

Eliciting Associated Motion Constructions in Two Zapotec Languages*

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Abstract: In associated motion constructions, verbal morphology adds a motion event to a main verb. The resulting construction can have complex interactions with verbal meaning that merit careful investigation in a fieldwork setting. In this paper, we describe our experiences as semanticists and language consultants exploring associated motion in two Zapotec languages: Dille' xhunh Laxup (Santiago Laxopa Zapotec) and Dizhsa (San Lucas Quiaviní Zapotec). We present an original storyboard and other materials used in our work, and reflect on our experiences at three different levels: (i) what we have learned about the semantics of associated motion constructions in these particular languages; (ii) what we have learned about eliciting associated motion constructions; and (iii) what we have learned about working together as fieldworkers and language experts.

Keywords: Zapotec, associated motion, deixis, Oto-Manguenan, verbal semantics

1 Introduction

The term “associated motion” refers to a cross-linguistically common type of complex motion construction where a main verb hosts a morpheme that adds a secondary motion event (Guillaume 2016; Koch 1984). In the past two decades, the typology of these constructions has come into focus, most notably in Guillaume and Koch (2021), a recent volume of detailed descriptions and global and areal surveys. Nevertheless, many questions about the fine-grained semantic properties of these constructions remain. We see this as an important opportunity for semantic documentation and theory for several reasons. Because associated motion constructions involve multiple events, they are a rich source of evidence about the syntax and semantics of the verbal projection. Moreover, because these constructions often express motion relative to a particular spatial point-of-view, they provide an opportunity to learn more about spatial representation and context-sensitivity in meaning. In addition, associated motion constructions represent one point on a common grammaticalization path that turns motion verbs into aspect markers, intensifiers, and passives (Bilmes 1995; Carlson 2014; Dragomirescu and Nicolae 2014; Hassler 1999; Hooper 2002; Voisin 2021).

In this paper, we describe our experiences as semanticists and language consultants exploring associated motion constructions in two Zapotec languages, a group of Oto-Manguenan languages

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spoken in Oaxaca, in southern Mexico: Dille' xhunn Laxup (Santiago Laxopa Zapotec), a language from the Northern Zapotec branch spoken in the Sierra Norte mountains in northern Oaxaca, and Dizhsa (San Lucas Quiavini Zapotec), a language from the Central Zapotec branch spoken in Oaxaca's Tlacolula Valley. The examples in (1) show instances of associated motion in each language where a venitive (VEN) prefix marks motion towards a deictic center.¹

- (1) a. B-

de-
PFV- VEN-

 ya'a Xwanha'. [Dille' xhunn Laxup]
 dance Juana
 'Juana came and danced.'
- b. B-

ied-
PFV- VEN-

 gya Maria. [Dizhsa]
 dance Maria
 'Maria came and danced.'

When seen together, the two languages offer an informative sample of the variation possible in the meaning of associated motion. We will show that despite many similarities, the two constructions differ in subtle ways in their event and argument structure. These differences add to a list of points of variation that have been observed in the typology of associated motion constructions. It is our hope that by sharing the methods and materials we found useful in our work, including a storyboard created to investigate these constructions, we can support further detailed research on these constructions in other languages.

The four authors of this paper span a variety of experiences with the languages under discussion. Given this diversity, we also provide some general reflections on the social dimensions of the work we have done together, including reflections on the various goals present among the communities and collaborators, and how we have worked towards reciprocity in our collaborations.

In order to share our experiences with these different aspects of language work, this paper is structured in three broadening circles of reflection. In §2 and §3, we discuss the semantics of associated motion constructions in Dizhsa and Dille' xhunn Laxup and situate them in the larger typology. In §4, we discuss techniques for eliciting associated motion constructions. Finally, in §5, we discuss our respective experiences as linguistic fieldworkers and as language consultants in a variety of contexts.

2 Associated motion in Dille' xhunn Laxup and Dizhsa

In this section we describe the associated motion systems in Dizhsa and Dille' xhunn Laxup, with emphasis on their semantic properties. As a point of entry into the semantics of motion, we also briefly discuss the basic motion verbs of each language. We precede discussion of each language with a short description of its sociolinguistic context.

¹ Abbreviations used in the paper: 1=first person, 2=second person, 3=third person, AGR=agreement, AND=andative, AUTO=autobenefactive, CAUS=causative, CLF=classifier, COMPL=completive, CONT=continuative, DEF=definite, DEM=demonstrative, DIR=directional, ELD=elder, FUT=future, HAB=habitual, HUM=human, IFR=inferential, INAN=inanimate, INC=incompletive, INDF=indefinite, INF=infinitive, IPFV=imperfective, IRR=irrealis, LNK=linker, NEG=negative, PFV=perfective, PL=plural, POSS=possessive, POT=potential, PREP=preposition, PRET=preterite, PROG=progressive, PRS=present, PT=point, Q=question particle, REL=relative, s=argument of intransitive verb, SBJV=subjunctive, SG=singular, ST=stative, VEN=venitive, ZPROG=z-progressive.



Figure 1: Dille’ xhunuh Laxup is spoken in the municipality of Santiago Laxopa, and Dizhsa is spoken in the municipality of San Lucas Quiavini. This map locates Santiago Laxopa and San Lucas Quiavini within the state of Oaxaca.²

Before we address the individual languages, it is important to say a word about their classification and relation to each other. Dizhsa and Dille’ xhunuh Laxup are both Zapotec languages, which together with the Chatino languages make up the Zapotecan subgroup of Eastern Oto-Manguean (Campbell 2017b; Kaufman 2016). For comparison, as noted by Campbell (2017b), the eight subgroups of Oto-Manguean (Zapotecan, Mixtecan, etc.) are each roughly equivalent in diversity and time-depth to Indo-European subgroups like Romance and Germanic.

The Zapotec languages themselves are richly varied from community to community and region to region (Beam de Azcona 2016), and are further classified into several distinct branches (Campbell 2017a). Dille’ xhunuh Laxup and Dizhsa are languages from different branches (Northern and Central, respectively), and they are not mutually intelligible. In our focus here on associated motion, we will see that though the associated motion constructions in these two languages appear comparable in terms of surface morphology, they differ in key semantic properties.

2.1 Associated motion in Dille’ xhunuh Laxup

Dille’ xhunuh Laxup ([di.ʒeʔ zɔŋ la.ʃup]) is a Northern Zapotec language spoken by at least around 1,300 people in the municipality of Santiago Laxopa (Laxup), in the Ixtlán district of the Sierra Norte region (Instituto Nacional de Estadística y Geografía 2020). There are an estimated few hundred additional speakers in other parts of Mexico and in the United States. Speakers are mostly bilingual with Spanish, which is today acquired through the school system. We write the language here in a community orthography shared with the related varieties spoken nearby in the Villa Alta district, but

² This map builds on a vector map shared on Wikimedia Commons by users El bart089 and Aymatth2. That source material is shared under a CC BY-SA 3.0 license; the same license applies to this map.

it is not yet widely used in Laxopa, and there is little organized instruction in the language. Dille’ xhunh Laxup is somewhat mutually intelligible with Zapotec languages spoken nearby,³ which share its endonym *dille’ xhunh*.

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The discussion below is intended as a brief introduction to notable generalizations. For additional description and theoretically-motivated discussion see Duff (2021a,b).

2.1.1 Basic verbal morphology and motion verbs

Dille’ xhunh Laxup has a strict Verb-Subject-Object (VSO) word order with limited argument fronting (Adler et al. 2018). Subjects are obligatory except in particular binding configurations. Pronominal subjects, and sometimes pronominal objects, are generally realized in shortened forms enclitic to the verb (Foley and Toosarvandani 2022; Sichel and Toosarvandani 2020). Apart from these clitics, verbal morphology is prefixal, including mandatory aspect marking, 3PL subject agreement, and causative derivation, as well as the associated motion prefixes discussed below.

The standard aspect markers are summarized in Table 1. Most verbs have these forms; other markers for e.g. infinitives, uncertain future eventualities, and ongoing states exist with a more restricted distribution (Toosarvandani 2020). Glosses were selected here for ease of comparison with Dizhsa, but for reference, corresponding glosses used in previous work on related Northern Zapotec languages are given in parentheses.

Gloss	Description	<i>-xhunj</i> ‘run’
PFV (COMPL)	eventuality has ended or culminated	<i>bxhunj</i>
IPFV (CONT)	eventuality is in progress or occurs habitually	<i>txhunj</i>
FUT (POT)	eventuality will definitely occur	<i>exhunj</i>

Table 1: The standard aspect markers in Dille’ xhunh Laxup and their basic meanings (Toosarvandani 2020).

Before we address associated motion, it will be informative to note the ways in which this language describes motion in simpler sentences. A set of two frequently-used motion verbs in Dille’ xhunh Laxup describe motion events in terms of their direction: *-ide* ‘come’ and *-ej* ‘go’ (2), what we will

³ Closely related languages which have been described in some detail are the languages of San Bartolomé Zoogocho (Long C. and Butler H. 2000; Sonnenschein 2004) and San Jerónimo Zochina (Lopez Nicolas 2016). Some recent research has grouped the languages spoken in Laxopa, Zoogocho, San Sebastián Guiloxi, and Santa María Yalina together as “Sierra Zapotec” (e.g. Adler, Foley, Pizarro-Guevara, Sasaki, and Toosarvandani 2018; Foley and Toosarvandani 2022; Sichel and Toosarvandani 2020; Toosarvandani 2020).

call “simple motion verbs”. Goal locations can occur as an optional object with both. As suggested by their translations, these mark in particular a deictic contrast, a contrast in direction relative to some spatial perspective, the deictic center (Wilkins and Hill 1995).⁴ The verb *-ide* describes travel towards a deictic center, which in this language is usually the location of the speaker at speech time or the time of the event. The verb *-ej* is used for all other directions.

- (2) a. B-ide Bedw’nh lhill =a’.
 PFV-come Pedro home =1SG
 ‘Pedro came to my home.’
- b. U-yej Bedw’nh lhill Xwanha’.
 PFV-go Pedro home Juana
 ‘Pedro went to Juana’s home.’

These verbs are used to describe motion as a durative event, one with some temporal and spatial extent. They contrast with a second deictic pair of more punctual motion verbs which are used to describe the moment of a mover’s arrival at some location: *-lha’a* if arriving at the deictic center and *-llinh* otherwise (3).

- (3) a. B-lha’a beku’ =nh nhi.
 PFV-arrive₁ dog =DEF here
 ‘The dog arrived here.’
- b. B-llinh beku’ =nh nha’.
 PFV-arrive₂ dog =DEF there
 ‘The dog arrived there.’

Other motion verbs usually specify other parameters of the path, e.g. *-u’u* ‘enter’ and *-dzuj* ‘exit’, *-yep* ‘ascend’ and *-yetj* ‘descend’, *-de* ‘pass’. A few specify the manner of motion, e.g. *-xhunj* ‘run’.

The simple motion verbs and at least some of the others make up a restricted class of verbs which may subordinate infinitival purpose clauses (4).

- (4) a. B-ide Xwanha’ wi-ya’a.
 PFV-come Juana INF-dance
 ‘Juana came to dance.’
- b. U-yej Xwanha’ we-kwell.
 PFV-go Juana INF-play.music
 ‘Juana went to play music.’

2.1.2 The basics of associated motion

Dille’ xhunh Laxup features a productive associated motion construction with two prefixes, a venitive *de-* (5a) and an andative *ja-* (5b).⁵ Both prefixes associate the main verb with a preceding event of motion with the subject as mover. For the venitive, this must be motion towards the deictic center; the andative is appropriate for all other directions.

- (5) a. B-de-ya’a Xwanha’.
 PFV-VEN-dance Juana
 ‘Juana came and danced.’
- b. Ja-ya’a Xwanha’.
 PFV.AND-dance Juana
 ‘Juana went and danced.’

Note that, unsurprisingly, the phonology of the prefixes bears some resemblance to the corresponding basic motion verbs. Indeed, Kaufman (2016) reconstructs the same phonological form for e.g. the

⁴ The terms *deictic center*, *anchor*, and *perspective-holder* are often used interchangeably.

⁵ These are the terms most commonly used in the Zapotecanist literature. Elsewhere, *venitive* for *venitive*, and *itive* for *andative* are also common.

andative and ‘go’ in Proto-Zapotec. Nevertheless, if there ever was synchronic identity between the prefixes and their corresponding verbs, it has not persisted in this language: for instance, the verbs and the associated motion prefixes participate in separate allomorphy alternations with aspectual prefixes, as demonstrated in Table 2.

	‘go’	AND	‘come’	VEN
PFV	<i>u-yej</i>	<i>ø-ja-</i>	<i>b-ide</i>	<i>b-de-</i>
IPFV	<i>dz-ej</i>	<i>ts-ja-</i>	<i>dz-ide</i>	<i>sh-de-</i>
FUT	<i>ch-ej</i>	<i>ts-ja-</i>	<i>y-ide</i>	<i>ø-de</i>

Table 2: Some aspect-inflected forms of the motion verbs and associated motion prefixes of Dille’ xhunn Laxup. <ø> indicates null exponence.

