves. (See Haviland, 2013.) Nor do Tzotzil speakers gesture to the right or the left to suggest unanchored directions, calculated from a movable ego; they have instead the insistent (and incompatible) strategy of absolute cardinal directions transposed onto an established alternate origo.

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5. One possible – and unusual – exception appears in a recent conversation between the two deaf brothers (20190427UpSynchAnew), when they talked in Z about where things were located in and around the fairground in the nearby mestizo town of San Cristóbal. In that instance, the fairground itself, once established as a locus, appeared to serve as a transposed anchor, distinct from the locus of the speech event, from which subsequent cardinally oriented deictic gestures were meant to be calculated.

The most striking evidence for a left/right ego-centric distinction in Z signing comes from the same sort of artificial task which produced the signs denoting the town of Chamula in Figures 8 and 9 above. In this case I showed the signers a photograph of a building in the nearby town of San Cristóbal located up the street from a shop (not visible in the photo – see Figure 10) where one of their sisters sold fruits and vegetables. Their task was to identify what was in the picture, and then, if they knew, to tell their interlocutors where it was (so that the interlocutors could pick out the corresponding photograph from a larger array). We were sitting in the signers' house in their village, about 7 km. west and separated by a tall mountain range from the location of the sister's shop, a place they visited frequently and knew well. Since the signers were sitting facing 300⁰, or just a bit north of west, it is possible to calculate fairly accurately which way they gestured, and they were quite consistent with one another. Individually they each described the scene with the same strategy as follows: it is the white building, and from the sister's shop (see Figure 11), it is "that way", portraying a vector with a waved hand.

Figure 10.   The stimulus photo of the white building

Jane's vectors, simple points with an open flat hand, can be seen in Figure 12, where the most accurate gloss seems to be "to the left, on that side" from the shop. Frank's signing was more demonstrative, since it involved a cupped hand placed out to his right (presumably to represent his sister's shop), and then drawn sharply to the left (Figure 13) to show the location of the building in question. Again it seems most appropriately glossed as "to the left".
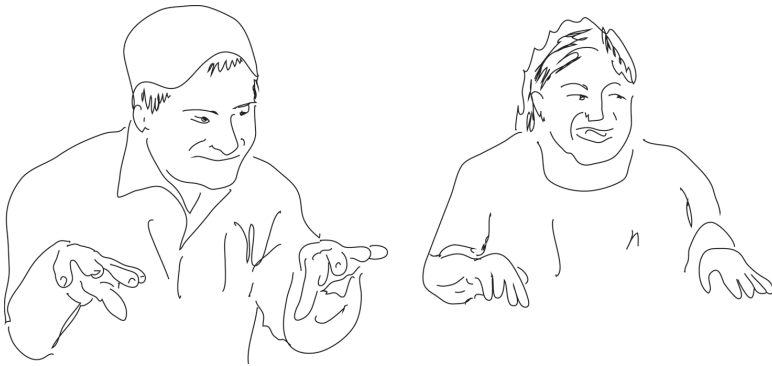
**Figure 11.** Frank and Jane independently sign "the shop"

Figure 12. Jane signs (a) 'up the street' and (b) 'that side'

Figure 13. Frank signs 'from here to there'

Whereas Zinacantec Tzotzil speakers virtually never gesture in this way, I gloss these signs as based on a body-relative left-right distinction, calculated from the observer's perspective looking at the photo. That is, if one imagined oneself as

