

Negation in Balinese homesigning varieties

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Drawing on semi-spontaneous conversational data from the Balinese Homesign Corpus (Satyawati et al. 2021), this exploratory, descriptive study examines the negation forms used by seven adult homesigners from four villages in the north of Bali. The two most frequently used manual negators are a palm-forward handwave, NEG:B (51.5%) and a palm-sideways handshake, NEG:A (37.8%). However, NEG:B is consistently combined with a headshake by all seven homesigners, a pattern also attested in the two sign languages closest to Balinese homesigning geographically: Kata Kolok and BISINDO. Examples are found where NEG:A cliticises to its host, which has not to our knowledge been attested for homesigning in the literature. Two other manual negators are found, including a side-to-side selected index finger (NEG:IX) that primarily expresses negative imperative (3%). Tongue protrusion is infrequent but seems to be primarily associated with negative existence and evaluative meanings, while open mouth appears to carry affective meaning.

Keywords: homesigning, Bali, Indonesia, negation, gesture, headshake, clitics

1. Introduction

Negation is a fundamental component of human language. Speakers express negation by using negative particles, clitics, and affixes (Miestamo & Veselinova 2025), and in addition may use co-speech gestures such as handwaves and headshakes (Kendon 2004). Signers have been shown to express negation manually (with the hands) and non-manually (using the head, mouth, eyes, and shoulders). Many signed languages use side-to-side hand movements, index finger movements or headshakes to convey sentential negation (Pfau & Steinbach 2011; Quer 2020). These markers in sign languages can often be traced back to conventionalised gestures in the surrounding hearing communities (Quer 2012: 316).

Almost all deaf children are born into hearing families (e.g., Mitchell & Karchmer (2004) for the US) and thus often lack access to either conventional local signed or spoken languages (Goldin-Meadow 2012). As a result, gestures play an important role in communication between deaf children and their hearing interlocutors, which makes these gestures a form of “language-like input” (Coppola 2025) for them. Over time, these gestures become the foundation of what is known as homesign. Homesigning is functional, though highly individual. Gestures typically undergo modifications and then become part of the linguistic structure of a sign language, yet signs based on gestures often retain structural parallels with the original gestures (Le Guen, 2012; Nyst 2019; Zeshan & Palfreyman 2017). Researchers have shown the consistency and language-like structure of homesign, which exhibits many properties of natural language (Goldin-Meadow & Feldman 1977; Brentari & Goldin-Meadow 2017), including “resilient properties of language” (Goldin-Meadow 2005). At the same time, homesign is known to be fluid and idiosyncratic, shaped by the social networks and cultural ecologies in which it develops.

Studies of negation in homesigning remain underexplored, with most of the work focusing on children (see Franklin et al. 2011; Kan 2024), while other studies focus on individual adult homesigners’ pragmatic and lexical repertoire (Green 2017) or on different age groups in different ecologies (Horton 2020). Most homesign research has also been conducted by researchers from what have been referred to as Western, Educated, Industrialised, Rich, and Democratic settings (WEIRD) (Henrich et al. 2010). Therefore, this study addresses the gap by focusing on adult homesigners from several villages within a single region in a non-WEIRD community (Henrich et al. 2010) and contributes to ongoing debates about the relationship between gesture and signed language (Brentari et al. 2012; Quer 2012). By looking at negation, we also offer an entry point for exploring how this linguistic domain begins to crystallise by examining the forms used in daily lives of individuals who lack access to conventional language exposure in a Balinese setting.

This study investigates negation in homesigning using natural conversational data from seven adult homesigners across four villages in northern Bali, Indonesia, drawing from the Balinese Homesign Corpus (Satyawati et al. 2021). The data were collected in villages surrounding Bengkala, the village where the well-known rural sign language, Kata Kolok (KK), is used (Marsaja 2008; de Vos 2012). KK is an indigenous sign language that has been used for at least six generations (Marsaja 2008; de Vos 2012). Unlike Bengkala, the surrounding villages only have a few deaf individuals whose contact with other (fluent) deaf or hearing signers outside of their immediate interlocutors is limited. Their communicative

resources are shaped primarily by interaction with hearing relatives and participation in the broader cultural practices of Balinese society (Satyawati et al. 2021).

To analyse the data, we combine corpus analysis with an ethnographic lens to highlight the participants' social networks and cultural settings, which provide essential context for a nuanced interpretation of negation forms and functions. It is crucial to consider the formal properties of signers' linguistic practices in conjunction with their contextual use and meaning, rather than treating them as separate domains (Kusters & Hou 2020). Consequently, our approach enables the fine-grained identification of features, particularly in the present dataset of natural conversational data. This combined approach aligns with several recent studies that adopt linguistic ethnography (Hou 2016; Horton 2018; Kusters & Hou 2020).

Lastly, the term 'homesigner' has been the subject of ongoing debate. Other studies have adopted alternative terms, such as 'nucleated signer' (Reed 2022) or 'family homesign' (Haviland 2013). Goico & Horton (2023) underscore the need for more inclusive and context-sensitive descriptors, while Green (2024) critiques such "taxonomic urges" in sign language studies. In this study, the term 'homesigner' is retained for consistency with existing literature, while acknowledging the importance of adopting terminology that avoids inadvertently marginalising the communities it describes. We will use the term 'homesigning' when referring to the signing practices analysed in this paper because it avoids implying a single, uniform language variety shared by a specific community and instead foregrounds the variation expected among individual homesigners from different villages and social networks.

The remainder of the paper is structured as follows: Section 2 reviews previous studies on negation and homesigning that adopt an ethnographic approach; Section 3 describes the dataset and transcription process; Section 4 presents the findings, grouped into subsections on manual and non-manual markers; and Section 5 discusses the findings in the present study in relation to previous studies and their broader implications. Section 6 briefly reflects working with natural, conversational data from the seven homesigners; and lastly, Section 7 presents the overall conclusions of the study.

2. Background

2.1 (Co-speech) Gesture and sign language

To communicate effectively, speakers often use not only their speech but also their hands to express their ideas (Holler & Levinson 2019). In this context, the gestures made while speaking are referred to as co-speech gestures. These gestures serve as

a communicative function and may have nearly the same importance as speech in conveying meaning (McNeill 1992; Özyürek 2012).

This is relevant for deaf children, especially those born into hearing families. Branson et al. (1999) report that 85% of deaf children in the Buleleng regency of northern Bali have no contact with deaf family members or relatives. Access to education for deaf children remains limited, a situation potentially influenced by the topography of Buleleng, with its mountains and forests. Despite this, Balinese people are deeply embedded in, and actively participate in village-based activities, including ritual obligations in village temples (Branson & Miller 1999; Satyawati et al. 2025). Thus, although deaf children – in this case in Buleleng, Bali – are typically born into hearing communities, they nonetheless experience rich social networks and interactions.

Over time, the gestures used in those interactions have become foundations of homesigning. This has been documented across several language communities. For instance, Goico (2020:637) finds that deaf youth in Peru used the L-handshape to represent the action of drinking, which was also used by surrounding Iquitos Spanish speakers. Similarly, Mesh & Hou (2018) identifies five negative conventional gestures used by hearing speakers in San Juan Quiahije (SJQ) which are also used by deaf signers. In Java, Palfreyman (2015) noted the manual negator *TIDAK* (an open palm facing forward with lateral movement) used both by Indonesian Sign Language (BISINDO) signers in the city of Solo, and by surrounding hearing speakers. Siahaan & Rajeg (2023) observe a similar gesture co-occurring with the negative particle *nggak* (a colloquial variant of *tidak*) in Indonesian talk shows.

These studies demonstrate that gestures used in the surrounding hearing community often provide key resources for homesigners, supporting the view that gestures and sign languages exist on a continuum. As Nyst et al. (2012) and Hou (2016) note, language development is not a linear continuum; instead, a multidimensional and multidirectional perspective is required for a deeper understanding. This study uses an ethnographic approach as a tool to help understand the complex relationships between language users, the ways they communicate, and the environments in which they live (Hammersley 2007; Rampton 2007). This will be discussed in the next section.

2.2 (Homesign) Studies using an ethnographic approach

Previous studies have often taken the form of case studies focusing on a single participant, typically examining their interaction with hearing interlocutors. Other studies look at the interactions of homesigners within their broader social networks and sociolinguistic settings (family dynamics, village life). The present

study adopts a different perspective: we focus on the linguistic practices of the homesigners as individuals and trace how these practices connect to external cultural and social factors. This ethnographic approach not only analyses the linguistic features of negation in Balinese homesigning but also provides a framework for understanding the complexities of homesign systems and how homesigners utilize linguistic resources in their communicative practices (Kusters & Hou 2020) within broader social and cultural context of Bali. Furthermore, recent work (e.g., Kusters et al. 2017) has underscored the resourcefulness of signers exploring linguistic and other semiotic resources to make meaningful communication.

As discussed in the previous section, Goico (2020) investigates the communicative strategies used by deaf youth in Peru and finds that several signs are rooted in the co-speech gestures of surrounding hearing speakers. Goico presents a microanalysis of situated interaction that reveals how deaf youth interact in daily social life and established communicative activities with other individuals, including hearing speakers, using combinations of bodily actions, facial expression, and incorporation of objects (2020: 636). Furthermore, they also note the role of shared communicative resources (e.g., gestures used by hearing speakers) as part of the strategies which become incorporated into the deaf signer's system. Similarly, an ethnographic study of deaf Yucatec Maya signers from four communities shows that these signers rely on a fluid multimodal repertoire grounded in shared social routines, culturally specific norms, and local communicative practices (Safar 2019). Despite community members' claims that there is little or no contact between them, their linguistic practices nonetheless exhibit "a number of striking resemblances in lexicon and grammar" (Safar 2019: 32), underscoring how overlapping semiotic environments can give rise to the emergence of similar structures.

Hou (2016) studies signing communities and communicative practices among the Chatino people in San Juan Quiahije (SJQ), Mexico. She collected spontaneous interactions and elicited tasks between the hearing adults and deaf homesigners in their daily lives. Hou collaborated closely with local community members who helped secure permits, interpret materials, and build trust with participants. This approach allowed the study to document naturally occurring interactions while also recognising the social norms in the community and taking those observations into data analysis.

In another ethnographic study, Horton (2018) focuses on intergenerational homesign use in three deaf families in Nebaj, Guatemala. She highlights the role of the communicative environment in shaping a homesign system. Her prolonged residence in the community helped her understand the "daily rhythm" (p. 113) of the participants' lives. By collecting natural conversations with shared stimulus materials, Horton was able to generate a comparable dataset across par-

ticipants while still respecting each family's context. Most recordings took place on the participants' porches, where family and community members regularly gathered (p. 115).

