

How and when to sign “Hey!”

Socialization into grammar in Z, a 1st generation family sign language from Mexico

Abstract:

“Z” is a young family sign language whose hearing members speak Tzotzil (Mayan). Three deaf siblings, together with an intervening hearing sister and a hearing niece formed the original cohort of signing adults. A hearing son of the original signer became the first native signer of a second generation. Z provides evidence for a classic grammaticalization chain linking a sign requesting attention (HEY1) to a pragmatic turn-initiating particle (HEY2) which signals a new utterance or change of topic. Such an emergent grammatical particle linked to pragmatic exigencies of communication is a primordial example of emergent grammar. The chapter presents stages in the son’s language socialization and acquisition of HEY1 and HEY2, starting at 11 months, through his subsequent bilingual development in both Z and Tzotzil, jointly deploying other such communicative modalities as gaze and touch. It proposes a series of stages leading, by 4 years of age, to his understanding of the complex sequential structure that using the sign involves. Acquiring pragmatic signs like HEY in Z demonstrates how the grammar of a language, including an emergent sign language like Z, is built upon the practices of a language community and the basic expected parameters of local social life.

Keywords: homesign, emerging grammar, grammaticalization, turn-taking, acquisition, socialization, Mexico, Tzotzil

1.0 The language(s)

“Z” is a new sign language, emerging in a single extended family of indigenous peasants in Mexico whose hearing members speak Tzotzil (Mayan). The family sign language began after the birth in 1976 of Jane, the fourth daughter and first deaf child of a hearing couple living in a small *paraje* ‘hamlet’ of then about two thousand people, part of a larger *municipio* ‘township’ composed of over a dozen such villages. For her first 6 years Jane was the only deaf person in the family—indeed, in the entire hamlet, as far as the family knows—and she developed a homesign system, apparently in a close privileged (Fousellier-Souza 2006) relationship with her mother and her older sisters who helped raise her. There followed two deaf brothers, and an intervening hearing sister, and they were still later joined by a hearing niece to form the original cohort of five adults who communicate with each other primarily via the developing sign language. They have had direct contact with neither other deaf people nor sign languages. This group was subsequently augmented by Jane’s hearing son, Vic, born in 2007, who thus became the first Z CODA or “child of deaf adult.” Figure 1 shows a simplified genealogy of these original members of the miniature Z signing community.¹

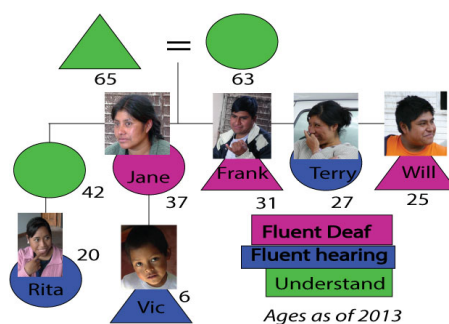


Figure 1: Genealogy of Z family (simplified)

Although Z has existed for less than 50 years, the lifetime of its oldest deaf speaker, and although it necessarily started out as a homesign system developing around a deaf child in an otherwise speaking family, the language confounds most typologies of sign language (e.g., Le Guen et al. 2020 for a recent review). Extensive studies of fully-fledged sign languages have given us what Goldin-Meadow and Brentari (2017) call “a fairly clear picture of sign language as a point of arrival” for any theory of full-blown language emergence. In a variety of obvious ways Z is far from full-blown. It is very hard to estimate, for example, the size of its conventionalized lexicon because of extensive variation both within and between individual signers, and perhaps more importantly because the language is highly telegraphic and “inferential” (cf. Lutzenberger et al., this volume), relying to an extent only possible for a family homesign on the massive shared life experiences—the “common ground” (Clark 1996)—of the signers. Such reliance reduces the utility of “portable” signs, that is, conventional signs which can easily be moved between signers, times, places, or social situations. The language is also multimodal in itself, making constant use of not only sight, but also sound and touch as part of its sensorial ecology—the

¹ Other younger children were later born into the signing household, but their developing language repertoires are not considered in this article. The notion of “generation” is vexed in such a genealogy. The terminological distinction between “generation” and “cohort” applied (for example, in Coppola 2020b) to the evolution of Nicaraguan Sign Language is complicated in Z by Rita, the hearing daughter of one of Jane’s hearing older sisters, who is thus genealogically the start of a 2nd generation, but who nonetheless grew up as (by five years) the youngest of a small cohort of household children, including all the deaf siblings, who were already signing when she was born.

signers are well aware that others in the social surround can hear. On the other hand, Z serves as virtually the only vehicle of communication for at least the deaf members of the miniscule speech community of the Z family, as well as for the privileged set of hearing signers who interact with them routinely in Z. In that sense it has “emerged” as a functioning linguistic system, which can be contrasted on a variety of dimensions with homesign systems for singleton deaf individuals. As each new child was born into the growing Z “speech community,” the language changed by necessity: requiring a new triadic conventionality as the next youngest deaf signer was added, incorporating a bridge to the surrounding spoken language with a later hearing sibling, and adding to the mix a third deaf sibling for whom the evolving sign system was the natural and given background for learning to communicate, something that would in turn pass to a nascent 2nd generation. The additive systematicity from each new signer, and their conjoint reliance on it as the default vehicle of communication, brought to the language a character quite different from the original homesign and launched it on a potential road to becoming a deaf community sign language (albeit a miniscule one).

Systematic study of Z began in 2008, when Jane’s infant Vic was about 11 months old. At that point, he was already starting to sign although not yet to speak. Through regular and frequent field visits over the following 10 years, and continuing more sporadically until the present, the author² has collaborated with members of the extended Z family on a project of extensive recording of naturally occurring and pseudo-experimental signed conversations. Research has focused on conventionalized lexical signs and syntax, on interactional structure, on the use of space, and on the sociolinguistics of this tiny speech/sign community (Haviland 2011, 2013a, 2013b, 2013c, 2014, 2020). Z is perhaps unique as an emerging family sign language to have been studied systematically, if not from its very birth, at least while still in active development during a first-generation.³ Importantly, ongoing study of Z includes close observation of the young Vic, from the time he started signing but did not yet speak, through his bimodal language acquisition and bilingual socialization into both Z and Tzotzil.

2.0 Emergence, complexity, and bimodality

Language “emergence” involves (at least) two intertwined but distinct temporal scales and conceptual domains, one at the level of a language itself, and another at the level of individual language users. When an entire language “emerges,” the process (hypothetical, except in the privileged case of young sign languages) begins with an initial cohort of language users. “Emergence” encompasses changes over time in the resources users develop and employ for linguistic functions, as cohorts mature and reproduce themselves. Thus, in a case like Z, we can imagine an early stage in which Jane, interacting

² The author has been a fictive kinsman and close friend of the deaf children’s parents since they were first married, in the late 1960s. He was probably the first to realize that Jane was deaf, although sadly—out of ignorance—insufficiently perspicacious at the time to help her parents facilitate a different sort of linguistic development for her, for example, via appropriate deaf schooling, something not readily available in rural Mexico, and of no interest then, or now, to the parents themselves. The author’s work on Z was in turn directly inspired by the research of Carol Padden and her co-authors on ABSL (e.g., Sandler et al. 2005, Aronoff et al. 2008), a village sign language of the Negev with somewhat similar origins, having begun as well with a cohort of deaf siblings.

³ See the sketchy but fascinating early reference to a family homesign in Frishberg (1975:713 fn. 13). Aside from classic studies of individual homesigners—deaf children born to hearing parents who receive little or no early exposure to sign languages—most famously by Susan Goldin-Meadow and her colleagues (e.g., Goldin-Meadow and Feldman 1977, Feldman et al. 1977, Goldin-Meadow et al. 1994, Goldin-Meadow 2003, 2012), there is comparative material on adult Brazilian homesigners in the work of Ivani Fusellier-Souza (e.g., 2004, 2006, Martinod et al. 2020), as well as extensive work on Nicaraguan homesigners (e.g., Hunsicker and Goldin-Meadow 2012, 2013; Coppola 2020a, Flaherty et al. 2021).

with her mother and sisters, began to develop a system of visual and tactile signs (in an abundant Peircean sense) to accomplish a range of interactive social tasks. As I speculate above, there must have followed several subsequent stages when each new sibling joined the cohort of users, both building on and transforming the semiotic inventory already available and expanding it, at the same time elaborating the interactive repertoire required for new tasks and social exigencies. It was, presumably, one matter for Jane first to invent a method to draw her mother's attention (or vice versa), say, to a particular hen by manual means, and another for Jane and her brothers to work out how to refer to chickens in general or to distinguish them from, say, turkeys or chicks, at a "later stage" of referential complexity in the developing sign language. The resulting systematicity ultimately would constitute a new language.

