

Article

How and When to Sign “Hey!” Socialization into Grammar in Z, a 1st Generation Family Sign Language from Mexico

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Abstract: “Z” is a young sign language developing in a family 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 the pragmatic exigencies of communication is a primordial example of emergent grammar. The chapter presents the 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 communicative modalities such 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 such as HEY in Z demonstrates how the grammar of a language, including an emergent sign language, 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



Citation: Haviland, John B. 2022. How and When to Sign “Hey!” Socialization into Grammar in Z, a 1st Generation Family Sign Language from Mexico. *Languages* 7: 80. <https://doi.org/10.3390/languages7020080>

Academic Editors: Mark Aronoff, Wendy Sandler and Carol Padden

Received: 14 October 2021

Accepted: 14 March 2022

Published: 29 March 2022

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1. 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 (Haviland 2020b), the fourth daughter and first deaf child of a hearing couple living in a small *paraje* ‘hamlet’ of then about two thousand people and 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 (Fusellier-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 signing child of a deaf Z adult. Figure 1 shows a simplified genealogy of these original members of the miniature Z signing community.¹

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; Hou and de Vos 2021). Extensive studies of fully-fledged sign languages have given us what Brentari and Goldin-Meadow (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” (Lutzenberger et al. 2022, this volume), relying to an extent only possible for a family homesign on the massive, shared life experiences—the highly detailed “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 Z signers are well aware that others in the social surroundings can hear as well as see, taste, smell, and feel, and they freely build into Z utterances the multiple semiotic modalities such senses might afford (Hodge et al. 2019). 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 conventional sign language (albeit a miniscule one).

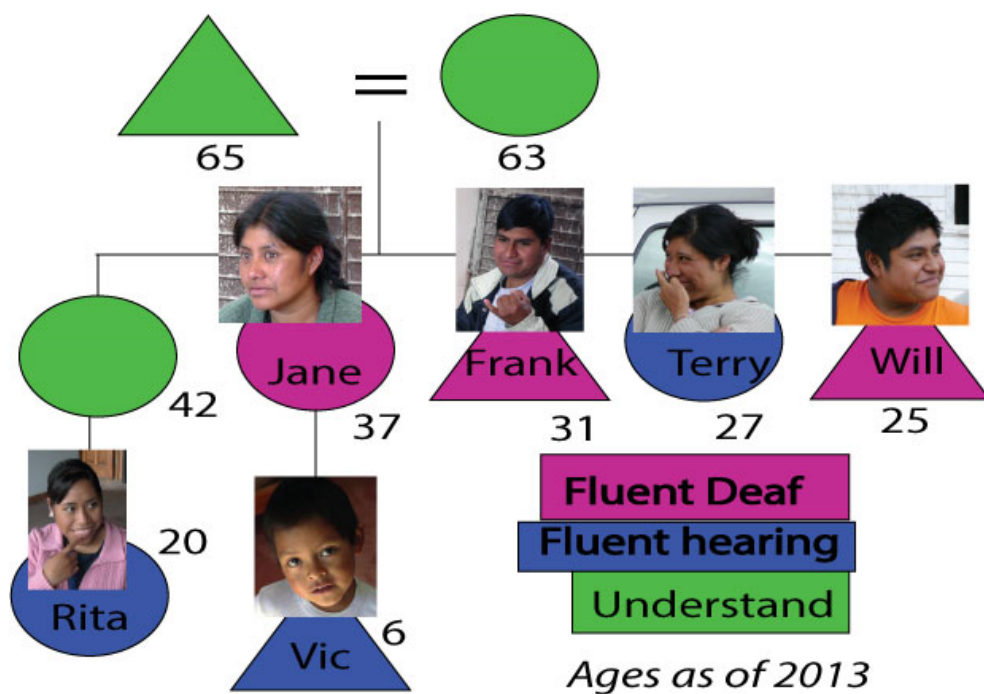


Figure 1. Genealogy of Z family (simplified).

The 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. The research has focused on the conventionalized lexical signs and syntax, on the interactional structure, on the use of space, and on the sociolinguistics of this tiny speech/sign community (Haviland 2011, 2013a, 2013b, 2013c, 2014, 2020a, 2020b). 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, the 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. 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 the 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 such as Z, we can imagine an early stage in which Jane, interacting 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 and, 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 such as 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) provides evidence for a single example of such emerging complexity in Z: a classic “grammaticalization chain” that links several different, but formally interrelated, linguistic forms to a cline of linguistic functions which, in this case, 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 and multiplied linguistic elements (which fissioned formally and functionally) and also 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 of form and generalization of function.⁴

As Goldin-Meadow and Brentari (2017, p. 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*, as 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 the 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 pre-structured 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 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 (and, indeed, multilingual) 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, as are the still younger recruits to its use. 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 the interlocutors’ attention, as 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 co-expressivity 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, as well as criticism and praise, among others. These visible expressions can also “spread” (Lutzenberger et al. 2022, 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 and 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 the interlocutors are doing. Emphasizing complexity within a linguistic system may displace attention from the complexity of linguistic interaction itself—starting and stopping turns, the choreogra-

phy 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 the participants. The phenomena of interest in what follows are mechanisms within the sign language itself, apparently designed to help regiment conversational interchanges.