looking at the target house in question – as one is, in a sense, while looking at the photo – starting from the sister's shop, the white house would be to the left. Map 3 (where the image is oriented to put north at the top) shows the terrain that includes both the signer's house where the recordings took place, the location of the sister's shop and the pictured house to be described. The pictured house actually lies more or less west and a little north of the sister's shop (see the right hand inset on Map 3). The directional vectors both signers use, on the other hand, point a bit west of south (see left hand inset). They are thus unlike the transposed pointing gestures Tzotzil speakers routinely use, for which the vectors would have had to point more or less straight ahead from where the signers were sitting. Instead they appear to reflect the ego-centric perspectives of the signers as they face the original stimulus photo, according to which the house is to the left and up the street from the shop.
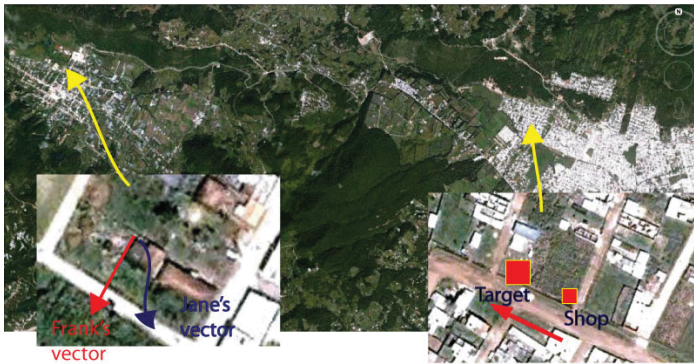
Map 3. Map showing orientation of shop and the signers' vectors

Such examples suggest that the Z signers have created new techniques for expressing themselves to augment the expressive power of their sign language, but techniques which do not rely or directly build upon gestural devices in the speech of people around them.

Maus cartoon retellings

To conclude this survey of the serendipitous convergence of different interests, methods, and concerns over the course of field research on gesture, let me turn briefly to another elicitation technique, developed for one set of purposes but productively employed for others. David McNeill at the University of Chicago long ago pioneered a method with an enduring influence on gesture studies, using a clas-

sic Tweetie and Silvester animated cartoon to elicit recorded retellings, in quite a range of languages and circumstances, which were then analyzed for the resulting coordination of gesture and speech (McNeill 1992, 2005). Such studies in turn had an important influence on studies of the language of motion and position in space (e.g., Kita & Özyürek, 2003). In 1990, as a researcher at the Max Planck Cognitive Anthropology Group concentrating on comparative spatial language, Lourdes de León (see de León, 1994) realized that the wordless animated cartoons aired weekly on German television (*Die Sendung mit der Maus*) were far superior stimuli to encourage children to talk: the episodes were short and entertaining, with built-in punchlines. We began to use a collection of these cartoons as research tools, starting with children, but occasionally also with adults, who often found them equally engaging. I use them still.

The *Maus* cartoons have a small, stable cast of characters, most notably a mouse and his diminutive elephant friend, a constantly changing set of objects and situations, and no changes of "camera" angle in a given episode. Consequently, they present dilemmas of argument structure: who does what (with what) to whom? I will consider here extracts from retellings of a single cartoon episode, in which the mouse prepares what appears to be a pancake, flipping it into the air from a skillet, dropping it on the floor and on her face, and then tossing it reciprocally back and forth with the elephant. The different protagonists and objects must normally be introduced into any recounting of these events, and they persist over the various parts of the story.

Speakers, of course, have a variety of reference tracking devices to guarantee such persistence – from relatively fuller to relatively simpler referential expressions in speech ('pancake', and 'it' in the previous paragraph, for example). Additionally, as we know, arguments whether spoken or unspoken are also variously depicted in gesture.

My daughter Isabel, at age 7, recounted this cartoon in Spanish, largely using her own body to model the character of the mouse, and performing its actions in the space in front of her. For example, she used her right hand in a gripping shape to depict the mouse flipping the pancake up from the skillet, and then used her left hand to depict the pancake falling to the ground. She showed how the pancake fell onto the mouse's head with her hand and her own head (Figure 14).

Later she conjured the scene in which the mouse calls the elephant in, building a scenario in which the elephant enters from her left, the mouse hands him a skillet (also to her left – see Figure 15), and the two friends toss the pancake reciprocally back and forth laterally (Figure 16).