Emergence in a new language is not restricted to functions like inventing conventional ways to name chickens or other entities and to predicate about them. Jane's needs for her language and the needs of her younger siblings presumably both diverged and converged over time, producing linguistic changes that mutually fed (and fed upon) the siblings' repertoires, aggregating systems of linguistic forms and adapting them to increasing sorts of communicative and interactive complexity. Haviland (2015) argues that Z provides evidence for a classic "grammaticalization chain" that links several different but interrelated linguistic forms to a cline of linguistic functions which regiment conversational structure. On this account, a sign for doing one thing (seeking an interlocutor's attention) over time came to be used for something slightly different, both more abstract and more general: introducing a new conversational turn or topic, even when an interlocutor's attention was already secured. The need to manage conversational turns among a widening potential cast of competing interlocutors—that is, given increased interactive, demographic, and sociolinguistic complexity across the miniature signing community—motivated multiplied linguistic elements (which fissioned formally and functionally) and also a widened the scope of their potential uses. One makes such a grammaticalization argument using classic approaches of historical linguistics, starting with formal resemblances and arguing analogically from a theoretically driven grammaticalization model of simplification and generalization of function.⁴

As Goldin-Meadow and Brentari (2017:364) point out, although language emergence is continuously visible at an individual level every time a prelinguistic child learns a language, the processes involve different scales of time and analytic delicacy from language emergence *de novo*, since language acquisition is "grounded in previously established languages." Acquiring language, in the linguistic tradition, is typically measured by milestones in the mastery of certain characteristic diagnostic forms and constructions recognizable from preexisting adult language. Linguistic competence in the tradition of language socialization (e.g., Ochs and Schieffelin 1984, Duranti et al 2012, Ochs and Schieffelin 2012) focusses instead on how a child comes to learn language(s) for particular culturally sanctioned ends, and how one comes to (inter)act appropriately in a prestructured social world.

This paper explores, in one specific case, whether an individual language-acquiring child will, over the gradual course of adding complexity to a linguistic repertoire, mirror or otherwise parallel the processes by which a whole language—taken as a system of expressive resources shared among members of a community—is assumed to accrue complexity over time. Vic is a hearing child who was socialized from

⁴ For grammaticalization in general, see Heine (1997); Hopper and Traugott (1993). Overviews of grammaticalization processes in sign languages are in Pfau and Steinbach (2011), Janzen (2012). For proposed grammaticalization paths in emerging sign languages linking speakers' gestures to signed lexemes, see, for example, Perniss and Zeshan (2008), de Vos (2012), and, for a village sign language in another Mayan context, Le Guen (2012).

birth into both a spoken and a sign language. Notably, the “established languages” that form the prototype which he targets have different statuses: one, a modern Mayan language in its current spoken incarnation in a large, multidialectal speech community; the other, a very young visual homesign system still growing into its role as the communicative vehicle for a primary group of just five adults who are changing it as they go along. The article presents longitudinal evidence about how Vic began over his first few years of life to distinguish the different forms linked in the hypothesized grammaticalization chain which regiment interlocutors’ attention, detailed below. The conclusion is that, confronted from birth with the adult Z signs as a model, Vic acquired the distinct forms of the grammaticalization chain piecemeal, and distinguished them fully over time in a sequence that recalls the hypothetical original grammaticalization processes that spawned them. It is as though he reinvented the linguistic innovation by himself, although the impetus was already present in the adults’ performances. This is emerging grammar recapitulated in a single individual.

Note that this volume’s emphasis on emerging complexity encourages sensitivity to two often disattended aspects of the ethnographic data on which research on emerging sign languages must be based. One is the inescapable polymodality of interaction. Although speech is frequently caricatured as oral/aural, and sign taken as a visual medium, the principled coexpressivity of natural language is inevitable and extreme. This is true even within a single sensory modality. The sound of speech, for example, involves multiple and theoretically separate oral channels (from phonemes, to intonation, to rhythm), just as the visible aspects of sign include discrete as well as continuous chunks (hand shapes vs. gaze, motion vs. rest, signing bodies and visible aspects of their surrounding spaces and inventories of objects). Moreover, complementary modalities obligatorily combine with one another. Manual signs in Z are often accompanied by vocalizations, a recognition of the sensory ecology of the community that includes hearers among the signers and the audience. Sounds and vibrations are sent and recognized as signals. Signs are also routinely and multiply inflected, for example by facial expressions and bodily postures, to convey interpersonal attitudes and affect—(dis)approval, (dis)agreement, (in)attention, criticism and praise, among others. These visible expressions can also “spread” (cf. * Lutzenberger, Pfau, and de Vos this volume) syntagmatically across signed segments, just as multiple signing articulators characteristically operate simultaneously (Pfau 2015). Furthermore, although Tzotzil speakers in the surrounding community are characteristically reserved physically, Z signers are notably relaxed about tactile expression, free to touch each other in ways uncharacteristic of most speakers in this community, but thus incorporating touch systematically into their sign language as a further modality.

The other inescapable aspect of Z signing, linked to multimodality and central to the argument of this paper, is the organizational complexity of its characteristic context: natural conversation in joint interaction (Sacks et al. 1974). When people do things together they must arrange their participation collaboratively. In conversation, signed or otherwise, this means, among other things, exchanging turns at talk (Levinson 2006, Holler et al. 2006) and regimenting one’s conversational contributions in accordance with what interlocutors are doing. Emphasizing complexity within a linguistic system may displace attention from the complexity of linguistic interaction itself—starting and stopping turns, the choreography of attention between interlocutors, and the impact on grammar of turn construction. In Z specifically, each conversational sequence involves a polymodal mix of gaze, face, and body (Haviland 2019), carefully monitored to calibrate mutual access between participants. The phenomena of interest in what follows are mechanisms within the sign language itself apparently designed to help regiment conversational interchanges.

3.0 A grammaticalization chain in Z

Z seems to have adopted a full-fledged conventionalized gestural emblem (Kendon 2004) familiar to all Tzotzil speakers and, indeed, to almost all Latin Americans (but, by contrast, frequently misunderstood by English speaking North Americans). It means “come here!” (sometimes “give it here!”). A common North American gestural equivalent starts with a loosely clenched supine hand with the index finger extended or a flat upturned palm extended in front of the body, followed by flipping the index finger (or all the fingers) upward toward the speaker. However, the Mexican version starts with the palm extended partly forward and flips the fingers downward instead, sometimes multiple times. Ordinarily the hand gesture also accompanies mutual gaze between the interlocutors. (See Figure 2.)



Figure 2: The man second back from the front issues a Tzotzil “come” gesture

Adult Z signers use a formally identical hand movement to mean COME!, frequently also with mutual gaze, and sometimes further inflected for speed, size, and repetition to modulate the force of the request. Figure 3 shows both a hearing (a) and a deaf (b) signer calling someone with a sign meaning “Come!” The sign is glossed into Tzotzil by hearing signers as *laʔ*—the suppletive 2nd person imperative for *tal* ‘come.’



Figure 3. Terry (hearing) at left, and Jane (deaf) at right summons an interlocutor to come with a Z sign

It is not surprising that a family sign language surrounded entirely by (and, indeed, including) Tzotzil speakers would readily adopt a conventional Tzotzil co-speech emblem as part of its repertoire of signs, as in the case of COME.

More linguistically interesting is a formally similar sign in Z (which is *not* used as a co-speech gesture in spoken Tzotzil), dubbed HEY1 in Haviland (2015), used for a notionally perhaps interrelated⁵ but quite different purpose. It is used to call for an interlocutor’s visual attention. This sign is glossed by the hearing signers with the Tzotzil phrase *k-al-tik avaʔi*, literally “let us speak so that you will understand,”

⁵ Kata Kolok, a Balinese village sign language, is reported by De Vos (2012a:186) to have “[a] form of COME that is produced with repeated movement and directed at a person . . . to summon an addressee. This function is linked to Balinese co-speech gesture, in which an identical gesture has been observed.” There is no evidence that the Z HEY1 sign has any relationship to “come” either as a gesture or as Z sign itself (Haviland 2015), and as Austin German (p.c.) points out to me, other sign languages have very similar signs in both form and function.

i.e., “listen here!”⁶ In terms of its formation, it involves the same hand shape and movement as COME, although with a couple of systematic differences. Although in Z the COME sign may be repeated, it typically involves a single sharp downward movement of the fingers from a slightly raised outward palm, often held briefly in the downward position after the fingers have been retracted toward the signer. By contrast the Z sign HEY1 characteristically involves several rapid downward waves of the hand, with the hand more loosely held, moving in a smaller trajectory. Usually this manually signed HEY1 (by contrast with other more direct requests for attention, like touching or poking a desired recipient) is also accompanied by the signer’s gazing intently at her would-be interlocutor, as in both examples in Figure 3. The desired interlocutor does not always start out reciprocating the gaze.