3. 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. A Tzotzil speaking man issues a 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 *la?*—the suppletive 2nd person imperative for *tal* ‘come’.



Figure 3. (a) Terry (hearing) and (b) Jane (deaf), summoning 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. Indeed, Mesh and Hou (2018) report comparable phenomena in the communicative repertoires of deaf people and their families among Chatino (Otomanguean) speakers. 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 av-aʔi*, literally "let us speak so that you will understand", 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 and moving in a smaller trajectory. Usually this manually signed HEY1 (by contrast with other more direct requests for attention, such as 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 such as "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 a 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 a mutual gaze (Figure 5).



Figure 4. Terry signs HEY2, already having her interlocutors' attention, and looking away from them at a computer screen.



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

4. 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 other communicative modalities, such 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 [1973] 1987) 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 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 h of video focused on Vic’s interactions during the first half dozen years of his life.

4.1. *The Corpus and the Annotations*

For the “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 the documenting of informal exchanges between the signers during breaks in the ‘work’ the adult signers were doing with the elicitation materials. Other recordings, usually with only a single handheld video camera, focused on the 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 the work with the family and the 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

Methods for transcribing interacting bodies range from nil or 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—the still frames can stand by themselves. When the ballistics of movement or the precise timing of synchronous events in discrete articulators are potentially 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 such as 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 or 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, sometimes abbreviated to fit better on the timeline. Table 1 summarizes these abbreviations and conventions for the detailed transcripts. Other abbreviations in individual figures are annotated by specific footnotes and captions.

Table 1. Key to transcriptions/partitures.

Frame	Letters show the position of each labeled illustrative still frame with respect to the full timeline		
Time	Shows subdivided timeline in the form | . . . . . |	Vertical bar (|) marks each second	Individual dots (.) subdivide each second into equal subunits
Label for each tier	XY	X is a participant initial	Y is a type: Gaze, Gest(ure), Sign, Act(ion)
Ballistics	. . . . .	Preparatory excursion	
	!	Stroke of a gesture	
	—	Hold	
	,,,	Retraction	
Abbreviations in glosses	IX:y z	Indexical sign, with y as articulator	
		z = putative referent	
	RH	Right hand	
	LF, RF	Left, or right (index) finger	

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. Jane brought in the infant, swaddled on her back. A slice of the ensuing interaction illustrates what Vic was learning at the age of 11 months, when he barely vocalized at all.⁹ Vic appeared to point and gaze at Will, who was finishing his meal. Let us assume, for the sake of argument, that Vic’s pointing gesture was an intentional communicative act. The detailed sequential development of the exchange is important (Figure 6).

Whatever one imagines Vic might have intended by his pointing gesture (looking at the film afterwards, the family thought that he wanted some of his uncle’s soft drink), Jane’s reaction was clearly to try to control his actions. If one interprets Vic’s pointing gesture as an utterance, she was “shushing” him. The scene suggests, first, that Vic had understood that he needed to achieve attention before trying to communicate gesturally and, second, that his mother was already metapragmatically trying to regiment or suppress what could be interpreted as his communicative intentions. Vic was at least interpreted, after the fact, to be trying to communicate gesturally, although without formally attempting to achieve the attentional requisites for such communication.

perhaps to mimic his uncle’s own admonition—his careful visual choreography of attention seemed already well-developed.



Frame	|	a	b	c	d
Vgaze	|	..T-----			
Tgaze	|		.... V-----,,		
Vhead	|			nods	
THead	|				nods
Time	|	.....|	.....|	.....|	.....|

Figure 8. Vic at 12 mos. waited for Terry to engage with his pointing gesture. When Vic attempted, apparently, to mimic a pointing gesture one of the adults made, (a) he articulated it with a well-formed pointing hand, (b,c) again waited to engage Terry’s attention, then (d) nodded slightly at her (and received a nod in return) when she turned to meet his gaze.¹⁰



Frame	|	a	b	c
FAct	|	turns, pats_V's_face		
Vgaze	|	..Screen?----,,	...T?- ..F-----,,	
VGest	|		IX:RH-comp ..X:RH-T-----,,	
Time	|	.....|	.....|	.....|

Figure 9. Vic at 12 mos. interacted with his uncle Frank. (a) Frank cupped the baby’s face and jokingly told him not to interfere with the work. (Frank signed WAIT to Vic, then pointed at the two signers watching the video and signed SHUSH.) In response, (b) Vic pointed at the two signers actively watching a video on the laptop, then (c) turned his gaze explicitly to Frank as if to direct his uncle’s attention to where he was pointing.

Consider, additionally, the formal morphology of Vic’s movements. He had already mastered a well-formed “pointing hand” of the style used by both Z signers and Tzotzil speakers.¹¹ Even at this early stage, Vic’s performances also 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).