These studies also reflect on researcher positionality. Hou (2016) acknowledges that her status as a foreign female researcher influenced her access to "gendered social spaces" (2016: 287), such as bars, thus limiting her ability to gain a full picture of the interaction in the community. However, she had access to domestic settings. Goico (2020: 63) mentions that her identity as a white, hearing, educated, researcher helped establish a deaf education program in the community that still runs to this day. However, she does not fully explore how her presence may have influenced the interactions being observed, despite the relevance of observer effects (the Observer's Paradox, see Labov 1972; Hill 2015). Horton (2018: 170) considers how participants' familiarity with researchers who sign may increase their use of signing, potentially affecting the findings.

These studies reveal the importance of an ethnographic approach in understanding homesigning. These communicative practices are not isolated, but are shaped by communicative demands, constraints, and opportunities of the communities in which they emerge. By considering social and cultural contexts when conducting linguistic analysis, researchers can capture the complexity and creativity of homesigning as it is used in everyday life.

2.3 Negation across (sign) languages

As a universal linguistic feature, all languages documented have some form of negation in their system, including sign languages. Across documented sign languages, negation can be expressed through manual markers, non-manual markers, or combinations of both (Zeshan, 2004). A side-to-side movement of the hand is the most common manual negator found across sign languages. These manual negators are used in Hong Kong Sign Language (HKSL, Tang 2006), Kata Kolok (Lutzenberger et al. 2022), and BISINDO in cities like Makassar and Solo (Palfreyman 2015). A different form, such as an upward index finger moving side-to-side, is seen in Israeli Sign Language (Zeshan 2004) and Jordanian Sign Language (Hendriks 2007).

Some sign languages use less widespread manual forms for negation. In Ugandan Sign Language, for instance, the frequent negator PA is produced with an O-handshake that opens into a flat palm, co-occurs with the mouth gesture 'pa' (Lutalo-Kiingi & De Clerck 2015: 831). HKSL uses a handshake with a selected little finger (the i-handshake) as a negative handshake (e.g., BAD, WRONG) which can modify a verb, such as positioning the i-handshake at the temple while producing KNOW yields the meaning 'I do not understand' (Tang 2006: 223).

It is claimed that negative affixation and cliticisation are less common in sign languages (Zeshan 2004; Pfau & Steinbach 2006). Negative affixes are found to occur in some sign languages with specific lexical items and are often fused with the host sign. For example, in Israeli Sign Language, the host sign KNOW when combined with a twisting movement, yields the meaning ‘I do not know’, and results in a simultaneous affixation (Quer 2020). In American Sign Language (ASL), a sequential affixation is seen in compounds like SEE^ZERO (‘not see at all’), where ZERO functions as a negative affix (Quer 2020).

According to Zeshan (2004), negative clitics are less fused and can occur with a broader range of host signs. As a result, they are more productive, often attaching to high-frequency verbs such as KNOW, UNDERSTAND, or HAVE. Negative clitics are typically positioned adjacent to the host sign and assimilate spatially to its location (Zeshan 2004: 45). However, there is still considerable opacity around how these terms are understood for signed languages and spoken languages. Putting forward cross-linguistic definitions of ‘affix’ and ‘clitic’, Haspelmath (2021) rejects the case for defining clitics on phonological grounds because it is difficult if not impossible to apply this consistently. Instead, he defines an affix as “a bound morph that is not a root, that must occur on a root, and that cannot occur on roots of different root classes”. He adds that “typical clitics occur on words of various classes” (2021: 18). This raises the challenge of defining and identifying root classes, which is discussed further in Section 3.2.

Non-manual markers, particularly headshakes, are also widely used for negation, and in many sign languages appear as the sole negator. Zeshan (2004) finds that 26 out of 38 sign languages surveyed allow headshake-only negation. This strategy may be more common in European sign languages, while Asian sign languages tend to use manual markers (Zeshan & Palfreyman 2017: 190). For instance, Palfreyman (2019) notes that headshake as sole negator only occurred for 2% ($n=16$) of 804 negation tokens in the BISINDO corpus, leading to the conclusion that BISINDO signers are manual-dominant in their negation strategies. Furthermore, the headshake-only tokens that were found in the BISINDO data appear to be highly individual: nine of the 16 tokens were produced by a single signer from Solo. Some languages use specific non-manual strategies, such as backward head tilts, as seen in Turkish Sign Language (Türk İşaret Dili, TİD), which is also observed in the co-speech gestures of Eastern Mediterranean cultures (Zeshan 2004: 11). The co-occurrence of manual and non-manual markers to express negation is a common strategy across sign languages. A headshake co-occurring with a manual negative may sometimes spread across an entire clause, depending on language-specific rules (Zeshan 2004; Quer 2020). These combinations often follow rule-governed constraints within each language.

Following these cross-linguistic patterns, Zeshan (2004, 2006) proposed a typological distinction between manual-dominant and non-manual-dominant systems. In manual-dominant systems, a manual negative sign is obligatory, and non-manuals serve as secondary or reinforcing cues, while in non-manual-dominant systems, the headshake can serve as the sole or primary marker of negation. Subsequent studies have adopted this framework to compare sign languages and to describe how the interaction between manual and non-manual components shapes the expression of negation (e.g., Pfau 2016; Quer 2020; Zeshan & Palfreyman 2017). Within this typology, sign languages can vary in whether they rely more heavily on manual markers, non-manual markers, or a combination of both – reflecting broader language-specific and cultural preferences.

However, Johnston (2018) presents a corpus-based analysis of Australian Sign Language (Auslan) showing that, although headshakes occur, Auslan does not seem to be ‘non-manual dominant’ in type. Almost all (98%) of the negated clauses in the Auslan corpus include a manual negative sign, and very few (1.7%) are negated non-manually with headshakes only (Johnston 2018: 204). He finds an absence of rigid constraints around the position and spread of headshakes and notes that headshakes can also be found in many non-negated clauses. He concludes that the distribution of headshakes seems influenced by pragmatic concerns, such as response frames, emphasis, and interaction.

So far, this section has considered sign languages, but brief discussion of surrounding spoken languages will provide a foundation for some of the outcomes of language contact in the analysis that follows. In spoken standard Indonesian, at least four negative particles are used to express negation (Sneddon 2000). The basic negative particles are *tidak* and its colloquial variant *nggak*, *jangan* for negative imperatives, *belum* marks negative completives, and *bukan* is typically used to negate a noun. In spoken Balinese, negation is generally distinguished across higher or lower registers, reflecting the caste-based social setting. The basic negative particles are *tusing* in the lower registers and *nenten* for the higher register. Negative completion is expressed with *tonden* (lower register) or *dereng* (higher register, with spelling variations such as *durung*). Shortened forms of the basic negative particle include *sing* or *ten*. The negative completive *tonden* has variants such as *konden* (Bawa & Jendra 1981; Tangkas & Suari 2023; *dictionary.basa-bali.org*; anecdotal observations from the first author). Caste-based distinctions are explicitly upheld in Bali, and other communities such as Bugis-Makassar and Toraja have historically maintained aristocratic or rank-based hierarchies. In the present study, caste-based differences do not affect the analysis because all home-signers and interlocutors come from the same lower caste.

Building on those previous studies, the current study looks at what the negation markers used by Balinese homesigner can reveal about the nature of home-

sign, specifically relating to participants' sociocultural backgrounds. It will also explore the extent to which Balinese homesigning fits into conventional categorisations, such as manual- or non-manual dominant categories. Reflections on the methodological challenges of identifying negation in seven adult homesigners using naturalistic data will also be presented. These will be revisited in discussion in Section 5.

3. Method

3.1 Participants and data

All data in this study come from the Balinese Homesign Corpus (Satyawati et al. 2021), collected collaboratively by a team of Indonesian researchers: a hearing KK signer from Bengkulu, two deaf KK signers from Bengkulu, and a hearing BISINDO signer from Jakarta. The data were collected through multiple home visits to participants' residences, during which the team recorded various types of video data.

The Balinese Homesign Corpus comprises 15 participants in total, and the present study draws on a subset of seven homesigners: four men and three women, aged 27 to 59 years. In the Buleleng regency, most villages typically have only one or two deaf individuals, with no robust local signing community (Branson et al. 1999). Two participants were sampled from each of three villages (Mengening, Bebetin, Tajun), while one participant was included from Suwug, where only one homesigner was represented in the corpus. This strategy was adopted to retain representation across villages while keeping the dataset manageable for detailed transcription and annotation of semi-spontaneous conversational data.

We analysed approximately 130 minutes of semi-spontaneous conversational data from this corpus. The analysed subset consisted of seven video recordings, each lasting between 15 and 25 minutes. These videos feature natural conversations between homesigners and either a hearing family member or a local deaf research assistant from Bengkulu. Conversations did not follow any particular topic, however, where participants were initially reserved, the research assistant would ask questions about daily life (e.g., family situations or work). The overview of the analysed subset data in this study is shown in Table 1.

Some participants are connected through family ties. HSo2 and HSo3 are sisters-in-law (HSo2 is married to HSo3's brother) and live in a large family compound in Mengening with other deaf relatives (HSo1 and HSo4). HSo9 and HSo10, who both reside in Bebetin, do not interact, despite living within walking dis-

Table 1. Participant overview

Participant ID	Age	Gender	Village	Annotated	Interlocutor in the video
HS02	27	F	Mengening	~12 minutes	NMD/NMS*
HS03	45	F	Mengening	~24 minutes	NMD/NMS
HS09	55	F	Bebetin	~24 minutes	SIL
HS10	37	M	Bebetin	~11 minutes	NMD
HS14	35	M	Tajun	~20 minutes	NMD
HS15	59	M	Tajun	~22 minutes	NMS
HS17	40	M	Suwug	~19 minutes	KtK

* NMD and NMS are local deaf research assistants, and native KK signers. KtK is a hearing KK signer from Bengkala. SIL is a hearing sister-in-law of HS09.

tance. HS14 and HS15 are both from Tajun and are neighbours who interact somewhat regularly. HS17, from Suwug, is unemployed and socialises primarily with his hearing family. There was one other deaf resident in Suwug, but HS17 does not have regular contact with them.

Participants’ educational backgrounds vary: some of them attended formal schooling without graduating, while others never attended formal education. Participants’ social interaction is predominantly shaped by family, work, and cultural contacts. However, it is worth noting again that Balinese homesigners typically live collectively, participating in daily religious rituals and communal activities. Thus, interaction with various families and clan members is a typical occurrence. Some participants work within their village or household, while others are employed outside their home village. Despite geographical proximity to Bengkala, only a few participants have had contact with KK signers: HS02 and HS03, through work and social visits with a younger KK signer (from the fifth generation) and later with the wider signing community through frequent social visits; HS14 has had some brief contact through his younger brother. Other participants reported no contact with KK signers or any other deaf signers (HS17), including the other participants. Further information regarding the data collection and participant background information of the Balinese Homesign Corpus can be found in Satyawati et al. (2025).

3.2 Transcription and annotation process

The present study is exploratory and aims to document and identify the formal realisations of negation used by Balinese homesigners, including manual and non-manual negation markers, as well as combinations of these. We set out to

document patterns attested in the dataset rather than to model variation statistically across participants or contexts.