This specifically Z sign HEY1 forms the starting point for a classic grammaticalization chain which leads to a more abstract and functionally specific pragmatic turn-initiating particle (glossed HEY2) which signals that a signer is about to start a new signed utterance or to transition to a new conversational topic, when she has already secured her interlocutors’ visual attention. Insofar as such an emergent grammatical category (“I want the floor,” or “I’m about to start a new turn [or topic]”) links to the pragmatic exigencies of all communication, incorporating a formal grammatical device for expressing it is a primordial example of emergent grammar—a grammar of turns. Securing an interlocutor’s attention is a foundational link in any communicative chain. Refining such attention to a notion like “new topic” and linking it specifically to presaging a forthcoming utterance is also a characteristic aspect of the functional linguistic specialization of grammaticalization. In Z, the HEY2 sign marking a new turn or topic is reduced in form from the more exuberant HEY1 sign. It is normally not repeated; its movement trajectory is smaller and more perfunctory; and it is not necessarily accompanied by gaze at the intended recipient. A typical example of HEY2, can be seen in Figure 4, where Terry (on the right of the split screen image), already having started signing to her interlocutors (who are attending to her, on the left in the split screen image), performs the HEY2 sign to them while visually checking the stimulus details on a computer screen, only afterward engaging them with mutual gaze (Figure 5).



Figure 4. Terry signs HEY2, already having her interlocutors’ attention, and looking away from them

⁶ In connection with the reduced pragmatic or semantic function of the Z sign HEY2, introduced below, note that the spoken Tzotzil *k-al-tik av-aʔi* expression also has a heavily abbreviated and similarly grammaticalized form *vaʔi* ‘listen’ or “pay attention (to what I’m about to say or do)” which often introduces new topics in discourse, or even such a non-verbal act as passing over a coin to pay for something. The initial *v-* in this form is a reduction of the second person ergative proclitic, and the underlying Tzotzil root *aʔi*, sometimes glossed as ‘hear,’ is more accurately translated as ‘perceive,’ regardless of sensory modality.



Figure 5. Terry begins her signed turn, gazing at her interlocutors

4.0 Victor's acquisition of HEY

The Z sign language thus has three distinct, if morphologically similar signs, COME, HEY1, and HEY2. These signs, that is, form part of the presumed adult target language that young Vic was socialized into as part of his overall linguistic repertoire. I examine the stages observed as young Vic learned to use these signs, jointly deployed with such other communicative modalities as gaze and touch, starting with his early efforts to sign, filmed first when he was 11 months old, through his subsequent bi-lingual development in both Z and Tzotzil. Here is a brief summary of what the data show. At 11 months, Vic had neither HEY1 nor HEY2, although very shortly thereafter he had acquired COME. By 18 months he had learned largely to funnel requests for interlocutors' attention into a manual modality (including HEY1), even as he experimented with other modalities including speech and touch to partition his world of potential communicative partners into those who signed or heard. Between the ages of 3 and 4 years he had also begun to acquire HEY2, which implied both an awareness of the pragmatic requisites for linguistic interaction as well as an understanding of the complex sequential structure that using the sign involves, i.e., the kinds of "adjacency" (Sacks 1987 [1973]) implied by a summons for attention at the beginning of an utterance.

Before looking at the longitudinal results, here is a brief account of the methods and data employed. In May 2008 I decided after years of reluctance to delve into the new sign language in a community I had long studied as an anthropologist and student of spoken Tzotzil. I approached the family to ask if they would teach me about their sign language. On the first day I filmed a short interaction involving all of the deaf siblings as well as the infant Vic, just a few weeks short of his first birthday. Encouraged by the first film, I returned a month later to begin to develop techniques for structured eliciting in Z. After an enforced five-month hiatus, to obtain funding and permissions,⁷ there began a period of ten years of at least monthly stays in the village, concentrating on Vic's acquisition of both signed Z and spoken Tzotzil. I cajoled Rita, bilingual in Tzotzil and Z, into filming her infant cousin in uncontrived family circumstances, every few days starting when he was 19 months old until he turned four. By that point Vic was fluent in both Z and spoken Tzotzil, and he participated in ever more involved ways with the sporadic, monthly sessions with the adult signers. The result is an enormous corpus of signed and spoken interaction, including well over 70 hours of video focused on Vic's interactions during the first half dozen years of his life.

4.1 The corpus and the annotations:

⁷ This material is based upon work supported by the National Science Foundation under Grant Number (grants BCS-0935407 and BCS-1053089, administered by the Center for Research on Language [CRL] at UCSD). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation

For “controlled eliciting” of Z signing, our roughly monthly sessions of 3 or 4 days at a time involved a wide variety of stimulus materials, designed to encourage fulsome signed descriptions of different kinds of phenomena, in an interactive setting that allowed careful filming (multiple cameras and partly controlled lighting, but little control over sun, rain, thunderstorms, passing vehicles, visitors and passers-by). Equally important was documenting informal exchanges between the signers during breaks in the ‘work’ the adult signers were doing with elicitation materials. Other recordings, usually with only a single handheld video camera, focused on everyday interaction involving Vic. A principled difference between elicitation and “corpus” data is hard to maintain or justify in such a project, given the circumstances of work with the family, and practical circumstances on the ground, and we have made no such distinctions in the longitudinal analysis.

The corpus, including the recordings of Vic and the more extensive elicitation filmed with multiple camera angles, is unevenly and only partially transcribed, although Vic’s recorded signing up until he was around 4 is reasonably well annotated. Some sequences have been transcribed in detail and others more roughly annotated, in company with one or more of the Tzotzil speaking signers.⁸

Transcribed interactions between interacting bodies range from spartan (Yngve 1970, Schegloff 1998) to exuberant (Mondada 2018, Mondada et al. 2021). Because the focus is on the evolving details of Vic’s production of specific sign tokens and the relevant attentional ecology, this survey opts for only skeletal representations of action sequences, accompanied by still frames, some labelled with letters that correspond to textual notes. Some of the still frames are split-screen images that combine simultaneous views from two different camera angles. Where a figure presents a static configuration—of handshapes, for example, or arrangement of participants—still frames can stand by themselves. When the ballistics of movement, or the precise timing of synchronous events in discrete articulators are crucial to understanding a scene, the figures are complemented by a timeline (—a vertical stroke (|) divides seconds, and the timeline is graduated by default in frames, sometimes with greater or less granularity), accompanied by a miniature partiture with distinct synchronized tiers of action. Individual tiers use letters as abbreviations for the names of individual participants, and rough and ready labels like Gaze, Gest(ure), Sign, Act(ion)—i.e., non-sign specific actions. Thus, for example, a tier labelled “VGaze” traces the trajectory of Vic’s gaze. For tiers with relevant ballistic trajectories, I use a sequence of full stops (...) to mark preparatory movements, a “target” (such as a person or thing gazed at)—indicated in words, by an exclamation point (!) for the stroke of a gesture, or in CAPs for an approximate sign label—a series of dashes (---) to mark holds, and a series of commas (,,,) to mark a retraction phase. A gloss of the form ‘IX:y z’ represents a putative indexical sign, where ‘y’ labels the indexing articulator (e.g., ‘RH’ for “right hand” or ‘LF’ for “left finger”), and ‘z’ the putative referent. Other abbreviations in individual figures are annotated by specific footnotes.

4.2 Vic at about 1 year of age: communicative intentions, pointing?

In Vic’s first appearance in the corpus, his two deaf uncles were briefly at home having a quick meal before returning to their construction job, and Jane brought in the infant, swaddled on her back. A slice

⁸ Initial annotation of the corpus was done by the author or by Austin German (cf. German 2018). We have not tried to control systematically for the differences in Vic’s linguistic practices across different categories of interlocutors, hearing and deaf.

Consider, additionally, the formal morphology of Vic's movements. He already had mastered a well-formed "pointing hand" of the style used by both Z signers and Tzotzil speakers. Even at this early stage Vic's performances seemed to presage a miniature waving motion that often characterizes the adult HEY1. Vic appeared to try to draw his mother's attention to the laptop, with an initial index finger pointing gesture, which then dissolved into a slight waving motion (Figure 10).



Figure 10: Vic's extended index figure seems to give way to a little wave.

Similarly, Figure 11 shows a pointing/waving motion that appears in a different interaction from the same day, where he apparently pointed and waved the hand nine times over the course of 5 seconds, while also looking around. Such a movement was perhaps a version, not yet properly well-formed nor interactively integrated of the Z HEY1 sign ubiquitous in the adult signing. At this age, Vic sometimes directed his own gaze at the object of attention itself (if not elsewhere), rather than at an interlocutor whose attention he sought. (Indeed, in this little sequence, it was not clear who if anyone was attending to him. As can be seen, Jane was looking away.) Vic's apparent attempt to direct attention thus seemed to be a transitional or derivative partial step towards Vic's acquisition of the adult HEY1 sign, to which we shortly turn.