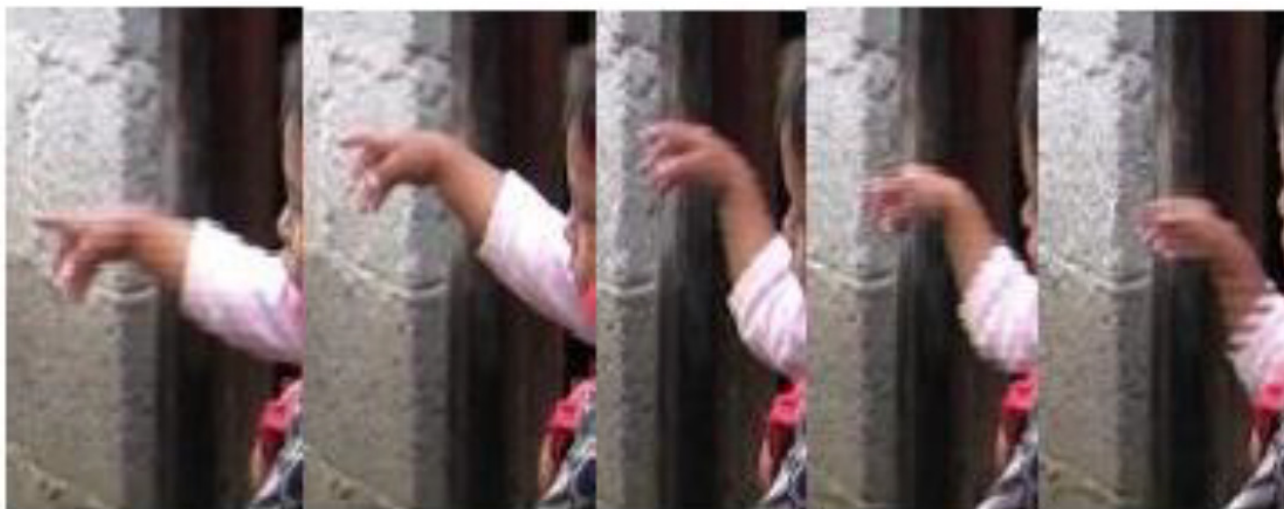


Figure 10. Vic's extended index figure seem to give way to a little wave.

Similarly, Figure 11 shows a pointing/waving motion that appears in a different interaction from the same day, where Victor apparently pointed and waved the hand nine times over the course of 5 s, while also looking around. Such a movement was perhaps a version, not yet properly well-formed or 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, his mother 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 and then make an extended wave.

5. 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 not 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 (see [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 the 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 caught him

on video using the sign, when he was 16 months old, he was interacting with his hearing aunt Terry at a stage when he did not yet speak to her in Tzotzil (Figure 12).

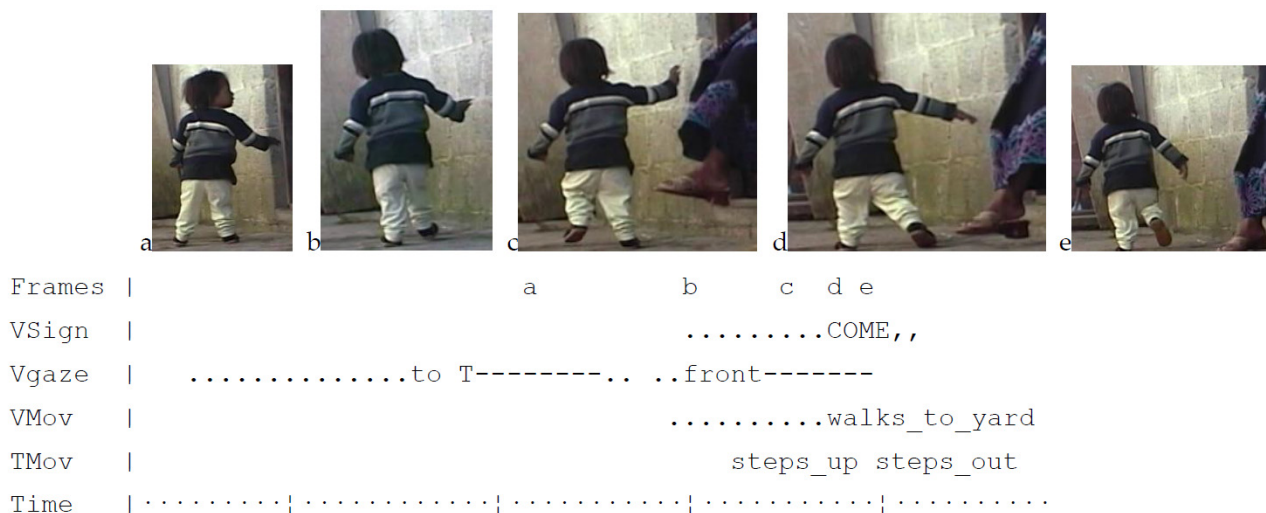


Figure 12. Vic at 16 mos. offered a somewhat diffident and rapid but clear “COME” command. Standing outside the house where Terry was, (a) Vic appeared to catch her eye. (b) He then moved off toward the nearby patio, (c,d) gesturing—without looking back—for her to follow him (e) as she herself stepped out the door.