Transcriptions were produced using ELAN (Version 6.3, The Language Archive 2023) and relevant tiers are described in Table 2. The annotation process targeted all negative markers in context. We used the following tiers: Neg-Gloss for manual markers, Neg-Mouth and Neg-Head for non-manual markers (see Figure 1). Subsequently, all annotations were exported into an Excel spreadsheet to facilitate quantitative analysis and pattern identification.

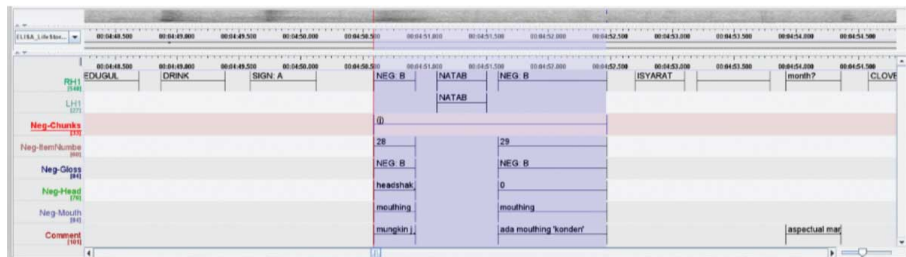


Figure 1. ELAN tiers of annotated data

The first author transcribed all negation tokens in five of the seven videos, while local research assistants (one deaf assistant involved in data collection and one hearing sign language interpreter from Bali) transcribed the remaining two. Difficult and ambiguous tokens were regularly discussed among co-authors and team members. If consensus could not be reached, the token was excluded from quantitative tallies. Negative responses to yes/no questions from research assistants (e.g., ‘Do you have a motorbike?’ Answered simply with ‘No’) were also excluded from the analysis.

The identification of negative manual and non-manual markers in the present study was based on interpreting the meanings of forms in context rather than as isolated forms. Interpretation was guided by the Neg-Chunk tier, which grouped signs into clause-like sequences that provided broader context for analysis. However, establishing these contextual sequences was not always straightforward, as boundaries between signs and larger units of discourse were often difficult to determine. This issue persists in signed language research (Ormel & Crasborn 2012) and is even more pronounced in semi-spontaneous homesign conversation.

Due to these challenges, each token is counted and reported as a separate instance, even when multiple tokens occur in a single sequence, as illustrated in Figure 2, where three tokens of NEG:B (open palm facing forward with side-to-side movement) occur in a single sequence. These are counted as three separate instances of negation. This is because it is not clear whether several markers are

being used to express the same instance of negative polarity, or whether each iteration is regarded — by the homesigner and/or by their interlocutor(s) — as serving a different meaning or function. The frequencies reported in this paper should therefore be interpreted as descriptive token counts rather than direct reflections of functional distribution or grammatical status. This decision was made because prosodic phrases cannot yet be reliably identified in the present dataset, making clause boundaries difficult to determine. To avoid imposing analytic categories on a newly collected and still-under-annotated corpus, tokens are not labelled as, for example, *clause negation* or *constituent negation*. Similarly, general descriptive labels such as ‘mouth movement’ and ‘head movement’ are used when discussing the co-occurrence of manual and non-manual markers.

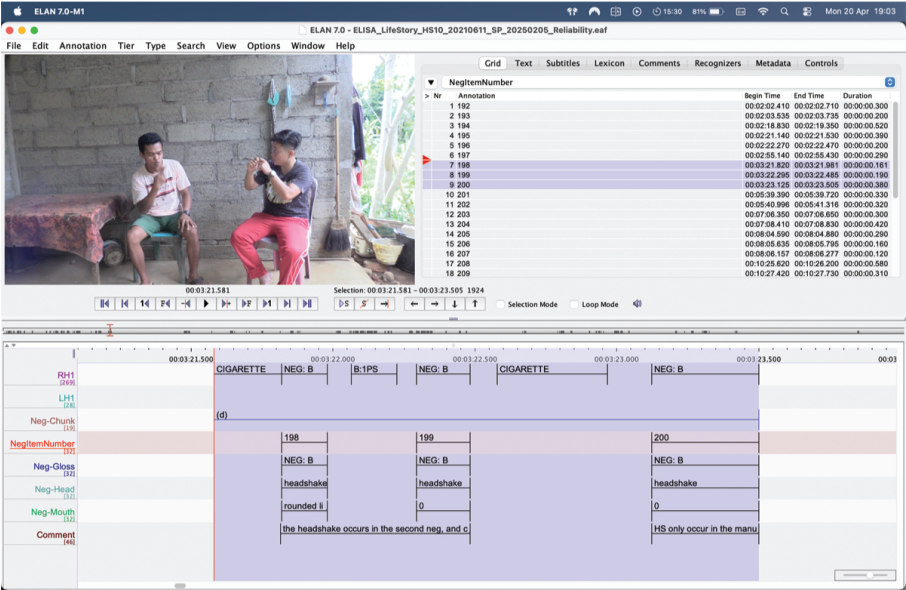


Figure 2. Example of multiple negative tokens occurring in a single sequence

A related challenge involves formally ambiguous forms. Partly because forms are not always fully conventionalised across participants, some tokens may be interpreted in multiple ways. For example, there is considerable formal overlap between the two-handed NEG:A and a marker with a ‘finish’-like meaning, both of which utilise a twist-on-wrist with an open palm. This obscures whether the token expresses negation or completion. For instance, in Example (3), a two-handed NEG:A form occurs after DIG and IX_C, which can be interpreted as having either negative meaning (‘there is no work there’) or completive meaning (‘the work there is finished’). In such cases, the meaning was inferred through triangulation,

drawing on the authors' knowledge of the field site and broader cultural context, together with repeated reviews of the surrounding text, consultation of fieldnotes, and discussion with deaf and hearing local research assistants involved in the project. Tokens that remained ambiguous after this process were excluded from the analysis.

Several additional observations emerged during the course of annotation but were documented informally. Functional observations (e.g., negative existential, negative imperative) were noted without dedicated tiers. The spread of non-manual markers (e.g., sequence level headshakes) was recorded inconsistently in the Comment tier. To a similar extent, it also applies to clitic-like constructions, which were identified only at a later stage of annotation and this is therefore addressed separately below.

The analysis of clitic-like constructions required a particular analytical lens. In many cases, it is difficult to determine whether a negative marker attaches to a clearly identifiable lexical host and, if so, what root class that host belongs to. For example, in Example (9), NEG:A appears bound to the host glossed as HEAR (HEAR^NEG:A). The host form is an index finger pointing to the ear, which can be interpreted as 'listen' or as a hearing-related predicate. But, from the surrounding context, Example (9) is interpreted as 'I cannot hear (since I was a child)'. The definition of affixes mentioned above, from Haspelmath (2021), cannot be met here given the different possible interpretations of the host. We therefore refrain from further identifying any bound negative forms as affixes and instead treat these forms as clitic-like.

In this study, a negative marker is considered a bound morph if two of the following conditions are met: (i) its location shifts under the influence of its host and would not occur in that position independently; (ii) it exhibits a degree of phonological reduction (i.e., reduced movement of the manual negator); or (iii) two otherwise independent signs are produced in very close succession. The counts presented in this paper are strictly form-based, and functional or morphological interpretations are made sporadically when the surrounding context provide sufficient clarity.

Mouth movements were coded in a broad and descriptive way. In sign language research, mouth movements are typically distinguished into categories: mouthings and mouth gestures. Previous studies suggest that mouthing is borrowed from surrounding spoken languages (Crasborn et al. 2008; Fontana 2008; Mohr 2014) and usually functions to differentiate meanings between signs. In contrast, mouth gestures are not derived directly from spoken languages (Crasborn et al. 2008: 49). The category of mouth gestures usually covers various configurations of the jaw, lips, cheeks, and tongue, indicating the presence of airflow or 'noises' (Fontana 2008: 106). In the current study, mouthing was coded using the

mirrored spoken word, while mouth gestures were coded if they involved tongue protrusion, open mouth, or w-mouth. The term ‘w-mouth’ refers to “mouth activity in the context of whole-face activity” (Crasborn et al. 2008:50), usually carrying affective meaning without independent form (glossed as ‘w-mouth’ in this paper). In this study, w-mouth appears as a rapid succession of ‘wowo’ or ‘wawa’, usually rhythmically aligned with the hands, and commonly co-occurring with a manual negator (see Figure 3).¹



Figure 3. Illustration of w-mouth

Coding reliability in signed language research commonly involves native signers or users of the language under study. In this case, however, it was not feasible to ask homesigners themselves to review transcriptions, translations or annotations. Interpreting the data required both familiarity with local communicative practices and analytical skills in sign language annotation, including attention to context, form-based distinctions, and potentially ambiguous cases. Nevertheless, we conducted inter-coder and intra-coder reliability checks on a subset of the dataset.

The second author recoded 20% of the 359 tokens ($n=72$) for glosses and clitic status for three homesigners (HS02, HS09, HS14). Agreement was 98.6% for glossing and 94.4% for clitic status. Where there were disagreements on clitic status, the first author was more conservative, with the second author assigning clitic status to four additional tokens. We retained the first author’s judgements here, but this disagreement effectively strengthens the case for the presence of negative clitics in the data. The first author conducted additional intra-coder reliability checks by recoding 44% ($n=159$) of 359 tokens from all seven participants. This resulted in 98.1% agreement for glossing ($n=156$) and 96.9% for clitic status ($n=154$).

1. All video examples and figure stills referenced in this paper are available through the project’s OSF repository (https://osf.io/cjzqk/overview?view_only=c2f10c8301024181931c132571e7c8eo).

Table 2. ELAN tiers description

Type	Tier	Description
Manual Signs	RH	Documents the general manual activity of the right hand
	LH	Documents general manual activity of the left hand
	Neg-Gloss	Dedicated to identifying manual negators specifically
Non-Manual	Neg-Head	Notes head movements (e.g., headshake, head nod, furrowed eyebrows)
	Neg-Mouth	Notes mouth movement (e.g., open mouth, tongue protrusion, w-mouth)
Analytical Tiers	Neg-Chunk	Highlights clause-like groupings to provide contextual interpretation
	Neg-ItemNumber	Tracks each instance of negation across the dataset by assigning a continuous number, including repetitions occurring in a single chunk
	Comment	Used for informal annotations and interpretation notes

4. Findings

In this section, we report the number of negation tokens identified in the outputs of the seven Balinese homesigners. As outlined in the Method section, these counts are descriptive and form-based and allow us to detect patterns in the dataset.

Negation tokens comprise manual-only markers, non-manual only markers, and combinations of both. However, it is extremely important to note that, even when only non-manual markers appear, manual markers or combinations typically occur in the same sequence. Likewise, many examples of manual-only markers are followed by combinations. We have in fact found only one case in the entire dataset where a non-manual marker occurs with no proximate manual marking. Overall, we recorded 359 tokens of negation in the data, and these are presented in the following sub-sections, covering manual markers (Section 4.2) and non-manual markers (Section 4.2). Table 3 shows token frequencies in the annotated dataset, including the percentages showing in the table.