Below, we provide evidence for a few crucial semantic properties of the construction. In doing so, we will mostly use examples with the venitive, but note that all properties hold for both markers.

2.1.3 Property 1: Motion and Goal events are entailed

In Dille’ xhunn Laxup, associated motion constructions entail two events in sequence, a Motion event with the path specified by the prefix (6), and a Goal event specified by the main verb (7). In realis sentences, both events must occur: for instance, it is not enough for the Goal to be merely an intention of the subject.

(6) B-de-daw =e’ xche’ perw ...
 PFV-VEN-eat =3ELD *cena* but
 ‘He came and ate *cena* but...’

a. #bitu b-id =e’.
 NEG PFV-COME =3ELD
 ‘...he didn’t come.’ (Contradiction)

b. #bitu b-dzuj lhill =e’.
 NEG PFV-exit home =3ELD
 ‘...he didn’t leave his house.’ (Contradiction)

(7) a. #B-de-daw =e’ xche’. Bitu u-daw =e’.
 PFV-VEN-eat =3ELD *cena* NEG PFV-eat =3ELD
 ‘He came and ate *cena*. He didn’t eat.’ (Contradiction)

b. #Ja-yep Bedw’nh ya’ado. Bitu u-zulho =ba’.
 PFV.AND-climb Pedro mountain NEG PFV-begin =3HUM
 ‘Pedro went and climbed a mountain. He didn’t start.’ (Contradiction)

This contrasts with motion-plus-infinitive constructions in the language (8). Paraphrases with the motion-plus-infinitive share many of the interpretive properties of associated motion, but entail subject intention towards the Goal that need not be realized.

- (8) B-ide Xwanha' wi-ya'a. Bitu b-ya'a =ba'.
 PFV-come Juana INF-dance NEG PFV-dance =3HUM
 'Juana came to dance. She didn't dance.'

In associated motion constructions, the described Motion and Goal events must occur in that order, and the Goal must occur at the endpoint of the motion path, but the two events need not be strictly consecutive. Time and other events may intervene (9), though in the absence of context it is more natural to assume a close succession.

- (9) Context: Juana arrived in Laxopa, slept, and danced at a fiesta on the next day.
 B-de-ya'a Xwanha' Laxup.
 PFV-VEN-dance Juana Laxopa
 'Juana came and danced in Laxopa.'

2.1.4 Property 2: Goals may be freely modified

Under some approaches to the formal semantic representation of events and their distribution in time (e.g. Baker and Harvey 2010; Bittner 1999; Levin 2020; Levin and Rappaport Hovav 1995; but cf. Landman 1992), the fact that this Motion-Goal complex permits loose succession suggests that on some level it describes a series of events rather than a single complex event. Further evidence that the Motion and Goal events have some representational independence comes from the fact that temporal and manner modification can single out the Goal event (10).⁶

- (10) a. Context: Juana traveled to Laxopa on Thursday and danced on Friday.
 Llah biern b-de-ya'a Xwanha' Laxup.
 day Friday PFV-VEN-dance Juana Laxopa
 'Juana came and danced in Santiago Laxopa on Friday.'
- b. Context: Juana had a difficult trip to Laxopa but on arrival she danced very well.
 Wenh guhle b-de-ya'a Xwanha' Laxup.
 good very PFV-VEN-dance Juana Laxopa
 'Juana came and danced in Santiago Laxopa very well.'

This property is asymmetric, as Motion events cannot be modified independently (11).

- (11) a. Context: Juana traveled to Laxopa on Friday and danced on Saturday.
 #Llah biern b-de-ya'a Xwanha' Laxup.
 day Friday PFV-VEN-dance Juana Laxopa
 Intended: 'Juana came on Friday and danced in Santiago Laxopa.'
 Comment: You are providing the wrong information.

⁶ We cannot tell from truth-value judgements alone whether these adverbs have interpretations where they modify both Motion and Goal, because a Goal-only interpretation would be true in all of the same contexts. Nevertheless, it is clear despite the acceptability of (10) that these examples do most naturally describe cases where the adverb holds for both events.

- b. #Lenh kar ja-seni'a Xwanha' yi'inhdo'.
 with car PFV.AND-COOK Juana mole
 Intended: 'Juana went by car and cooked mole.'
 Comment: It means the car was helping her cook.

2.1.5 Property 3: Aspect applies to both events

Despite the above facts, the associated motion construction appears to present only one event description at the level of aspect marking. Only one aspect marker can appear, and it applies to both events as if they were a single, complex event. For instance, take the perfective aspectual marker. When applied to telic events, i.e. those which describe an event with a final result state (e.g. *eat lunch*), the perfective requires the event to reach that result state (e.g. a finished meal) (Toosarvandanani 2020). Associated motion constructions built from the same predicates are required to reach this final result state in the same way (12). Thus, the event that aspect applies to in the Dille' xhunch Laxup associated motion construction must include the portion described by the main verb.

- (12) #B-de-do Bedw'nh xwe. Bitu b-iyuhll u-do =ba'.
 PFV-VEN-eat Pedro comida NEG PFV-finish PFV-eat =3HUM
 'Pedro came and ate *comida*. He didn't finish eating.' (Contradiction)

Evidence that aspect is in fact applying to the entire sequence of events rather than just the main verb comes from habitual interpretations of the imperfective aspectual marker. Example (13a) is only felicitous with a habitual interpretation if the entire sequence of coming and playing music happens habitually:⁷ the habitual event cannot be just Pedro's playing music (13b) just as it cannot be just Pedro's travel (13c).

- (13) a. Context: Pedro lives next door to me, and he comes to my house to play music regularly.
 Sh-de-kwell Bedw'nh.
 IPFV-VEN-play.music Pedro
 'Pedro (habitually) comes and plays music.'
- b. Context: Pedro lives with me and he plays music regularly. Right now he is returning from a rare trip out of town, and he is going to play music when he gets here.
 #Sh-de-kwell Bedw'nh.
 IPFV-VEN-play.music Pedro
 Intended: 'Pedro is coming and (as is his habit) playing music.'
- c. Context: Pedro lives next door to me and he comes over to visit regularly. Right now he is coming over to play music, which is not something he usually does.
 #Sh-de-kwell Bedw'nh.
 IPFV-VEN-play.music Pedro
 Intended: 'Pedro is (as is his habit) coming and (this time he is) playing music.'

⁷ As it happens, a non-habitual interpretation for imperfective-marked associated motion constructions may not be available at all, as we will discuss within the demonstration of our map methodology in §4.3.

2.1.6 Property 4: Subjects must be agentive

The subject of an associated motion construction is both the mover and the external argument of the main verb. Verbs without external arguments, i.e. unaccusatives like *-banh* ‘awake’ and *-bill* ‘dry off’, are systematically unable to participate in the construction.⁸

The relationship between the main verb and its external argument is affected by the associated motion construction. Even when the construction features a main verb which would typically permit an external argument acting without intention (14a), only intentionally-acting subjects are permitted (14b).

- (14) a. B-xixe Xwanha’. Bitu b-enh =de =ba’ =’nh.
 PFV-sneeze Juana NEG PFV-do =on.purpose =3HUM =3INAN
 ‘Juana sneezed. She didn’t do it on purpose.’
- b. #B-de-xixe Xwanha’. Bitu b-enh =de =ba’ =’nh.
 PFV-VEN-sneeze Juana NEG PFV-do =on.purpose =3HUM =3INAN
 ‘Juana came and sneezed. She didn’t do it on purpose.’ (Contradiction)
 Comment: The first sentence sounds like she wanted to sneeze on you for some reason.

This intentionality is a substantial enough part of the meaning of the construction that you can felicitously negate an associated motion construction if the relevant sequence of motion and subsequent effect has occurred only by accident (15).

- (15) Context: Juana entered the room where Pedro was sleeping to get a book and accidentally woke him up.
- a. #Ja-s-banh Xwanha’ Bedw’nh.
 PFV.AND-CAUS-awake Juana Pedro
 Intended: ‘Juana went and woke up Pedro.’
- b. Bitu ja-s-banh =ba’ Bedw’nh, perw be-s-banh =ba’
 NEG PFV.AND-CAUS-awake =3HUM Pedro but PFV-CAUS-awake =3HUM
 leba’.
 3HUM
 ‘It’s not the case that Juana purposefully went in and woke up Pedro, but she did ultimately wake him up.’
 (lit. ‘Juana didn’t go and wake up Pedro, but she did wake him up.’)

These properties suggest that the associated motion construction in Dille’ xhunh Laxup encodes a single, complex event description composed of an event description provided by the main verb, which seems to have some independent status in the syntactic and semantic representation, and an andative or venitive prefix describing a preceding motion event. The construction of this complex event seems to involve an additional through-line of intention. As we will show below, these facts are not universal to associated motion constructions, even within the Zapotec language family.

⁸ See Uchihara and Gutiérrez (2020) for discussion of a tonal phenomenon that also seems to track the unaccusative/unergative distinction in Zapotec languages.

2.2 Associated motion in Dizhsa

Dizhsa is a cluster of Central Zapotec languages spoken in the Western Tlacolula Valley of Oaxaca, sometimes also known as Tlacolula Valley Zapotec. In this paper, we focus on the Dizhsa language spoken in San Lucas Quiavini, a town of around 1,720 residents (Instituto Nacional de Estadística y Geografía 2020). Children in San Lucas Quiavini typically acquire Dizhsa from birth and learn Spanish in school (Pérez Báez 2014, 2016). Dizhsa is also spoken in communities in the United States, particularly Los Angeles. Although children in San Lucas Quiavini still acquire Dizhsa, the language is under threat: children in diaspora communities do not usually acquire it, and Spanish is being used in more contexts in San Lucas Quiavini than formerly (Pérez Báez 2016).

Author FHL is a native speaker of Dizhsa and language activist who has taught and promoted Dizhsa in many contexts. FHL has taught Dizhsa classes at several levels, served as a field methods class consultant, worked with linguists on a variety of projects, and developed pedagogical materials for Dizhsa. Author CJA is a linguist who has worked on associated motion constructions in Dizhsa during two summers of fieldwork in San Lucas Quiavini.

The discussion below is a brief introduction to the key aspects of associated motion verb constructions in Dizhsa. More details can be found in Anderson (2019a). Unattributed Dizhsa examples are taken from CJA and FHL’s collaborative sessions (key judgments were checked with other San Lucas Quiavini speakers). We use the Munro, Lillehaugen, and Lopez (2007) orthography.

2.2.1 Basic verbal morphology and motion verbs

Dizhsa verbs are composed of a prefixed aspect marker and a verb root, with the option of additional morphology such as encliticized subject pronouns or adverbials. Normal word order is VSO, although SVO and OVS constructions are possible with focus-fronting or topicalization (Lee 1999).

A summary of the aspect system is shown in Table 3. For the most part, we follow the aspect terminology used in previously published work on Dizhsa (Lee 1999; Munro 2007; Munro et al. 2007; Munro, Lopez, Méndez Martínez, Rodrigo Garcia, and Galant 1999); however, to avoid confusion between the Dizhsa definite future and the Dille’ xhunh Laxup definite marker, we have glossed the Dizhsa definite future simply as FUTURE.⁹

Gloss	Description	<i>rzhuny</i> ‘run’
HAB	eventuality occurs habitually	<i>rzhuny</i>
PROG	eventuality is in progress	<i>cazhuny</i>
ZPROG	motion event is in progress	n/a
PFV	eventuality has ended or culminated	<i>bzhuny</i>
IRR	eventuality has not yet occurred	<i>yzhuny</i>
FUT	eventuality will definitely occur	<i>xuny</i>
SBJV	eventuality was supposed to occur but did not or will not	<i>nzhuny</i>

Table 3: The inventory of aspect markers in Dizhsa.

There are three motion verbs in Dizhsa that describe motion in terms of direction: *ried* ‘comes’,

⁹ As Plumb (2020) does for the cognate aspect in Tlacoahuaya Zapotec, another Tlacolula Valley Zapotec language.

ria ‘goes’, and *ria* ‘goes home’.^{10,11} These verbs are set apart from other motion verbs in that they do not combine with the usual Dizhsa *ca-* progressive aspect marker. Instead, they use a special *z-*progressive aspect marker (Anderson 2019b; Munro 2007; Munro et al. 2007). The verb *ried* ‘comes’ is deictic: it describes motion towards the deictic center at event time (16a) or utterance time (16b). The motion verb *ria* ‘goes’ is in complementary distribution with *ried* ‘comes’; this is compatible with a view of *ria* as lexically deictic, or non-deictic but in pragmatic competition with *ried*.¹²

(16) a. **Event time anchoring:**

Chi n-u=a cafe b-ied Brook ricy.
 when ST-be.located=1SG cafe PFV-come Brook there
 ‘When I was at the cafe, Brook came there.’

b. **Utterance time anchoring:**

Janet a z-ied re’.
 Janet already PROG-come here
 ‘Janet is coming here.’