Of course, because the Z “COME” sign and the similar Tzotzil gestural holophrase are part of both the Z and the 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 moss).

6. 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 the elements of this gestalt piecemeal, without recognizing that the initial HEY1, for Z signers, makes relevant the whole sequence (Schegloff 1970). For example, at 17 months, Vic, gazing out the window, turned to look (suddenly and intently) at his intended interlocutor (Figure 14). 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.¹²



Figure 14. At 17 mos. Vic issued an empty summons. (a,b) Vic turns to look at his intended interlocutor, (c) immediately completing a sharp downward sweep of his arm very much like the COME gesture, and then (d–f) repeating it.

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, which contains 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. (a) Touching, pulling, and (b) grabbing for attention.

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 (Figure 18).



Figure 18. Vic, 22 mos., signed and grabbed to ask his uncle to sit. (a) Vic tried first a HEY1 sign (extended palm and multiple downward flips with his fingers) to Frank, before (b) he resorted to pulling on Frank's trousers and (c) asking him to launch a wooden top onto the ground.

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 (Figure 19).

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 items pictured 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 (Figure 20). 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.

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 (Figure 21).

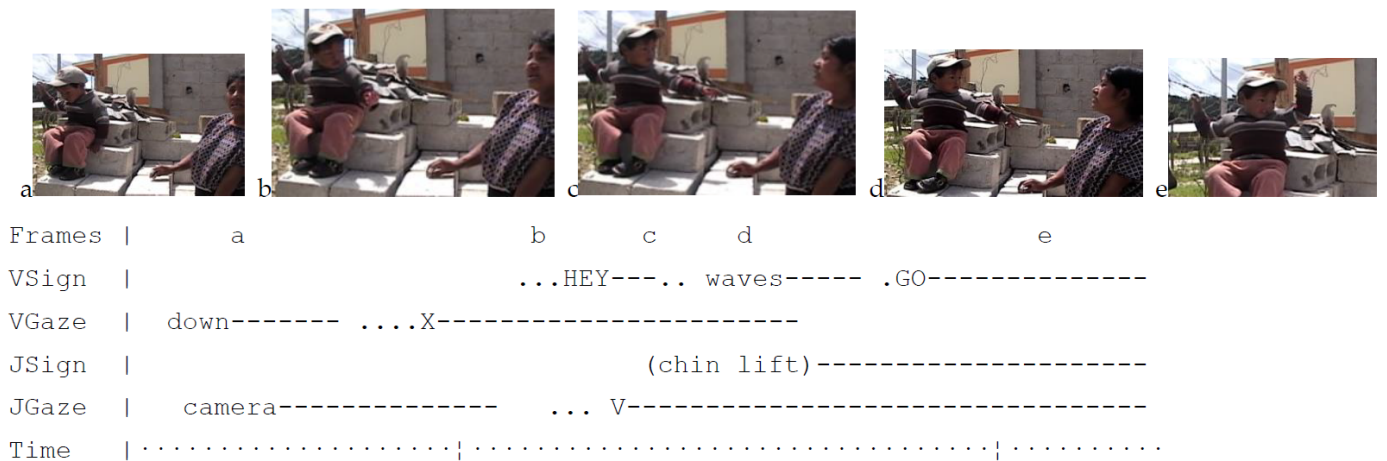


Figure 19. Victor at 23 months started to ask his mom if they could go to hear a band. As the band marched off, (a) Vic sat on a pile of cinderblocks holding his right hand on a clothesline. He then (b) turned to his mother, who was looking elsewhere, and raised his left hand (c) to make a quick HEY1 gesture, with (d) two tiny final downward flips of the hand which attracted Jane’s gaze. Jane had raised her chin in an interrogative head tilt to acknowledge that she was paying attention. Vic then (e) began a substantive turn, signing “Let’s go”, and going on to tell her that he wanted to follow the band to continue to listen to it.