Figure 11: Vic appears to point, then make an extended wave.

5.0 Vic's apparent conventional Z COME sign at 16 months

I was unfortunately not able to visit the Z signers from just after Vic's first birthday until just before he reached 17 months of age. By that time he had clearly acquired considerable skill in Z signing, although he had yet begun to speak Tzotzil. Indeed, his grandparents—who, as Tzotzil speakers, conflated the notion of deafness with the term *uma?*, literally 'mute'—were beginning to worry that, like his deaf mother and uncles, Vic would simply never learn to speak (cf. Petitto et al. 2001). His interactions at the time were largely with the adult signers, although the non-signing members of the household as well as the two hearing signers Terry and Rita who often served as his caregivers, addressed him constantly in Tzotzil and encouraged him to speak. He already had a significant repertoire of conventional Z signs by 16 months (although it was hard to distinguish on formal grounds some of his signs from Tzotzil speakers' emblems, except that he did not accompany them with speech).

Most relevant here is that by this age Vic had begun to master the "COME" gesture/sign and to direct it at quite a range of different addressees. The first time I seem to have caught him on video using the sign, when he was 16 months old, he was interacting with his hearing aunt Terry, at a point when he did

not yet speak to her in Tzotzil. Standing outside the house where Terry was, he appeared to catch her eye (Figure 12a). He then moved off toward the nearby patio (b), gesturing—without looking back—for her to follow him (c-e) as she herself stepped out the door.



Frames	|		a	b	c	d	e
VSign	|					.....COME,,	
Vgaze	|	.....to T-----..		..front-----			
VMov	|				.....walks_to_yard		
TMov	|				steps_up	steps_out	
Time	|	.....|	.....|	.....|	.....|	.....|	.....|

Figure 12: a somewhat diffident and rapid but clear "COME" command, Vic at 16 months

Of course, because the Z "COME" sign and the similar Tzotzil gestural holophrase are part of both Z and Tzotzil linguistic repertoires, how (and whether) Vic distinguishes them in his own psycholinguistic universe is hard to know. At 19 months he used similar motions—wordlessly—to summon both his hearing cousin with a single, strongly articulated downward stroke (Figure 13), and also his own (deaf) mother with a less strongly articulated double "COME" sign, in both cases initiating the movement after first engaging his (signing) interlocutors' gazes.

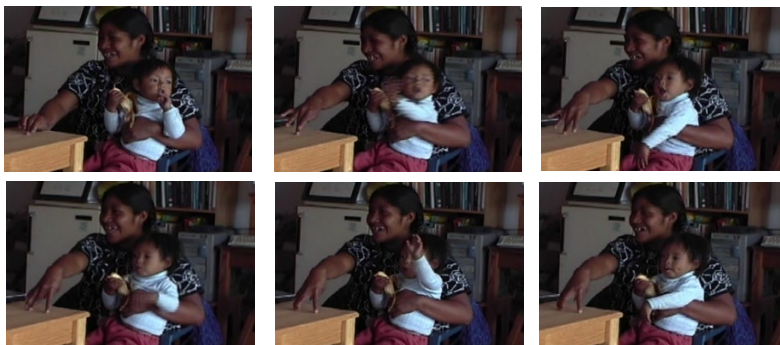


Figure 13: Vic summons his hearing cousin with a single, strong "come here!" gesture (19 mos.).

6.0 Vic's development of HEY1 for attentional control.

Starting about the same time that he began to use the COME sign, Vic also appeared to begin try out various nascent forms of HEY1 for attentional control. Recall that HEY1 involves a tiny interactive routine: the signer starts by gazing at the desired interlocutor, waving the hand downward to attract the interlocutor's visual attention, thereby generating an expectation that what will follow is a signed turn to which the HEY1 sign itself invited attention. Vic seemed to acquire elements of this gestalt piecemeal, without recognizing that the initial HEY1, for Z signers, makes relevant the whole sequence (Schegloff 1968). For example, at 17 months, Vic, gazing out the window, turned to look (suddenly and intently) at his intended interlocutor (Figure 14 a-b), immediately completing a sharp downward sweep of his arm (c) very much like the COME gesture, and then repeating it (d-f). Notable in this sequence is Vic's failure

to follow up with a further substantive turn. He summoned his (hearing) interlocutors' attention but then did nothing with it.¹¹



Frame	|	a			b	c	d	e	f
VGaze	|	out_window			.....T-----				
VSign	|				HEY			HEY	
Time	|	.....|	.....|	.....|	.....|	.....|	.....|	.....|	.....|

Figure 14: At 17 mos. Vic issues an empty summons.

At the same age, Vic had a variety of different methods for gaining his mother's attention, in addition to a possible HEY1 sign. He frequently touched her or pulled on her clothes (Figure 15a, with split screen stills combining different synchronized camera angles). Sometimes he would simply stare at her and make a demonstrative point or grab at something, as in (Figure 15b) where he asked his mother to help him with his sandal, which was about to fall off.



Figure 15: Touching, pulling, and grabbing for attention

A striking illustration of Vic's explicit ability to engage and maintain interaction came when he was almost exactly 18 months old. His deaf uncles, about to be served a meal, were seated at a table near the cooking fire tended by his mother. Vic began to gesture, apparently at a gourd bowl which his mother wanted to fill with hot tortillas for his uncles. Vic started with a pointing gesture with his left hand (Figure 16a), then raised both hands with palms forward (b) and produced what resembled the start of a prolonged HEY1 (c), with his hand in the air, as he gazed at his uncle Will seated at the table. Vic held this pose for more than 4 seconds, ending with a slight wiggling of his fingers when finally the bowl was passed (d). Then his proto-HEY1 sign dissolved into a point in the direction of where he apparently wanted the bowl to be placed (e-f). His performance showed how unmediated gestural

¹¹ To be fair to Vic, in that context he was unable to summon *anyone's* attention with his gesture, as his mother was busy describing an eliciting stimulus to Rita and Terry, and they ignored him. Vic had been eating a banana and had been trying to get them to notice it. In any case, he did not follow up, returning to his banana and soon being distracted elsewhere. But it seems clear that Vic can acquire some aspects of a Z sign without mastering the entire gestalt of appropriate usage (cf. De Vos 2012b).

expression of his desires and directives was at least partially channeled through the signed conventions for managing interaction and turn-taking, even at this early age.

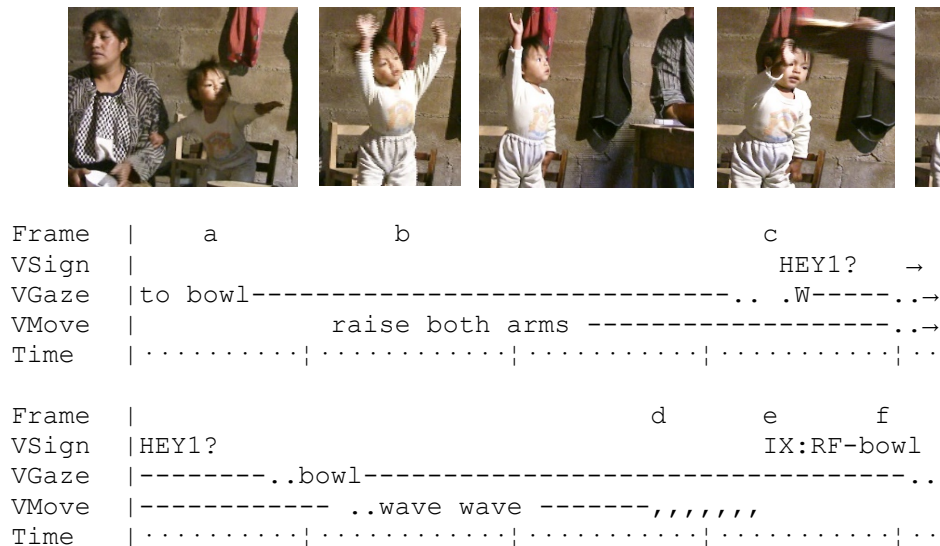


Figure 16: At 18 mos., Vic engages and tries to manipulate attention with deaf adults.

By three months later, at 22 months, Vic was still not speaking Tzotzil, being almost exclusively socialized into the communicative practices of the small group of signers in his household. Some of his techniques for attracting attention were direct and physical. To get his deaf mom’s attention he would sometimes persistently grabbing her clothes or even her face (Figure 17 a-b) to secure her gaze (c) before signing a comment (here about a broken table leg, [d]).