The deictic center is usually the speaker, but can sometimes be the addressee (17a). The subjects of cognition verbs cannot serve as the deictic center (17b).

(17) a. Context: Addressee in Oaxaca, speaker in Amherst.

Aisy a z-iel=a Ldua.
 later already FUT-come=1SG Oaxaca.
 ‘Later I’m coming to Oaxaca.’

b. Context: Speaker and addressee are not in the same location as Arjun.

R-ilo Arjun a bets=ëng a z-e-gan/#z-ied-gan
 HAB-think Arjun already brother=3SG already ZPROG-go-visit/ZPROG-come-visit
 laëng.
 3SG
 ‘Arjun thinks that his brother is on the way.’

The motion path described by *ried* ‘comes’ is towards the location of the deictic center. Motion alongside the speaker does not license *ried* ‘comes’ (18a), and motion towards the deictic center’s homebase is described using *ria* ‘goes home’ (18b). The verb *ria* ‘goes home’ is not perspectival, since it describes any motion towards the mover’s homebase, regardless of who is the deictic center, as (18b) shows: the movement is towards the homebase of a third-person entity rather than the speaker or addressee.

¹⁰ Although these last two appear identical in the Munro et al. (2007) orthography, in *ria* ‘goes home’ both vowels are breathy, while in *ria* ‘goes’ they are not. Also different is *rria* ‘leaves.’

¹¹ Throughout this paper, we cite Dizhsa verbs in their habitual form, since there are no bare infinitives.

¹² See Anderson (2021); Sudo (2018); Wilkins and Hill (1995) for more discussion of the deictic status of ‘go’ cross-linguistically.

- (18) a. Context: The speaker is not in Oaxaca.
 G-u=ni=a/#b-ied=ni=a bets=a Ldua.
 PFV-go=with=1SG/PFV-come=with=1SG brother=1SG Oaxaca
 ‘My brother went with me to Oaxaca.’
- b. Z-ye=ëng.
 FUT-go.home=3SG
 ‘He will surely go home.’

In addition to these three motion verbs, Dizhsa has verbs that encode more specific properties of the motion event, such as arrival (19a), departure (19b), and returning (19c), and for manners of motion, such as *rza* ‘walks’ (19d). These verbs do not encode a deictic contrast, and do not take the special *z*-progressive aspect marker.

- (19) a. A b-zeny nax.
 already PFV-arrive chocolate
 ‘The chocolate has arrived.’
- b. R-rilo mes a b-ria Bed.
 HAB-think teacher already PFV-leave Pedro
 ‘The teacher thinks that Pedro has already left.’ (Munro et al. 2007)
- c. Lo july g-icy=a Ndua.
 in July IRR-return=1SG Oaxaca
 ‘I will return to Oaxaca in July.’
- d. Lad=ri b-za mniny.
 between=3PL PFV-walk boy
 ‘The boy walked between them.’ (Munro et al. 2007)

2.2.2 The basics of associated motion

Dizhsa, like Dille’ xhuh Laxup, features an associated motion construction. In this construction, the venitive marker *-ied*¹³ or the andative marker *-i-* appears between a verb and its aspect marker. In (20b), the venitive marker *-ied-* appears between the habitual aspect marker and *-tau* ‘eat’.

- (20) a. r-auw=a. b. r-ied-tauw=a.
 HAB-eat=1SG HAB-VEN-eat=1SG
 ‘I habitually eat.’ ‘I habitually come and eat.’

These markers appear to be reduced forms of the corresponding independent motion verbs. Following Lee (1999), we consider them markers rather than full verbs for several reasons: they come between aspect markers and causative markers (21); there is only one aspect marker for each associated motion construction, while full verbs always have an aspect marker; and subjects encliticize to the main verb, not the andative/venitive marker.

¹³ Or a reduced form, *-id-*.

- (21) Z-ied-sya'a' Li'eb Gye'eihlly.
 FUT-VEN-CAUS.dance Felipe Mike
 'Felipe came to make Mike dance.' (Lee 1999, glossing ours)

Like *ried* 'comes' and *ria* 'goes', associated motion constructions take the special *z*-progressive aspect marker. Example (22b) shows an andative construction. When the andative marker is added to the verb *rau* 'eats', it takes the *z*-progressive aspect marker rather than the normal *ca* progressive marker.¹⁴

- (22) a. Ca-dauw=ën.
 PROG-eat=1PL
 'We are eating.'
- b. Zo-dauw=ën.
 ZPROG.AND-eat=1PL
 'We are going and eating.'
- (Munro et al. 2007)

Below, we detail three key semantic properties of the associated motion construction in Dizhsa.

2.2.3 Property 1: Temporal modification applies to both events

The Dizhsa associated motion construction presents one event description at the level of tense/aspect marking and temporal modification. Only one aspect marker may appear on the construction, and it applies to both events. For instance, the perfective-marked venitive construction in (23) is infelicitous because the perfective aspect entails the completion of the event, but in the context, only the motion event has been completed.

- (23) Context: Brook came to the market in order to buy a rug, but did not buy anything.
 #Nai chi n-u=a logyia, b-ied-zi Brook teiby tapet.
 yesterday when ST-locate=1SG market PFV-VEN-buy Brook one rug
 'Yesterday when I was at the market, Brook came and bought a rug.'

Temporal modifiers also apply to both events. Example (24a) is infelicitous in the given context because only the dance event has taken place on the specified day. Example (24b) is infelicitous in the given context because only the motion event is taking place at the specified time.

- (24) a. Context: Maria arrived the night before yesterday and danced yesterday.
 #B-ied-gya Maria nai.
 PFV-VEN-dance Maria yesterday
 'Maria came and danced yesterday.'
- b. Context: Maria is coming over right away, but we will wait a few hours before eating.
 #G-ied-tau-tag=ëng.
 IRR-VEN-eat-right.away=3SG
 'She will come and eat right away.'

¹⁴ With first person plural subjects, the *z*-progressive andative morpheme is *zo-* and the venitive is *zyo-*.

2.2.4 Property 2: Motion is entailed, with exceptions

All andative and most venitive constructions entail actual motion. For instance, constructions formed with *racxuw* ‘gets sick’ require motion. In (25), the andative construction is felicitous because the context involves actual motion, while in (25b), it is infelicitous, since no motion is described in the context.

- (25) a. A mother says to her child:
 Queity ch-u lo nahld n-aa queity ch-i-gac.xuw=u!
 NEG IRR-be in cold ST-be NEG IRR-AND-get.sick=2SG
 ‘Don’t go out in the cold and go and get sick!’
- b. A man gets sick because he sits in a cold room for too long.
 #Nahld lainy x-cuart=ëng gu-gac.xuwëng.
 cold in POSS-room=3SG PFV.AND-get.sick=3SG
 ‘His room was so cold he went and got sick there.’

However, progressive venitive constructions can have a change-of-state interpretation that does not involve real motion. While (26a) can be used if a bamboo kitchen shed is leaning like it is going to collapse, (26b) is only felicitous if there is actual motion taking place.¹⁵ The perfective constructions in (26c) and (26d) were also judged infelicitous.

- (26) a. Z-ied-yahb yuu.de.
 ZPROG-VEN-fall kitchen
 ‘The kitchen is coming and falling.’
 Comment: It’s not really falling, but it’s leaning. It’s going to fall down.
- b. Z-i-yahb yuu.de.
 ZPROG-AND-fall kitchen
 ‘The kitchen is going and falling.’
 Comment: It’s moving; get out of the way before it collapses.
- c. #B-ied-yahb yuu.de.
 PFV-VEN-fall kitchen
 ‘The kitchen came and fell down.’
 Comment: It’s odd; you would just say it fell.
- d. #B-i-yahb yuu.de.
 PFV-AND-fall kitchen
 ‘The kitchen went and fell down.’
 Comment: It would have to be a person.

Similarly, the progressive venitive form of *rro* ‘grows’ can be used to describe a child growing up, but the andative form requires actual motion. In (27a), the progressive venitive form is used to

¹⁵ Whether the change-of-state use of the progressive venitive comes from a lexical restriction to change-of-state verbs is unclear. In the contexts we present here, there is a state change (once a shed falls, it has collapsed and become a pile of bamboo rather than a kitchen), but we are not necessarily committed to *riahb* ‘falls’ being a change-of-state verb.

describe a child's rapid growth and maturation. In (27b), the perfective andative is used to describe a kid actually going somewhere and growing up; it is infelicitous in the context in (27c), which does not involve any actual motion.

- (27) a. Uas nguel z-ied-ro=ëng.
 very fast ZPROG-VEN-grow=3SG
 'He's growing up very fast.'
 Comment: If you see a kid and you're like, wow, he's really growing up fast.
- b. A child goes to the United States and grows up there.
 Ladi gu-ro=ëng.
 other.side PFV.AND-grow=3SG
 'He went and grew up in the States.'
- c. A child grows up in San Lucas Quiavini.
 #Gu-ro=ëng.
 PFV.AND-grow=3SG
 'He went and grew up.'

2.2.5 Property 3: Intentionality is not required

Unlike the Dille' xhuh Laxup associated motion construction, the Dizhsa construction has no requirement for subject intention. Although the subject is generally animate (except in the change-of-state uses) since they are the subject of a motion event, the subject does not need to be intentionally performing the action of the main verb (28a). Even human subjects do not need to be acting intentionally. In (28b), the venitive form of the verb *rnity* 'lose' is used to express an unintentional dropping of the book.

- (28) a. Z-ied-cha zhyet ni=a per queity r-acbe=di=ëng ca-cha=ëng
 ZPROG-VEN-warm cat feet=1SG but NEG HAB-KNOW=PT=3SG PROG-warm
 ni=a.
 foot=1SG
 'The cat is coming and warming my feet but it doesn't know that it warms my feet.'
- b. Context: Juan comes over and leaves his book at our house without realizing.
 B-ied-nity Jwany x-li'ebr=ni.
 PFV-VEN-lose Juan POSS-book=3SG
 'Juan came and lost his book.'

2.3 Summary

In the discussion above, we have seen some key differences in the semantic properties of the associated motion constructions in Dille' xhuh Laxup and Dizhsa (Table 4).

In both cases, actual motion is entailed and a single aspect marker applies to both the motion and main events. In Dizhsa, the two events cannot be modified independently: any manner or temporal

	Dille' xhunuh Laxup	Dizhsa
Actual motion is entailed	✓	✓
Aspect modifies both events	✓	✓
Temporal modifiers must apply to both events	-	✓
Manner modifiers must apply to both events	-	✓
Entails intentionality	✓	-

Table 4: Semantic properties of associated motion in Dille' xhunuh Laxup and Dizhsa.

modifiers apply to both events, suggesting that there is just one event in the semantics. In Dille' xhunuh Laxup, meanwhile, adverbs may modify the main event independently of the motion event. There is also a notable difference in the entailment of intentionality: the Dille' xhunuh Laxup subject must be intentionally performing both events, while the Dizhsa construction can describe situations where the main event is accidental.

Though Dille' xhunuh Laxup and Dizhsa are not closely related among the Zapotec languages, these divergences may be surprising to a researcher who expected associated motion to encode a small or stable set of possible meanings cross-linguistically. In fact, the evidence suggests, consistent with the variation demonstrated here, that associated motion constructions can exhibit a range of semantic properties. In the next section, we contextualize the similarities and differences seen here among the parameters of variation that have been described in the typological literature to date.

3 Descriptive questions for associated motion

Associated motion constructions are found in many of the world's languages: Ross (2021) identifies them in 26% of a balanced sample of 325 languages, with particular concentrations in Australia and the Americas (see also Dryer 2021b; Guillaume 2016). No two systems look exactly the same: the motion markers may be affixes, or particles; they may serve multiple grammatical functions; and there may be a single marker or a contrastive paradigm.

For demonstration, in (29) we list some example andative (AND) morphemes in a variety of languages, translated respectively as “went and...”, “...as I go”, and “...then leaves”.

- (29) a. tce tuu-ci yuu-pjuu-nuu-tsh^hi-nuu [Japhug; Sino-Tibetan; China]
LNK INDF.POSS-WATER AND-IFR-AUTO-drink
“‘She went and drank water.” (Jacques, Lahaussais, and Shuya 2021)
- b. t'ar=^htsi='a [Tilapa Otomi; Oto-Pamean; Mexico]
1s.AND=eat=3SG
“‘I'm eating it as I go.” (Hernández-Green and Palancar 2021)
- c. Ware-tyampe sye-leynte-layte-nke [Kaytetye; Pama-Nyungan; Australia]
fire-too go.out-CAUS-AND-PRS
“‘...and extinguishes the fire, then leaves.” (Koch 1984)

In this section we summarize some of the important semantic aspects of this typology with an eye towards the features described in Dille' xhunuh Laxup and Dizhsa above. We also note two related

constructions that grammaticalize similar meaning, and how they fit into the picture. In §4 we will reflect on the methodologies appropriate for insight into these various questions.