All of the latter spatial aspects of the depiction are rendered gesturally with no corresponding spoken mention. All, as well, partly represent the narrator's experience with this sort of dramatic rendition of fictional scenes, embodied but oth-
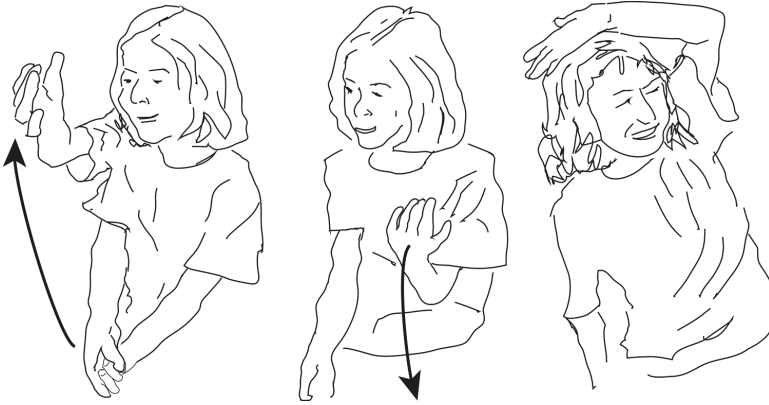
Figure 14. 7-year-old Isabel grips an imagined skillet with her right hand and tosses up the pancake, then uses her left hand to depict its falling to the ground, and her hand on her head to show how it fell on the Mouse's head

Figure 15. The elephant enters (from narrator's left to right), and is given a skillet (to narrator's left)

erwise freed from any constraints except those of her imagination, and perhaps prefigured by her perspective on the cartoon as it unfolds on the screen (where the elephant, from her perspective, does enter from off stage left, to face the mouse on her right).

Zinacantec Tzotzil renderings of the episode are considerably less gesturally demonstrative. 8-year-old Domingo, for example, gestures only three times in his entire retelling of the cartoon: once when he lifts his right arm to illustrate flipping
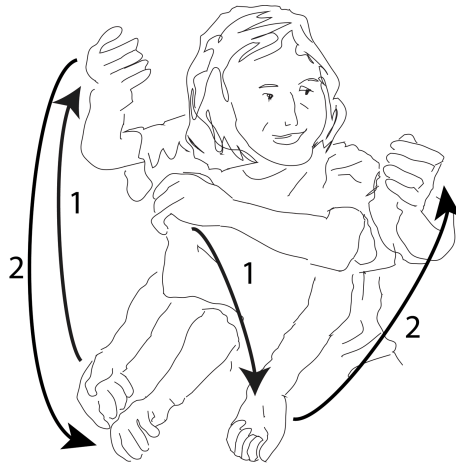
Figure 16. "They start to throw the pancake back and forth."

the pancake up, and twice in two different renderings of the reciprocal tossing back and forth at the end of the cartoon. The reciprocal tossing illustrates an oft-described phenomenon in speakers' gestures: semantic complementarity between word and gesture. The first time Domingo uses a ditransitive reciprocal verb *ta s-jip-be s-ba-ik* (INC 3E-throw-APPLIC 3E-self-PL, 'they throw it to each other') accompanied by only a simple linear upward motion of his arm (Figure 17). The second time he uses a simple transitive verb with an iterative derivational suffix *tz-jip-ulan* (ASP+3E-throw-ITER 'they throw it repeatedly'), but to show the reciprocal action he turns his lifted hand in a semicircular arc (Figure 18), apparently to indicate the back and forth motion involved.

Figure 17. "They threw it to each other."

Figure 18. "They kept throwing it."