Figure 17: Vic at 22 mos. grabs his mom’s face to comment on a broken table leg.

In more elaborate interactions with the deaf adults, although he sometimes had recourse to direct tactile interventions, Vic preferred instead a conventional signed technique to initiate conversations. In Figure 18 (a) he tried first a HEY1 sign (extended palm, and multiple downward flips with his fingers) to Frank, before he resorted (in Figure 18b) to pulling on his trousers and asking him to launch a wooden top onto the ground (c).



Figure 18: Vic, 22 mos., signs and grabs to ask his uncle to sit.

As Vic approached two years of age his conversational competence in Z became markedly more sophisticated. Vic had been listening to a procession that marched past his house compound, playing music that his mother could not hear. As the band marched off, he sat on a pile of cinderblocks holding his right hand on a clothesline (Figure 19a). He then turned to his mother, who was looking elsewhere, and raised his left hand to make a quick HEY1 (b-c) gesture, with two tiny final downward flips of the hand (d) which attracted Jane's gaze. She also raised her chin in an interrogative head tilt, to acknowledge that she was paying attention (c). Vic then began a substantive turn, signing "Let's go" (d), and going on to tell her that he wanted to follow the band to continue to listen to it.



Frames	|	a		b	c	d		e
VSign	|			...HEY---	.. waves	-----	.GO-----	
VGaze	|	down-----	....X-----					
JSign	|				(chin lift)	-----		
JGaze	|	camera-----		... V-----				
Time	|	.....|	.....|	.....|	.....|	.....|	.....|	.....|

Figure 19: Victor at 23 months starts to ask his mom if they can go to hear a band.

When he turned two, Vic had become still more practiced at the norms of signed interaction, including the use of HEY1 to gain the conversational floor, although the hearing people in his social world also began to urge him to speak. When he was 25 months old, a school primer was being passed around the house, and Rita was repeating for Vic the Spanish names for some pictured items in the book. Vic's mother Jane was examining it, and Rita told him, "Say to your mother, 'What's that called?'" —i.e., ask her whether she recognized the item in question and had a way to sign it. Vic looked away from his cousin as she spoke to him (Figure 20a), turned to his mother, who was looking down at the book, raised his left hand so that it passed through her line of sight, and did a quick HEY1 with downward flip of the fingers (b), before touching the chosen picture on the page (c). Although it is unclear whether Jane ever bothered to look at Vic at all in the course of this little interchange, it illustrates the growing linkage

between HEY and a following utterance, as the metalinguistic framing of Rita’s directive (“Tell your mother, ‘X’”) appears to imply for Victor that the substance of his linguistic contribution be introduced by an initial HEY.



Frames	|	a		b		c	
VSign	|			HEY1			IX:LF-picture
Vgaze	|	R	..J-----		..book-----		
JGaze	|	book-----		..R---	,,	book-----	
Time	|	00:00:00.000	.....	|	.....	|	.....

Figure 20: Vic at 24 mos. is told "Ask your mom what it's called."

The uses of what I have characterized here as the attentional HEY1 are formally distinguished from the HEY2 turn marker, to which we shortly turn, by one central criterion: they all are issued at a point when a signer appears to want an interlocutor’s visual attention but does not yet have it, or at least not in the desired way. When he was just short of 26 months old Vic was sitting in his mother’s arms facing his uncle Will, who in turn was looking down towards Vic’s feet and playing with the little boy’s sandals. At one point, Vic began to make the HEY1 sign at Will repeatedly (Figure 21a). It took four full seconds for Will to respond to his nephew’s request for attention, during which time Vic continued to wave his hand making the HEY1 sign. It is hard to discern from the video stills, during his delayed response Will was pointedly gazing at Vic’s feet and playing with his sandals, doggedly avoiding a response to Vic’s HEY. Jane, in turn, appeared to be watching the TV screen in front of her. She first glanced down at Vic’s signing hand just before Will also appeared to see it. Once his gaze moved to Vic’s HEY1 sign, close attention to the dance of Will’s eyes shows that he attended first to Vic’s waving hand (b) and then looked at Vic’s face, realizing that the child wanted his attention (Figure 21c). It was only at that point that Vic began to form a pointing hand in the direction of the door--what he had apparently wanted to point out from the start (Figure 21d). Vic’s reference to the door (Figure 21c) in turn prompted both Will and Jane to glance in that direction. By this point in his life, based on his interactions with the adult signers, Vic seems to have fully mastered the HEY1 sign in Z as a request for attention, even if his interlocutors did not always honor such requests, much as they did not always honor HEY1 requests from one another (Haviland 2013a).

the signer already has the visual attention of an interlocutor),¹² and a highly stylized pragmatic meaning, to signal a forthcoming turn or topic change. Vic’s use of the attenuated form and its coordination with attention checks on his interlocutors show how the grammaticalized sign began to take shape.

At 27 months, Vic was seated with his uncle Frank. Frank was watching a program on the TV, and both were chewing on slivers of sugarcane. Vic was watching Frank’s face intently, apparently waiting for his uncle to look up at him (Figure 23a). Either because Frank had returned the boy’s gaze, or because Vic had summoned his attention with a very quick HEY1 sign (b), Vic went on to give a second extremely brief downward hand flick (c), apparently after Frank had already engaged his mutual gaze. The second very attenuated hand flick at (Figure 23c) seems more like a precursor of HEY2 than a simple repetition of the preceding HEY1. Vic went on to ask for another piece of cane (by holding up the remaining stub of the one he was already finishing [d]), to which Frank assented with a nod. This explicit response from his interlocutor that suggests that Vic had employed the HEY2 sign successfully to frame his request.



Frames	|	a		b	c		d	
VSign	|			HEY1	HEY2?			
VAct	|						shows_cane	
VGaze	|	...F	-----	-----	-----	-----	-----	..
FSign	|						NOD	
Time	|	.....|	.....|	.....|	.....|	.....|	.....|	.....

Figure 23: Vic, eating sugarcane with his uncle Frank, asks for more.

Similarly ambiguous were several HEY-like signs that Vic used, at about the same age, in a protracted interaction with his mother. He started toward his mother signing KEY with an outstretched hand. He then made two HEY signs 300ms. apart (Figure 24 a-b), and then apparently started to make a third HEY (c). Before completing the downward flip of his hand, he formed the sign ONE (d)—often used as a determiner-like element in Z—followed again by the sign KEY (e). He then took a proffered key from Jane. Since she isn’t visible on screen, it is unknown at which point Vic gained her attention, and thus whether the HEY sequences in (a-c) included another precursor to HEY2, uttered by Vic even after he gained his mother’s attention, or whether he simply abandoned a third HEY1 after he saw she was attending to him.

¹² Because previously secured attention is the criterion for glossing a sign as HEY2 in my transcriptions, there can sometimes be doubt about individual instances when the video record leaves unclear or ambiguous where an interlocutor is gazing, as is the case in Figure 29.



Frames	|		a	b	c	d	e		
VSign	|	KEY	HEY	HEY	HEY?,,,...ONE	KEY			
VGaze	|	J-----	-----						
VAct	|	walking						..... takes_key
Time	|	|	|	|	|	|	|	|	

Figure 24: Vic at 27 months walks to his mother requesting a key.

About a month later, in interaction with another young hearing cousin Vic interestingly distinguished between his two signing hands. Seated inside the house near the door, Vic heard his cousin exclaim in Tzotzil that it had started to rain hard. He turned quickly to look outside (Figure 25a), and then he launched a HEY sign at her with his left hand (b). From his quick smile, one gathers that he had his cousin's attention before he finished the quick hand flip, and even as he retracted his left hand to his shoulder, he had begun signing HEAVY RAIN with his right hand (c). He repeated the sign several times, as he fully retracted his left hand, and then turned to point with his left hand at his mother on the other side of the room, nodding as he signed for his cousin to tell her, too, that it was raining (d). Because of the limited camera view, it was again not possible to check when or whether Vic's cousin saw and responded to his HEY sign, but he had already begun to prepare the RAIN sign with his right hand before he had finished the first request for attention with his left.

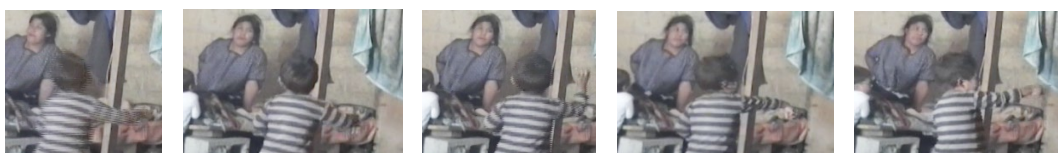


Frames	|	a	b	c	d	
VGaze	|	Cousin-----	-----			,, in back-----,,
VLHand	|		HEY2---		IX:LF *2	
VRHand	|			RAIN *4-----		
Time	|	|	|	|	|	|

Figure 25: Vic at 28 months signs with both hands to comment on his cousin's remarks about the rain.