3.1 Three parameters of associated motion

Associated motion constructions are known to vary in how they encode the path of the motion event, how they order the motion event with respect to the main verb, and which arguments of the main verb are involved in the movement. The associated motion systems described above for Dille' xhuh Laxup and Dizhsa display cross-linguistically common behavior for each of these properties: a two-way deictic contrast in path description, preceding motion, and subject movers only. For context, we review these parameters and some of their other possible realizations below.

3.1.1 Deixis and path description

As discussed for the languages profiled above, deictic distinctions in path are common in associated motion constructions just as they are in lexical motion verbs: in Ross's (2021) cross-linguistic study, 70% of languages with an associated motion construction encode deixis. The associated motion constructions described above both make a two-way deictic distinction, which is very common. Cross-linguistically, some constructions do not make any path distinctions, and some mark additional details about the path including categories of returning motion (Koch 2021) or vertical dimensions (Jacques et al. 2021).

Even among those constructions which mark a deictic contrast, our general theories of deixis pick out several points of possible semantic variation: (a) who can serve as the deictic center, (b) what anchoring relation to the deictic center is entailed, and (c) when the anchoring relation must hold. The set of valid deictic centers varies cross-linguistically: while all languages allow the speaker to serve as the deictic center, some allow other centers, such as listeners or attitude holders (Barlew 2017; Gathercole 1987; Nakazawa 2007). Some constructions require the motion to terminate at the deictic center's location, while others simply require the motion to be in its direction. Finally, some languages require the anchoring relation to hold at utterance time, while others allow it to hold at event time.

Variation in parameter (a) has been attested for associated motion: e.g. Hernández-Green and Palancar (2021) describe speaker-only deixis in Otomi (Oto-Pamean; Mexico) associated motion, but Tallman (2021) describes associated motion morphemes in Chácobo (Pano; Bolivia) that allow salient non-speaker characters in narrative to serve as a deictic center. Less is known about parameters (b) and (c) in associated motion, and they merit further investigation.

3.1.2 Temporal ordering of events

The most common temporal relation expressed by associated motion is for the motion event to precede the event of the main verb, what we see for both languages discussed above. Less frequently, constructions have been described in which the motion event is concurrent or subsequent to the main event. Guillaume (2016) proposes an implicational hierarchy with preceding motion as the unmarked configuration. However, subsequent work has revealed a number of languages which mark only, e.g., concurrent motion (Ross 2021).

In some cases, there are dedicated morphemes for different orderings; in other cases, markers are underspecified or conditioned on other possible contrasts. As an example, in Acazolco Otomi

Dizhsa when the venitive is marked with progressive aspect, as seen in examples like (27a), repeated below.

- (27a) Uas nguel z-ied-ro=ëng. [Dizhsa]
very fast ZPROG-VEN-grow=3S
'He's growing up very fast.'

In addition to aspectual meanings, some associated motion markers can mark alternations in argument structure, for instance adding benefactors (Vidal and Payne 2021) or demoting various arguments (Payne 2021). These patterns suggest rich questions for diachronic work in syntax and semantics.

3.3 Associated motion vs. serial verb constructions

The definition for associated motion we adopt here also sets aside another class of similar constructions, where motion information is added to a main verb through the addition of a morpheme better characterized as a second lexical verb. Such cases are very common in languages that allow serial verb constructions: in a sample of 125 languages with serial verbs, Lovestrland and Ross (2021) find 101 languages where serial verbs are recruited to describe motion events, including 68 cases where they can be used to describe preceding motion events, as in (31), closely parallel to the associated motion constructions under study here.

- (31) Au u-eu keta sanue isa. [Nuauulu; Austronesian; Indonesia]
I 1SG-go shoot bird a
'I'm going to go and shoot a bird.'
(Bolton 1990)

Lovestrland and Ross show that the points of typological variation among these motion serial verb constructions mirror those discussed above for associated motion. Many of our reflections might thus fruitfully extend to elicitation on these constructions as well.

In fact, Ross (2021) and Lovestrland and Ross (2021) categorize the andative and venitive constructions of Quiégolani Zapotec, a Zapotec language spoken in the Sierra Sur,¹⁷ as being serial verbs rather than associated motion per se, based on a wider arrange of apparent auxiliary constructions discussed in Black (2000). As discussed in §2.1 and §2.2, we think this analysis is not correct for the Zapotec languages discussed here, but auxiliary uses of lexical motion verbs are a possible diachronic source of the associated motion constructions.

Notably, the English pseudocoordinative *go get* construction might also be analyzed as an instance of a motion serial verb construction, and shares some of the semantic details discussed above for Dille' xhunn Laxup and Dizhsa, including loose subsequence and intentionality (Anderson 2019a; Cardinaletti and Giusti 2001; Pullum 1990; Shopen 1971).

¹⁷ Quiégolani Zapotec and other Zapotec languages of the Sierra Sur region are distinct from the Central and Northern Zapotec branches exemplified by Dizhsa and Dille' xhunn Laxup, but Campbell (2017a) summarizes recent arguments that the southern Zapotec languages do not themselves correspond to a single branch. In the current classification, Quiégolani Zapotec and other so-called Cisyautepecan Zapotec languages are more closely related to Central and Northern Zapotec than other Zapotec languages spoken in the Sierra Sur.

3.4 Avenues for further exploration

In the course of our work on the associated motion constructions of Dizhsa and Dille' xhunuh Laxup, we have noted a few additional parameters of variation that have not been discussed at length in the typological literature so far.

3.4.1 Intentionality of the mover

A main result of the case studies we presented above is the variation observed in requirements of intentional action for the mover. Constructions apparently may or may not require the mover to intentionally undertake the motion and main events. Such restrictions are understudied, but we expect they may be widespread.

3.4.2 Lexical restrictions

We saw one instance of an apparent lexical restriction in the discussion of Dille' xhunuh Laxup, where only verbs which take external arguments can participate in associated motion constructions. Again, though we have not seen such restrictions discussed before for associated motion, we might expect them in other languages as well. This would parallel lexical restrictions observed for other complex verbal constructions. For instance, in Hindi-Urdu, causative derivation is only possible for intransitive verbs and a very small set of transitives (Ramchand 2008:154-168), which may reflect restrictions on the possible complexity of a complex event description. In addition, the *go get* construction in English imposes an aktionsart restriction on its main verb (Wulff 2008).

3.4.3 Tense, aspect, and adverbial modification

A final domain of potential variation is the interaction of the associated motion event sequence with other elements of a sentence which might mark or modify various events. We showed some fine-grained distinctions in this domain above: e.g. in Dille' xhunuh Laxup, at least some adverbs in associated motion sentences may modify only the main event to the exclusion of the preceding motion event, whereas the information communicated by an aspect marker applies to the entire sequence of events.

This kind of data provides evidence about the manner in which the various morphological components of an associated motion construction combine. Under standard assumptions, if the meaning contributed by tense or aspect applies to the whole sequence, then the construction forms a single complex event before combining with syntactic elements which host the tense and aspect information (e.g. Bohnemeyer, Enfield, Essegbey, Ibarretxe-Antuñano, Kita, Lüpke, and Ameka 2007). It is logically possible for tense or aspect to apply selectively, e.g. to the main verb, as temporal adverbials may in Dille' xhunuh Laxup. In such a system, we might expect e.g. habitual marking on associated motion constructions to entail only that the main verb is habitually performed; we do not know of any associated motion systems where this is the case. Further empirical evidence in this domain would contribute to understanding both the possible variation in associated motion constructions and the structure of the verbal projection.

Laxup, consultants providing a careful translation of (33a) can use two conjoined sentences (34a), and when providing a careful translation of (33b), they can use the language's own motion-plus-infinitive construction (34b).

- (34) a. U-yej Xwanha' nha b-ya'a =ba'. [Dille' xhunh Laxup]
 PFV-go Juana and PFV-dance =3HUM
 'Juana went and she danced.'
- b. U-yej Xwanha' wi-ya'a.
 PFV-go Juana INF-dance
 'Juana went to dance.'

For these reasons, we have found more success in our research on associated motion constructions using other methods, which we discuss in the rest of this section.

We think this is an instructive example of one of the most pernicious problems of direct translation: relying on translation can limit a researcher to observing only those features of the language being studied that are also present in contact languages.¹⁹ In the worst case scenarios, this can lead to gaps in language description, documentation, and pedagogy for particular features of a language that are absent in contact languages, undercutting community goals to demonstrate this kind of richness (see e.g. discussion in de los Santos 2020 and below in §5).

4.2 Stories

In eliciting associated motion without requesting direct translations, we have found stories very useful. The rich context they can provide is particularly key for constructions with a deictic distinction, since it is important to establish the relations between all potential deictic centers and the motion path.

One storyboard that has been used to elicit motion descriptions in a wide variety of languages is *Frog, Where Are You?* (Mayer 1969), a picture book that tells of a boy's search for his missing frog. Retellings have been recorded in several Zapotec languages, including Tlacolula de Matamoros Zapotec (Lillehaugen 2003, 2006), Dizhsa (Pérez Báez 2009), and Isthmus Zapotec (Holle 2011; Pérez Báez, Kaufman, and López Cartas 2004). However, this story has some limitations; for instance, it has only one human character and therefore only one major potential deictic center.

We have designed three other stories to probe key properties of associated motion: The Lost Hat story, the Sleepwalking story, and the Mysterious Maria story.

The Lost Hat story is designed to involve different kinds of destinations at varying distances. The main character, Maria, undertakes a number of tasks that involve motion: cutting flowers in the hills, bringing flowers to a cousin, and going to work in another town. These tasks provide good targets for associated motion constructions, since Maria travels to a different location to undertake each task. When she returns home, she discovers that she has lost her hat, and calls the other characters to try to find it. Thus, there is also an opportunity to elicit motion constructions in reported speech. It also has one scene that could be used to elicit an associated motion construction in a modal context (when Maria's hat is found by Bety and her sister). This story can be found in Appendix A.

¹⁹ We discuss additional examples and the general outlook on elicitation in this particular multilingual context in §5.3.

The Sleepwalking story is designed for exploring agentivity requirements. The narrator recounts a series of misfortunes that befell their cousin Carlos while sleepwalking, such as wandering into the fields, losing his pillow, and falling in a hole. This narrative is meant to elicit non-agentive verbs, since Carlos is asleep and does not intend to do any of these actions. The tense/aspect involved is mostly perfective, as the narrator is recounting events that happened to Carlos in the past but do not happen any longer. This story can be found in Appendix B.

The Mysterious Maria story is designed to elicit associated motion in different aspects and in reported speech constructions. It has three characters: the narrator, their mother, and Maria, an acquaintance in the same town. The narrator goes on an errand and runs into Maria, who says that she is bringing flowers to the speaker's mother. However, when the narrator returns, they find that Maria never visited. The narrator's conversation with Maria is set up to elicit progressive or future associated motion constructions, since Maria is purportedly on the way to the narrator's house to bring their mother flowers. There are also scenes that could be described with perfective associated motion constructions, such as the narrator's trip to buy bread. The conclusion of the story is designed to elicit negated motion constructions.

The Mysterious Maria story has accompanying storyboard illustrations to aid retelling, which are included in Appendix C. The illustrations were drawn by a student at CJA's institution, based on photographs of San Lucas Quiavini. When using this story, CJA tells the story to a language consultant in Spanish or English using the illustrations. The language consultant then asks questions to make sure that they understood the story correctly. They then retell the story in Dizhsa, using the illustrations as a memory aid.

The other two stories do not currently have illustrations. These stories were told in Spanish or English to a language consultant, and then retold by the consultant in Dizhsa. However, without illustrations to aid their memory, language consultants sometimes needed to take notes to make sure they remembered all of the elements of the story. One drawback of these stories is that without illustrations, it is more difficult to follow up with questions to obtain negative data as described in Burton and Matthewson (2015).

An example retelling of the Mysterious Maria story by Rosa Lopéz is given below, with an English translation of the prompt above and a free translation below the elicited Dizhsa text. Motion descriptions have been bolded. The story was first narrated in Spanish by CJA, using the illustrations. Rosa took notes on the story and asked clarifying questions about it in Spanish. Once she was certain that she understood the story, she retold it from the illustrations in Dizhsa.

- (35) a. This morning I went to buy bread. My mother asked me where I was going. "I'm going to get bread," I told her.

na rsily **gwaa** **gusia** guetxtily.
na rsily gw-a=a g-u-si=a guetxtily
today morning PFV-go=1s PFV-AND-buy=1s bread
'This morning I went to buy bread.'

- b. On my way to the store I saw Maria.
Chiru naziu abzhaga Maria.
chiru nehzyu b-zhyag=a Maria
then road PFV-meet=1s Maria
'Then on the road I met Maria.'