Especially interesting for what follows is a different Tzotzil rendition of the cartoon, from 2001, when I asked my compadre Antonio, to retell this same mouse cartoon to another Tzotzil speaker as part of the study of directed gesture using multiple video cameras. His gesturing of the different actions of the story was also somewhat diffident. He performed no gestures to illustrate the "dancing" or the mixing of the food (which he characterized as a toy). Like Isabel, he also used a gripping hand to suggest holding the skillet, and an upward motion to illustrate the flipping motion. What sets Antonio's performance apart was his choreographed use of space to set the scene for the story. He anchored the mouse's actions firmly in the local space where he and his interlocutor were seated: indeed, he gave a short global wave of the hand to the room as he started the narrative, saying "there is a room like this one" (Figure 19).
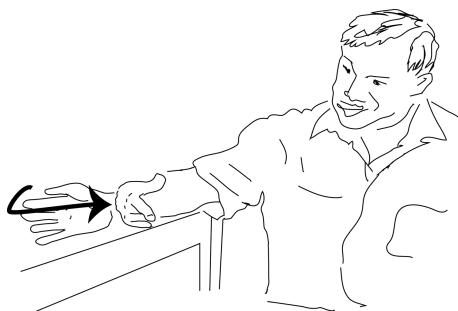

Figure 19. "There's a room."

He glanced up at the wall to his right as he introduced the skillet to his narrative (Figure 20), conjuring the fact that in the cartoon the skillet is hanging on the wall; he pointed at the floor in front of him as he said "[the toy] landed flat on the ground" (Figure 21).

Figure 20. Antonio glances up at a virtual hanging skillet

Figure 21. "It landed flat on the ground."

When he said that the mouse picked up the pancake/toy and put it on a table, he also placed his own hand on the table that happened to be to his side in the room where he was physically seated (Figure 22).

Figure 22. "He laid it on the table."

He arranged the positions of elephant and mouse in a different way, indicating with a moving hand that the elephant entered the scene from in front (i.e., using his own body to portray the mouse character, with the elephant approaching him from the front – see Figure 23).

Figure 23. "[The elephant] came in."

He again glanced at the imagined rack of utensils where, in the cartoon, the second skillet was originally hanging, as he said "the elephant was given his own skillet" and gestured forward with a gripping hand, as if passing the skillet (Figure 24).

Figure 24. "He gave [the skillet] to him."

Finally, he portrayed the reciprocal tossing back and forth as if he were the mouse and the elephant stood in front of him (Figure 25).

Figure 25. "They catch it and throw it equally."

There is, for me, something reminiscent, in this visual strategy for animating a narrated scene in the actual spatial surround where Antonio found himself, of the local geographical precision and detail we saw above in standard Tzotzil gestural practice. The space one occupies is known, tangible, and structured, and one thus can make semiotic use of not only the entities within it, but its perceivable structure and those entities' local positions as well.

Antonio's version of the story is particularly relevant to the historical research trajectory I am sketching here because, as I have mentioned, he is the father of the deaf signers. Accordingly one might suppose that his own gestural practices, however they relate to shared gestural features among Zinacantecs at large, might have been a particularly potent potential model for the deaf signers as they constructed their sign language. The reader will not be surprised to learn that the signers themselves have also been subjected to the eliciting tasks using the Maus cartoons, and analysis of these performances is an ongoing project (see German, 2018). Some results, however, are particularly interesting to help us reflect on the interconnections between different currents of gesture research, and particularly on possible links and divergences between speakers' gestures and the evolution of signed conventions.

Consider first that a standard and powerful device for the Z signers is to map argument structure involving human participants in narrated scenes onto the co-present interactants in the speech/sign situation. (In the terms of Jakobson [1957], this is a mapping, where possible, of P^n directly onto P^s. As we shall see, there is also a corresponding mapping of the narrated space – what I have elsewhere labelled S^n – onto the speech event space, or S^s.) This mapping can be "creative" in the sense that it may be only virtual, utilizing the interactants either in a motivated way (as, for example, if one is male and the other female, and the narrated scene requires a male and a female protagonist), or in a largely arbitrary way (for example, simply to introduce different protagonists and distinguish between them in a persistent way).

Thus, for the first case, to describe a stimulus photograph in which an otherwise anonymous woman gives a shirt to a similarly unknown man, Jane formed a two handed size/shape specifier denoting a piece of cloth, and mimed moving it herself ("giving it") to her brother Frank (Figure 26).

Figure 26. Jane signs, "The woman gave it to the man."

