

# Absolute spatial deixis and proto-toponyms in Kata Kolok

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This paper presents an overview of spatial deictic structures in Kata Kolok, a sign language which is indigenous to a Balinese village community. Sociolinguistic surveys and lexicographic comparisons have indicated that Kata Kolok is unrelated to the signing varieties in other parts of Bali and should be considered a sign language isolate as such. Kata Kolok emerged five generations ago and has been in intimate contact with spoken Balinese from its incipience. The findings from this paper suggest that this cross-modal contact has led to an absolute construction of the signing space, which is radically different in comparison to spatial deixis in other sign languages. Furthermore, Kata Kolok does not seem to have a class of true toponyms, but rather deploys deictic proto-toponyms. The Kata Kolok system on the whole does not exhibit any related linguistic forms or direct calques from spoken Balinese, and this suggests that the conceptual overlap between these two languages may have been facilitated by shared cultural practices as well as gestural communication rather than direct borrowings. Ultimately, this analysis challenges the very notion of a sign language isolate and suggests that Kata Kolok and other emergent signing varieties should be considered in light of the broader semiotic context in which they have evolved.

## 1. Kata Kolok: a shared sign language

Kata Kolok<sup>1</sup> is a sign language used by the deaf and hearing inhabitants of a farmers' village in the north of Bali, in the region of Buleleng. The hearing villagers refer to Bengkala as *Desa Kolok* - which is Balinese for 'deaf village' – and its sign language as *Kata Kolok* 'deaf talk'. The deafness in Bengkala is recessive, non-syndromal, and sensorineural and it is caused by a mutation of the gene referred to as *DFNB3* or *MYO 15a* (Friedman et al. 2000). The mutation that causes deafness is widespread throughout the village population, and as a result 2.2% of the villagers are congenitally deaf, but 17.6% of the hearing community members also carry the 'deaf' version of the gene (Winata et al. 1995). A reconstruction of the village's lineages reveals that the first person to be affected by this gene was born seven generations ago (Liang et al. 1998). However, it was not until five generations ago that the language was used by a small group of deaf signers and it is this event that marks the emergence of *Kata Kolok* (de Vos 2012a). A sociolinguistic survey of the area, lexical comparisons, as well as

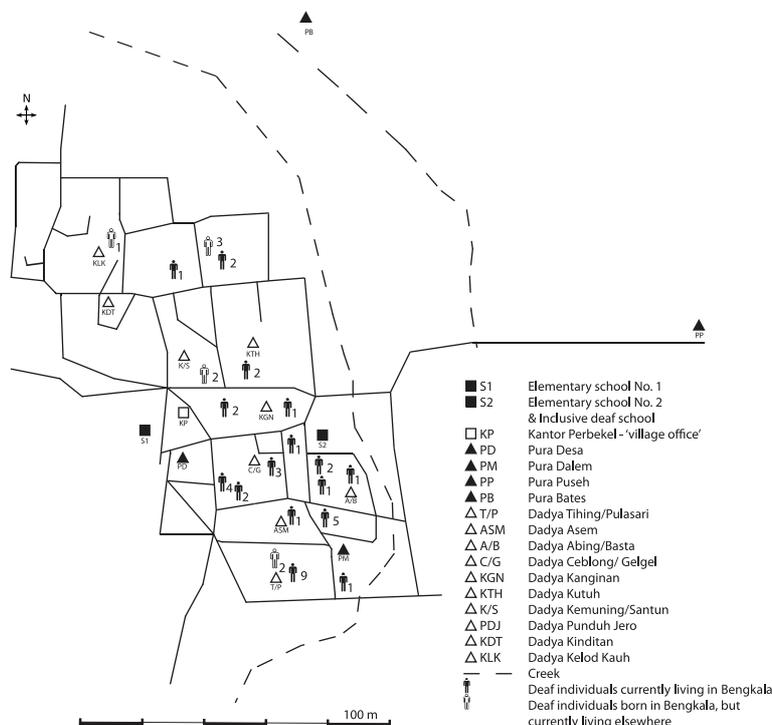
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<sup>1</sup> Sections of this paper have appeared in my PhD thesis (De Vos 2012a). This paper finds its origins in a tradition of research on frames of reference in co-speech gesture and sign language initiated by the Cognitive Anthropology Research Group, and later the Language & Cognition group at the Max Planck Institute for Psycholinguistics. I would hereby like to thank my intellectual predecessors, in particular Stephen Levinson, Asifa Majid, John Haviland, Annie Senghas, Jenny Pyers, and Pamela Perniss. Thanks also go to the deaf and hearing community members of Bengkala (Bali) for their companionship and cooperation during the times that I visited their village. I would also like to express my gratitude to I Made Wira Dharma who produced the line drawings of signs based on snapshots stemming from video recordings. Abel Groenewolt designed the diagrams throughout this paper. This research was supported by the Max Planck Gesellschaft as well as the ERC Advanced Grant #269484 INTERACT awarded to Prof. Stephen C. Levinson.

anecdotes by Kata Kolok signers indicate that this indigenous sign language has emerged in isolation from the Indonesian signing varieties used in other parts of Bali and Java (Marsaja 2008; de Vos 2012a).

Because the central village is small and covers less than a square kilometre, deaf and hearing villagers live in close proximity to one another and frequently interact at food stalls and kiosks throughout the village. Apart from casual chatting, Kata Kolok is also used in professional, liturgical, and educational settings by both deaf and hearing villagers. It is, for example, used in water pipe maintenance – which is vital to the village’s farming activities – and by the village nurse when she tends to deaf villagers. Kata Kolok is also used in child-directed signing between infants and their caregivers where either the infant or the caregiver (or both) are deaf (Marsaja 2008:103; De Vos 2012b). The sign language even surfaces on the rare occasion when a pandetta, a Hindu priest, is possessed by a deaf god during a trance. Since 2007 Kata Kolok has been also used as a language of instruction in the village’s elementary school (Kortschak 2010).

Deaf villagers use signs to communicate with their hearing relatives, as well as many of their hearing friends and colleagues, and a survey conducted in 2000 has indicated that at least 57% of Bengkala’s hearing population can understand and use Kata Kolok with varying degrees of proficiency (Marsaja 2008). As a result, deaf signers from Bengkala do not experience the same social inequalities as many Deaf signers from urban signing communities do. The integration of deaf villagers is also mirrored by the fact that they have equal chances of getting married and similar professional opportunities (Branson et al. 1999). Moreover, many village activities are shared between deaf and hearing villagers. These include the Hindu ceremonies as well as issues pertaining to village security. In these joint activities, the deaf villagers are well-integrated into the wider hearing community.



**Figure 1. The geographical distribution of deaf individuals in Bengkala in September 2011**

According to more recent demographic counts in 2008, Bengkala's population has increased to 2,740 (Astika 2008). A visit to the community in September 2011 has identified 46 deaf signers, spread throughout the *dadya* 'village clans'. There is no indication that the relative proportion of hearing people who can sign has decreased since Marsaja's 2000 survey. Thus, there should now be approximately 1,561 hearing individuals, 57% of the village population, who can sign. All in all, this means that 97% of Kata Kolok signers are in fact bimodal bilinguals, that is to say, hearing individuals who, in addition to the sign language, use spoken Balinese as a primary mode of communication.