Many of the videos in the corpus of Vic’s signing as he neared 3 years of age were filmed by his cousin, using a single camera, in the course of quotidian interaction.¹³ As a result, in many of the films his interlocutors are not visible; it is thus difficult to be sure when a HEY sign is primarily intended to achieve mutual gaze. Nonetheless, sometimes a conversational sequence suggests how attention develops in the course of interaction, and other video sequences give direct evidence about changing gaze.

Sometimes Vic clearly intended a HEY sign as more than simply a call for attention, because his interlocutor was already visibly gazing at him as he signed. A couple of months before Vic’s third birthday, Vic walked past Jane seated on her bed after a nap. At first she was looking away from Vic (Figure 26a), but she turned her attention to him as he passed with arm outstretched (b). The moment she gazed at him, he raised his right arm in a demonstrative HEY2 sign (c), dropping it immediately into a pointing hand (d), after which Jane turned to look in the direction of his point (e). This HEY2 sign—if that is what it was¹⁴--did not seem designed to request Jane’s attention but rather to orient it to Vic’s next, which in this case was to point to his uncle Frank (from whom he was about to receive a coin to spend).



Frames	|		a	b	c	d	e
VSign	|		IX:RF		HEY2		IX:RF
VGaze	|		J			right	J
VAct	|	walking			stops in place		
JGaze	|	left		V		right	down to bed
Time	|						

Figure 26: At 34 months, Vic uses HEY2 to direct Jane to look at something.

At 35 months Vic was roughhousing with his uncle Will, who would pull him by the arm and make him do something. Vic, interacting the entire time, kept pulling away and feigning escape. From a safe distance, Vic fixed his gaze on his uncle (Figure 27a), turned his body toward him, and issued a very rapid single downward right hand flip, HEY2, immediately segueing into a rapid right handed point above and behind Will. Will turned to gaze in that direction as young Vic did a playful pirouette (presumably because he was joking about the point in the first place, as his uncle had previously been doing with him). The HEY2 can thus be understood as a feigned prelude to a feigned indexical directive.

¹³ During this period, because of his grandparents’ fears, the little boy was sent to live with his hearing aunt who ran a small vegetable shop in the nearby Mexican town, rarely interacting for days at a time with his deaf mother and uncles and exposed continuously to spoken Tzotzil and some Spanish. The grandparents only relented after several months before Vic was allowed to alternate between living in the village with his mother and spending time with his aunt in town.

¹⁴ Viewing this scene eleven years after it was filmed, Rita and Terry were unsure whether to read this sign as HEY2 or to interpret it as COME, which here would be a directive for Jane to get out of bed. If that was what it was, it failed, because what Jane did instead was flop back down on the bed and ignore Vic entirely.



Frames	|	a	b	c					d
VSign	|		. HEY2...	..... IX..	-----	..	.,,...		
VMov	|							((spins))	
VGaze	|	W---	.....up--	W- up	-W-- up	-----			
WGaze	|	V-----	..	-----			... behind---	..	
VMov	|							((spins))	
Time	|	.....|.....						

Figure 27: At 35 months, Vic plays with his uncle Will

My last example to show Vic’s developing use of the fully grammaticalized HEY2 sign comes from an extended interaction when he was 41 months old, as Jane was getting him dressed for an excursion. She was concentrated on one of his socks, when he apparently spied the clean shirt she had placed on the ground to put on him (Figure 28a). Vic formed a TWO sign right in front Jane’s face and moved it into her line of sight (b). Gazing at her, he quickly turned his TWO hand to face palm down and delivered to Jane a very quick HEY2 (c), now having her full attention and intending to utter his main message. He pointed down with his left hand to the shirt bundled on the floor (c), switched hands to point at it with his right hand (e), and then pointed from the shirt out the door (f) and back (g). The whole sequence can be glossed, “Hey, I have two of those [shirts]; go get me the other one that is outside.”



```

VRHand |      ...TWO-----          TWO*2          HEY2          →
VGaze  |down  ...J-----          →
VAct   |step_back          RH_in_J_face
JGaze  |@ hands-----          .....  ...V-----→
JAct   |fix_V_socks
Time   | .....| .....

```



```

Frames |      d      e      f      g
VRHand |      ...IX:R-- IX-RF-out---, ..IX:RF-out  IX:RF-down
VLHand |  IX:LF-shirt
VAct   |  bends_forward up_look_right
VGaze  |down----- out----- down-----
JGaze  |      ..... shirt.. ....V----- out_door .....V_socks
JAct   |hold_V_socks          put_V_socks_on
Time   | .....| .....

```

Figure 28: Vic asks for a different shirt, at 41 months

As an epilogue to Vic's trajectory in acquiring this basic part of Z grammar, here is a clip from an elicitation session with the deaf adults. Vic started to participate in these sessions around age four. He had been shown a photograph, and his job was to describe the picture to his mother and uncles, who appear on the right side of the split screen images in Figure 29. They in turn were asked to pick the corresponding image from an array. Vic perused the image (a), as the adults began to wait expectantly for him to describe it (b). He started, however, by signing HEY2 (c), repeating the sign briefly a second time (d). Only then did he begin to describe the picture itself by mentioning a KEY depicted in it (e) and pointing at the computer screen (f). Even at four he had mastered typically adult attention management. Note that he ends his first signed utterance with an apparent visual check of his uncle Will's comprehension, and that his mother (shown as J in the transcription) has been tracking both his face and his hands constantly throughout his turn. The adults had no difficulty matching his description.



Frames	|	a	b	c	d
VSign	|		.....HEY----		.....HEY--,,,..
VGaze	|	screen ...W----	..screen-----	→
JGaze	|	pap....V-----	.....VHands	V--	VHands...→
WGaze	|	pap...V-----		→
Time	|	.....|	.....|	.....
Frames	|		e		f
VSign	|		.....KEY-----	,,, THERE (PL.)-----	,,,
VGaze	|	..screen-----			.....W
JGaze	|	VHands-----		..V-----	
WGaze	|	..V-----			
Time	|	.....|	.....|	.....

Figure 29: Vic at 4 years and 4 months participates in an eliciting session

8.0 Final remarks

Vic's socialization into language is a single example of a process that has occurred countless times in the history of humanity, as new signed communication systems have emerged around sometimes vanishingly small and usually evanescent deaf communities. This article has concentrated on Vic's acquisition of a small set of Z signs which largely deal not with reference and predication but with managing interaction and attention, a central organizing aspect of conversation—the most characteristic of linguistic activities.

This study of the emergent quality of Z has been both formal and ethnographic. On the one hand, an austere “form first” principle—attending to the polymodal details of signers' actions within the wider contexts of their interactions—avoids premature generalization and typological temptations and minimizes assumptions about what to expect or where to look in creators' linguistic inventions. On the other hand, without the expert eyes, ears, and bodies of the signers (and their distinct techniques for training or guiding those of the rest of us) there are no *a priori* hints about how to discover meaning or even where to look for it in the specific circumstances of social life. In particular, as the transcripts included here suggest, gaze among Z signers seems to be preeminent in everything from reference (e.g., indexing referents) to turn transitions, even as such functions are also regimented by conventional manual signs and other bodily actions.

Let me end with a (highly speculative) tabular summary (Table 1) of Vic’s longitudinal progression into the Z signs under consideration.¹⁵ It is arranged chronologically with a rough set of candidate “stages” his performance suggests, to suggest how he moved from conceptually simple and perhaps even iconically motivated signaling devices and cognitive requisites, to increasing systematicity in the formal elements of interactive communication. There is a natural sort of logic to such development, given Vic’s growing perceptual, cognitive, and interactive capacities, and—especially in the earliest stages—a gradually increasing dependence on the socialization into local communicative environment.