Frank used a comparable strategy to sign "The woman looks at the man." He signed first 'look', then pointed to his sister seated nearby, and then to himself (Figure 27).

Figure 27. Frank signs, "The woman looks at the man."

Distinguishing arguments in this way is, of course, just one of the ways that space is incorporated into Z sign. The signers make continuous systematic use of deictically grounded referential devices – indications – using the hands, the fingers, the face, and the eyes, inter alia. They employ multiple simultaneous articulators

and systematically exploit the spatial relationships between them. Handshape itself is fundamentally spatial in nature, although it also clearly relies iconically on the characteristic ways people *use* their hands in action. While retelling the same Maus episode we have been examining, Will, the youngest of the Z signers, used a kind of neutral signing space in front of his body to sign the flipping pancake, using a combination of multiple articulators – especially hands and gaze – to realize specific referents: the skillet (with a gripping hand, and flipping it up, with his gaze virtually tracking, i.e., indexing, the object so flipped – see Figure 28), the pancake itself (as it flips down – Figure 29 – and then is meant to be caught in the skillet – Figure 30), how it falls to the floor (Figure 31), and then is put back into the skillet (which has persisted via Will's gripping hand throughout the scene – Figure 32); and finally the pancake, again, as it flops onto the mouse's face (Figure 33).
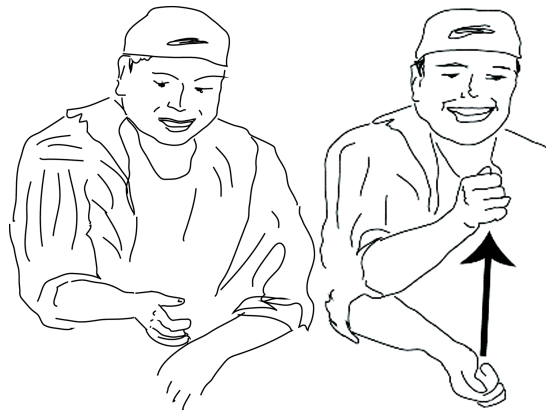

Figure 28. Will gazes at his gripping hand, signs "flip up" as he moves his gaze up into space above his gripping hand

Figure 29. Will drops his gaze to the space above his gripping right hand

Figure 30. Will gazes at his left hand brought in to represent the pancake explicitly

Figure 31. Will signs, "The pancake fell on the floor."

Figure 32. He signs, "She picked it up."

Figure 33. He signs, "The pancake fell on his face."

In order to describe the final tossing back and forth, however, he needs to depict not only such objects and actions but also the elephant as a second protagonist. For this he uses his sister, the interlocutor, repositioning his body to sign the reciprocal throwing actions with her as virtual co-actor. First, while locking gazes with his interlocutor, Terry, he introduces another entity into the scene, entering from stage left (Figure 34).

Figure 34. "Another character comes in."

He then sets the stage for the action between Mouse and Elephant, using the two co-present interlocutors as proxies for the protagonists of the story by pointing at them alternately (Figure 35).
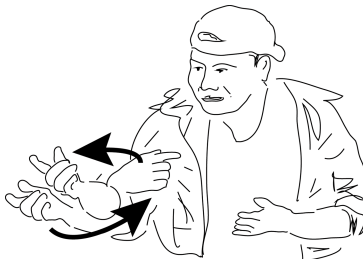

Figure 35. "It's like the two of us together, i.e., two participants."