Table 3. Overall negation tokens across seven Balinese homesigners

Category	Occurrences	% of total
Manual only tokens	53	14.8%
Non-manual only tokens	12	3.3%
Tokens combining manual and non-manual	294	81.9%
Total	359	100%

4.1 Manual markers

Five manual markers are found in the dataset. These are glossed as: NEG:A, NEG:B, NEG:IX, ZERO:A, and PALM-UP, as shown in Figure 4. Table 4 shows the frequencies of these markers across participants.



Figure 4. Five manual markers of negation identified in Balinese homesigning

The forms of NEG:A and NEG:B differ in the hand orientation and movement. The handshape is identical for both: all fingers are extended, and the palm is open. NEG:B features a front-facing palm (🖐️) with a side-to-side movement, while NEG:A has a neutral orientation with a twisting movement. In terms of handedness, both are overwhelmingly one-handed, but two-handed forms do occur. NEG:A seems more likely to be two-handed than NEG:B. This might be due to

phonological assimilation with previous signs or for emphasis. Conventionally, in Indonesia, the two-handed NEG:B appears to occur gesturally for emphasis, indicating rejection. As seen in Table 3, NEG:A and NEG:B are by far the most frequent manual markers used across participants.

The three less frequent manuals, PALM-UP, NEG:IX, and ZERO:A occur 12, 11, and three times, respectively. For PALM-UP, the hand is open with no movement, with the palm generally oriented slightly upward or toward the face rather than in a clearly fully supinated position. As mentioned in the Method section, there were some difficulties determining the grammatical negative meaning of PALM-UP, as it occurs not very frequently.

Table 4. Frequencies of manual markers across seven participants

Manual marker	HS02	HS03	HS09	HS10	HS14	HS15	HS17	Total	%
NEG:A	5	27	10	1	55	16	22	136	39%
NEG:B	48	39	35	29	6	7	21	185	53%
PALM-UP	1	6	1	2	2			12	3%
NEG:IX		5			3		3	11	3%
ZERO:A	3							3	2%
Total	57	77	46	32	66	23	46	347	100%

NEG:IX is usually one-handed () and features a selected index finger moved from side-to-side. In this dataset, ZERO:A only occurs as a one-handed form; it uses an 'OK' handshape () moved from side-to-side (a phonological variant; ZERO:B only occurs once, with an 'O' handshape ()).

It is striking that all four markers described so far use a side-to-side movement. Zeshan (2004) notes that this movement is very common in gestures and sign languages that convey negative meaning, such as in Catalan Sign Language (LSC) (Quer 2012) and Indo-Pakistani Sign Language (IPSL) (Zeshan 2006).

Both NEG:IX and PALM-UP occur as co-speech gestures in Indonesia (Palfreyman 2019). ZERO:A is not a co-speech gesture in Indonesia (Palfreyman 2019: 195), but the round 'O' handshape is iconically motivated, as an empty space enclosed by thumb and index finger (Zeshan 2004: 35), or a zero (Sagara 2014).

A manual marker without the co-occurrence of non-manual is possible in the present dataset, evident with 53 tokens found in this dataset. All but one of the five manual markers, ZERO:A, featured as sole negator. The most frequent manual-only negators were NEG:A (25 tokens) and NEG:B (24 tokens). Although NEG:A was the most frequent, NEG:B was attested consistently across all seven participants. The other manual markers were less frequent: NEG:IX (3 tokens), and PALM-UP

(1 token). However, it is important to note that manual-only instances were not always produced as the sole negator but could also occur within larger sequences, sometimes alternating with or following instances where manual and non-manual markers co-occurred. This pattern may indicate that manual and non-manual combinations were utilized by Balinese homesigners to convey negation in the discourse.

Zeshan (2004:30) refers to sign languages as having a basic clause negator, meaning there is a frequent negative marker that negates a clause in the most neutral way. In this dataset, the two most frequently used manual markers are NEG:A and NEG:B. Their frequency suggests that both manuals may function as a neutral way to negate a predicate, although it is important to note that we do not attempt to label or distinguish between clause and constituent negation, due to the challenges discussed in the Method section. In addition, it is also worth noting that individual variation is high in this dataset, in other words, some participants may have a negative manual marker preference: HSo2 prefers NEG:B (48 tokens) to NEG:A (5 tokens), while the opposite tendency occurs for HS14 (with 55 tokens of NEG:A and only six tokens of NEG:B) (see Table 4).

As mentioned in the Method section, the function of these manual markers was not systematically coded; nonetheless, a few patterns emerge from the data. In particular, the two most frequent manual markers, NEG:A and NEG:B, seem to favour different negative contexts. NEG:B is found in a broader range of contexts, while NEG:A is prominent in clitic-like constructions (see Section 4.1.1). Although some homesigners (such as HS14) prefer NEG:A, NEG:B occurs more widely across all homesigners. Other manual markers with lower frequency like NEG:IX are found primarily in utterances expressing negative imperative, while PALM-UP is observed with potential functions related to rejection, negative existence and possession.

In Example (1), HS10 explains that he does not live in the house where the recording was taking place.² Instead, he indicates that he resides in another house within the same compound. The house where the recording was conducted is identified as his mother's, while the house where he resides is also where his brother and family live.

- (1) IX_a NEG:B
 'I do not (live) here.'

2. Letter subscripts mark spatial/location reference: 'a' = the signer's immediate space, typically inside the camera frame; 'b' = nearby but peripheral locations; 'c' = distal or out-of-frame abstract loci (i.e., non-actual locations used to refer to entities not present in the physical environment).

Negative possession and existence are distinctive categories across sign languages, and markers often express both functions cross-linguistically (Zeshan & Perniss 2008). In Example (2), NEG:B is used as a negative possession marker. This example is from participant HS17 (Suwug) who was talking about a neighbor who is unemployed and stays at home. In this context, HS17 further says that the neighbor does not have any money.

- (2) POCKET MONEY NEG:B
'(He) does not have any money.'

Negative existence can be conveyed by a two-handed NEG:A, or by NEG:B with tongue protrusion, or with NEG:B alone which sometimes co-occurs with a headshake ('hs'). However, as noted in the Method section, two-handed NEG:A is polysemous, which leads to several different readings for Example (3), for instance (see Figure 5).³ In this example, HS15 talks about his mother who previously lived in a different village, and he was living there as well. Here, it can be interpreted as 'there is no work' or other negative meaning such as 'I can't work', but it can also convey the completive meaning ('the work is done' or 'the work is finished').

- (3) $\overline{\text{DIG IX}_c \text{ NEG:A}}^{\text{hs}}$
'I cannot work there.' / 'There is no work there.' / 'The work there is finished.'



Figure 5. Illustration of Example 3 – formal overlap between NEG:A or 'finish'

Another function that is observed in this dataset is negative imperative, which is most often realised by the manual NEG:IX. There are 11 tokens of NEG:IX across three unrelated homesigners: HSo3, HS14, HS17. Out of 11 tokens, seven co-occurred with headshake and mouth movements as seen in Table 5. Example 4 showcases this situation.

3. Please refer to this OSF link (https://osf.io/cjzqk/overview?view_only=c2f10c83010241 the most frequent combination 81931c132571e7c8e0) to see the video clip of Example (3).

Table 5. Instances of NEG:IX across three homesigners

Manual	Non-Manual		Participant			Total
	Head	Mouth	HS03	HS14	HS17	
NEG:IX	none	none		1	2	3
		corners down (MCD)		1		1
	headshake	none		1	1	2
		MCD	2			2
		open mouth (OM)	2			2
		other	1			1
		Total	5	3	3	11

In Example (4), illustrated in Figure 6, NEG:IX co-occurs with two non-manual markers: a headshake (‘hs’) and an open mouth (‘om’). In this instance, HSo3 conveys that asking others for food was inappropriate, and thus she refrained from doing so. Following this, she also expresses a commitment to working hard and avoiding reliance on others for food. The co-occurrences of non-manual markers here may add an emphatic or affective layer to the negative imperative, particularly the open mouth, in underscoring her values around self-independence, without contributing independent lexical meaning.

- hs + om

(4) FOOD ASK-AROUND NEG:IX

‘Do not beg for food!’



Figure 6. Illustration of Example (4) – NEG:IX as negative imperative in HSo3

Prior to Example (5), HS17 has discussed his routine of cycling and how he cycles for a long time. He then commented on the effects of cigarette smoking, stating that it causes shortness of breath and makes cycling more difficult. This comment was prompted by the two local research assistants who were smoking during a break in recording. HS17 then uses NEG:IX to express general criticism of smoking, conveying the message that smoking is bad for your health. Notably, in this example, NEG:IX occurred without any non-manual markers which may suggest that manual markers can independently carry the core negative imperative meaning in Balinese homesigning, at least for some homesigners.

- (5) CIGARETTES NEG:IX
'Do not smoke (cigarettes)!'

Another finding from the dataset where NEG:A diverges from standard negation is shown in Example (6). In this instance, HSo3 recounted falling from a tree while heavily pregnant, working as a clove picker. She explicitly conveyed that neither she nor her baby were harmed from the incident, by combining the predicate PREGNANT with a headshake (see Figure 7). Typically, when PREGNANT co-occurred with a headshake it would be interpreted as 'I'm not pregnant'. But, the headshake, in this context, does not negate the pregnancy itself ('then I wasn't pregnant'), but rather negates the anticipated negative consequences of the fall ('the pregnancy was not affected'). After the co-occurrence of PREGNANT with a headshake, HSo3 further signed NEG:A with a head nod to reinforce the intention to express that both she and the baby were unharmed.

- (6) CLIMB PREGNANT CLIMB FALL. NEG:A PREGNANT NEG:A
hs hn
 'I was climbing (the clove tree) when I was pregnant and I fell.
 But the baby (and me) is okay.'

Interestingly, the use of these contrasting manual and non-manual signals parallels patterns observed in spoken Indonesian. The phrase *tidak apa-apa* ('it's okay' or 'it doesn't matter') incorporates the negative particle *tidak* to convey a positive or reassuring meaning. In Example (6), the manual negative marker (NEG:A) is used to affirm a positive semantic outcome, diverging from grammatical negation. Instead, it performs an evaluative or reassurance function, closely resembling the pragmatic function of the Indonesian expression *tidak apa-apa*. This example provides concrete evidence that pragmatic context beyond grammatical negation of manual negators is possible within a homesign context, which may also have resulted from language contact with the surrounding spoken language.