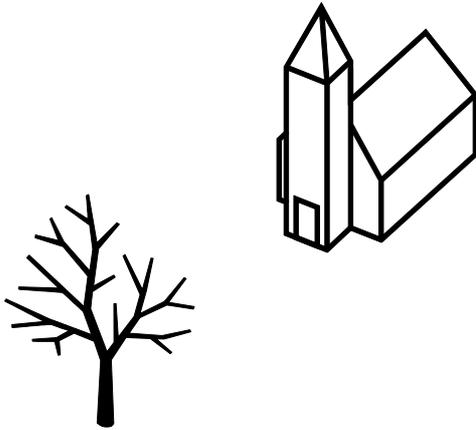
A map of the current geographical distribution of deaf individuals in the village is presented in Figure 1. Notably, 8 of the 46 deaf individuals have migrated to other parts of Bali, Indonesia, and even Australia for educational, socio-economic, and marital reasons. In recent years, multiple teenagers from Bengkala have entered the deaf boarding schools in Jimbaran, in the south of Bali, as well as in Singaraja, in the north. These adolescents have become fully bilingual in the local varieties of Indonesian Sign Language and Kata Kolok, and such contact situations often result in linguistic change in favour of the majority language associated with perceived educational and professional opportunities (Nonaka 2004). The attendance of this deaf boarding school has also resulted in increased contact between the Kata Kolok community and the wider deaf community of Bali, resulting in changing marital patterns. That is, the intensification of contact between Kata Kolok signers and Indonesian Sign Language signers has also resulted in an increasing number of deaf individuals from Bengkala seeking out deaf spouses from surrounding villages and other parts of Bali. Because deaf individuals outside of Bengkala are not carriers of the identical recessive gene causing deafness, these couples are unlikely to have deaf offspring. Moreover, this latter tendency, to marry outside the village, is also observed in hearing villagers from Bengkala due to socio-economic change. In effect, these changing marital patterns dilute the frequency of the recessive gene in the population of Bengkala and reduce the incidence of deafness as a result. When the number of deaf individuals decreases significantly, the chances are that the communicative need for the sign language will disappear. Similar demographic and social dynamics have critically endangered the continuation of comparable signing communities across the globe (De Vos & Zeshan 2012). For this reason and others, the author has developed a corpus of the language currently comprising over 100 hours of video data. The Kata Kolok corpus is maintained jointly by the Max Planck Institute for Psycholinguistics in Nijmegen and by the International Institute for Sign Languages and Deaf Studies in Preston (UK). Descriptions in this paper are based on multiple visits to the community accumulating to 12 months between 2006 and 2010, as well as corpus analysis of spontaneous signed conversations among deaf Kata Kolok signers. The anonymised metadata of this digital archive can be found at the following URL:

<http://hdl.handle.net/11858/00-001M-0000-0010-0C13-8>

## 2. Frames of reference and the visual modality

Cross-linguistic research has revealed that different human cultural groups talk about everyday spatial configurations in radically different ways (Pederson et al. 1998; Levinson 2003; Levinson & Wilkins 2006). Central to understanding this typological variation is the notion of a figure-ground construction. A figure-ground construction describes the relation between a backgrounded object (the ground) and a foregrounded object (the Figure). In Figure 2 below, an example is presented of two objects that could

be described by a figure-ground construction. In English, there are multiple valid ways to describe this array. For instance, one could say “the tree is to the left of the church”, or “the tree is in front of the church”, or perhaps even “the tree is west of the church”.



**Figure 2. Figure-ground array**

These three options constitute three linguistic types of description that are called frames of reference (Levinson 2003). Many languages have all three frames of reference available, yet these frames are applicable to different configurations. For an English speaker, it would be unusual, for example, to say something like: “There is some *sambal* on your northern cheek,” in order to point out that there is a bit of chilli sauce on your face. The Balinese, however, would have no difficulty interpreting the meaning of the spoken Balinese equivalent, and not just because of their different cuisine, but because the Balinese prefer an absolute frame of reference.<sup>2</sup> The frame of reference used in descriptions of these kinds of everyday arrays is a proxy for the dominant frame of reference for speakers of that language. Psycholinguistic experiments have revealed a correlation between the dominant frame of reference of speakers and cognitive behaviour in, for instance, spatial memory tasks (Pederson et al. 1998; Levinson, Kita, Haun, & Rasch 2002; Levinson 2003; Majid, Bowerman, Kita, Haun, & Levinson 2004; Haun, Rapold, Janzen, & Levinson 2011). For this reason, the linguistic description of a wide variety of languages contributes to our understanding of the cognitive flexibility and the diversity among humans, and the role language plays in this story.

Spoken Balinese has four cardinal direction terms: *kajah*, *kangin*, *kelod*, and *kauh*, often loosely translated as ‘north,’ ‘east,’ ‘south,’ ‘west’ (Wassmann & Dasen 1998). The Balinese are highly attuned to this geocentric conceptualisation of space, and this is shown in many areas of their culture: town and country planning, architecture, religion, and rearing children. At the building stage, Balinese villages, temples, and houses are oriented according to a fixed spatial format with the entrance *kelod* and the exit *kaja* (Covarrubias 1950:265). The family temple in a house is always built in the *kaja/kangin* corner, as this is the most sacred direction. Conversely, the animals and the rubbish are

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<sup>2</sup> This example is extrapolated from Mead and Bateson (1942:6): “the words for the cardinal points are among the first that a child learns and are used even for the geography of the body. A Balinese will tell you that there is a fly on the “west” side of your face.”

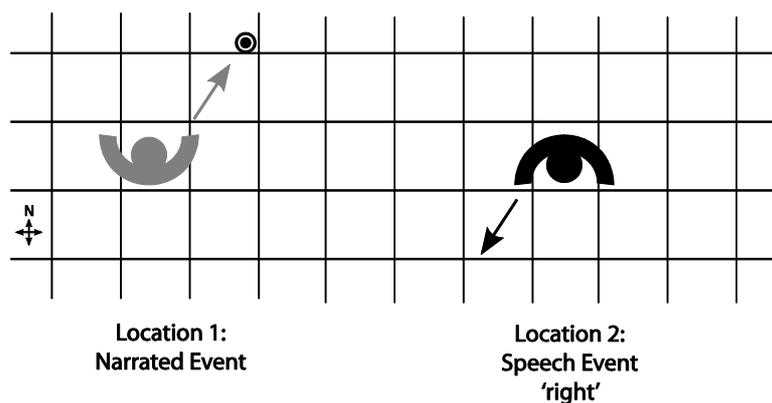
found in the least sacred corner: *kelod/kauh* (Wassmann & Dasen 1998:693). Children are taught that the appropriate direction to rest their heads is *kauh*, and acquire the cardinal direction terms early on, by four years of age (Mead & Bateson 1942:6; Dasen & Mishra 2010:113). Geocentric space is part of a larger cultural construct associating body parts, gods, colours and numbers with the cardinal directions (Covarrubias 1950:76; Wassmann & Dasen 1998; Dasen & Mishra 2010:77-79). Apart from these cultural elaborations, the Balinese also use absolute gestures while they speak (Wassmann & Dasen 2006; Dasen & Mishra 2010).