- c. I asked Maria where she was going.

Repa laëng “Cali **chiu**?”
 R-eipy=a laëng Cali ch-i=u?
 HAB-ask=1s 3s where IRR-go=2s
 ‘I asked her, “Where are you going?”’

- d. “I’m on my way to drop off some flowers for your mother,” Maria said.

Chiru naëng “**Checa** gyia par xnanu.”
 Chiru n-a=ëng ch-i-ca=a gyia par x-nan=u
 then ST-say=3s IRR-AND-get=1s flower for POSS-mother=2s
 ‘Then she said, “I’m going to get some flowers for your mother.”’

- e. After I bought bread, I went home.

Bluazh cua guetxtily **zia** liaza.
 b-luazh cw-a=a guetxtily z-i=a liaz=a
 PFV-done PFV-get=1s bread ZPROG-go.home=1s house=1s
 ‘Finished getting bread, I went home.’

- f. When I got home, I told my mother that I had seen Maria.

Chi **bzeinya** liaza repa xnana, “Amna lo
 Chi b-zeny=a liaz=a r-eipy=a x-nan=a m-na=a lo
 when PFV-arrive=1s house=1s HAB-say=1s POSS-mother=1s PFV-see=1s PREP
 Maria.”
 Maria
 Maria

‘When I arrived home, I said to my mom that I had seen Maria.’

- g. “Where was she going?” my mother asked.

Chiru na xnana, “Cali **chiëng**?”
 Chiru n-a x-nan=a Cali ch-i=ëng?
 then ST-say POSS-mother=1s where IRR-go=3s
 ‘Then my mother said, “Where was she going?”’

- h. “When I was on my way to buy bread, Maria said she was on her way to bring you flowers,” I said.

Chiru repa xnana zicy naëng **chicaëng** gyia por yu.
 Chiru r-eipy=a x-nan=a Zicy n-a=ëng ch-i-ca=ëng gyia por yu
 then HAB-say=1s POSS-mother=1s thus ST-say=3s IRR-AND-get=3s flower for 2sf
 ‘Then I told my mother, “She said she was going to get flowers for you.”’

- i. “Didn’t she come here while I was gone?” I asked.

Chiru repa xnana “Queity **nyied** Maria ruc e?”
 Chiru r-eipy=a x-nan=a Queity ny-ied Maria ruc e?
 then HAB-say=1s POSS-mother=1s NEG IRR-come Maria here Q
 ‘Then I asked my mother, “Didn’t Maria come here?”’

- j. My mother was surprised. “No, she never came,” my mother said.

Chiru na xnana tebag tu **nieddya**.
 Chiru n-a x-nan=a tebag tu ny-ied=dya
 then ST-say POSS-mother=1s NEG who SBJV-come=PT
 ‘Then my mother said, “No one came.”’

- k. “How odd!” I thought. Maria said that she was on her way to bring us flowers, but she never came.

Don queity **niad** Maria de ni **gwaa** jwer? Chiru na
 Don queity nied Maria de ni gw-a=a jwer chiru n-a
 so NEG SBJV-come Maria since IRR-go=1s outside then st-say
 xnana nyec teiby Maria queity **niad**.
 x-nan=a nyec teiby Maria queity n-ied
 POSS-mother=1s NEG one Maria NEG SBJV-come

‘So Maria didn’t come while I was out? Then my mother said no one at all came, Maria didn’t come.’

- l. I wonder where she was actually going?

Chiru beina xjab, “Xi ni?” Ni na Maria **chicaëng** gyia, chiru
 Chiru b-einy=a xjab xi ni ni n-a Maria ch-i-c=ëng gyia chiru
 then PFV-do=1s think why REL st-say Maria IRR-AND-get=3s flower then
 nyecpag **nyiadëng**. Cazhli **zeëng**?
 nyecbag ny-ied=ëng cazhli z-e=ëng
 not.even SBJV-come=3s where.on.earth IRR-go=3s

‘Then I think, “Why did Maria say she was going to get flowers, then not come? Where on earth did she go?”’

In this retelling, the Dizhsa associated motion construction was used in lines (35a), (35d), (35h), and (35l), providing perfective and irrealis examples. Although the story contains progressive events, they were not described with associated motion (lines 35c and 35e-35g). This retelling included several negated motion verbs (lines 35j-35l), but no negated associated motion constructions, an example of how even targeted materials do not always succeed in eliciting associated motion constructions when a language has alternative ways of describing motion.²⁰ However, as Burton and Matthewson (2015) describe, storyboard elicitation can be followed up with more targeted questions to obtain alternative ways of describing the scene.

This story also provides data about deixis. For several events, there is a choice of perspective-holder: Maria’s motion could either be described with either an andative or a venitive construction, depending on whether Maria takes the perspective of her addressee, the narrator, since Maria is moving towards her homebase in lines (35b) and to her utterance-time location in lines (35h)-(35l). In this retelling, the use of the andative for Maria’s motion shows that the perspective-holder is Maria rather than her addressee.

This storyboard also provides the opportunity to collect data on direct and indirect speech reports. In lines (35h), (35k), and (35l), Maria’s speech can be reported with direct speech reports or indirect speech reports. In this retelling, indirect speech reports are used in lines (35h) and (35l), since the andative construction has an encliticized third-person pronoun.²¹

More discussion of using storyboards to elicit associated motion can be found in Vuillermet (2021), which describes *A Hunting Story*, a storyboard Vuillermet developed to elicit the complex system of associated motion in Ese Ejja (Tananan; Bolivia and Peru).

²⁰ For example, Erin Donnelly (p.c.) used the *Hunting Story* (Vuillermet 2021) in fieldwork on Choapan Zapotec, but the speaker retellings did not contain associated motion constructions.

²¹ The indirect speech report in (35h) is embedded within a direct speech report of the narrator’s, since a second-person pronoun is used to refer to the mother, who is the narrator’s addressee.

4.3 Map elicitation

In our work on associated motion constructions, we have also found manipulating figures on a pictorial context or map to be a useful technique for elicitation. Like stories, maps are a way to make intended discourse context clear (e.g. Wilkins 1995), although rather than the rich narrative context of a story, map elicitation has more in common with methods where a consultant provides judgments or descriptions given a visually-depicted context or event. Stimuli sets for event description would no doubt be of use for eliciting associated motion, including the geometric event stimuli of Bohne-meyer and Caelen (1999) and Levinson (2001) or the video clips of Wolff (2003) and Bellingham, Evers, Kawachi, Mitchell, Park, Stepanova, and Bohne-meyer (2020); these tools provide a useful way to define a context where figures move and act in particular configurations, and are designed to account for a large variety of relevant parameters. Among these kinds of visual stimuli, we see maps in particular as useful for elicitation, even though they provide less detail than film clips, because their simplicity allows for easy manipulation of the context. As a result, when using maps, linguists can dynamically manipulate the visual context during an elicitation session, and consultants can adjust it to fit constructed sentences (i.e., by moving the figures to create a felicitous context of use).

In a shared physical space, this can be done with a printed map and physical markers to represent the characters, which CJA and FHL have found effective. Example (17b) was elicited in this manner. In virtual elicitation sessions, basic image annotation software can be used to achieve similarly manipulable materials. For example, FSR and JD used a virtual map with simple landmarks in many of their elicitations.²² An example map is shown in Figure 2.²³

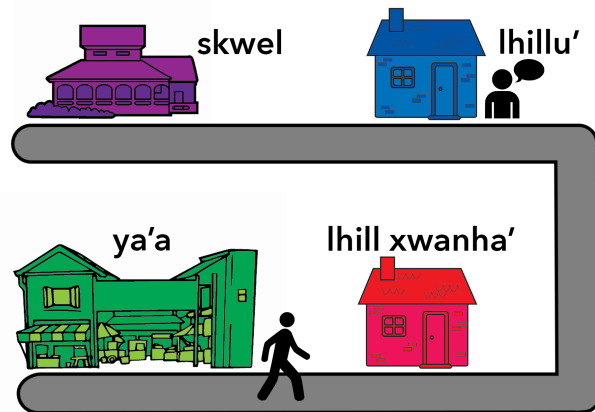


Figure 2: A sample map with labels in Dille' xhunuh Laxup. From top left: *skwel* 'school', *lhill=u* 'your (sg.) house', *lhill xwanha*, 'Juana's house', *ya'a* 'market'.

In one session, FSR and JD used the map method to study the deictic requirements of the andative vs. the venitive. JD placed markers representing Pedro (the figure walking) and FSR (the figure speaking) on the map so that FSR was at her house, as in Figure 2 and moved Pedro so that he

²² JD would like to thank Dan Brodtkin, another member of UC Santa Cruz's Zapotec Language Project, for suggesting the use of this technique and implementing the first virtual map.

²³ This map uses free-content clip art, but it is best to commission illustrations by an artist from the community.

moved from the market to FSR's house, ate there, and then returned to the market. In this context, FSR judged that she could say (36a) using a VEN prefix, but not (36b) using an AND prefix.

- (36) a. B-de-do Bedw'nh xwe. [Dille' xhunh Laxup]
 PFV-VEN-eat Pedro comida
 'Pedro came and ate *comida*.'
- b. Ja-do Bedw'nh xwe.
 PFV.AND-eat Pedro comida
 'Pedro went and ate *comida*.'

As a follow-up, JD asked FSR to demonstrate an event with the markers that could be described using (36b). FSR judged that it would be most felicitous if Pedro made the same set of motions, eating at the house, but the speaker's marker was at the market. In a series of subsequent judgments, FSR judged that even though this was a prototypical case where (36b) would be used, it would also be acceptable if the speaker was at Juana's house or at the school, and that (36a) was not acceptable in any of these contexts. In other words, the authors were able to use the map task to determine the precise deictic conditions on the venitive vs. the andative in Dille' xhunh Laxup, in particular that the andative prefix is felicitous to describe a sequence of motion and a subsequent event so long as the motion does not bring the subject to a deictic center (in this case, the speaker's location at event time).

Map methods are particularly useful to examine deixis, because they offer a chance to fix a spatial perspective for the speaker relative to other figures' movement. But they can also be deployed to understand the temporal structure of events. For instance, in another session, FSR and JD used the map method to study the interpretation of PFV, IPFV, and FUT aspect marking in the associated motion construction. JD placed markers representing Pedro and FSR on the map so that FSR was at the school and Pedro was at Juana's house, preparing to leave to come to the school. In this context, as might be expected from the descriptions given for the aspect markers above, FSR judged that she could say example (37a) using a FUT prefix, but not (unless there were further past context) example (37b) using a PFV prefix.

- (37) a. De-kwell Bedw'nh skwel =e'nh. [Dille' xhunh Laxup]
 FUT.VEN-play.music Pedro school =DEF
 'Pedro is going to come play music at the school.'
- b. B-de-kwell Bedw'nh skwel =e'nh.
 PFV-VEN-play.music Pedro school =DEF
 'Pedro came and played music at the school.'

As a follow-up, JD asked FSR to re-arrange the markers so that (37b) would be true. FSR judged that it would be most felicitous if Pedro had, on the map, traveled to the school, spent time with the speaker there (during which he played music), and then had returned to Juana's house. JD and FSR talked through additional scenarios using the map and confirmed that even though this was a prototypical case where (37b) would be used, it was felicitous if Pedro was still on his way back to Juana's house, or even if he was still at the school, so long as he had finished playing music. In other words, the authors were able to use the map task to determine that PFV-marked associated motion

tradition judgments are also particularly useful.²⁴ We discuss these below, followed by a note on non-binary judgments.

4.4.1 Contradiction judgments

Contradiction judgments offer a way for linguists to probe the truth conditions of an utterance while guarding against over-interpreting sentence acceptance. Matthewson (2004) gives an example from St'át'imcets (Salish; British Columbia): although speakers normally interpret perfective sentences as including the completion of an event, they do not judge perfective sentences to be contradictory if they are followed by information incompatible with event completion. If completion were a true entailment for the perfective in that language, speakers would judge the combination of these sentences to be contradictory, as in Dille' xhuh Laxup (40) (as well as Dizhsa and English).

(40) #U-do Bedw'nh tu pastel =e'nh. Ne'e de yilate'. [Dille' xhuh Laxup]
 PFV-eat Pedro one cake =DEF still exist portion
 'Pedro ate a cake. There is still some left.' (Contradiction)

Because this method can offer precision in distinguishing entailments from inferences, we have found it particularly useful in moving from intuitive understanding of associated motion constructions to isolating and testing the particular components of their meaning. Examples already shown in §2.1 used this methodology to demonstrate that associated motion constructions in Dille' xhuh Laxup entail the realization of the main verb (7a) and the intention of the subject to realize the main verb (14b).