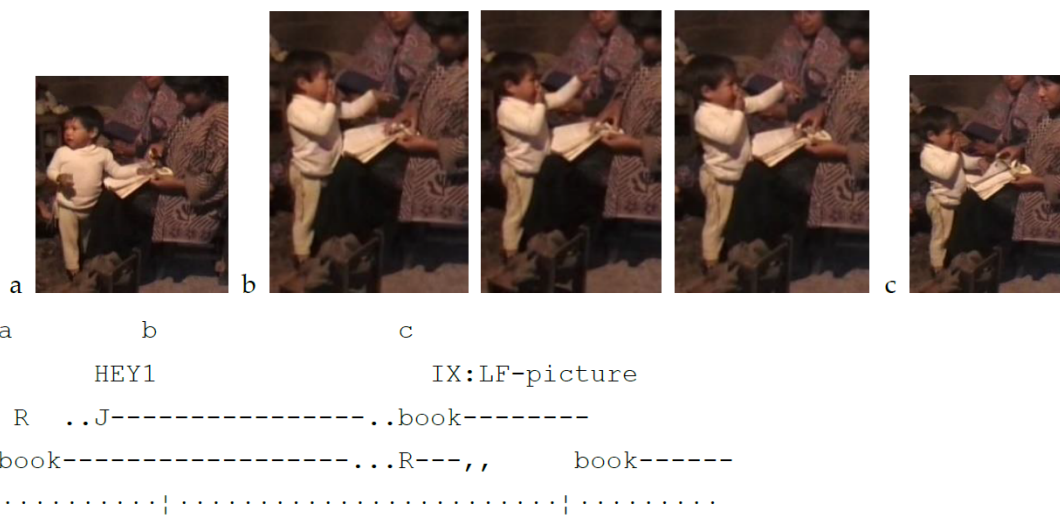


Figure 20. Vic at 24 mos. was told “ask your mom what it’s called”. (a) Vic looked away from his cousin as she spoke to him, turned to his mother, who was looking down at the book, raised his left hand so that it passed through her line of sight, and (b) did a quick HEY1 with downward flip of the fingers, before (c) touching the chosen picture on the page.

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 respond to HEY1 requests from one another (Haviland 2013c).

In fact, in this period of his development, Vic’s interactions illustrate a central sociopolitical feature of linguistic interaction, namely that formal means for initiating or managing communicative exchanges may be conventionalized in a language community—even one so young and so tiny as that of Z—but that their effectiveness relies less on linguistic convention than on power. Vic has clearly learned, by around the time he is two, *how* to request an interlocutor’s attention in Z, but he still must rely on the interlocutor’s uptake (and tailor his request to his candidate recipient) before he can usefully launch a turn. He is

also clearly aware by this age which among his interlocutors hear, which do not, and who can use what linguistic modalities. Consider the sequence illustrated in Figure 22, with Vic, at 27 months, strapped on his mother’s back preparing to go out on an excursion with the other women of the household. Vic was anxious not to be left behind, and he tried multiple times to hurry Jane along (Figure 22).

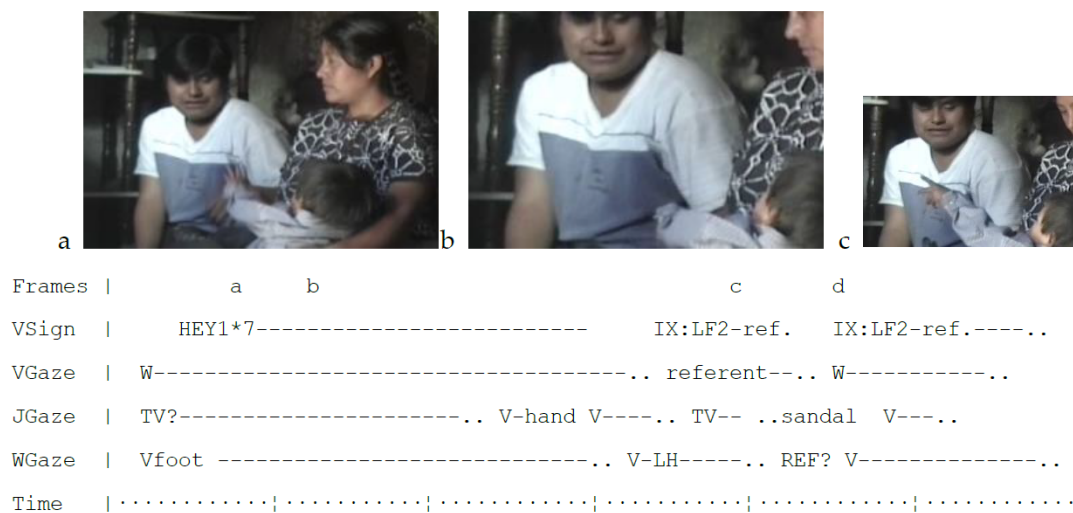


Figure 21. As Will played with his foot, Vic, at 25 mos., tried for 4 s to get his attention. (a) Vic began to make the HEY1 sign at Will repeatedly. It took four full seconds for Will to respond to his nephew’s request for attention, during which time Vic continued to wave his hand making the HEY1 sign. It is hard to discern from the video stills, but 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 (b) he attended first to Vic’s waving hand and (c) then looked at Vic’s face, realizing that the child wanted his attention. It was only at that point that (d) Vic began to form a pointing hand in the direction of the door—what he had apparently wanted to point out from the start. Vic’s reference to the door in turn prompted both Will and Jane to glance in that direction.