It is clear that Balinese culture emphasises geocentric directions in numerous ways. Moreover, many Kata Kolok signers are hearing individuals whose primary language is spoken Balinese (see section 2). For this reason, spoken Balinese could have had an influence on the formation of spatial structures in the sign language. Further, the co-speech gestures of these hearing villagers - the gestural input that Kata Kolok signers must have received from the language's first inception - are predominantly geocentric (Wassmann & Dasen 2006; Dasen & Mishra 2010:109-162). Perhaps unsurprisingly then, Kata Kolok signers seem to have picked up on these gestural representations of spatial arrays and re-used them in the creation of sign language. As such, Kata Kolok is one of few attested cases of a primary signed language that constructs discourse absolutely (see also Bauer in press, Schuit 2014) and this paper presents an overview of how the system pans out within the domain of spatial deixis. Notably, the structures that are discussed here not only discuss spatial relations, but also exist in space as they concern visual-gestural forms. Throughout this paper I therefore adopt the term sign-spatial to describe the articulatory production of signs in space, independent of the spatial concepts they are taken to express. De Vos (2012a) provides a more detailed discussion of the various ways in which sign-spatial forms may be recruited by sign language users to discuss both spatial and non-spatial concepts.

### **3. Relative, absolute, and absolute transpositional pointing**

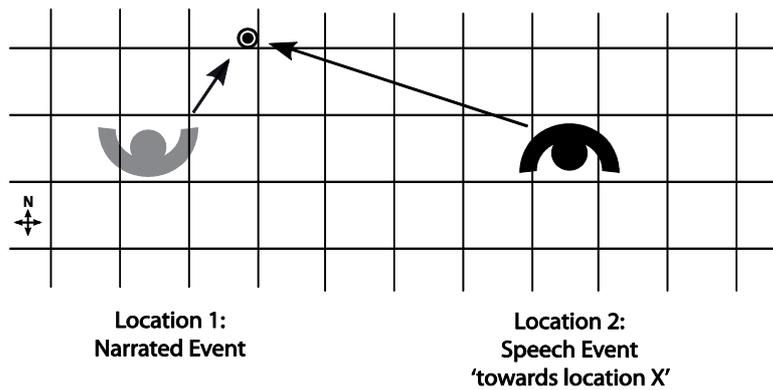
Pointing signs are intricate to signed discourse and are key expressive forms in the domains of person, time, and spatial deixis (see for instance Friedman 1975 on American Sign Language; Ahlgren 1990 on Swedish Sign Language; Engberg-Pedersen 1993 on Danish Sign Language; Fischer 1996 on Nihon Shiwa). Recall that a crucial difference between the absolute frame of reference and the relative frame of reference is that the relative Frame is anchored in a viewpoint, while the absolute frame adheres to cardinal directions. The same distinction resurfaces, in the comparison between relative and absolute pointing, when a displacement has taken place between the locations of the speech event and the narrated event. That is, if one is a "relative" coder the direction of the pointing sign remains constant with respect to the orientation of the individual's body. If one is an "absolute" coder, the direction of the pointing sign remains constant with respect to actual geographical locations, but not to the orientation of the signer. This latter type of pointing, referred to here as absolute pointing, is consistent with pointing at actual geographic locations, and based on an extrinsic mental map of the environment. These two canonical options are explicated below. I also show a third option is available, which is a strategy rarely adopted by Kata Kolok signers. In absolute transpositional pointing, as explained below, the direction of the pointing sign remains constant with respect to an absolute, but deictically shifted, grid, rather than actual geographical locations. Such deictic shifts in absolute pointing signs have also been reported for speakers of languages with a dominant absolute frame of reference (Haviland 1993, 1996).

The use of relative pointing is illustrated by the diagram in Figure 3. The grey figure on the left represents an individual from a bird's eye perspective, and the arrow indicates the direction of the pointing sign to his/her front/right. The arrow is directed towards the individual's right-hand side, and indicates a location, which is denoted by a circled dot. This initial image represents the location of the narrated event. In the image on the right a black figure represents the same individual, who is now at a position to the right of the location of the narrated event and rotated by 180°. In this case the referent and its location are outside of visual range, as indicated by the absence of the circled dot. In both cases, the direction of the pointing sign remains constant with respect to the signer's body; the sign is to his/her front-right. Relative pointing is the strategy that may be adopted in sign language discourse, when absent referents are localised in the signing space directly in front of the signer's body. These types of localisations were first described in pronominal pointing signs in American Sign Language (e.g. Friedman 1975; Kegl 2003 [1976]), but the phenomenon has been described for many sign languages since; see for instance Ahlgren 1990 on Swedish Sign Language; Engberg-Pedersen (1993:117-139) on Danish Sign Language, and Zeshan (2000:99) on Indo-Pakistani Sign Language. Crucially, Kata Kolok signers do not generally adopt relative pointing, but de Vos (2012a) provides some counterexamples in the domain of person reference.



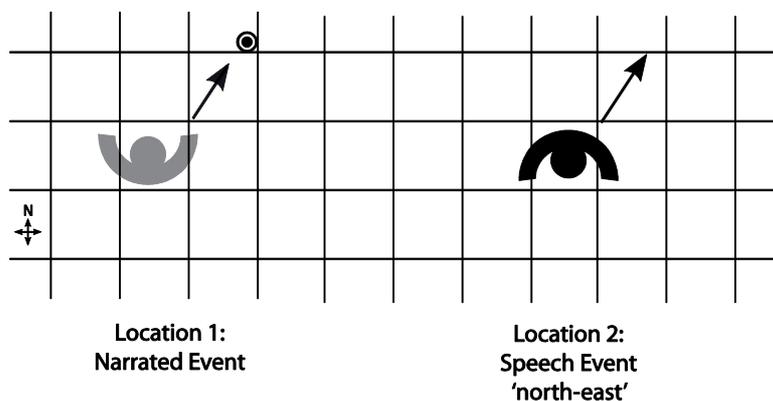
**Figure 3. Relative pointing**

In Kata Kolok discourse, absolute pointing is the preferred strategy, as illustrated in Figure 4. The grey figure and the grey arrow on the left illustrate an individual who points in the direction of a location (the circled dot). On the right, the same individual has moved and rotated identically to the diagram in Figure 3. In this case however, the direction of the pointing sign has not remained constant with respect to the signer's own body, nor with respect to an absolute grid; rather, the direction of the pointing sign is determined by the geographic location (the circled dot) in each case. These absolute pointing signs are produced from the deictic origo and require a mental map for resolution. Building on this knowledge of the geographical locations at the cardinal directions of pointing signs, absolute coders can also produce absolute transposition pointing signs which take the origo of the narrated event as a vantage point. This final and third pointing strategy, called absolute transpositional pointing, is described below.