(7a) #B-de-daw =e' xche'. Bitu u-daw =e'. [Dille' xhuh Laxup]
 PFV-VEN-eat =3ELD cena NEG PFV-eat =3ELD
 'He came and ate *cena*. He didn't eat.' (Contradiction)

(14b) #B-de-xixe Xwanha'. Bitu b-enh =de =ba' ='nh.
 PFV-VEN-SNEEZE Juana NEG PFV-do =on.purpose =3HUM =3INAN
 'Juana came and sneezed. She didn't do it on purpose.' (Contradiction)

Comment: The first sentence sounds like she wanted to sneeze on you for some reason.

Contradiction judgments should be used in tandem with elicitation that tests whether the component parts of the contradiction are grammatical and acceptable on their own, since otherwise, the sentences may be infelicitous for an unknown reason. FSR and JD have established an ordered sequence of elicitation. First, the appropriate vocabulary is checked on its own. Then the grammaticality and felicity of the independent parts of the desired test sentence are probed, before finally asking for the entire contradiction judgment. When these procedures were separated and their role made explicit, FSR was able to give more confident judgments. Discussion after each sentence was also useful to understand in which contexts it could be said, or if a contradiction, how the first part might be changed in order to make the second part felicitous.

²⁴ Contradiction judgments are in some ways comparable to requesting contextual felicity judgments where the context is given in the language being studied; for helpful discussion of cases when this might be more or less preferable than contexts presented in a meta-language, see AnderBois and Henderson (2015).

4.4.2 Probing non-binary judgments

Discussions which extended beyond simple acceptability or unacceptability were useful throughout this work. For instance, when probing the status of the agentivity requirement for Dille' xhunuh Laxup, FSR often found unexpected sentences acceptable, with some caveats. For example, FSR found (41), the first sentence of (14b), with a venitive applying to *-xixe*, acceptable, but only if the speaker was talking about a very peculiar story where a sneeze happened very differently from the way it normally does.

(41) ?B-de-xixe Xwanha'.

PFV-VEN-sneeze Juana

'Juana came and sneezed.'

Comment: It sounds like she wanted to sneeze on you for some reason.

In another instance, it was possible for FSR to imagine a context in which (42) was acceptable, but it would only ever be in a context where we were treating the sun as if it were alive and acting on its own volition.

(42) ?B-de-s-bill will =e'nh beku' =nh.

[Dille' xhunuh Laxup]

PFV-VEN-CAUS-dry sun =DEF dog =DEF

'The sun came along and dried off the dog.'

Comment: Only as a metaphor or dream.

Comments like this are very important when establishing how sentences vary in acceptability. Language use and understanding is often flexible, but it is useful to understand cases of coercion or significant accommodation separately from cases of simple acceptability. When speakers have the opportunity to reflect on whether they must think about things in an unusual way to find a felicitous reading, the collaboration can arrive at a more accurate understanding of the sentence's semantics.

5 Reflections

While working to develop methods for eliciting associated motion, the authors have also developed ways of working together in linguist-language expert partnerships. In this section, we reflect on the practices that we have developed for collaboratively exploring Dille' xhunuh Laxup and Dizhsa in partnerships between language experts and linguists.

The foundation of fieldwork relationships is reciprocity (Brophey and Raptis 2016; Dwyer 2006; Rice 2010). The relationships between language experts and linguists should be mutually beneficial, and should aid the wider language community. The concept of reciprocity is embodied in Zapotec culture through the *guelagetza* system, a community-based system of cooperative exchange and collaboration (Alonso Ortiz 2020; Flores-Marcial 2015). The concept of *guelagetza* can serve as a guiding principle for ethical fieldwork in Zapotec communities.

5.1 Communities in relation

When considering what work will be beneficial to the language community, it is important to acknowledge that communities are not homogeneous. Communities can be formed along many lines,

including kinship, shared language, shared cultural practices, and geographic location. Each person belongs to multiple communities simultaneously, and may play different roles in different communities (Alonso Ortiz 2020; Dwyer 2006, 2010; Pérez Martínez 2020). As a result, it is a mistake to draw binary divisions between, for instance, members of academic communities and members of language communities (Cruz and Woodbury 2014; Cruz 2020b; Leonard and Haynes 2010).

Just as Emiliana Cruz emphasizes for Chatino (Cruz and Woodbury 2014), there is no one Zapotec community. The Dizhsa and Dille' xhunn Laxup language communities are made up of many smaller communities on both sides of the US/Mexico border, each with its own distinct set of experiences and cultures. Moreover, communities may differ in their goals for language work (Benedicto, Balna, Viñas-de Puig, and Eggleston 2009; Penfield, Serratos, Tucker, Flores, Harper, Hill, and Vasquez 2008; Shulist 2013).

The work we describe has involved collaboration among different kinds of communities. For instance, Authors FSR and JD have worked together in the U.S.; their partnership has continued ongoing ties between a research university and its local Oaxacan community. FSR has also helped foster a connection between the same university and Santiago Laxopa. Authors FHL and CJA worked together primarily in San Lucas Quiavini. However, their collaboration started as an offshoot of a larger collaboration between an academic institution and a school in an adjacent town to San Lucas Quiavini.

5.2 Reciprocity in linguist-consultant relationships

Sustainable relationships between linguists and language experts should be reciprocal (Pérez Martínez 2020; Rice 2006). There are a variety of ways that linguists can contribute to the language community from which they are drawing their data. One of the practical benefits of working with linguists can be a better meta-linguistic awareness of the language's structure, which can be useful for consultants who are also language teachers (Eschenberg and Saunsoci 2018; Gerds 2010). Similarly, some consultants may wish to work on literacy in their language as part of the language consultation process.

As well as aiding consultants' individual goals, linguists may be able to contribute to ongoing language revitalization efforts. Their skills are particularly relevant for developing pedagogical materials and applying for funding (Gerds 2010; Speas 1997; Yamada 2014). FSR has worked with JD and other linguists to develop pedagogical materials for use in the US and in Santiago Laxopa. In turn, these pedagogical materials were used to make available free, regular Zapotec language classes in 2019-2021 attended by members of the Oaxacan community, educators, social workers, health practitioners, and interested members of the local community.

In addition, linguists have an obligation to communicate the results of their research to the community (Dwyer 2006). Although many linguists struggle to communicate their findings in a way that is approachable (Grenoble 1997), it is important work, since their research can help counter messages that minoritized languages are not worthy of study or not "real" languages (de los Santos 2020). FHL has experimented with a variety of approaches, including community-based workshops, social media outreach, and Zapotec reading and writing workshops in Oaxacan schools. FSR, JD, and their collaborators have worked together on advocacy and outreach for indigenous languages spoken in the Monterey Bay region, and are planning to begin reading and writing workshops for Dille' xhunn Laxup in Santiago Laxopa in Summer 2022.

5.3 Working as and with multilingual consultants

Fieldwork on Zapotec languages usually takes place in a multilingual context. Although conducting elicitation in a language other than the target language is not ideal, most of the work on Dizhsa and Dille' xhunn Laxup is done using Spanish or English as a contact language. One complication that arises in Spanish-Zapotec or English-Zapotec elicitation is word order bias. Neutral Dizhsa word order is VSO, but SVO and OVS occur with focus-fronting. However, because English and Spanish are SVO, speakers may give word-by-word SVO translations, even if they are not faithful to the context (i.e., the context is neutral, but SVO order is felicitous only in subject-focused contexts). One strategy for mitigating this kind of bias is to present sentences in a context, so that the mismatch between the communicative intent and the focused SVO order is clearer.

Another strategy is to ask open-ended questions when possible. For instance, in storyboard elicitation, it is better to ask “Can you tell me about what the frog is doing on this page?” than “Can you tell me about the frog leaping?” If the speaker had a different verb in mind, the latter formation might nudge them towards a verb that is closer to “leaping.” FHL recalls cases in which linguists asked a very specific question and speakers selected a Spanish word to better match the linguist's expectations, rather than giving a less directly parallel but more natural Dizhsa description. In particular, this happened many times in both languages when eliciting associated motion constructions, as noted in §4.1.

Experienced language consultants often develop strategies for guiding linguists towards properties of the language that might be overlooked. When a linguist seems narrowly focused on one way of saying something, consultants might prompt them to pay attention to the bigger picture by volunteering alternative phrasings or contexts of use. In cases where the linguist is interested in a dispreferred though grammatical alternative, it can be helpful to clarify this to the consultant.

Although there can be challenges arising from multilingual elicitation contexts, FSR and FHL both report drawing on their knowledge of multiple languages to aid consultation. Thinking about how a particular language feature works in both Spanish and English provides more points of comparison for Dizhsa and Dille' xhunn Laxup. For instance, the deictic conditions for motion verbs work differently in Spanish and English (Gathercole 1987; Nakazawa 2007); FHL and CJA have used these contrasts as a starting point for working out the conditions for *ried* ‘comes’.

5.4 Teaching in different contexts

The collaborations between this set of authors have also been heavily influenced by FSR and FHL's experience as teachers of their languages. FSR has found teaching to be the most natural way to arrive at a meta-linguistic understanding of her language. She notes that when learning and using it natively before trying to teach others, she was not aware of many things she now finds unique and valuable about the language, including the associated motion construction. Similarly, FHL found that preparing pedagogical materials for the first course he taught on his language allowed him to more fully understand pieces of the language, even after having worked on it extensively.

The meta-linguistic knowledge gained through teaching has influenced both of their approaches to working with linguists, by helping them reason about the patterns the linguists are interested in. As in the leaping frog example discussed in §5.3, sorting out the information that a linguist intends to ask about from other irrelevant information is a common part of their experiences serving as language consultants.

FHL and FSR's roles as teachers also extend to teaching linguistics students how to engage

respectfully with the communities of Zapotec speakers they are working with. As Cruz (2020a) describes, preparing students from outside of the community to behave appropriately is important for building successful fieldwork relationships between academic institutions and indigenous communities. FSR works with her town to facilitate yearly visits from JD's institution, and CJA was introduced in San Lucas Quiavini by FHL, which was very important in finding people to work with in the community. JD and CJA have greatly benefited from FSR and FHL's expertise in navigating differences between academic and Zapotec communities.

FSR and FHL's roles as teachers and language experts have led them to serve as bridges between academic communities and Zapotec communities, facilitating the *guelaguetza* described above and influencing the ways in which it can be achieved. This can be at an individual scale, as described above, but also in a broader sense. Both FSR and FHL have sought to use their work with linguists to help amplify the status of their languages.

Inside their communities, FSR and FHL seek to ensure that children and parents learn the language and understand that it is as valuable as languages that are treated as more prestigious by the educational system (de los Santos 2020). One goal that they see as particularly important is encouraging speakers to write the language; the fact that their languages are not often written is one of the reasons that they have been dismissed or seen as lesser (Lillehaugen 2016). Outside their communities, they work to make sure that others understand that Zapotec languages are an everyday part of Zapotec peoples' lives and modern culture, and not relics or artifacts of history.

5.5 Virtual versus in-person

Because of the transnational nature of Zapotec language communities, our work has unfolded in a variety of settings. However, fieldwork has been particularly challenging in 2020-2021 due to the COVID-19 pandemic. In-person fieldwork and elicitation has been suspended. FSR and JD have adapted by holding virtual elicitation sessions, which have many challenges, as noted by earlier work on remote language-learning (Haag and Coston 2002; Taff 1997).

Although the improved quality of video calls has been beneficial for virtual fieldwork sessions, internet connections are still not reliable. Video conferencing programs often muffle or clip audio to eliminate background noise, which, though beneficial for business meetings, is a serious issue for linguistic elicitation. Poor audio quality makes it harder to perceive phonetic contrasts; even in video calls, some visual cues are missing, such as body language. FSR has had to adjust her teaching style since some visual aids for pronunciation, such as holding a sheet of paper in front of her mouth to illustrate aspiration, do not work as well in online sessions. Virtual environments are particularly challenging for spatial elicitation, since the consultant and linguist no longer share the same spatial perspective. As a result, the speaker's spatial orientation can be unclear to their addressee. Using maps and other context-illustrating techniques has therefore been key in the virtual sessions.

The transition to virtual elicitation has also made it difficult to build and sustain relationships, an important part of the collaborative fieldwork process (Czaykowska-Higgins 2009; Dwyer 2010; Eschenberg and Saunsoci 2018; Haag and Coston 2002; Pérez Báez 2018; Rice 2006). Social activities that can help build and strengthen social ties, like sharing food or participating in culturally-relevant activities together, are no longer possible.

6 Conclusion

In this paper, we have discussed our experiences exploring the semantics of associated motion constructions in Dille' xhunuh Laxup and Dizhsa on three levels. In §2, we illustrated the semantic properties of associated motion constructions in these two Zapotec languages, highlighting several ways in which they differ. In §4, we described several techniques that we have used to construct and manipulate concrete utterance contexts for associated motion constructions. Finally, in §5, we reflected on the practices and principles we have developed in our collaborations as linguists and language experts, highlighting the importance of reciprocity in these relationships.