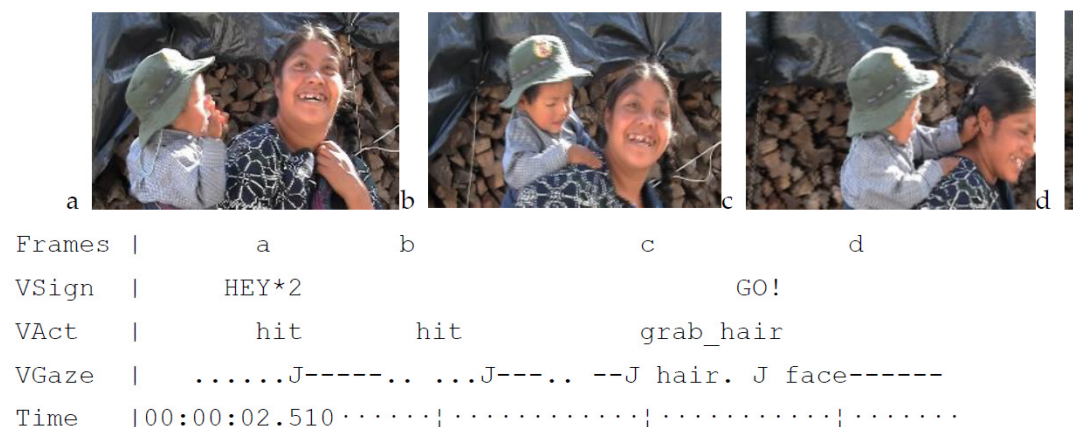


Figure 22. Vic at 27 mos. was as a bimodal interactive tyrant. First, (a) Vic tried a signed HEY1, augmented by forcefully dropping his hand onto his mother’s shoulder. A second time, as she hiked him higher onto her back and strapped him in more tightly, (b) he tried again, putting more effort into both the blow and the hand sign. Finally, (c) he reached forward with his left hand and grabbed his mother’s hair just behind her ear, forcefully pulled her head around where she could see him, and only then (d) signed that he was anxious to go, which was doubtless already obvious to Jane.

7. The Development of HEY2 and Emancipation from Attention

I conclude by tracing Vic’s acquisition of the grammaticalized variant of the HEY sign, labelled HEY2: a morphologically reduced version of the sign, involving a single smaller downward movement of the hand, with a more restricted syntactic distribution (characteristically limited to circumstances in which the signer already has the visual attention of an interlocutor),¹³ 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 (Figure 23).

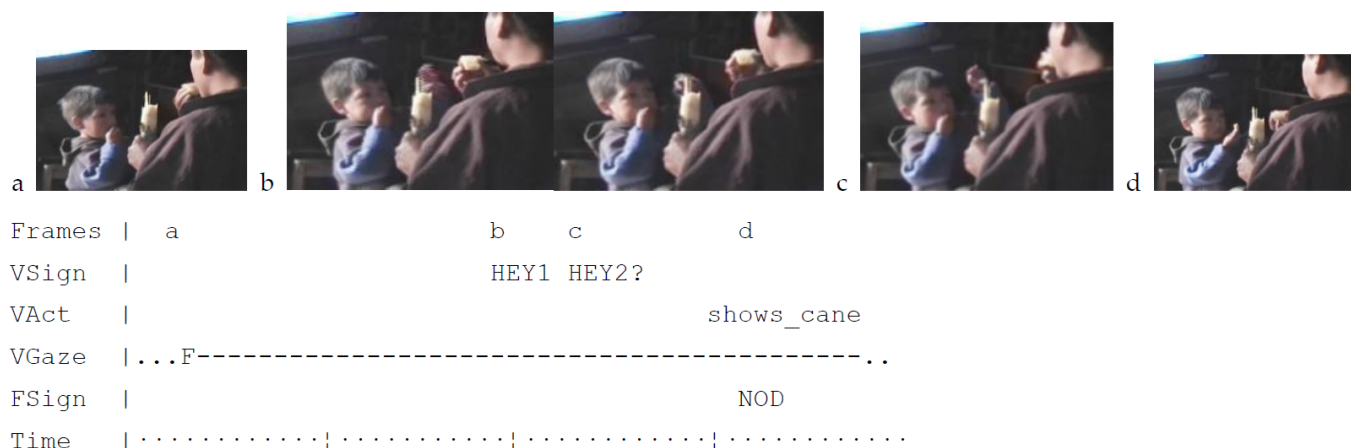


Figure 23. Vic, eating sugarcane with his uncle Frank, asked for more. (a) Vic was watching Frank’s face intently, apparently waiting for his uncle to look up at him. Either because Frank had returned the boy’s gaze or because Vic had (b) summoned his attention with a very quick HEY1 sign, Vic (c) went on to give a second extremely brief downward hand flick, apparently after Frank had already engaged his mutual gaze. The second very attenuated hand flick at Frank seems more like a precursor of HEY2 than a simple repetition of the preceding HEY1. Vic (d) went on to ask for another piece of cane (by holding up the remaining stub of the one he was already finishing), 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.

Similarly ambiguous were several HEY-like signs that Vic used, at about the same age, in a protracted interaction with his mother (Figure 24). As Jane is not visible on screen, it is unknown at which point Vic gained her attention and thus whether the HEY sequences in Figure 24a–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.

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 (Figure 25).

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.¹⁴ 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 a 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.