**Figure 4. Absolute pointing from the deictic origo**

Figure 5 illustrates absolute transpositional pointing. The grey image on the left illustrates a narrated event identical to the one in Figure 3. The black image on the right represents an individual who is again at a position to the right of the Location of the narrated event and rotated by 180°, just like the individual in Figure 3. However, the direction of the pointing sign has not remained constant with respect to the individual's body, but with respect to the cardinal direction 'north-east.' In other words, the direction of the pointing sign has remained constant with respect to an absolute grid. This type of deictic shift is called an absolute transposition, because the pointing sign effectively puts the narrator back in the geographical position and location of the narrated event. Absolute transpositions have been reported in the co-speech gestures of speakers of Guugu Yimithirr and Kuuk Thayorre, which are both languages with a dominant absolute frame of reference (Haviland 1993, 1996; Gaby 2006). These kinds of deictic shifts in pointing signs are known as "deixis at phantasma" in the work of Bühler (1982 [1934]).



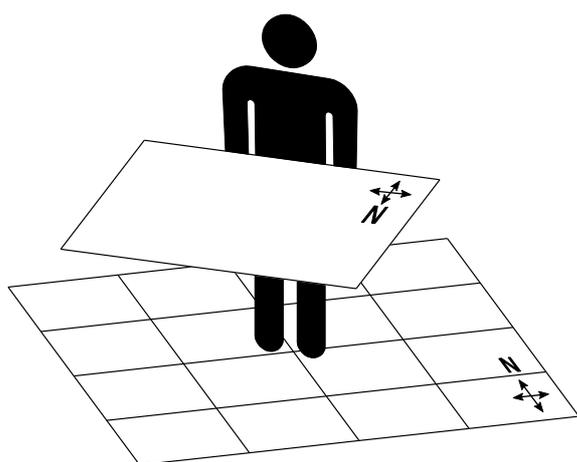
**Figure 5. Absolute pointing transposed to the origo of the narrative location**

Note that the origos of the relative and absolute transpositional pointing signs above could in principle be computed if one knows the direction of the original pointing sign in terms of a relative or absolute direction. In the case of absolute pointing, however, one needs a map of the location of the narrated event, the location of the speech event, and the designated location. For this reason, the resolution of absolute pointing signs is essentially dependent on extra-linguistic information within the situational context and should be considered deictic as such. Absolute pointing is effectively identical to pointing at objects that are visible in direct discourse, or for which the geographic

location is given. In that sense, absolute pointing is not unique to Kata Kolok signers, but occurs in other cultures, and other sign languages, too. The main difference between the use of absolute pointing in Kata Kolok and in other sign languages seems to be that this is the dominant strategy in Kata Kolok, whose users prefer it even when the referents or locations are invisible. Furthermore, as is discussed below, Kata Kolok formally distinguishes between absolute points and absolute transpositional points as only the later may be used to form sign-spatial maps in the articulatory signing space in front of the signer.

### *Sign-spatial maps*

If you are describing the journey from the home to the workplace, you might provide your interlocutor with a “mental tour” of the sights that you pass on your way. Alternatively, you could represent the route and surrounding locations as a diagram of the world, drawing a “mental map”. This fundamental perspective choice precedes spatial descriptions in spoken languages, co-speech gesture, and sign languages alike (Emmorey, Tversky, & Taylor 2000). In American Sign Language, for example, when a signer adopts a “viewer perspective,” spatial affairs are represented from a scene-internal viewpoint with reference to spatial objects surrounding the signer’s body. By contrast, in a “diagrammatic format,” spatial relations are scaled down to fit a diagrammatic representation that is pointed out, traced with the finger tips, or represented by the hands in the signing space to form a mental map. Within this latter perspective, a signer may subsequently point at areas of the signing space to describe the various locations within the scene from a particular viewpoint. The internal logic of the spatial relations within the map is sustained, and the map can be shifted entirely with respect to the orientation of the real-world. Figure 6 illustrates this kind of shifted map with absolute transpositional pointing. The grid on which the large black figure (the signer) stands represents the cardinal directions within the speech event. The smaller white plane in front of the signer represents the cardinal directions within the narrated event as the signer has projected them onto his/her neutral signing space. The compasses in each of the two grids indicate their disjunct orientations.



**Figure 6. Shifted sign-spatial map in the neutral signing space**

While in Kata Kolok this kind of absolute transpositional pointing is not used with pointing signs that reach out of the neutral signing space, it is allowed for a diagrammatic map within the neutral signing space. Although the neutral signing space allows such shifted pointing signs, the diagrammatic format is marginal in Kata Kolok

discourse. Only one instance of this kind of diagrammatic description was found within 4,5 hours of transcribed corpus data and this instance is described below.

Example 1 (on p.12) contains instances of absolute pointing as well as absolute transpositional pointing and comes from a dialogue between two sisters-in-law who are talking about a recent event where a tree fell on a hotel at a timber yard in Lovina. Lovina is a small town popular with tourists, approximately 20 kilometres south-west of the location of the recording. Figure 7 presents a schematic overview of the location of Lovina with respect to the recording site in Bengkala, and the signer's orientation during the recording session, as well as the relative positions of the locations that are mentioned within the narrative.



**Figure 7. The Petrol Station**

**Schematic overview of the location of the Petrol Station, location of the recording sessions, the facing direction of the signer, and the sign-spatial directions of the pointing sign**

Before explaining this signed example in detail, the transcription conventions adopted in this paper are briefly addressed. The glosses throughout this paper are presented on three independent rows: firstly, NM (Non-Manual) indicates non-manual signals such as facial expressions and body movements; secondly, MG (Main Gloss) is used for signs produced by the dominant hand, or signs that are two-handed; and thirdly, signs produced with the non-dominant hand are presented on the bottom row ND (Non-Dominant hand). In line with conventions used in the field of sign language linguistics, glosses for lexical signs are presented in capital letters. The transcription on multiple independent rows allows for the visual representation of simultaneous signals in the signed sentences. The initial pointing sign (glossed as IX) in Example 1, for instance, is produced with raised eyebrows (rb). Reduplication is indicated by ++.

Within the narrative of Example 1, Lovina is indicated by pointing signs that are directed at its geographic location; and these absolute pointing signs, which reach outside the neutral signing space, are illustrated by panels A and B of Figure 8. In order to identify the exact location of the damaged hotel, the signer refers to a nearby soccer field, and a petrol station where she knows her interlocutor has once bought petrol. The locations of the timber yard, where the accident took place, and the nearby petrol station, where the interlocutor once bought fuel for traditional oil lamps, are projected onto the signing space by index finger pointing signs. Panels C and D of Figure 8 present images of these transpositional absolute pointing signs, which are produced in the neutral signing space. The arrows in the transcript indicate each of the described pointing signs.