Figure 7. Illustration of Example (6) — HSo3 with divergent standard negation

It is worth noting, however, that *tidak apa-apa* also occurs in the broader Indonesian signing context. Palfreyman (2019: 227–28) reports that the meaning *tidak apa-apa* appears 155 times in his BISINDO dataset, and these tokens are excluded from the analysis (that is, they are not part of the 804 tokens analysed). One instance is illustrated in Example (7) below, drawn from Singaraja BISINDO, where the sign glossed here as NEG:A is used to express the *tidak apa-apa* meaning. Example (7) shows NEG:A can function both as a grammatical negative and for the *tidak apa-apa* meaning. These observations raise the question whether NEG:A should still be interpreted as a grammatical negator in such cases, given that a clear positive counterpart is not evident. Considering this, the use of NEG:A in Example (6) may be best interpreted as an outcome of contact with spoken languages and may even be used as a co-speech gesture by hearing interlocutors when they say ‘tidak apa-apa’.

- (7) tidak punya apa-apa
 NEG:A PT:PRO1 | NEG:A
 ‘I don’t have (a license), is that ok?’ (Palfreyman 2018)

4.1.1 Cliticisation of manual markers

Another pattern found in Balinese homesigning is the occurrence of negative clitic-like constructions, where manual markers appear bound to other signs. We observe 12 tokens that align closely with the characteristics outlined in the Method section, and cliticise to seven hosts (SPEAK, PREGNANT, POCKET, HEAR, MIND, HIJAB and SEE). As summarised in Table 6, clitic-like constructions are used by four Balinese homesigners (HS02, HSo3, HS14, and HS17) from three villages

(Mengening, Tajun, and Suwug). The manual NEG:A is the most frequent form for cliticisation, while NEG:B and PALM-UP are cliticised only twice and once, respectively, by HSo2 and HSo3.

Table 6. Clitic-like tokens in Balinese homesigners

No.	Participant	Host	Manual gloss	Headshake	Mouth movement
1	HSo2	SPEAK	^NEG:A	none	tongue protrusion
2		SPEAK	^NEG:B	none	w-mouth
3		PREGNANT	^NEG:B	headshake	w-mouth
4	HSo3	POCKET	^PALM-UP	headshake	mouth corners down
5		SPEAK	^NEG:A	headshake	mouth corners down
6		SPEAK	^NEG:A	headshake	mouth corners down
7	HS14	HEAR	^NEG:A	headshake	mouth corners down
8		MIND	^NEG:A	none	none
9		HIJAB	^NEG:A	none	mouth corners down
10		SEE	^NEG:A	none	none
11	HS17	MIND	^NEG:A	headshake	w-mouth
12		SEE	^NEG:A	None	w-mouth

Prior to Example (8), HS14 has told of how his sister accidentally caused a small fire by knocking something over. To express that she “did not know” what she was doing, he signed the predicate THINK, followed immediately by a reduced and rapid form of NEG:A. As mentioned in Section 3.2, clitic-like constructions in this dataset are analysed using several criteria, including spatial integration with a host and phonological reduction, both of which are exhibited by NEG:A in Example (8).

- (8) SIBLING FEMALE THINK^NEG:A
 ‘She did not understand (what she was doing).’

In Example (9), HS14 conveys that he cannot hear since childhood by signing HEAR^NEG:A, followed by SPEAK IX₁ NEG:A to express that he cannot speak since childhood. The clitic-like construction HEAR^NEG:A co-occurs with a headshake and mouth corners down (‘mcd’). The second NEG:A, though not cliticised, is produced in a continuous sequence where the open-mouth non-manual begins with pointing to himself⁴ and is maintained until the final NEG:A (see Figure 8).

4. Number subscripts indicate the point of view: ‘1’ refers to the signer, ‘2’ refers to the person in front of or inside the camera frame, and ‘3’ refers to a person outside the camera frame.

- (9) $\frac{\text{hs+mcd}}{\text{HEAR}^{\wedge}\text{NEG:A}} \frac{\text{om}}{\text{SPEAK IX}_1 \text{NEG:A}}$
 ‘(Since I was a child) I can’t hear or speak.’



Figure 8. Illustration of Example (9) – cliticisation of NEG:A

Example (10) is another example where HS17 describes a motorbike accident he experienced caused by inattention. Two clitic constructions appear: THINK[^]NEG:A and SEE[^]NEG:A. The initial pair co-occurred with headshake and w-mouth, while the second pair only featured w-mouth.

- (10) $\frac{\text{hs+w-mouth}}{\text{THINK}^{\wedge}\text{NEG:A}} \frac{\text{w-mouth}}{\text{SEE}^{\wedge}\text{NEG:A}}$
 ‘I was not paying attention.’

The manual NEG:B, open palm facing forward with side-to-side movement, was found cliticised to a host only twice, with one instance shown in Example (11). In this example, HSo2 told a story about becoming pregnant shortly after her father passed away,⁵ which was in accordance with Balinese Hindu belief in reincarnation. She saw her pregnancy as a blessing from her late father.

We interpreted Example (11) by utilising ethnographic triangulation: considering local customs, consulting with local research assistants, and considering the surrounding context in which she referenced her father in relation to the unborn baby using his sign name.

In Example (11), the manual sign PREGNANT is produced twice alongside NEG:B, with the first occurrence, as a free morph and the second as a clitic-like construction, exhibiting reduction in the form of minimal or no side-to-side movement. This repetition may serve to emphasise the state of ‘not yet pregnant’, while the reduced second iteration may highlight the change of state from not being pregnant to becoming pregnant, occurring as it does immediately before the clause concerning the death of her father.

5. PASSED-AWAY was co-produced with tongue protrusion which was glossed as ‘tp.’

- (11) $\frac{\text{hs+w-mouth}}{\text{PREGNANT NEG:B PREGNANT}^{\wedge}\text{NEG:B}}$
 $\frac{\text{tp}}{\text{FATHER PASSED-AWAY PREGNANT}}$
 ‘I was not pregnant (when my father was still alive), but after his passing I got pregnant.’

Interestingly, Example (11) includes two pairings of predicate PREGNANT and the manual negator NEG:B: one where they are clearly two distinct lexical signs, and one where the negator is fused to the host, indicating a clitic-like construction. The non-manual markers – headshake and w-mouth – together with the cliticised NEG:B are taken to produce unified negative polarity. The different strategies exemplified by the two pairings within a single sequence, highlights the way that Balinese homesigners can use multiple means to express negation, while also highlighting the complexity and innovation found in their utterances.

In another instance, Example (12), HSO3 uses PALM-UP in a cliticised form to express negative possession, with POCKET[^]PALM-UP conveying the meaning ‘I don’t have any money’. This construction is signed rapidly with no clear distinction between POCKET and PALM-UP. This construction is the only instance of cliticised PALM-UP but it shows that cliticisation is not limited to NEG:A or NEG:B.

- (12) $\frac{\text{hn}}{\text{MONEY ASK MONEY NEG:B}} \frac{\text{hs+om}}{\text{POCKET}^{\wedge}\text{PALM-UP}}$
 ‘She asked for some money. I said, I don’t have any money!’

Across negative clitic-like instances, the form of the manual negator is often reduced, especially in terms of movement, with the exception of PALM-UP. For NEG:B, the side-to-side movement is omitted while its palm-forward orientation is retained, whereas NEG:A preserves both movement and orientation in a shortened, tightly bound form adjacent to the host. All negative clitics occur in post-predicate position and [^]NEG:A and [^]NEG:B are attested at least for negative completive and negative possessive meanings. Most hosts that take clitics refer to the senses (SPEAK, HEAR, SEE) or cognition (MIND), and the fact that both HS14 and HS17 produce SEE[^]NEG:A and MIND[^]NEG:A suggests that these particular host-clitic pairings are likely to be recurring combinations across homesigners.

4.2 Non-manual markers

Altogether, 81.9% ($n=294$) of negative tokens are combinations of non-manual and manual markers (see Table 3). Non-manual markers are categorised as head movements (i.e., headshake) and mouth movements (mouth corners down,

mouthing-related, open mouth, tongue protrusion, and other). Figure 9 presents the distribution of combinations of manual markers with head movements, mouth movements, or both.

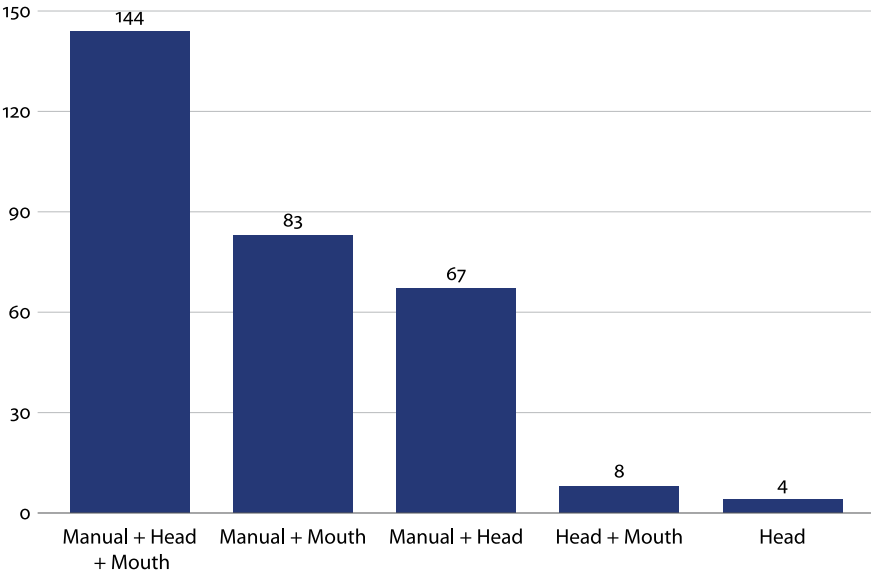


Figure 9. Combinations of manual markers with head movements, mouth movements, or both, and non-manual markers alone within annotated negative tokens

It is perhaps to be expected that the most frequent combination was manual markers co-occurring with both head and mouth movements (47.1%, $n=144$). In the previous section, the most frequent manual negators, NEG:A and NEG:B, have been seen to occur with headshakes and mouth movements such as mouth-corners-down and open-mouth. The second most frequent combination, manual markers with mouth movements (27.1%); in these cases, the mouth movements may be contributing additional clarity or emphasis without contributing independent meaning to the negation. To explore these combinations in more detail, Figure 10 shows the eight most frequent patterns observed across the seven Balinese homesigners.

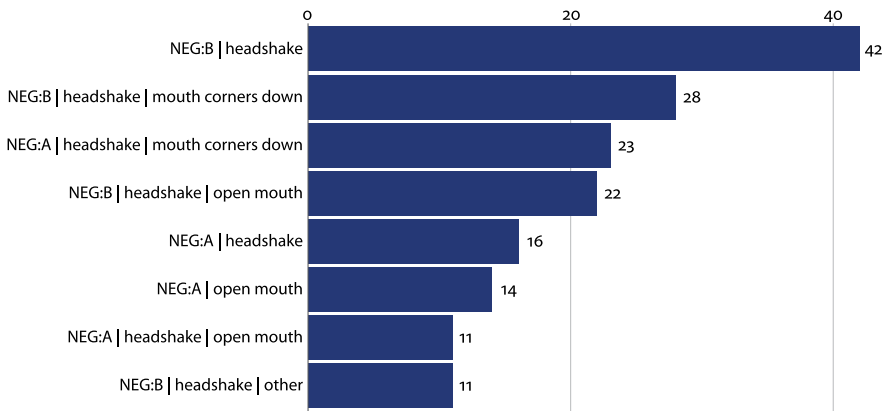


Figure 10. The most frequent combinations of manual and non-manual markers

As shown in Figure 10, the most frequent combination is NEG:B with a headshake (42 tokens), and in fact this combination is notable for being produced by all seven homesigners. The consistent production of headshakes with manual negators across the dataset shows how homesigners who have never had contact with each other nonetheless arrive upon similar combinations of resources to convey negation. It could be that the homesigners have seen this combination produced the most by their hearing interlocutors, gesturally; or that the mirroring of the side-to-side manual movement in the headshake makes this combination particularly salient.