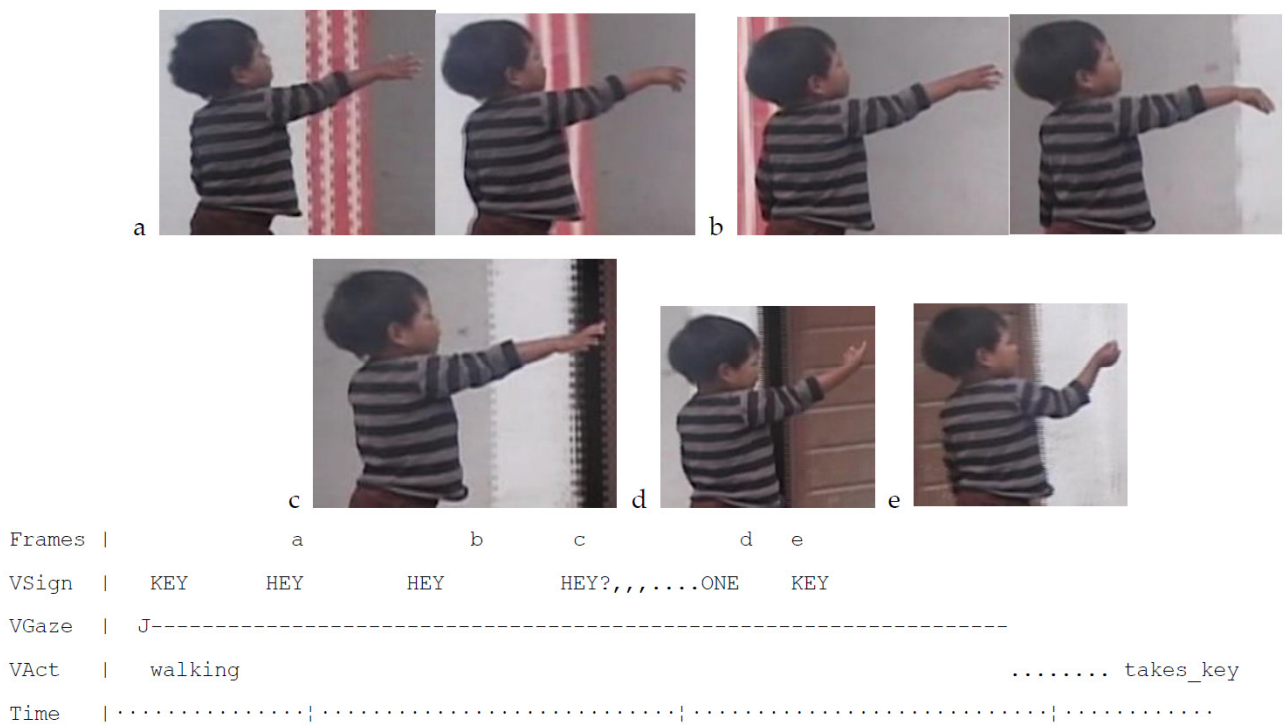


Figure 24. Vic at 27 mos. walked to his mother requesting a key. Vic started toward his mother signing KEY with an outstretched hand. (a,b) He then made two HEY signs 300ms. apart and then apparently (c) started to make a third HEY. Before completing the downward flip of his hand, (d) he formed the sign ONE—often used as a determiner-like element in Z—followed again (e) by the sign KEY. He finally took a proffered key from Jane.

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 (Figure 26). The HEY2 sign at Figure 26c—if that is what it was¹⁵—did not seem designed to request Jane’s attention but rather to orient it to Vic’s next move, which in this case was to point to his uncle Frank (from whom he was about to receive a coin to spend).

At 35 months, Vic was roughhousing with his uncle Will, who would pull him by the arm and try to make him do something. Vic, interacting the entire time, kept pulling away and pretending to try to escape (Figure 27). The HEY2 in Figure 27b can be understood as a feigned prelude to a similarly feigned indexical directive.

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 28). The whole sequence can be glossed, “Hey, I have two of those [shirts]; go get me the other one that is outside.”



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

Figure 25. Vic at 28 mos. signed with both hands to comment on his cousin’s remarks about the rain. (a) Vic turned quickly to look outside, and then (b) he launched a HEY sign at her with his left hand. 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, (c) he had begun signing HEAVY RAIN with his right hand. 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, (d) nodding as he signed for his cousin to tell her, too, that it was raining. 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	e
VSign |		..... IX:RF	HEY2-----	.....IX:RF-(to F?)---,,		
VGaze |		.....J-----	,,,,,	..... right--	.....J-----	
VAct |	walking-----	----- stops in place-----				
JGaze |	left-----	.....V--	.....right-----,,	..down to bed		
Time |	|.....|.....|.....|.....				

Figure 26. At 34 mos. Vic used HEY2 to direct Jane to look at something. At first, (a) Jane was looking away from Vic, but (b) she turned her attention to him as he passed with arm outstretched. The moment she gazed at him, (c) he raised his right arm in a demonstrative HEY2 sign, (d) dropping it immediately into a pointing hand, after which (e) Jane turned to look in the direction of his point.