(1) Absolute versus absolute transpositional pointing signs<sup>3</sup>

↓ Figure 8A

NM		rb							
MG	HOUSE	TOURIST	<b>IX'Lovina'</b>	HOUSE	TOURIST				
ND									IX'you'

‘In the guest house (the hotel) there (Lovina), you know it, don't you?’

↓ Figure 8-C

NM									
MG	SOCCER-FIELD	TRADITIONAL-CANDLE	OIL++	<b>X'location</b>	<b>timber</b>	<b>yard'</b>			
ND									

‘The soccer field, and then the petrol station, and then where we find the timber yard.’

↓ Figure 8-D

NM									
MG	IX 'petrol station'	OIL POUR-LIQUID	OIL	<b>IX'petrol station'</b>					
ND	IX'you'								

‘You once bought fuel there (at the petrol stand).’

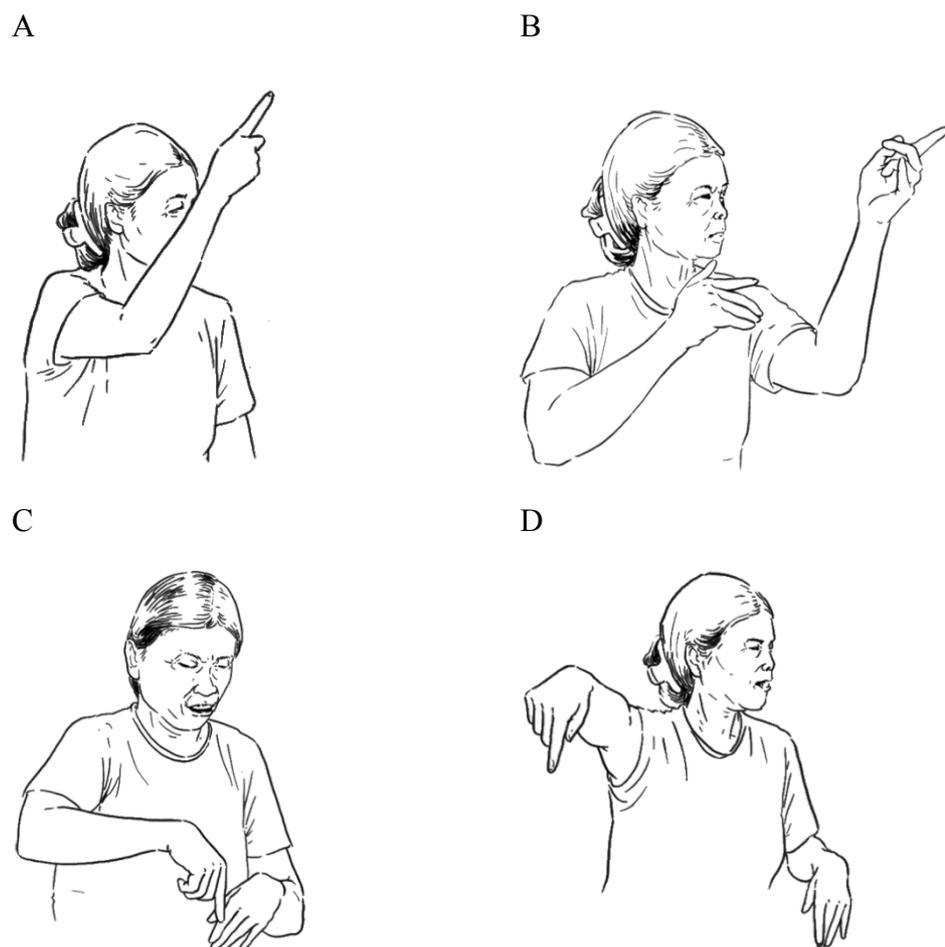
↓ Figure 8-B

NM									
MG	WORK								
ND		<b>IX 'Lovina'</b>							

‘There is a construction site nearby.’

The absolute transpositional pointing signs within this kind of diagrammatic format are used to talk about topography, but unlike the absolute pointing signs, which are directed at geographic locations, they cannot be resolved solely by reference to the situational context. That is, while absolute pointing signs depend on exophoric resolution, the resolution of the pointing signs that are produced within the neutral signing space additionally rely on the sign-spatial map that is created within the discourse. Importantly, Kata Kolok signers make minimal use of this sign-spatial mapping strategy, and the two tokens of pointing signs that feature in the stills in panels C and D of Figure 8 constitute the only instances in 1,183 transcribed pointing signs (de Vos 2012a). This fundamental distinction between deictic and anaphoric reference also surfaces in the ways in which Kata Kolok users point for persons. Another way in which signers can produce a spatial format without committing to geographic relations directly is by taking viewer perspective. This kind of referential shift, called role shift, should be considered as a form of person deixis and is discussed in more detail by De Vos (2012a).

<sup>3</sup> Video at: <http://hdl.handle.net/hdl:1839/00-0000-0000-0016-7EEC-7>



**Figure 8. Absolute versus absolute transpositional pointing signs**

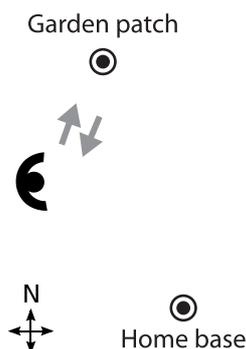
#### *Deictic direction verbs*

In Kata Kolok, a motion event can be indicated by either a deictic direction verb, or by movement of an entity classifier, i.e. a handshape which iconically represents its referent. An upright entity may be represented by a vertically oriented index finger, for instance. The deictic direction verb is formed by the full hand with spread fingers. The contextualised meaning of this verb relies on two of its sign-spatial properties. First of all, the source location and goal location are indicated by the beginning and end point of the sign's movement. Secondly, these locations may be anchored either at geographic locations, or in the neutral signing space close to the signer's body. When they are anchored at the signer's body, this results in a deictic interpretation. That is, the neutral area of the signing space has become associated with the deictic origo which need not be identical to the origo of the speech event. The production of these deictic signs has resulted in five oppositional forms, described below. The three exophoric forms are discussed are glossed as COME-HERE-FROM-A, GO-FROM-HERE-TO-B, and GO-FROM-A-TO-B, and COME and LEAVE are forms that are to be resolved endophorically.

#### *Exophoric direction verbs*

Example 2 features two instances of exophoric direction verbs: COME-HERE-FROM-A and GO-FROM-HERE-TO-B. In this narrative, the signer is

discussing the working day of a friend who, after an afternoon nap, went to cut firewood, and then came back. Figure 9 presents a schematic overview of the location of this garden patch and the referent's home base with respect to the recording location. Importantly, the directions of the signs - indicated by the grey arrows - indicate the geographic location of the patch of land that belongs to the individual being discussed. This is the place where she regularly collects her firewood for cooking. The deictic origo is that individual's house in the village, which is not identical to the present recording site. As I will argue below, the geographic location of the referent's home base is irrelevant to the sign-spatial instantiation of COME-HERE-FROM-A and GO-FROM-HERE-TO-B.