Will then shifts his body, rising slightly from his chair and turning his torso and legs slightly so as to face his interlocutor more directly, and then with his gaze fixed on her he begins a complex series of signing movements to indicate the reciprocal throwing back and forth. He first signs a tossing gesture toward his interlocutor with his right hand (Figure 36), and then while keeping that hand extended he signs a catching gesture oriented back towards himself with his left hand (Figure 37).
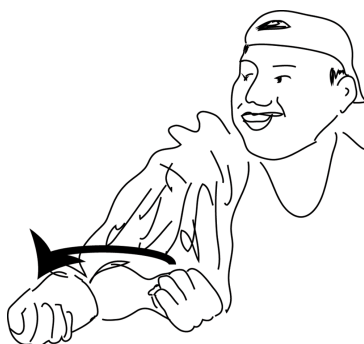
Figure 36. Will signs, "First she tosses it out", in the direction of his interlocutor, with his right hand

Figure 37. Will signs, "Then she catches it again", with his left hand

He repeats the first sign, suggesting the repeated tossing to and for in the cartoon. (Figure 38 shows the relative positions between Will and his interlocutor, his sister Terry.)

Figure 38. Will signs "toss" a second time

At this point, Terry gives him direct clarifying backchannel, first dropping her right hand while forming a gripping fist, which she thrusts out at Will with the fingers slightly opened and the hand turned up, and then back towards herself in a fist.

Figure 39. Terry signs, "He catches it from her?"[6]

Will has been gazing directly at Terry's signing hand, and he in turn confirms that she has understood, by bringing his own right hand back towards his body pre-

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6. The signers do not specify the genders of the protagonists, despite the English glosses.

cisely as Terry thrusts her hand forward suggesting that the elephant throws the pancake back.
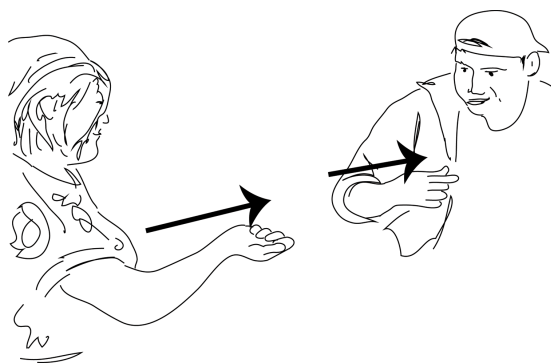

Figure 40. Terry signs, "And then he throws it back", and Will confirms, "…towards her."

It is worth mentioning, for completeness, that although Antonio, the signers' father, does not utilize such complex multi-articulated mechanisms in his own mouse retellings, other Tzotzil speakers are more expansive in the visual aspects of their narratives. Young Tzotzil bilingual teachers, using the Maus films as sample pedagogical vehicles for putting their Tzotzil descriptive skills to the test, frequently utilized many devices that echo the syntactic inventions of the Z signers.

Although detailed analysis of such devices must await another forum, here is a brief extract from one such teacher's rendition in 2000 of the same pancake cooking scene we have already met. The young teacher, Andy, during his Tzotzil retelling of the same Maus cartoon also laminated the narrated space of the cartoon scene onto his local narrating space, oriented it much as did Antonio, shown above.[7] For example, as he recounts the segment in which the mouse summons the elephant, pulls the second skillet from the kitchen wall, and passes it to his friend, Andy conjures both the wall where the skillet hung (Figure 41a), and then mimes taking the skillet down from there and passing it to her companion (Figure 41b). He orients himself in the role of the mouse character with respect to the imagined elephant – an orientation he maintains consistently throughout the narrative performance.

Notable in Andy's rendition are several examples of gestures reminiscent of signed devices in Z. First, he described how the mouse was cooking "an egg on a griddle" (*sepbil ton kaxlan*, lit. 'a disk-shaped egg'), that is, an egg, broken,

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7. Andy's exact orientation in cardinal terms cannot be perfectly recovered from his video recorded gestures. In the original cartoon, the second skillet is hanging in front of the mouse – facing the stove – on the wall to the mouse's left. She pulls the skillet down with her left hand and turns to her left to pass it to the elephant, entering from that direction.
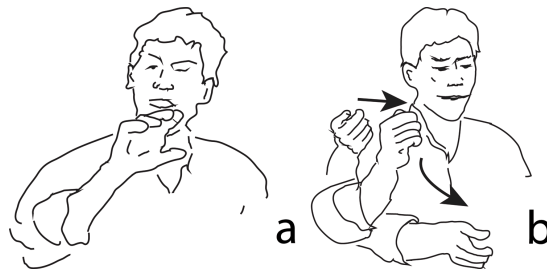
Figure 41. "She had a skillet hanging there on the wall" (a); "She took it and gave it to (the other)" (b)