Table 1: Hypothesized stages in Vic’s acquisition of HEY1 and HEY2

Putative “Stages”	Months	Figures	Developing stages
I. Pointing, gaze, touch without signs	11	Figure 6	Vic is aware of the gaze of others (and it may prompt him to try to initiate interaction). He also uses pointing as a proto directive, and expects reaction. But he has no “control” over his expressive use of either gaze or gesture, and almost no formal mechanisms for achieving attention (except, perhaps, reaching/pointing). His mother already communicates a kind of metapragmatic “suppression” of some of his actions.
Ia. Limited gestural attention management.	12	Figures 7-11	Explicit devices for achieving attention: (mutual) gaze, touch, and voice, synchronized with gaze. In Figure 8, Vic adjusts to and acknowledges mutual attention, coordinating gaze, with head movements and touch, as well as more pointing (Figure 9). There is also the first hint of developing gestural morphology: an index finger point leads to a tiny proto-wave (Figure 10, Figure 11), although Vic’s attention remains focused on referents and only laterally moves to potential interlocutors. Nonetheless, Vic seems to start to recruit manual signals for managing attention.
II. Conventional signs, directives	16	Figure 12	Vic has acquired a robust set of conventional Z signs, including COME, which stands as a silent Z directive, appropriately addressed via prior gaze but with no attentional device other than the sign itself.
IIb. HEY as unmoored request for attention	17	Figure 14	Vic appears to try to use a sign similar to COME to request a (hearing) interlocutor’s attention. It is not yet clear whether he intends the sign to be a preamble to some specific follow-up action. He still resorts to tactile and indexical gestures to request attention from deaf interlocutors (Figure 15).
IIc. HEY in combination with other modalities	18	Figure 16	In interaction with the deaf adults, Vic uses a variety of manual devices to try to control attention, including versions of what looks clearly like HEY, sometimes coalescing with indexical pointing directives, and beginning to coordinate his gaze with candidate interlocutors.
	22	Figure 17	Vic was even more actively trying to manage interlocutors’ attention, but perhaps because he lacked status to do so by a HEY sign, he resorted to other means to coerce others’ gaze—grabbing people’s faces or clothes (Figure 18).
IId. Interactive and sequential links between HEY and following utterance	24	Figure 20	Vic’s turn to his mother suggests growing metalinguistic connection between the HEY1 sign and an immediately following utterance.
	25-27	Figure 21	Vic’s contributions to conversational exchanges begin to be closely coordinated with his achieving prior visual attention from the target of

¹⁵ I that Austin German for suggesting that a summary table be included, although I doubt he will thank me for the lengthiness of the result.

			HEY1 signs. This is plainly true in conversation with his uncles, who often disattend his attempts to sign, but also true on occasion with his normally doting mother (Figure 22).
III. HEY2 as probable separable sign	27	Figure 23, Figure 24	Although filmed evidence often fails to demonstrate that Vic has already secured his interlocutor's gaze, aspects of the conversational structure begins to suggest that Vic has begun to distinguish HEY2 by using the latter to highlight and introduce a specific signed utterance.
IIIa. Articulatory and functional emancipation of HEY2 from attention request.	28	Figure 25	By using one hand to sign what appears to be HEY2 and the other hand almost simultaneously to sign a substantive utterance, Vic demonstrates close synchronic link between the pragmatic sign HEY2 and the forthcoming conversational turn to which it is linked.
	34	Figure 26	Vic makes no request for attention, but when he gets it he issues HEY2 before making a substantive turn.
	35	Figure 27	Vic is engaged in intensive interaction with a single interlocutor, but when he achieves mutual gaze he uses HEY2 to start to introduce a new topic.
IIIb. Adult-like use of HEY2	41++	Figure 28, Figure 29	Vic's use of HEY2 seems to be fully adult, introducing a new turn or an explicitly topic change.

Research on Z has been predicated on a leading assumption: that both manual and non-manual visible elements from the surrounding Tzotzil speech and gesture community are potentially available to the novel emerging sign-language. The Z forms whose development in Vic's signing have been traced here are, indeed, partly shared across his spoken linguistic repertoires as well. A special virtue of studying bimodal acquisition, in trying to tease out processes underlying emerging language, is the special insight it gives in distinguishing clearly between spoken and signed grammars, their cognitive representations, and their distribution across linguistic performances. This article has considered how Vic acquires a form—HEY2—that is ONLY part of Z and not part of the shared bimodal repertoire of Z and Tzotzil. Truly emergent grammar can be directly observed in the early socialization of a bimodal child like Vic, as he allocates linguistic resources and separate out elements that may be functionally similar (whether referentially or pragmatically) but operate in parallel modalities.

More generally, this single longitudinal case, arrayed against speculative claims about diachronic changes in even a first-generation emerging language, illustrates how principles of formal simplicity, syntactic or pragmatic specialization, and semantic "bleaching" in the development of emerging grammar have parallels in the progression from simpler (perhaps more iconic) to more complex or linguistically integrated elements or mechanisms in a child's language socialization. Vic's gradual acquisition of HEY2 seems to follow, both in chronology and in growing linguistic sophistication, the hypothetical pathways that resulted in the inventory of adult forms. That inventory, then, was not acquired whole cloth by the child signer, simply because the adults made it available to him. Instead, it accrued to his repertoire in a logical sequence motivated by phases in his growing competence in the use of the new sign language, as both a communicative and interactive medium.

Acquiring pragmatic signs like HEY in Z also demonstrates how the grammar of a language, including an emergent sign language like Z, itself is built upon the practices of a language community—even one as miniscule as that of the Z family to which Vic belongs. The basic parameters of social life that set the conditions for communication also raise a more general question about what kinds of "sharing" there are in linguistic communities and the very nature of what are called "shared sign languages." This always involves mini-politics (Haviland 2013b, 2016): Who's the boss? Who decides? Who leads changes or

innovations? As new forms of grammar emerge, some are adopted and others lost or suppressed. Studies of longitudinal language socialization may help understand the mechanisms by which language “emergence” at one point may, perhaps all too frequently, also lead to loss: the ultimate language “submergence.”

References Cited

- Aronoff, Mark, Irit Meir, Carol A. Padden, and Wendy Sandler. 2008. The roots of linguistic organization in a new language. *Interaction Studies* 9(1). 133-153.
- Brentari, Diane, and Susan Goldin-Meadow. 2017. Language emergence. *Annual review of linguistics* 3. 363-388.
- Clark, Herbert H. 1966. *Using language*. Cambridge: Cambridge University Press.
- Coppola, Marie. 2020a. Gestures, homesign, sign language: Cultural and social factors driving lexical conventionalization". In Olivier Le Guen, Josefina Safar and Marie Coppola (eds.), *Emerging Sign Languages of the Americas*. Berlin, Boston: De Gruyter Mouton, 349-390.
<https://doi.org/10.1515/9781501504884-008>
- Coppola, Marie. 2020b. Sociolinguistic sketch: Nicaraguan Sign Language and homesign systems in Nicaragua. In Olivier Le Guen, Josefina Safar & Marie Coppola (eds.), *Emerging Sign Languages of the Americas*. Berlin, Boston: De Gruyter Mouton, 438-450.
- De Vos, Connie. 2012a. *Sign-spatiality in Kata Kolok*. Ph.D. dissertation. Nijmegen: Radboud University.
- De Vos, Connie. 2012b. The Kata Kolok perfective in child signing: Coordination of manual and non-manual components." In Zeshan, Ulrike, and Connie De Vos. *Sign languages in village communities: Anthropological and linguistic insights*, 127-152. Berlin & New York: Mouton de Gruyter.
- Duranti, Alessandro, Elinor Ochs, and Bambi Schieffelin (eds.). 2012. *The Handbook of Language Socialization*. Malden, MA: Wiley Blackwell.
- Feldman, Heidi, Susan Goldin-Meadow and L. Gleitman. 1978. Beyond Herodotus: the creation of language by linguistically deprived deaf children. In Andrew Lock (ed.), *Action, symbol, and gesture: the emergence of language*, 351-414. New York: Academic Press.
- Flaherty, Molly, Dea Hunsicker, and Susan Goldin-Meadow. 2021. "Structural biases that children bring to language learning: A cross-cultural look at gestural input to homesign." *Cognition* 211: 104608.
- Frishberg, Nancy. 1975. Arbitrariness and iconicity: historical change in American Sign Language. *Language* 51(3). 696-719.
- Fusellier-Souza, Ivani. 2004. *Sémiogénèse des langues des signes, Étude de langues des signes émergentes (LS ÉMG) pratiquées par des sourds brésiliens*. Doctoral thesis, Sciences du Langage, Université Paris 8.
- Fusellier-Souza, Ivani. 2006. Emergence and development of sign languages: from a semiogenetic point of view. *Sign Language Studies* 7(1). 30-56.
- German, Austin. 2018. *Constructing space in Zinacantec family homesign*. BA Honors thesis, Dept. of Linguistics, University of California San Diego.
- Goldin-Meadow, Susan. 2003. *The resilience of language : what gesture creation in deaf children can tell us about how all children learn language*. New York: Psychology Press.
- Goldin-Meadow, Susan. 2012. Homesign: gesture to language. In Roland Pfau, Marcus Steinbach, and B. Woll (eds.), *Sign language. An international handbook*, 601-625. Berlin: Mouton de Gruyter.
- Goldin-Meadow, Susan, and Dianne Brentari. 2017. Gesture, sign, and language: The coming of age of sign language and gesture studies. *Behavioral and Brain Sciences*, 40, E46. doi:10.1017/S0140525X15001247
- Goldin-Meadow, Susan, Cynthia Butcher, Carolyn Mylander, and Mark Dodge. 1994. Nouns and Verbs in A Self-Styled Gesture System: What' s in A Name? *Cognitive Psychology* 27(3). 259-319.
- Goldin-Meadow, Susan, and Heidi Feldman. 1977. The development of language-like communication without a language model. *Science* 197(4301), 401-403.
- Guen, Olivier Le. 2012. An exploration in the domain of time: from Yucatec Maya time gestures to Yucatec Maya Sign Language time signs. In Ulrike Zeshan and Connie de Vos (eds.), *Endangered sign languages in village communities: anthropological and linguistic insights*, 209-250. Berlin: Mouton de Gruyter and Ishara Press.
- Guen, Olivier Le, Marie Coppola, and Josefina Safar. 2020. Introduction: How Emerging Sign Languages in the Americas contributes to the study of linguistics and (emerging) sign languages. In Olivier Le Guen, Josefina Safar, Marie Coppola (eds.), *Emerging Sign Languages of the Americas*, 1-32. Berlin: De Gruyter Mouton, 2020.
- Haviland, J. B. 2011. Nouns, verbs, and constituents in an emerging 'Tzotzil' sign language. In Chung, Sandra, William Ladusaw, James McCloskey, Rodrigo Gutiérrez-Bravo, Line Mikkelsen, and Eric Potsdam (eds.), *Representing Language: Essays in Honor of Judith Aissen*, 151-171. Santa Cruz, CA.: California Digital Library eScholarship Repository, Linguistic Research Center, University of California, Santa Cruz.