**Figure 9. Firewood collection**

**Schematic overview of the location of the garden patch where firewood was collected, the referent's home base in the village, the location of the recording sessions, the facing direction of the signer, the movement direction of the event, and the sign-spatial directions of the signs**

Figure 10-A presents the initial and final frame of the exemplar of the sign COME-HERE-FROM-A from Figure 10. This sign is spatially modified with respect to the source location of the movement, and it is interpreted as 'come from location A'. The sign-spatial direction of this general direction verb is relevant in the sense that it is motivated by the location of its origin –the garden patch where firewood was collected. Furthermore, the elevation of the sign in the signing space is used to indicate distance. The goal of the sign is however not relevant in geographic terms, as the location near the signer's body represents the deictic origo and thus receives the meaning 'here, within the narrated event'.

(2) COME-HERE-FROM-A and GO-FROM-HERE-TO-B<sup>4</sup>

↓ Figure 10-B ↓

NM pah+pt  
MG SLEEP GO-FROM-HERE-TO-B

ND

'After a nap, (she) went there (location B)'

<sup>4</sup> Video at: <http://hdl.handle.net/hdl:1839/00-0000-0000-0016-7ED5-4>

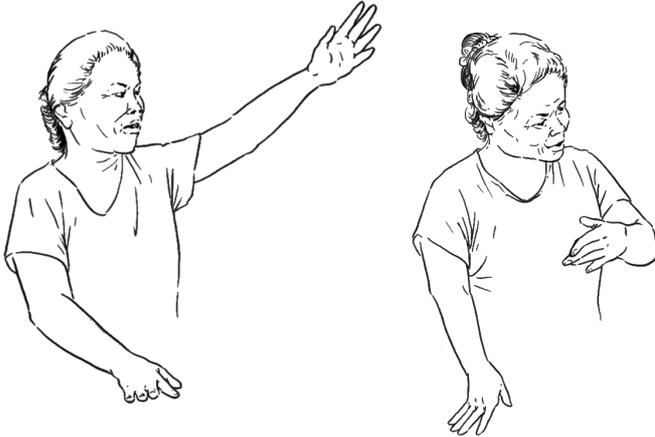
↓ Figure 10-A ↓

NM

MG CUT-WOOD FINISH COME-HERE-FROM-A CARRY-ON-HEAD

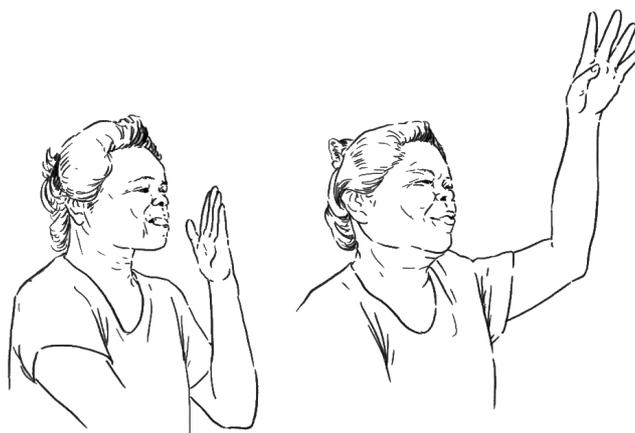
ND

‘After cutting the fire wood, she came back here, carrying the wood on top of her head.’



**Figure 10-A. COME-HERE-FROM-A (from Example 2)**

Figure 10-B displays the initial and final frame of the sign GO-FROM-HERE-TO-B, taken from example 2. GO-FROM-HERE-TO-B is construed in a similar way to COME-HERE-FROM-A, but now the general direction sign is produced with movement away from the body, and is spatially modified with respect to the geographic goal location; it is interpreted as ‘go from here to location B’. Here, signers only commit to the goal of the movement as indicated by the sign-spatial relationship. That is to say, the signer can be held accountable for her indication of the geographic goal location. Because interlocutors carefully inspect the sign-spatial properties of these signs, Kata Kolok signers could also lie about where someone went, for example, just by producing the sign GO-FROM-HERE-TO-B in an inaccurate direction. Further, the current location of the origo is sometimes (as here) interpreted as being the location of the narrated event rather than the location of the speech event. As becomes clear from the illustration in Figure 13 this results in forms whose sign-spatial directions are shifted with respect to the actual absolute direction of the event.



**Figure 10-B. GO-FROM-HERE-TO-B (from example 2)**

GO-FROM-A-TO-B is spatially modified with respect to both the geographic source and goal locations. Neither the source location nor the goal location is thus represented by the deictic origo, and the signer commits to both the actual source location and the actual goal location. This form of the general direction verb is interpreted as ‘went from location A to location B’. GO-FROM-HERE-TO-B, COME-HERE-FROM-A, and GO-FROM-A-TO-B are all particularly large signs because they are (in part) produced in the extended signing space, being directed to geographic locations.

Figure 11 displays an instance of GO-FROM-A-TO-B as it was produced in Example 3. In this sentence, the form GO-FROM-A-TO-B is used to describe the path and distance that the signer’s friend needs to travel to bring her goods to the market. Note that the first use of the sign B:i, which is directed at the signer’s chest, refers to the individual who features in the narration, rather than the signer herself. The second time the sign appears, it refers to the signer herself, who feels sorry for her friend.



**Figure 11. GO-FROM-A-TO-B (from Example 3)**

(3) GO-FROM-A-TO-B<sup>5</sup>

↓ Figure 11 ↓

NM 'feel sorry'  
 MG SIGN-NAME(KS) B:i CARRY-ON-HEAD **GO-FROM-A-TO-B**  
 ND

NM 'feel sorry'  
 MG CARRY-ON-HEAD B:i  
 ND

'I feel sorry for KS. She brings her goods all the way to the market by herself.'

**COME and LEAVE**

There are also two instances of the general direction verb in which the signer does not commit to either the source or goal location of the sign-spatial characteristics of the signs. These are the signs COME and LEAVE. COME is made with a full hand, but produced in the central area of the signing space. Figure 12 presents an example of this form as it is produced in spontaneous Kata Kolok signing. The sentence stems from a narrative about the Japanese invasion of Bali during the Second World War. The Balinese people would stand guard with guns in case the soldiers, who are referred to by the signer with the lexical sign BOSS, returned. Although it is difficult to identify the exact location in the signing space based on this frontal recording, the form is in relative proximity to the signer's body compared to the stills in Figures 10 and 11. All instances of COME in the corpus are reduced in size, and in some cases, only the part of the hand from the knuckles downward produces a single movement and the fingers are naturally closer together as a result. Figure 12 displays the lexical sign COME as used in Example 4. Notably, the use of this sign-spatially neutral general direction verb is rare in Kata Kolok discourse. Its use in this context could be motivated by the nature of the information being conveyed. That is, the signer is retelling events as he was taught by his father as a child. He acquired this information second-hand, and may therefore not be in a position to commit to the geographic details of the narrated event.