Example (13) demonstrates another common combination: NEG:A with headshake and mouth corners down. In this example, HSo9 explained that she usually eats breakfast at 10 am, not 9 am. This combination illustrates the layering of manual and non-manual markers (Wilbur 2000); the manual marker appears to carry the core negative meaning, while the headshake appears to be a frequent and possibly preferred co-occurring pattern with manual negators; the mouth movement likely adds an emphatic or expressive nuance.

- hs+mcd
- (13) NINE NEG:A TEN
 ‘(I eat) at 10 am, not 9 am.’

While the dataset includes common mouth movements such as mouth corners down and open mouth, we suspect these primarily contribute to an affective expression of the overall utterance. However, in some cases there are mouth movements that seem to have a more substantial role in negation in Balinese homesigning, as described in the next paragraph.

A subset of mouth movements that show resemblance to vowel patterns from ambient speakers are found in two participants in this dataset (HSo2 and HSo3). Both use mouth movements that are identifiable as mouthings from Balinese *nawang* (‘know’) and *konden* (‘not yet’). This is summarised in Table 7.

Table 7. Tokens of mouth movements that resemble the vowel patterns from ambient spoken words

Participant	Manual	Head	Mouthing	Frequency
HSo2	NEG:A		<i>nawang</i>	1
	NEG:B		<i>nawang</i>	1
	NEG:B	headshake	<i>konden</i>	1
	NEG:B		<i>konden</i>	1
HSo3	NEG:B	headshake	<i>nawang</i>	4
	NEG:A	headshake	<i>pis</i>	1
	NEG:A	headshake	<i>nawang</i>	2
	PALM-UP	headshake	<i>nawang</i>	1

Three of four mouthing tokens used by HSo3 feature *nawang*, which co-occurs with NEG:A and NEG:B. In Example (14), HSo3 talks about her pregnancy with her daughter. At the time, she was speculating about the baby’s gender, which she did not yet know. To express this, she uses NEG:B alongside a headshake, while the mouthing *nawang* appeared simultaneously with the manual negator. The word *nawang* carries a positive meaning (‘know’) and when combined with the manual marker NEG:B, it results in a negative polarity of ‘not know’. In other words, it seems that NEG:B directly negates the mouthing *nawang* (‘know’).⁶

- (14)
- hs+nawang

RH: BELLY -----

LH: MALE NEG:B

(‘I’m wondering if it’s) a boy?’

The same phenomenon occurs in BISINDO: Palfreyman (2019:204) refers to these as “TIDAK with mouthed predicate constructions”; an example from BISINDO Solo is shown in (15). In this example, the predicate ‘know’ is expressed not by separate manual sign, but through the mouthing *tahu* (‘know’), which

6. Note that in this example, the right hand (RH) and left hand (LH) sign different things simultaneously and are therefore glossed separately (‘---’ indicates that the right hand is held stationary while the left hand articulates other signs).

co-occurs with the manual negator *TIDAK* and is therefore interpreted as ‘not know’. Of 131 examples of mouthed predicates in his corpus, the semantic predicate ‘know’ (Indonesian: *tahu*) is the most frequent.

- (15) ADIK BILANG IBU ^{tahu}TIDAK
 younger-sibling say mother NEG
 ‘The younger sibling said, “Mother doesn’t know.”’

In Example (16), the word *konden* already has a negative meaning (‘not yet’). This example is part of a story HSo2 tells of when she started dating her husband: they were not yet married at the time. The sign *MARRY* is sandwiched between manual negators, both of which have the same construction: *NEG:B* co-occurs with a headshake and the mouthing *konden* (which is realised as a rapid alternation between vowels /o/ and /e/). The mouthing here specifies the manual marker *NEG:B* as a negative completive, which conveys the meaning ‘I was not yet married (at the time)’. Without the mouthing, the meaning of the utterance might shift to ‘I’m not married’, which conveys standard negation.

We do not observe any mouthed negators in the dataset apart from *konden*: the Balinese negator *sing* and the Indonesian negator *tidak* do not occur, even though these are frequently used by speakers.

- (16) ^{hs+konden}NEG:B ^{hs+konden}MARRY NEG:B
 ‘I was not yet married (at the time).’

Another mouth movement identified in this dataset is w-mouth.⁷ As can be seen in Example (17), w-mouth spreads almost across the entire clause and specifically co-occurs with *NEG:B* and *PREGNANT*. In this instance, HSo2 relates her experience of getting married, specifically stating that she was not yet pregnant when she got married. This aligns strongly with Indonesian/Balinese cultural norms, where having children immediately after marriage is expected, and so the interpretation of *NEG:B* as negative completive is supported by the broader cultural context.

- (17) ^{w-mouth}NEG:B PREGNANT NEG:B ZERO:B
 ‘I was not yet pregnant (at the time).’

In Example (17), the manual *NEG:B* occurs twice, both times with w-mouth. Notably, a headshake is entirely absent in this sequence; additionally, *ZERO:B* appears at the end, likely to reinforce or further emphasize the negative meaning.

7. Please refer to the OSF link repository to view the video clip of the w-mouth (https://osf.io/cjzqk/overview?view_only=c2f10c8301024181931c132571e7c8eo).

The non-manual w-mouth – a quick succession of ‘*wowo*’ (see Figure 3) – was originally used to describe mouth activity in the context of whole-face activity that does not carry specific semantic meaning but rather conveys affective or evaluative meaning (Crasborn et al. 2008). However, upon further observation, the w-mouth tokens produced by HSo2 are typically linked to negative completive context (six out of ten tokens). One possible explanation is that contact with spoken Balinese from the word *konden* (‘not yet’), discussed previously in Example (16), has led to the w-mouth pattern, but contact with KK signers may have also played a role (this is elaborated further in Section 5.2). This is a qualitative observation based on recurring patterns of the non-manual w-mouth specifically used by HSo2.

There is also a mouth movement that consistently seems to mark negative existence: tongue protrusion. We found that tongue protrusion can co-occur with manual markers such as NEG:A. In Example (18), HSo3 tells how someone came to her house while no one was at home. Given that NEG:A already carries a basic negation function, tongue protrusion seems to carry a more specific function related to negative existence. In this context, tongue protrusion indicates the absence of human beings, hence negative existence.

- (18) $\overline{\text{tp}}$
 COME NEG:A HOUSE
 ‘(He) came and nobody was in the house.’

Another example of tongue protrusion is shown in Example (19), this time co-occurring with the manual ZERO:A. In this instance, we see how the manual ZERO:A can also mark negative existence. Here, HSo2 explains that there were no other deaf individuals in her hometown. The first two signs (ZERO:A and NEG:B) are co-produced with a headshake and tongue protrusion. The tongue protrusion here seems to have negative existential meaning (see Figure 11).

- (19) $\overline{\text{hs+tp}} \quad \overline{\text{w-mouth}} \quad \overline{\text{w-mouth}}$
 ZERO:A NEG:B ZERO:A HOUSE ZERO:A
 ‘(There are no deaf individuals) in my hometown.’

Negative existence, therefore, can be marked not only by non-manual markers such as tongue protrusion, but also by a dedicated manual marker, i.e., ZERO:A. Similar forms and function have been documented in other sign languages, including New Zealand Sign Language (Zeshan 2006) and BISINDO (Palfreyman 2019).



Figure 11. Illustration of Example (19) — tongue protrusion co-occurring with ZERO:A

Another function of tongue protrusion that is observed in the data may be to show evaluative/emotive judgement. This non-manual marker is used by HS09 in Example (20), illustrated in Figure 12. In this instance, HS09 expresses some disgust when asked about romantic relationships. She mentions that she had liked someone but never got into a serious relationship. She says that kissing was not something she welcomed in any way, and she conveys this by using NEG:B with tongue protrusion. This suggests that tongue protrusion not only functions as a negative existence marker but can also be used to express negative evaluations. This function of tongue protrusion is also reported for KK (Lutzenberger 2017).

- (20) $\overline{\text{tp}}$
 KISSING NEG:B
 'Kissing? No!'



Figure 12. Illustration of Example (20) — tongue protrusion as negative evaluative marker

4.2.1 *Non-manual only marking*

Out of the 12 tokens of non-manual only marking, headshakes consistently feature, while mouth movements such as open mouth, mouth-corners-down, tongue protrusion, and w-mouth appear less consistently (Table 8). However, these non-manuals typically occur alongside manual negators or other non-manual markers within a single sequence. In this dataset, only one instance of a non-manual marker occurring as the sole negator in a single sequence was found, without any accompanying manual element.

Table 8. Tokens of non-manual only in four homesigners

No.	Participant	Head movement	Mouth movement
1	HS02	headshake	tongue protrusion
2			w-mouth
3	HS03		—
4			open mouth
5			mouth corners down
6	HS09		open mouth
7			—
8			—
9			open mouth
10			mouth corners down
11	HS15		—
12			other

The non-manual marker as the sole negator is illustrated in Example (21), where HSo9 converses with a hearing family member. In this example, the topic of the conversation is the offerings they brought to ceremonies. The hearing family member cannot carry the offering because she was experiencing health problems, so HSo9 ended up carrying it instead. This was expressed by pointing to the hearing family member while headshaking, followed by pointing to HSo9 self, while head nodding. In Example (21), it can be seen that the predicate ‘you’ is negated by headshake, without any manual marking. This example also shows contrastive structure (‘not X, but Y’), and the absence of manual markers indicates that the headshake alone carries the negative meaning.⁸

- (21) $\overset{\text{hs}}{\text{B}_1} \text{ CARRY:A } \overset{\text{hn}}{\text{CARRY:B}} \text{ IX}_2 \text{ IX}_1 \text{ CARRY:B}$
 ‘It was me who carried the basket, not you.’

5. Discussion

This discussion is organised as follows: we assess where Balinese homesigning fits within the manual vs non-manual dominant classification (Section 5.2); we examine how shared gestural-cultural input yields both common cross-participant patterns and sporadic, participant-specific patterns (Section 5.2); and we look at how language contact with surrounding spoken languages and co-speech gesture, as well as with the two geographically closest sign languages, BISINDO and KK, influences negation in Balinese homesigning (Section 5.2). In Section 6, we go on to reflect on methodological challenges, before Section 7 offers conclusions and suggestions for future research.