whipped, and poured directly onto a hot griddle – one way of cooking eggs in a traditional Zinacantec kitchen. Andy spontaneously produced SASS-like gestures. First, he used two opposing hands with thumb and fingers extended so as to show the rounded shape, of the cooking skillet (Figure 42a), moving the two hands in and out to suggest the diameter of the frying pan.[8] Later he used a similar SASS-like gesture as he mentioned the egg/pancake itself (Figure 42b), using a configuration of his hands (at which he simultaneously gazes) that suggests something slightly more three dimensional. (He is talking about the half-cooked pancake the mouse is flipping and stirring in the pan.)
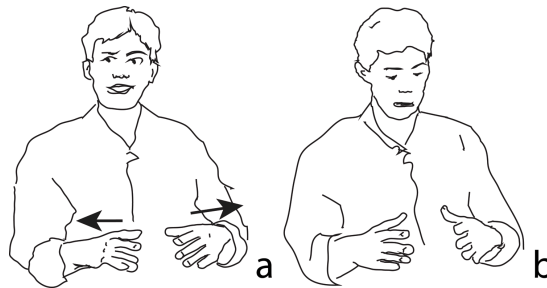

Figure 42. SASS-like gestures for 'skillet' (a) and 'disk-shaped egg' (b)

Still more striking is the teacher's use of complex two-handed gestures, strongly reminiscent of how Will employed multiple articulators to convey grammatical relations and argument structure in Z signing (see Figures 28–35 above). Here is one such sequence. Andy had just described how the mouse tried to flip the "egg" in the air, instead dropping it to the floor. Spreading both hands wide, into

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8. He gazes out into space, rather than at his interlocutor, here, perhaps suggesting that he is searching for the Spanish word, *sartén*, for which he immediately afterwards substitutes the Tzotzilized loan form *xalten*.

a slightly larger version of the SASS-like depiction of the shape of the pancake, Andy raised his hands slightly, as he said "she picked it up again" (Figure 43).

Figure 43. *La-s-tos tok*,[9] "she picked it up again"

Holding his right hand steady, in a slightly more relaxed pose, he appeared to use it like a base – representing, it appeared, the skillet – over which he moved his left hand, apparently now standing for the entire pancake (Figure 44), as he said that the mouse resumed cooking it.

Figure 44. *La-x-ca'-pas-an tok*,[10] "she kept doing (i.e., cooking) it again"

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9. COMP-3A-pick_out also. The abbreviations for annotating morphological breakdowns of Tzotzil include COMP = completive aspect; 3A = 3rd person ergative prefix; REPET = repetitive verbal suffix

10. COMP-3A-two-do-REPET also.

Conceptually switching figure and ground, as it were, Andy continued by saying "and then she started to stir it again", forming his left hand into a kind of loose fist, as he brought his right hand, with an apparent gripping handshape, back above the stationary left hand with a circling ("stirring"?) motion (Figure 45).

Figure 45. *Lik xch'il tok,*[11] "she started to stir it again."

Here are hints that Tzotzil speakers incorporate multiple articulators into a staged gestural depictions of different entities (one hand a skillet, the other a pancake dropping into it; or one hand gripping a spatula working in a skillet represented by the other hand), whether or not corresponding arguments are incorporated into the spoken syntax, and whether or not the gestural depictions exhibit cross-utterance persistence.

Retrospective summary

To summarize this several-decades-long excursion through gestured and signed spaces, let me characterize my chronology of discovery. Beginning with an insistently spoken and codified "absolute" frame of reference in GY, paying attention to the embodiment of conversation led me to discover not only the gestural reinforcement of this spoken precision in absolute direction, but the insight that even when speech did not specify direction explicitly, gesture sometimes did – further confirmation of the cultural and cognitive salience of such directions for GY interactants.