Although each language context is unique, we hope that these reflections will be useful for other linguists and language consultants. In particular, we hope that the techniques that we have developed for eliciting associated motion constructions will aid further cross-linguistic work on the fine-grained semantics of these complex constructions.

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Appendix A Lost Hat story

1. Maria had a busy day yesterday.
2. First she went to cut flowers in the hills with Paty.
3. Then she brought some flowers to her cousin Bety.
4. Bety wasn't home, but Maria went into the house anyway.
5. She put the flowers in water so they wouldn't die.
6. Later she went and worked in Tlacolula for a few hours.
7. Before going home, she gave her niece Norma some chocolate at Norma's house.
8. When she got home, she couldn't find her hat.
9. She said, I must have gone and lost it somewhere!
10. At the same time, Bety and her sister got home.
11. There was a hat on the table next to the flowers.
12. The sisters asked each other if it was their hat.
13. No, said Bety. Maria must have come and left it here by accident.
14. Maria went to see if her hat was at Norma's, but it wasn't there.
15. Then Maria called her boss to ask if she had left her hat at work.
16. No, there's no hat here, said her boss.
17. Just then, Bety called her.
18. I think you left your hat here, said Bety.
19. Maria went and got her hat from Bety.
20. Then she finally fell asleep.

Appendix B Sleepwalking story

1. My cousin Carlos sleepwalks.
2. Every night, we have to go and lock him into his room.
3. Otherwise he escapes.
4. One night, he went and ate a bar of soap.
5. He thought it was an apple.

6. Another time, he went and stole my father's blanket.
7. He must have been cold.
8. Last week, he went and fell into a hole.
9. He got outside the house and walked all the way to the fields.
10. He was carrying his pillow still.
11. The whole time he was asleep.
12. He fell into a hole.
13. His arm got cut.
14. He dropped his pillow there.
15. He returned to the house and laid back down in his bed.
16. He didn't wake up this whole time!
17. In the morning, his clothes were dirty and torn.
18. He looked for a long time for his pillow but he couldn't find it.
19. He knew that he must have gone and lost it in his sleep.
20. That afternoon he found it in the hole in the field.
21. He had walked very far while sleeping.
22. He might have walked off a hill and died!
23. From then on we started locking him into his room.
24. Now he doesn't go and lose his things.
25. Now he doesn't go and get hurt.

Appendix C Mysterious Maria storyboard

1. This morning I went to buy bread.
2. My mother asked me where I was going.
3. "I'm going to get bread," I told her.
4. On my way to the store I saw Maria.
5. I asked Maria where she was going.
6. "I'm on my way/going to drop off some flowers for your mother," Maria said.

7. After I bought bread, I went home.
8. When I got home, I told my mother that I had seen Maria.
9. “Where was she going?” my mother asked.
10. “When I was on my way to buy bread, Maria said she was on her way to bring you flowers,” I said.
11. “Didn’t she come here while I was gone?” I asked.
12. My mother was surprised. “No, she never came,” my mother said.
13. “How odd!” I thought.
14. Maria said that she was on her way to bring us flowers, but she never came.
15. I wonder where she was actually going?



Figure Appendix C1: This morning I went to buy bread.

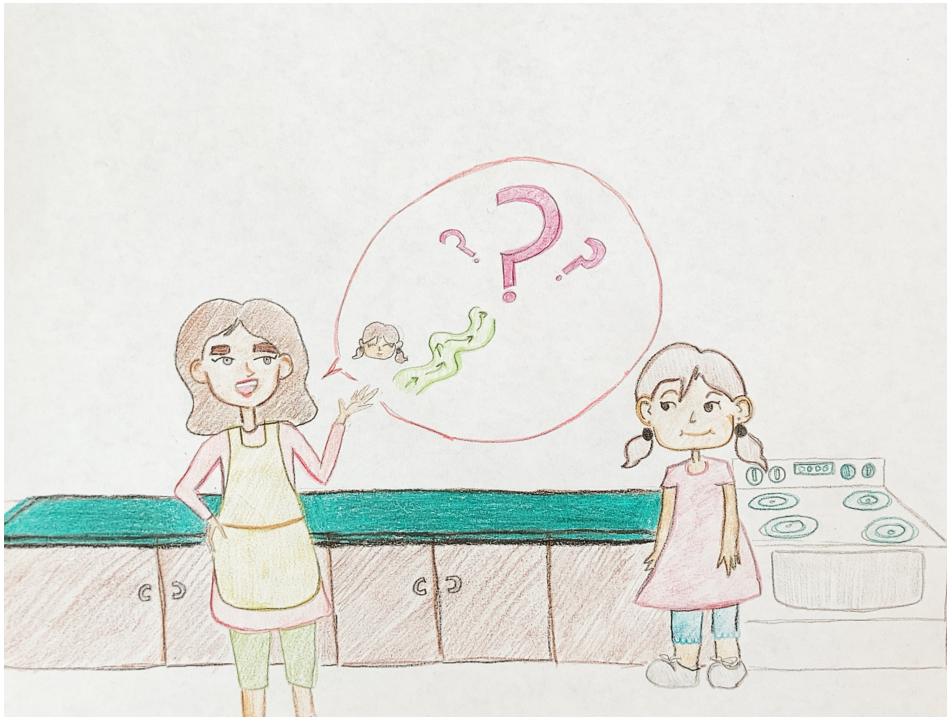


Figure Appendix C2: My mother asked me where I was going.

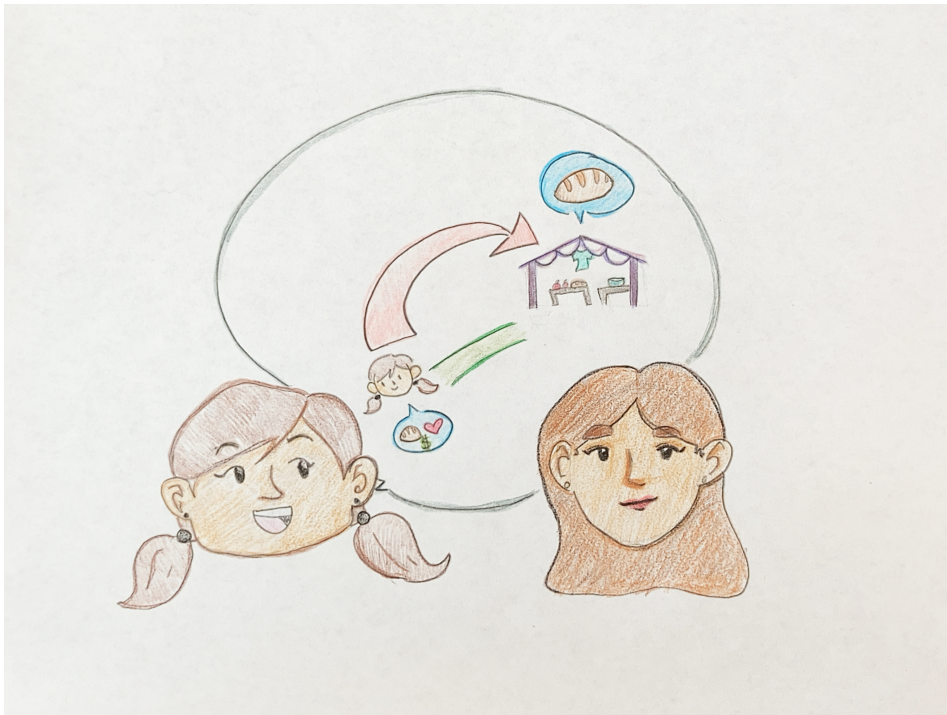


Figure Appendix C3: "I'm going to get bread," I told her.



Figure Appendix C4: On my way to the store I saw Maria.



Figure Appendix C5: I asked Maria where she was going.

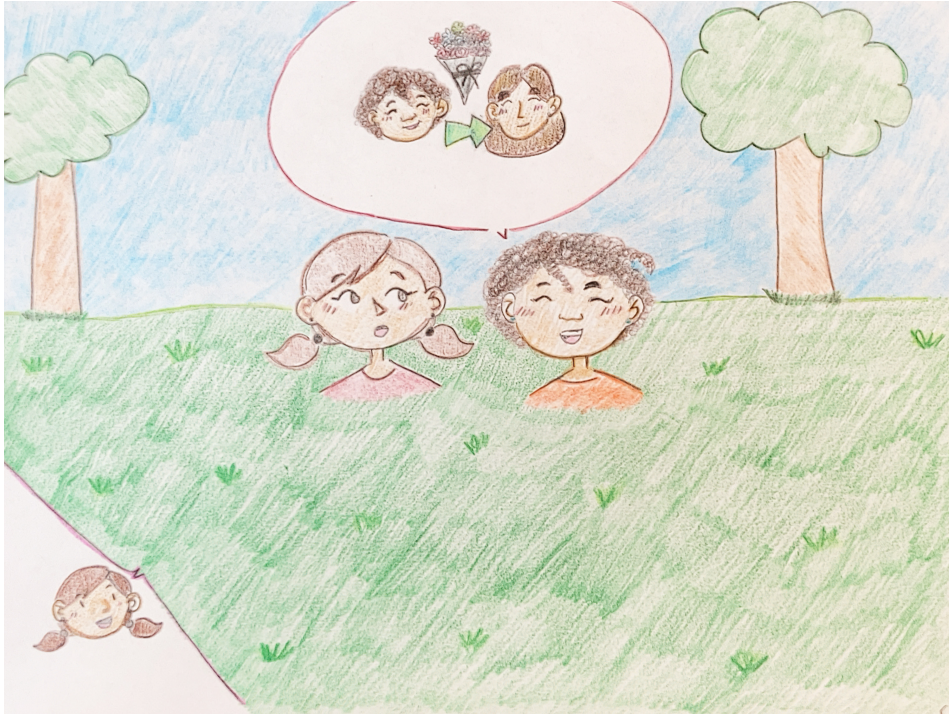


Figure Appendix C6: "I'm on my way/going to drop off some flowers for your mother," Maria said.



Figure Appendix C7: After I bought bread, I went home.

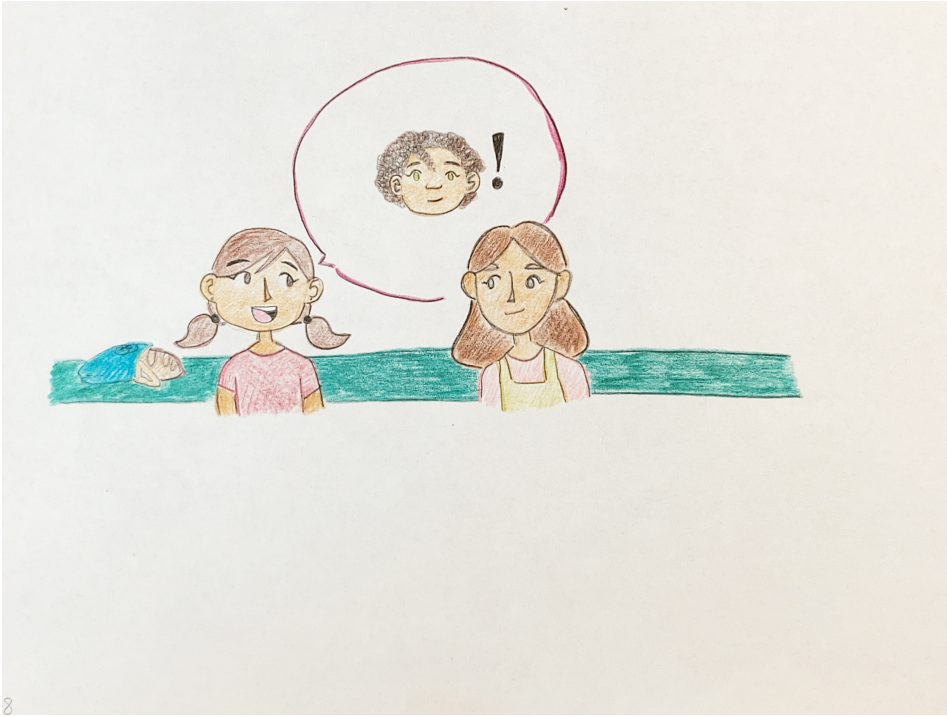


Figure Appendix C8: When I got home, I told my mother that I had seen Maria.