5.1 Negation in Balinese homesigning: Manual-dominant, non-manual-dominant, or beyond?

Studies of negation in sign language over the past twenty years have been heavily influenced by Zeshan’s typology, grouping sign languages as manual-dominant or non-manual-dominant (Zeshan 2004, 2006). In manual-dominant languages, negation is primarily expressed through manual markers, while a non-manual-dominant language can be conveyed solely through non-manual elements (most commonly headshakes). Following this typological categorisation, Auslan, with

8. The gloss B₁ refers to a first-person singular pronoun realised with an open palm touching chest.

its frequent use of headshakes, might easily be classified as non-manual dominant. However, Johnston (2018) challenges this view. Drawing on corpus-based data, he observes that headshakes in Auslan occur widely in non-negated clauses and are not obligatory in negated clauses. Moreover, their use resembles the headshakes produced by English speakers, suggesting that headshakes in Auslan may be gestural rather than grammaticalised markers of negation. On this basis, Johnston argues that Auslan is in fact manual-dominant. In somewhat similar case, Kuder (2021) classifies Polish Sign Language (PJM) as non-manual-dominant, but in contrast with Zeshan's description of non-manual-dominant languages, Kuder found that headshake, as the main negator, does not spread freely across the clause beyond the negated element.

With that being said, the non-manual markers found in Balinese homesigning also appear unlikely to function as inherently negative. Instead, they seem to contribute affective or evaluative meanings. For instance, HSo3 uses open mouth in negative contexts to attain what appears to be an emphatic function, intensifying what is being asserted rather than conveying negation per se (Example 4). Tongue protrusion also seems to have an evaluative function (Example 20).

One of the most important findings here is that Balinese homesigners often use several markers within a single sequence, including simultaneous combinations of manual and non-manual markers. The high frequency of such multimodal markers aligns with recent corpus-based studies in negation of other sign languages (Johnston 2018; Rudnev & Kuznetsova 2021; Makaroğlu 2021; Lutzenberger et al. 2022), which demonstrate a great deal of variation in natural language use. More importantly, these findings problematise approaches that seek to identify a primary negation marker (the common indicator for identifying manual or non-manual dominant system). Consequently, Zeshan's typology may not be sufficient to account for the full range of possibilities and variations found in negation in Balinese homesigning.

At the same time, dominance typology remains valuable for cross-linguistic comparison, particularly as a framework identifying broad patterns in the expression of negation. However, provision need also be made for languages that do not fit neatly into an either/or categorisation. The ethnographic-semiotic analysis adopted in this study provides additional insights about a language and its use that is not captured by dominance typology alone. Rather than replacing the typology, this analysis complements it by offering supplementary information about the use of manual and non-manual components.

The use of multiple resources within a single sequence by Balinese homesigners can be taken to reflect a strategy of communicative optimisation that aligns with the "semiotic repertoire" framework used by Kusters et al. (2017). According to this framework, deaf signers employ a range of semiotic strategies (e.g.,

mouthings, lip-reading, pointing) when interacting with hearing interlocutors, and vice versa. In one example, a signing customer holds a bundle of coriander in her right hand, points to it with her left hand, and produces COST gestures twice. The hearing seller responds verbally with *paanch rupai* ('five rupees'), which the signer successfully lipreads and confirms by gesturing FIVE (Kusters 2017). This interaction demonstrates how signers strategically combine multiple resources (gestures, pointing, mouthings, and lip-reading) to achieve effective communication.

We suggest that Balinese homesigners do something very similar when expressing negation. They draw upon all available semiotic resources (manual negators, headshakes, facial expressions, and other gestural devices), adapting and integrating local gestures and cultural customs into their signing. These efforts ensure that negative meanings are conveyed and understood, most often in interactions with hearing interlocutors.

The present study only identified one token where headshake is the sole negator. Headshakes are the only negative head movement attested in the dataset and often occurs alongside mouth movements, such as open mouth, mouth corners down, and w-mouth that appear in negative constructions. In contrast, we identified 53 manual-only tokens, suggesting a manual-dominant bias, as manual-only tokens far outnumbered non-manual only tokens. Notably, as discussed in Section 4.2, manual-only tokens often occurred alongside combinations of manual and non-manual markers as part of larger sequences. This pattern suggests that Balinese homesigning cannot be straightforwardly characterised as either manual-dominant or non-manual-dominant, because neither manual nor non-manual markers consistently served as the primary marker for negation. Instead, negation in Balinese homesigning is routinely realised through multimodal, semiotically rich strategies.

5.2 Same shared gestural-cultural input, varied patterns

The participants in this study share cultural backgrounds that have similar social dynamics with obligations for religious ceremonies and rituals. All seven participants are also embedded in similar gestural environments. Despite the similar input that they share, this study shows that, in terms of outcomes, there are shared strategies across participants but also individual variations.

In terms of manual markers, NEG:A and NEG:B are preferred by all Balinese homesigners in the dataset. This aligns with Zeshan's (2006) observation that these two forms are the most used negative manual forms cross-linguistically. Side-to-side headshake is the most common negative non-manual marker across sign languages (Quer 2020), and this aligns with the findings for this study,

although Balinese homesigners frequently combined headshake with manual markers (55.7%). In comparison, Palfreyman (2019) reports that headshakes co-occurred with manual and/or mouthed forms for only 24.1% of all negation tokens (177 out of 804) in his data from BISINDO users in Solo and Makassar. Although the methodological differences between the studies must be acknowledged, the use of headshakes would seem to be much more prominent in Balinese homesigning than in BISINDO. This contrast may suggest that Balinese homesigners consistently use different markers together in negative constructions, combining manual markers, head and mouth movements to mobilise a broad range of semiotic resources to express negation. Having discussed some of the similarities across the homesigners, we turn now to some of the individual variations that we find.

5.2.1 *Pragmatic modification: Negative markers in non-negative contexts*

In Example (6), we found two tokens that illustrate how negation may be pragmatically modified in Balinese homesigning. The first token is the manual sign PREGNANT co-occurring with a headshake. In this context, the headshake does not negate the truth value of the participant's pregnancy itself, but rather the anticipated negative consequence of the fall. Although the token still conveys negation, the scope of negation is interpreted with reference to the broader discourse context, rather than being recoverable from the manual sign and headshake alone.

The second negative token in Example (6) involves the manual NEG:A that co-occurs with a head nod, producing a positive interpretation. A similar phenomenon has been reported for ASL, where a manual negative sign may co-occur with affirmative non-manual marking, called “affirmed negation” (Wilbur & Patschke 1998). In the Balinese homesigning context, this pattern may potentially reflect contact with the Indonesian expression *tidak apa-apa* (‘it’s okay’). However, we do not assume that the head nod alone is responsible for the positive interpretation in this instance. Rather, this interpretation is supported by the broader context in which the Indonesian expression *tidak apa-apa*, contains a negative particle (*tidak*) in an expression with a positive or reassuring meaning. Taken together, this example highlights the flexibility and discourse-sensitivity of Balinese homesigners and further reinforces the importance of analysing manual and non-manual markers in context rather than in isolation.

5.2.2 *NEG:IX as a negative imperative*

In this dataset, NEG:IX is found in 11 tokens, as used by three unrelated participants (HS03, HS14, and HS17). This form tends to be used with a specific meaning, the negative imperative. This sets it apart from NEG:B, which appears in a variety of contexts creating different negative meanings. A similar form is docu-

mented with the same negative imperative meaning for BISINDO (Palfreyman 2019: 259), while Siahaan & Rajeg (2023) provide evidence of this as deriving from a co-speech gesture used by Indonesian speakers. This suggests that the form arises from shared gestural origins.

Meanwhile, the same form has been documented, with a similar function, in various other sign languages, including TİD (Dikyuva, Makaroğlu & Arik 2017) and San Juan Quiahije Chatino Sign Language (Mesh & Hou 2018), potentially reflecting a universal fundamental tendency in human language (Kendon 2004; Zeshan 2004). In Dutch Sign Language (Nederlandse Gebarentaal, NGT), however, its meaning seems to have become extended, as it functions as a basic negator (Oomen & Pfau 2017), albeit with only a single sideways movement. More broadly, it would be useful to know, which parts of the world this negative co-speech gesture occurs, which sign languages have assimilated it, and whether the meanings of the form have changed at all.

5.2.3 *Clitics*

There are 12 tokens of clitic constructions across four participants in nine contexts in this dataset (Table 6). This is striking, given that clitic-like constructions are not commonly reported for homesigning. Even in emergent sign languages such as Nicaraguan Sign Language (NSL) and Al-Sayyid Bedouin Sign Language (ABSL), morphologically bound features like clitics are reported to be relatively rare, if they occur at all. In NSL, a morphological person and agreement system is hypothesised and tightly constrained (Montemurro et al. 2019), whereas for ABSL little to no inflectional morphology is reported despite its age of around 75 years old (Sandler et al. 2005; Aronoff et al. 2008).

The attested examples of clitics in this dataset show several recurrent formal properties: all occur in post-position relative to the host, aligning with patterns observed by Zeshan (2004, 2006). By contrast, spoken Indonesian typically expresses negation through free preverbal negative particles rather than through postposed bound forms. The negative clitic is reduced phonologically, and the most frequent negative marker in this type of construction is NEG:A, which – as has been noted – derives from surrounding gestures.

In our dataset, the movement of manual negators is often reduced, except for PALM-UP, where only the location of the sign changes. For NEG:B, the side-to-side movement is omitted, while orientation (palm forward) is retained; whereas NEG:A consistently preserved both movement and orientation, albeit in a shortened, tightly bound form, often with a change of location matching the host. Similar shortening of movement and modifications of orientation in negative clitics have been documented elsewhere (Meir et al. 2012; Padden et al. 2010; Zeshan & Palfreyman 2017), and the same type of process has been described as a possi-

ble pathway towards more complex structures, where specialised forms emerge alongside reduced articulatory effort (Dachkovsky et al. 2018).

Within the dataset, NEG:A is the most frequently cliticised form, likely due to its phonological properties. Four of the seven hosts are signs that entail pointing (to the mouth, the eye, the ear, and the temple) which may help explain why NEG:A is readily assimilating to them. Its relative phonological lightness as a manual marker means that no movement reduction is required, and it can easily adjust its orientation to the pointing signs. By contrast, for NEG:B to cliticise, its side-to-side movement must be elided. At the same time, the cliticisation of NEG:B (HS02) and PALM-UP (HS03) suggests that the clitic-like constructions have the potential to expand and are not limited to a single negator alone.

NEG:A is prominent in clitic constructions, as in Example (9), where HS14 produces HEAR^NEG:A. This pattern is a close parallel to the construction used by KK signers to express the meaning ‘deaf’. This parallel does not in itself require language contact as an explanation, but it is noteworthy given the geographical proximity to KK and the shared gestural ecology. At the very least, the cliticization of NEG:A to other pointing signs referring to perception and cognition may demonstrate how homesigners apply the mechanism of analogy (Fischer 2008), turning HEAR^NEG:A into a morphological pattern (in this case producing a negative clitic with predicates such as SEE and MIND).