Bringing the realization that gesture has such capacity to the very different linguistic practices of Tzotzil speakers, with whom I had already worked for a long

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11. rise 3A-fry also.

time without recognizing (or at least without comprehending) that fact, laid bare the heretofore unobserved phenomenon that gestural elements of spoken locational utterances carried conceptually complex and consistent directional information. This realization in turn allowed me to solve some of my own confusions and conundrums about other quite routine Tzotzil communicative practices that I probably never would have managed adequately to decipher without attention to the details of pointing and other oriented gestures. So, as it turns out, Tzotzil and GY share aspects of the same sorts of spatial "frames of reference", but Tzotzil speakers realize them most fully and most consistently in visual rather than spoken aspects of utterance.[12] By contrast, Z, the sign language emerging in the midst of a Tzotzil communicative environment but distinct and partially isolated from the spoken language, although possibly taking advantage of gestural practices in the surrounding speech community, goes well beyond them in solving communicative dilemmas not (yet) otherwise conventionally addressed in the evolving sign language: argument structure, in the extended example presented, and the apparent lack of certain conventional and contextually detachable naming practices that might allow, for example, spatial (if not other kinds of) transposition.

Finally, I will permit myself a few speculative comments about the diachronic ecology of speech communities, and the development (or loss) of conventionalization in semiotic practices. My GY teachers were mostly old men, whose lives revolved around a small mission community deliberately isolated from nonmembers, whether European or Aboriginal, and where the habits of life engrained constant conjoint talk and mutual knowledge about locations, directions, territory (and ownership or, better, "belonging"). Whether young people at modern Hopevale regiment their gestures in the way my teachers clearly did is not clear to me, although I know for certain that the language of cardinal directions has fallen into disrepair. Shared knowledge of space seems to be a requisite for shared talk organized or built upon space. Similarly, the Zinacantec use of transposed gestures about locations and directions, completely standard for an older generation of Zinacantecs who largely did not stray far from their homes and crops, may not survive the transition to wage labor and distant migration, perhaps even more because the practice is not rendered obligatory by ordinary Tzotzil talk.[13] For

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12. One may here recall Sidnell & Enfield's notion of "collateral effects" applied – as they do at one point – to visual aspects of utterance. "When the manual-spatial modality is used to express motion iconically in sign/gesture space, not just the fact of motion but, unlike in the vocal modality, other information about that motion is necessarily expressed as well. These collateral effects are a product, or by-product, of the selection of means to ends" (2012, p. 313).

13. Note, however, that Zinacantec Tzotzil does maintain a strict deictic perspective that distinguishes, in the least marked case, the locus of the speech act (a 'here') from some different locus ('there'). Usually this perspective, obligatorily encoded into verbs of motion which dis-

the tiny Z speech community, locked in a single extended family which guarantees an extraordinary degree of shared history and experience, common ground becomes even more of a staple of communicative possibility. It seems, for example, no surprise that the shared space of interaction – both Pˢ and Sˢ – should be an exploitable and taken for granted resource for grammar, with the signers' bodies always available as proxies for other less local denotata. How to detach an emerging sign language from the maximally presupposable context of the family (or its equivalent in other circumstances of emergence) is clearly a central sociohistorical challenge for any ephemeral communicative system like Z.

To conclude, let me rely on Will, the Z signer, and his father Antonio, speaking Tzotzil with a final gesture, to indicate that this story has ended and to bid you adieu.

Figure 46. "The end" in Z and Tzotzil gesture

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tinguish coming from going (through the roots *tal* and *bat* in Tzotzil) and 'arriving here' (*yul*) from arriving somewhere other than here (*k'ot*), is shared by speakers and hearers. In the present day, however, when long-distance telephone calls separate speakers from their interlocutors, this obligatory distinction is routinely mapped instead onto a "home base" – taken as the default 'here' – and any other distant locale that is not "home" as 'there'. See Haviland (2005).

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