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. The adults in turn were asked to pick the corresponding image from an array. Even at four, Vic 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.



Figure 27. At 35 mos. Vic played with his uncle Will. From a safe distance, Vic (a) fixed his gaze on his uncle, (b) turned his body toward him, and issued a very rapid single downward right-hand flip, HEY2, immediately segueing into (c) a rapid right-handed point above and behind Will. (d) 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).



Figure 29. Vic at 4 years and 4 months participated in an eliciting session. (a) Vic perused the image as (b) the adults began to wait expectantly for him to describe it. He started, however, by (c) signing HEY2, (d) repeating the sign briefly a second time. Only then did he begin to describe the picture itself by (e) mentioning a KEY depicted in it and (f) pointing at the computer screen.

8. 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 limited set of Z signs which largely deal not with reference and predication (taken as both preeminent and unproblematic in some recent studies of language development [e.g., Carrigan and Coppola 2017]) but rather 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 the 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 the 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 2) of Vic’s longitudinal progression into the Z signs under consideration.¹⁶ It is arranged chronologically, with a rough set of candidate “stages” suggested by his performance to hypothesize about 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 his socialization into the local communicative environment.

Table 2. 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 a reaction. However, 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 (Figures 10 and 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.
I Ib. 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).
I Ic. 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 the candidate interlocutors.
	22	Figure 17	Vic was even more actively trying to manage the interlocutors’ attention, but perhaps because he lacked status to do so by a HEY sign, he resorted to other means to coerce the others’ gaze—grabbing people’s faces or clothes (Figure 18).

Table 2. Cont.

Putative “Stages”	Months	Figures	Developing Stages
IId. Interactive and sequential links between HEY and following utterance	24	Figure 20	Vic’s turn to his mother suggests a 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 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	Figures 23 and 24	Although filmed evidence often fails to demonstrate that Vic has already secured his interlocutor’s gaze, aspects of the conversational structure suggests 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 a close synchronic link between the pragmatic sign HEY2 and the forthcoming conversational turn which it pre-visages.
	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 a mutual gaze, he uses HEY2 to start to introduce a new topic.
IIIb. Adult-like use of HEY2	41+	Figures 28 and 29	Vic’s use of HEY2 seems to be fully adult, introducing a new turn or an explicit topic change.

Research on Z has been predicated on a leading assumption: both the manual and the 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 the processes underlying emerging language, is the 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 such as Vic as he allocates linguistic resources and separates 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 an interactive medium.

Acquiring pragmatic signs such as HEY in Z also demonstrates how the grammar of a language, including an emergent sign language, 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 centrally involves both ethics (Green 2021) and mini-politics (Haviland 2013a, 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.”

Funding: This research was funded by the National Science Foundation under grants BCS-0935407 and BCS-1053089, administered by the Center for Research on Language [CRL] at UCSD.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the University of California, San Diego, Human Research Protections Program, Project #081071 initially approved 7/2/2008, and Project #110862SX, initially approved 4 December 2020.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Interested readers are invited to contact the author to access video clips of illustrative material used in this publication.

Conflicts of Interest: The authors declare no conflict of interest.

Notes

- 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.
- 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 also begun with a cohort of deaf siblings.
- ³ See the sketchy but fascinating early reference to a family homesign in Frishberg (1975, p. 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. 1978; 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., Fusellier-Souza 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).
- ⁴ For grammaticalization in general, see Heine (1997); Hopper and Traugott (1993). Overviews of grammaticalization processes in sign languages are in Pfau and Steinbach (2006, 2011), and 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 (2012b), and, for a village sign language in another Mayan context, Le Guen (2012).
- ⁵ Kata Kolok, a Balinese village sign language, is reported by De Vos (2012a, p. 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 a 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.

- 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-a?i* expression also has a heavily abbreviated and similarly grammaticalized form *va?i* ‘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 *a?i*, sometimes glossed as ‘hear’, is more accurately translated as ‘perceive’, regardless of sensory modality.
- ⁷ This material is based upon work supported by the National Science Foundation under 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
- ⁸ Initial annotation of the corpus was conducted by the author or by Austin German (see 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.
- ⁹ See Haviland (2020a, pp. 47–51) for a more detailed treatment of this small interaction.
- ¹⁰ This short scene is treated in more detail in Haviland (2020a, pp. 51–54).
- ¹¹ A reviewer asks whether Tzotzil-speaking infants in families without deaf members use visual and tactile gestures for getting attention, and not surprisingly, they do, abundantly (see Haviland 2000; De León Pasquel 2005). They also grab or manipulate clothing, hair, and bodyparts—even faces—to attract caregivers.
- ¹² 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. However, it seems clear that Vic can acquire some aspects of a Z sign without mastering the entire gestalt of appropriate usage (see De Vos 2012b).
- ¹³ Because previously secured attention is the criterion for glossing a sign such 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 23.
- ¹⁴ 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, for days at a time rarely interacting 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.
- ¹⁵ 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.
- ¹⁶ I thank Austin German for suggesting that a summary table be included, although I doubt he will thank me for the lengthiness of the result.

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