Although clitic-like constructions in this dataset make up only around 3% ($n=12$) of the overall tokens, they are produced by four of the seven homesigners with similar kinds of hosts and formal properties. This evidence suggests that clitic-like constructions are not random and are a feature worth noting in the analysis of negation in Balinese homesigning. Negative clitics have been found to occur frequently in BISINDO (Palfreyman 2019: 208–209), which emerged in a similar gestural ecology to Balinese homesigning, and it is remarkable that these kinds of constructions are being produced by homesigners too.

5.3 Language contact phenomena

Although early work often described homesigners as linguistically isolated (Washabaugh 1978; Coppola 2002; Goldin-Meadow 2003), recent work has shown that homesigners may be deeply embedded in rich social and communicative communities (Satyawati et al. 2025). This naturally involves language contact. In the context of the findings from the present study, three types of language contact will be discussed: contact with KK, contact with surrounding spoken language(s), and contact with gestures used by the hearing community, which may have resulted in similar negative forms to KK and BISINDO. Each of these types is further discussed below.

As mentioned in Section 3.2, only a few participants had contact with KK signers, including HSo2 and HSo3 from Mengening, who use some features that are also found in KK: tongue protrusion and certain mouth movements. Tongue protrusion in our dataset consistently marks negative existence, while KK signers are also reported to use tongue protrusion in negative contexts, including negative existence and evaluation (Lutzenberger et al. 2022: 14). Tongue protrusion is also found for a small number of tokens as the sole negator, mostly conveying negative existential meaning (Lutzenberger 2017). Comparably, tongue protrusion is also reported in Solo BISINDO for negative existence contexts, while puffed cheeks are found in Makassar BISINDO (Palfreyman 2019).

Another feature used by both KK signers and Balinese homesigners (HSo2 and HSo3), and which might also be due to language contact, is a type of mouth movement associated with expressing negative completive meaning. As shown in Example (16), HSo2 produces a rapid mouthing which resembles an alternation between the vowels /o/ and /e/ co-occurring with NEG:B. KK signers produce a comparable mouth movement ('wowowo') with the independent sign NOT-YET. This similarity may be the result of contact between KK signers and the homesigners. At the same time, however, both forms may share a common origin in the Balinese spoken word *konden* ('not yet'), which provides another possible source of language contact with the surrounding spoken language. Should this indeed be a case of convergent co-evolution in homesigners and KK signers due to contact with the spoken language, the different realisations of the mouthing may reflect different degrees of grammaticalisation.

Having mentioned a possible origin of mouth movement from contact with surrounding spoken languages, mouthing is commonly considered a result of borrowing from spoken languages (Mohr 2014: 59). In the case of Example (16), mouthing is the visible articulation of spoken words or vowel patterns from Balinese. In our dataset, negative mouthings of the equivalent of 'no' (e.g., *tidak* in Indonesian, *sing* in Balinese) are generally absent. However, we identified cases where mouthing served as the predicate, mostly for HSo2 and HSo3, featuring the Balinese word, *nawang* ('know') (nine tokens).

The mouthing *nawang* co-occurs with the manual negators NEG:A, NEG:B, and PALM-UP, where the mouthed word consistently represents the predicate, which is negated by means of the manual sign (see Example 14). This pattern likely is a result of contact with Balinese, the surrounding spoken language. The word *nawang* is used very frequently by Balinese hearing people. A similar construction is reported in BISINDO, where signers produce the mouthing *tahu* ('know') with the manual negator *TIDAK*, yielding an equivalent to 'I don't know' (Palfreyman 2019: 204).

In terms of geography and shared gestural-cultural environment, BISINDO and Kata Kolok are the closest two sign languages to the homesigning practices documented here, with similar negative forms reported for both. NEG:B is used by BISINDO signers in cities like Solo, Makassar, Padang, and Pontianak (Palfreyman 2018), also occurs as a co-speech gesture used by Javanese hearing speakers (Palfreyman 2015), and is found in a study of Indonesian talk show gestures by Siahhaan & Rajeg (2023). NEG:A is observed to be used as a co-speech gesture by surrounding Balinese speakers and is also reported for Pontianak BISINDO, Ambon BISINDO and – most relevant to this study – Singaraja BISINDO (Palfreyman 2018), which is used in northern Bali and is geographically close to the participants in this study.

In terms of non-manual markers, headshake is commonly used in co-speech gestures by surrounding Balinese speakers and more broadly by Indonesian speakers, and it is widely used across three generations of KK signers (Lutzenberger 2017). Younger generations of KK signers are further reported to favour combinations of manual negators with headshake and/or tongue protrusion (Lutzenberger et al. 2022). These parallels found across proximate sign languages suggest that similar negation strategies can emerge across communicative systems that develop within the same shared-cultural ecology. Therefore, the patterns documented in Balinese homesigning may offer a window on how negation strategies emerge in the earlier stage of the more established system, such as in Kata Kolok and BISINDO.

Contact with hearing speakers who use co-speech gestures is an integral part of a homesigner's communicative repertoire. Sporadic contact with other deaf signers, in this case KK signers who share similar sociocultural backgrounds, may have enriched the negation repertoire, such as the clitic-like construction that was found in HSo2 and HSo3. Yet, contact alone cannot explain all of the phenomena we find because clitic constructions are also found in two homesigners (HS14 and HS17) who are not reported to have had contact with KK signers or other deaf signers, including each other. This demonstrates that innovations can ensue independently through intrinsic linguistic creativity and adaptation to communicative needs while also acknowledging the influence of interactions within multilingual and multimodal spaces.

6. Challenges associated with analysing conversational homesigning data

Analysing natural conversational data offers both advantages and challenges. It provides a wide array of valuable insights for contextualising findings within

homesigners' social and cultural environments. It also provides ecological validity, allowing us to observe the participants' communicative behaviour in a setting that closely resembles their everyday interactions. However, it also poses challenges. There were no planned shared topics to allow for comparability across participants, and while recurring topics helped us become familiar with participants' homesigns, it required revisiting the data multiple times to notice initially overlooked features, making analysis more time-consuming.

A further challenge, particularly when working with data from seven adult homesigners, was how best to structure analysis and presentation. Initially, we considered presenting the data per village, but the findings did not align neatly with geographic grouping. A full case-study approach also proved impractical, as the individual variation could overshadow broader tendencies. We therefore followed a form-first approach, identifying manual and non-manual negation markers (e.g., NEG:A with a twist-wrist, a headshake as a frequent non-manual marker) across participants and then describing recurrent patterns in their distribution, intentionally avoiding strong generalisations, while acknowledging that data type and sociocultural background could influence the distribution and interpretation. This approach was also motivated by the nature of the dataset itself: in semi-spontaneous homesign interaction, it is difficult to determine larger units of structure reliably, including phrase sequences, clause boundaries, and the functional scope of negation markers. As a result, exploratory and description-driven analysis is more suitable for the present dataset rather than to statistical modelling of clause types or functional distributions.

The same challenges also motivated how tokens were counted and interpreted: boundaries between units were not always clear and some forms were ambiguous in function (see Figure 5). That is why every negative token was counted as a separate instance, including repeated tokens within a single sequence, meaning that the counts reported in the paper reflect token frequency rather than clause-level or functional frequency.

Annotating data in the present dataset required not only robust analytical skills, but also familiarity with the communicative practices used by participants. Inter-coder reliability checks in the present study were not straightforward to implement, as it was difficult to find annotators with both the analytical expertise and the dataset-specific familiarity required. Furthermore, conversational data were highly varied even across the data from a single participant.

The inter-coder reliability checks reported here also highlight the importance of familiarity in annotating and analysing the present dataset. It was particularly important given the high degree of variation within and across participants, the lack of prior documentation of the system, and the still limited number of previous studies using this corpus (see Safar & de Vos 2022; Lutzenberger et al., in

press). In addition, local social and cultural knowledge is often embedded in participants' signing.

For instance, on first viewing Example (22), the second author coded NEG:B as a clitic-like construction attached to the preceding sign. This interpretation was based in part on the fact that the left hand continued to hold the preceding sign, CURVED-B, while the right-hand produced NEG:B. However, upon further review, the first author, who served as the main annotator for the dataset, explained the surrounding context and replayed the video again. Although the left hand remained in position, two additional signs followed, weakening the interpretation that the held left-hand sign and the following NEG:B formed a single bound construction. Moreover, the manual negator did not show clear movement reduction, and MONEY and NEG:B were not produced in especially close succession. Taken together, these observations led the second author to agree with the first author that this is not part of clitic-like construction.

- (22) RH: MONEY WRITE MONEY MONEY NEG:B
 LH: CURVED-B -----
 '(When I went to the hospital), I don't need to pay.'

At the same time, low-frequency tokens (e.g., clitic constructions, NEG:IX) were investigated equally alongside higher-frequency tokens and interpreted in the light of culturally entrenched knowledge and practices. For instance, the expression MARRY NEG:B can equally be interpreted as 'I do not have a spouse' or 'I am not yet married', whereas the latter is more likely due to local customs in Bali. Using this combined approach that integrates both breadth and individual variation allows us to balance generalisations with idiosyncrasy and hereby portraying linguistic diversity in an ecologically valid way.

7. Conclusions

Balinese homesigners primarily express negation through combinations of manual and non-manual markers. Although manual-only and non-manual only forms are possible, they are more infrequent. Even where a manual-only or non-manual only form is produced, this does not mean that negation is attained manually, or non-manually, because homesigners routinely produce several markers in close proximity. Across participants, the two most frequent manual negators are NEG:A and NEG:B, both of which can cliticise to hosts such as SPEAK and MIND. It seems particularly striking that clitic constructions can be detected in Balinese home-signing — as such constructions have not, to our knowledge, been previously reported for homesign.

Headshakes are found to carry negative meaning and are widely distributed across the corpus but almost always co-occur with other manual and non-manual markers. Mouth movements are less frequent and appear to be localised, found primarily in HSo2 and HSo3, who have had sporadic contact with KK signers. These non-manuals typically co-occurred with manual negators, perhaps underscoring homesigners' reliance on visually salient strategies for conveying negation.

While this study primarily focuses on identifying forms, future research could benefit from investigating the functions of negation more rigorously (e.g., negative existential, negative possessive, or rejection) and looking further into non-manuals, especially headshake and mouth movement in finer details. This could trace potential grammaticalisation pathways in homesign. Additional elicited or experimental data would be beneficial to further investigate the patterns observed in natural conversation.

Overall, this study contributes to the early stages of homesigning research in Bali. The findings and interpretations offered here should be understood as exploratory and grounded in recurring patterns within a relatively small, form-based dataset, rather than as definitive claims about the full functional organisation of negation in Balinese homesigning. Further research is needed on homesign and co-speech gesture in Bali and elsewhere in Indonesia to provide a more comprehensive picture of homesigning practices.

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