**Figure 12. COME 'come here' (from Example 4)**

<sup>5</sup> Video at: <http://hdl.handle.net/hdl:1839/00-0000-0000-0016-7EEB-7>

(4) Neutral form of COME<sup>6</sup>

NM  
 MG CL:B'person walking' COOK-RICE#INTENS STEAM  
 ND

‘One person would go cook rice and the steam would come up...’

↓ Fig. 12

NM ‘look around’  
 MG STAY-QUIET BOSS COME GUARD-WITH-GUN  
 ND

‘... (the others) would stay quiet and guard (the place) in case one of the soldiers came.’

Finally, when producing the sign LEAVE, the signer makes a movement upward in the neutral signing space. As with the sign COME the signer does not commit to the absolute sign-spatial properties of the sign LEAVE, but rather the sign means ‘away from the location that is discussed within the narrative’. The fact that absolute direction is not relevant in these cases becomes particularly clear in the comparison of two subsequent instances of the sign made by two interlocutors, referring to the same location. In Example 5, such a test case occurred within a narrative between two ladies who are discussing one of their daughters. This girl goes to school in Jimbaran, in the south of Bali. Signer 1 (on the left) asks Signer 2 (on the right) ‘Has D. left yet?’ Signer 2 confirms by saying ‘She left for (Denpasar) three days ago.’

(5) LEAVE<sup>7</sup>

Signer 1 (on the left)

↓ Figure 13-A ↓

NM br+nod br+nod br  
 MG SIGN-NAME‘D.’ LEAVE THREE SIGN-NAME‘S.’  
 ND

‘Has D. left yet? How about S.?’

Signer 2 (on the right)

↓ Figure 13-B ↓

NM ‘pah’  
 MG SIGN-NAME‘D.’ THREE-DAYS-AGO^THREE LEAVE  
 ND

‘D. left three days ago.’

Figure 13-A and B present stills of both instances of LEAVE. Note that although both signers are talking about the same event - a person named D. leaving the village for Denpasar - the signs they produce for LEAVE are directed upward. Moreover, the right-hand images of Stills 6.6-A and B, illustrate that the signers’ wrists are slightly overextended in the final movement of LEAVE, ultimately resulting in arbitrarily directed and opposite sign-spatial forms. Specifically, Denpasar lies south of the village,

<sup>6</sup> Video at: <http://hdl.handle.net/hdl:1839/00-0000-0000-0016-7ED3-2>

<sup>7</sup> Video at: <http://hdl.handle.net/hdl:1839/00-0000-0000-0016-40D7-8>

yet the sign LEAVE by Signer 1 is produced towards the east, and the sign LEAVE by Signer 2 is produced towards the west. The comparison of these two instances of LEAVE shows that a signer need not commit to the absolute sign-spatial properties of the sign when it is produced in the neutral signing space.



**Figure 13-A LEAVE by signer 1 (on the left)**



**Figure 13-B LEAVE by signer 2 (on the right)**

The sections above have shown that, in the domain of spatial deixis, Kata Kolok signs are highly motivated by geographic locations with respect to placement and direction. This becomes evident in three ways. First of all, Kata Kolok's pointing system relies crucially on absolute pointing. Secondly, when signers produce deictic forms of general direction verbs, the sign-spatial properties of these signs often conform to geographic locations. The truly deictic nature of these signs becomes clear from the fact that sign-spatial maps in the neutral signing space in front of the signer can be shifted and represent the locations of the narrated event, rather than the 'here and now' of the speech event. Thirdly and finally, when signers produce down-scaled maps of the environment in the neutral signing space, the internal logic of the map need not adhere to the orientations of locations of the real world. While pointing signs that are directed at geographic locations are dependent on situational information for their resolution, pointing signs in the neutral signing space can be resolved based on signing alone. These observations lead to the conclusion that the distinction between the neutral and the extended signing space in Kata Kolok is crucial to describing the interpretation of the sign-spatial forms of signs. Moreover, the distinction between the neutral and the extended signing space maps onto the fundamental dichotomy between deictic and anaphoric reference.

As was mentioned earlier, absolute pointing is not used exclusively in Kata Kolok, and this type of pointing is presumably available to many sign language and speech communities. Furthermore, while diagrammatic maps in Kata Kolok are based on the

absolute frame of reference, they resemble the topographic use of signing space in other sign languages in all other ways. One of the remaining questions is therefore to what extent the sign-spatial repertoire used by Kata Kolok signers to describe topographic formats deviates from the sign-spatial structures used by signers of other sign languages. While these deviations are not explored exhaustively within the current paper, section 4 presents one such exotic feature of Kata Kolok: the apparent absence of toponyms in favour of absolute, spatial-deictic forms.

#### 4. Deictic proto-toponyms

As described in section 3, place reference in Kata Kolok is made by pointing to geographical locations. Strikingly, and potentially in contrast to any other known language, Kata Kolok does not seem to have a class of true toponyms (Zeshan 2006).<sup>8</sup> That is, in contrast to true toponyms, the Kata Kolok locative constructions *do* provide a spatial instruction on how to find the location provided by the direction of the pointing sign (cf. Levinson 2003:69). A place indication always includes a deictic pointing sign in Kata Kolok, and may include lexical signs, in addition. The referential division of weight between the pointing sign and the lexical sign varies, but the order remains the same: the lexical sign precedes the pointing sign in each case. The utterances and examples described in this section were observed (not filmed) during fieldwork, and have not been attested in the corpus of spontaneous Kata Kolok signing. This suggests that these "proto-toponyms" may be an infrequent spatial structure within the language.

Example 6 was produced by one of the deaf women in Bengkala. I had recently learned that this Kata Kolok signer was not born in Bengkala, but had actually grown up as a home signer as the single deaf child in a family of nine daughters.<sup>9</sup> She was telling her life story, starting off with the region in which she grew up, before marrying into the village. The signer grew up in Bali's Kintamani region, which is high up in the Balinese mountains and therefore a comparatively cold region. In response to asking her explicitly in which village she grew up, she refers to her home grounds by the sign for 'shiver' followed by a pointing sign up towards Kintamani Mountain. Notably, the lexical sign SHIVER has to be followed by a compulsory pointing sign in order to attract a locative interpretation and cannot refer to a location by itself. In the following conversation she refers to her village several times, and in these instances she uses the pointing sign in isolation. The pointing sign itself is marked in several of the ways to indicate the distance of this location. The pointing sign has an upward fingertip orientation, i.e. the index finger is at a sharp angle to the top of the hand; it has a straight movement: a projecting movement from the wrist in the direction of the location at its maximum extension (apex); the signer's upper arm is lifted; the sign is raised vertically compared to other pointing signs; and, the sign is co-produced with pursed lips.

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<sup>8</sup> There is preliminary evidence that Ban Khor Sign Language may be deploying a similar toponym-free locative system (Nonaka 2007).

<sup>9</sup> A home signer is a deaf individual who has not had exposure to sign language, but has rather an idiosyncratic signed communication form with hearing friends, colleagues, and relatives (see for example Goldin-Meadow 2003).