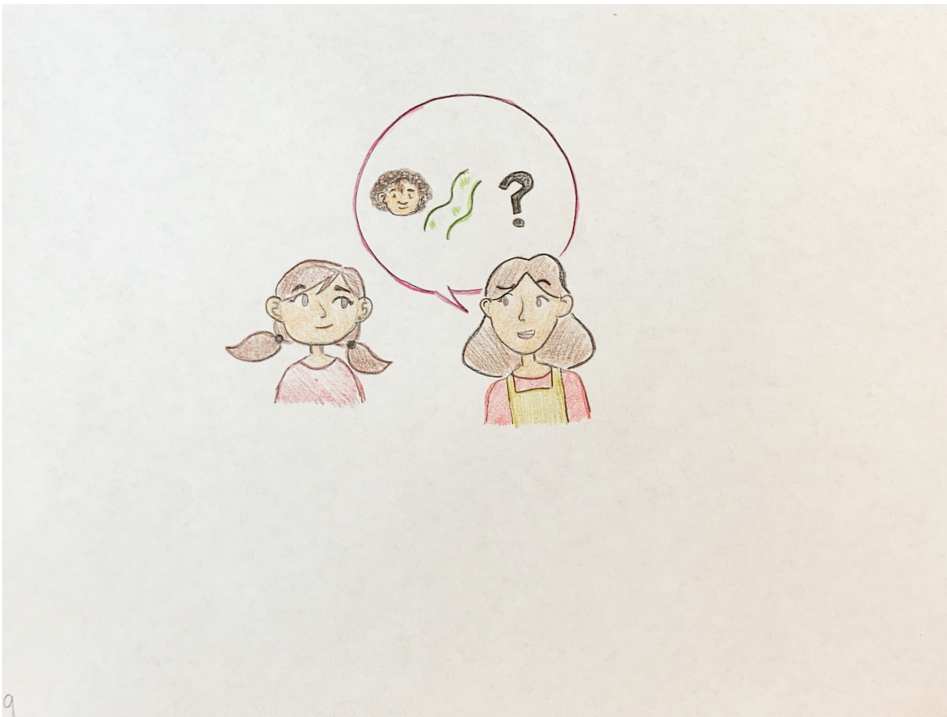


Figure Appendix C9: “Where was she going?” my mother asked.

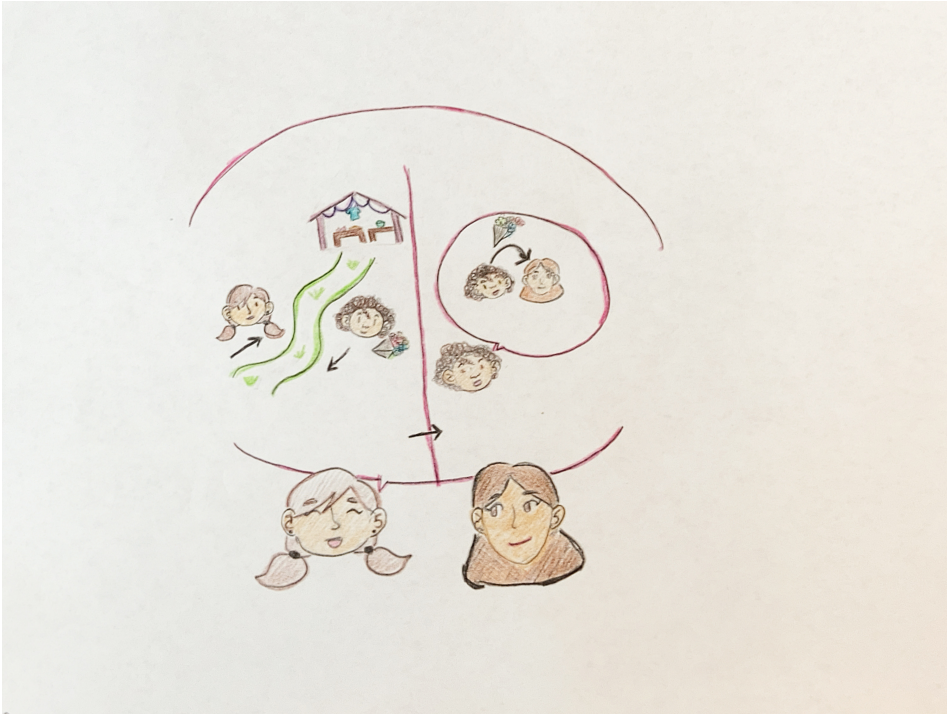


Figure Appendix C10: “When I was on my way to buy bread, Maria said she was on her way to bring you flowers,” I said.

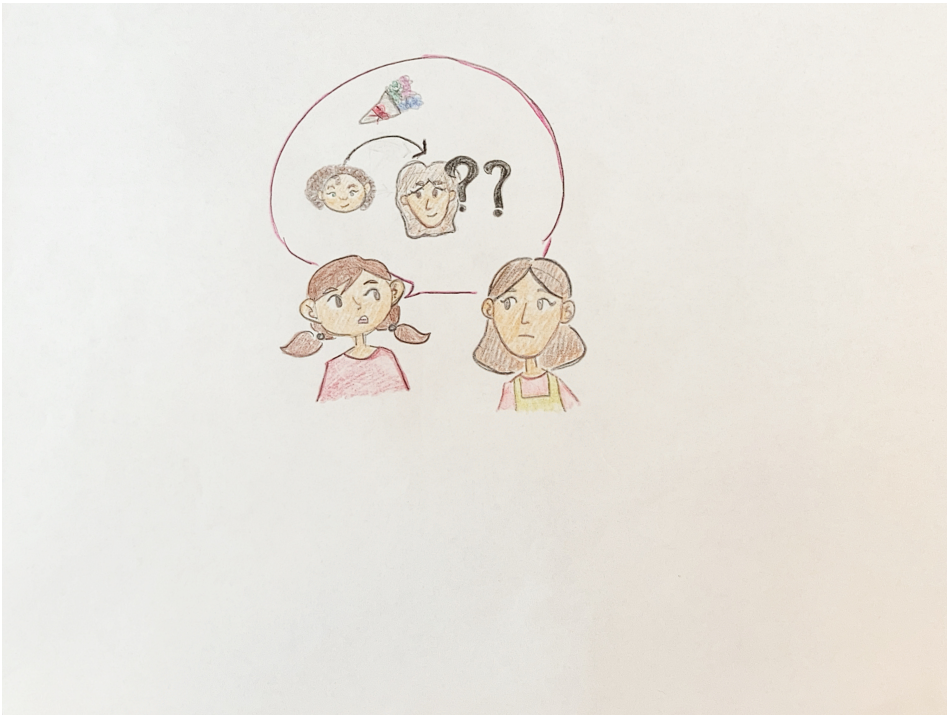


Figure Appendix C11: “Didn’t she come here while I was gone?” I asked.

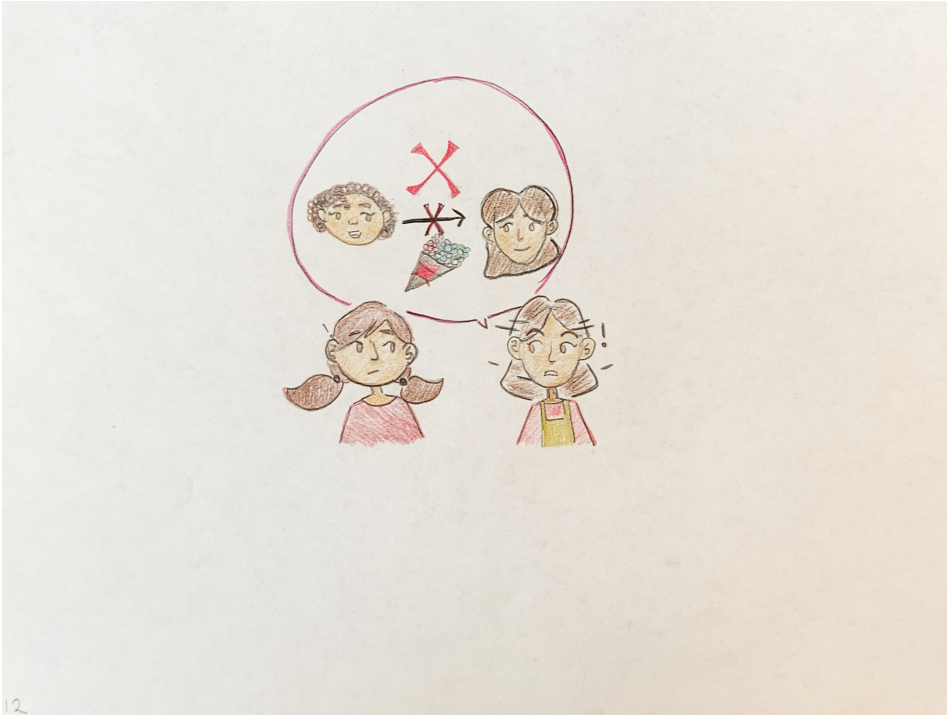


Figure Appendix C12: My mother was surprised. “No, she never came,” my mother said.

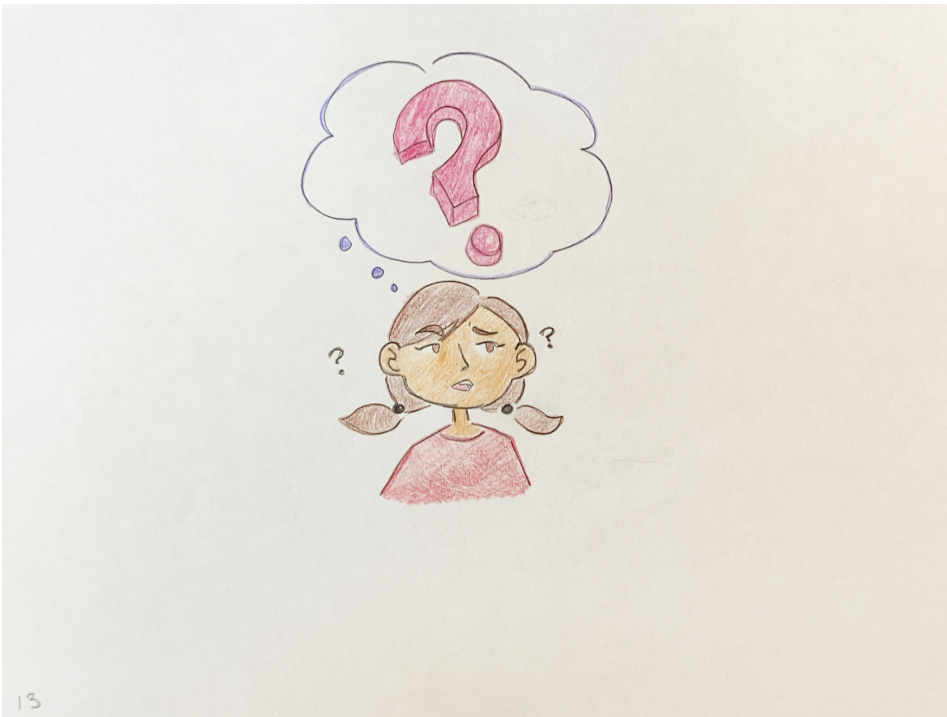


Figure Appendix C13: “How odd!” I thought.

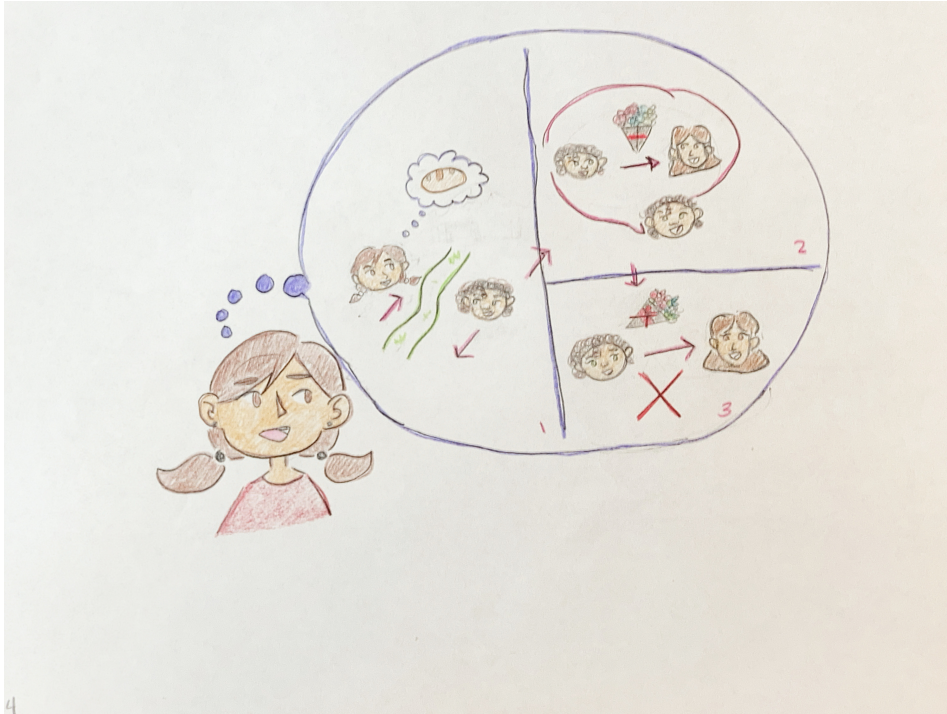


Figure Appendix C14: Maria said that she was on her way to bring us flowers, but she never came.



Figure Appendix C15: I wonder where she was actually going?