- Haviland, J. B. 2013a. Xi to vi: Over that way, look! (Meta)spatial representation in an emerging (Mayan?) sign language. In Peter Auer, Martin Hilpert, Anja Stukenbrock and Benedikt Szmerecsanyi (eds.), *Space in Language and Linguistics*, 334-400. Berlin/Boston: Walter De Gruyter.
- Haviland, John B. 2013b. (Mis)understanding and obtuseness: ethnolinguistic borders in a miniscule speech community. *Journal of Linguistic Anthropology* 23(3).
- Haviland, John B. 2013c. The emerging grammar of nouns in a first generation sign language: Specification, iconicity, and syntax. *Gesture* 13(3): 309-353.
- Haviland, John B. 2014. Different strokes: gesture phrases and gesture units in a family homesign from Chiapas, Mexico. In Mandana Seyfeddinipur and Marianne Gulberg (eds.), *From Gesture in Conversation to Visible Action as Utterance*, 245-288. Berlin: Mouton de Gruyter.
- Haviland, John B. 2015. Hey! *Topics in Cognitive Science* 7. 124–149. DOI: 10.1111/tops.12126
- Haviland, John B. 2016. But you said ‘four sheep’!.: (sign) language, ideology, and self (esteem) across generations in a Mayan family. *Language and Communication* 46. 62-94.
<http://dx.doi.org/10.1016/j.langcom.2015.10.006>
- Haviland, John B. 2019. Grammaticalizing the face (as well as the hands) in a first generation sign language: the case of Zinacantec Family Homesign. In Michela Cennamo and Claudia Fabrizio (eds.), *Papers from the ICHL22*, 521-562. Amsterdam: John Benjamins.
- Haviland, John B. 2020a. Signs, interaction, coordination, and gaze: interactive foundations of Z—an emerging (sign) language from Chiapas, Mexico. In Olivier LeGuen, Josefina Safar, and Marie Coppola (eds.), *Emerging Sign Languages of the Americas*, 35-96. DeGruyter, Ishara Press.
- Haviland, John B. 2020b. Zinacantec Family homesign (or Z). In Olivier LeGuen, Josefina Safar, and Marie Coppola (eds.), *Emerging Sign Languages of the Americas*, 293-400. DeGruyter, Ishara Press.
- Heine, Berndt. 1997. *Possession: cognitive sources, forces, and grammaticalization*. Cambridge: Cambridge University Press.
- Holler, Judith, Kobin H. Kendrick, Marisa Casillas, and Stephen C. Levinson. 2006. *Turn-taking in human communicative interaction*. Frontiers Media SA.
- Hopper, Paul .J. and Elizabeth C. Traugott. 1993. *Grammaticalization*. Cambridge: Cambridge University Press.
- Hunsicker Dea, and Susan Goldin-Meadow. 2012. Hierarchical structure in a self-created communication system: building nominal constituents in homesign. *Language* 88. 732–763
- Hunsicker Dea, and Susan Goldin-Meadow. 2013. How handshape type can distinguish between nouns and verbs in homesign. *Gesture* 13. 354–376
- Janzen, Terry 2012. Lexicalization and grammaticalization. In Roland Pfau, Markus Steinbach, and Bencie Woll (eds.), *Sign language: An international handbook*, 816–841. Berlin: Mouton de Gruyter.
- Kendon, Adam. 2004. *Gesture, Visible Action as Utterance*. Cambridge: Cambridge University Press.
- Martinod, Emmanuella, Brigitte Garcia, and Ivani Fusellier. 2020. A typological perspective on the meaningful handshapes in the emerging sign languages on Marajó Island (Brazil). In Olivier LeGuen, Josefina Safar, and Marie Coppola (eds.), *Emerging Sign Languages of the Americas*, 203-250. Berlin: De Gruyter Mouton.
- Levinson, Stephen C. 2006. On the human interaction engine. In Enfield, Nicholas J., and Stephen C. Levinson, eds., *Roots of human sociality*, 39-69. New York: Routledge.
- Lutzenberger, Pfau, and de Vos. [This volume] ***full citation needed
- Mondada, Lorenza. 2018. Multiple temporalities of language and body in interaction: Challenges for transcribing multimodality. *Research on Language and Social Interaction* 51(1). 85-106.
- Ochs, Elinor, and Bambi Schieffelin. 1984. Language acquisition and socialization: Three developmental stories. in R Shweder and R. LeVine (eds.), *Culture Theory: Mind, Self, and Emotion*. Cambridge: Cambridge University Press.
- Ochs, Elinor, and Bambi Schieffelin. 2012. The theory of language socialization. In Duranti, Alessandro, Elinor Ochs, and Bambi B. Schieffelin, eds. *The Handbook of language socialization*, 1-21. John Wiley & Sons.
- Perniss, Pamela and Ulrike Zeshan. 2008. Possessive and existential constructions in Kata Kolok (Bali). In Ulrike Zeshan and Pamela Perniss (eds.), *Possessive and existential constructions in sign languages*, 125-150. Nijmegen: Ishara Press.
- Petitto, Laura Ann, Marina Katerelos, Bronna G. Levy, Kristine Gauna, Karine Tétreault, and Vittoria Ferraro. 2001. Bilingual signed and spoken language acquisition from birth: Implications for the mechanisms underlying early bilingual language acquisition. *Journal of child language* 28(2). 453-496.

- Pfau, Roland. 2015. The grammaticalization of headshakes: From head movement to negative head. In Andrew D. M. Smith, Graeme Trousdale, and Richard WALTEREIT (eds.), *New Directions in Grammaticalization Research*, 9–50. Amsterdam: John Benjamins.
- Pfau, Roland. and Steinbach, Marcus. 2006. Modality-independent and modality-specific aspects of grammaticalization in sign Languages. *Linguistics in Potsdam* 24:5-98.
- Pfau, Roland. and Steinbach, Marcus. 2011. Grammaticalization in sign languages. Narrog, Heiko, and Bernd Heine (eds.), *The Oxford handbook of grammaticalization*, 683-689. Oxford: Oxford University Press.
- Sacks, Harvey 1987 [1973]. On the Preferences for Agreement and Contiguity in Sequences in Conversation. In Graham Button. and John R. E. Lee (Eds.), *Talk and Social Organization*, 54-69. Clevedon, England: Multilingual Matters.
- Sacks, Harvey, Emmanuel Schegloff, and Gail Jefferson. 1974. A simplest systematics for the organization of turn-taking for conversation. *Language* 50. 696-735.
- Sandler, Wendy, Irit Meir, Carol Padden, and Mark Aronoff. 2005. The emergence of a grammar: Systematic structure in a new language. *Proceedings of the National Academy of Sciences*, 102(7). 2661-2665.
- Schegloff, Emmanuel A. 1970. Sequencing in conversational openings. *American Anthropologist* 70. 1075-1095.
- Schegloff, Emmanuel A. 1998. Body torque. *Social Research*, 535-596.
- Yngve, Victor H. 1970. On getting a word in edgewise. In M. A. Campbell (ed.), Chicago Linguistics Society, 6th Meeting, 1970, 1970, 567-578.