## (6) SHIVER IX'Kintamani'

'Kintamani'

The combination of a lexical sign and a pointing sign in a place indication as described in Example 6 occurred in response to *where* questions in both the recorded data and in daily observation.<sup>10</sup> This discourse context makes these locative constructions recognisable as place references rather than person references. Signers also produce locative constructions in the absence of a *where* question, and in these cases the use of a locative construction rather than just a locative pointing sign seems motivated by the distal indeterminacy of pointing signs. That is, when one aims to indicate a specific location further removed, it becomes harder to be precise by only using a vector. Consider Examples 7 and 8 in which the specific locations of Air Sanih and Kubutambahan are indicated respectively. Both villages are close to Bengkala, but are five to 10 kilometres apart. Signers know the area and might go to Air Sanih to visit the public swimming pool, crossing Kubutambahan on their way to Singaraja. A pointing sign by itself would be sufficient to establish a reference to one of these villages. However, in the situation in which Example 7 was uttered, the signer was aiming to indicate the specific place where her sister-in-law had worked as a house cleaner and provided an additional phrase describing this location. A pointing sign towards Air Sanih by itself would not have been sufficient to achieve this goal. She therefore draws on her interlocutors' knowledge of that village and the hotels that are there in order to help them disambiguate the specific location.

## (7) TOURIST HOUSE IX'Air Sanih'

'hotels at Air Sanih'

Example 8 was uttered in a story concerning a motorbike accident. In this case, the signer was prompted by the researcher to be specific about the locations and direction of the event, similar to the situation in Example 6. The signer establishes reference to a specific crossing in a nearby village (Kubutambahan) by referring to the presence of a large dragon statue there.

## (8) STATUE IX'Kubutambahan'

'the crossing at Kubutambahan with the statue'

Taking into account these two examples of place reference it becomes clear that the lexical part of place constructions need not be redundant with the pointing sign, but rather combines with it to specify the exact location intended. These specifications of pointing signs may arise spontaneously given a communicative need to be more exact when pointing to locations further away from the village. That is, as one is pointing to locations further removed in space, the distal indeterminacy grows. Conversely, pointing to locations within the village is more precise owing to the limited distance between the signer and the target location. Moreover, in nearby locations there may be more shared background knowledge.

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<sup>10</sup> It should be noted that syntactically these questions are actually alternative questions as Kata Kolok has a limited question word paradigm that does not distinguish between who and where.

The examples above have shown that the lexical sign of a place construction specifies the indicated location. The pointing sign in Example 7 is direction towards the village of Air Sanih, while the lexical part of the construction narrows this place indication down to ‘hotels at Air Sanih’. The examples below describe the reverse phenomenon. That is, place constructions in which the lexical sign indicates a location of a type and the pointing sign specifies where that location is. Consider Example 9a and b. The sign WAVES by itself cannot be used as a place indication, but can be part of a place construction when it is combined with a pointing sign. It can be combined with a pointing sign directed to any location of the island because it has a general meaning of a place with surface water, for example, the sea or a swimming pool. The pointing signs in these constructions specify which ‘water place’ is intended and this gets a general meaning of ‘water place there’. For instance, when this construction is used with a pointing sign towards Air Sanih, it refers to the public swimming pool of the town (Example 9a). When combined with a pointing sign towards Lovina, however, it refers to the beach there (Example 9b).

- (9) a. WAVES IX  
       ‘water there’ / ‘swimming pool at Air Sanih’
- b. WAVES IX  
       ‘water there’ / ‘Lovina beach’

Interestingly, the pointing sign in these constructions specifies not only the location of the place, but – by virtue of common ground – also changes the type of ‘water place’ from beach to pool. The interpretation of the pointing sign and the lexical sign are thus interdependent as they form a composite utterance (Enfield 2009).

## 5. Conclusions

This study has adopted naturalistic data to identify the spatial-deictic structures that Kata Kolok signers use, but in order to fully assess the differences between Kata Kolok and other sign languages in the topographic functions of the signing space, we may need to test the differences more rigidly. On the whole spatial deixis is dominated by the absolute frame of reference in Kata Kolok and the system parallels the Balinese one on a semantic level as such. In Kata Kolok however, spatial-deictic forms are primarily based on pointing signs, which make spatial reference to geographical locations. This pattern even extends to the use of ‘proto-toponyms’ which provide a spatial instruction on how to find the location by including a pointing sign. The system is inherently exophoric as such, and interestingly, this dominance of deictic reference is also mirrored in other referential domains such as time and person reference (De Vos 2012a).

Shared sign languages such as Kata Kolok are in intimate linguistic contact with the spoken languages that surround them from their first incipience. To what extent then, can spoken Balinese be seen to have shaped this Balinese sign language? Importantly, while being conceptually overlapping, the spatial-deictic forms in Kata Kolok do not make direct reference to the spoken Balinese forms, but are rather based on pointing signs of various kinds. Moreover, in other core lexical domains such as colour and kinship terminology, Balinese and Kata Kolok show marked difference with the latter lexicon having fewer, semantically broader, terms (de Vos 2011; de Vos & Nonaka 2012). This latter finding seems to indicate that shared cultural practices may not be the key determining factor shaping an incipient lexicon. Furthermore, Kata Kolok and Balinese have distinct basic word order with regards to noun-adjective orders, basic

transitive sentences, placement of negation etc. (de Vos 2012a). Taken together, these findings provide little evidence that spoken Balinese forms exert any direct influence on the language. Notably, however, Balinese co-speech gestures and pointing gestures in particular have been reported to be of the absolute kind, too (Wassmann & Dasen 2006; Dasen & Mishra 2010). It has also been observed that spoken deictic expressions such as demonstratives are frequently accompanied by parallel gestural forms in spontaneous conversations (Levinson 2004; Diessel 2006; Enfield 2009). Kata Kolok signers may thus have picked up on such gestural components of composite utterances and absolute gestures may therefore have formed the seeds for spatial-deictic structures in this shared sign language.

A similar influence of co-speech gesture on sign-spatial structures has been argued to have taken place in American Sign Language e.g. in the case of role shift (Poulin & Miller 1998; McClave 2001) and in American Sign Language, Catalan Sign Language, French Sign Language, and Italian Sign Language for agreement verbs (Wilcox 2004). In such cases, co-speech gestures have taken to have a homogenising effect on the types of structures that develop in sign languages. By contrast, this paper has foregrounded how existing diversity in gestural communication seems to have led to a markedly different spatial construal in Kata Kolok compared to other sign languages. Assuming this relationship exists more generally, it should critically inform sampling methods in the domain of cross-modal typology - i.e. the systematic comparison of spoken and signed language in specific functional domains. Moreover, while including "exotic" signing varieties such as Kata Kolok in typological comparisons, we also need more ethnographic studies of indigenous co-speech gesture systems to understand the dynamic relationship between multi-modal language use by speakers and the origins of sign language grammars.

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