

Suprasegmentals in negation: A cross-modal perspective

ROLAND PFAU (UNIVERSITEIT VAN AMSTERDAM)

1 Introduction

Katharina Hartmann, whose academic achievements are celebrated with this volume, and I have a 30-year-long history of non-linguistic and linguistic interaction. We shared an apartment in Frankfurt for five years in the 1990s while we were both affiliated with the University of Frankfurt (she as PhD, then post-doc, and I as PhD). In retrospect, it seems to me that our conversations at home only rarely revolved around linguistic matters – except for the occasional gossip, of course. Yet, there has been a noteworthy, and coincidental, overlap in research focus in the late 1990s, and it is this incident that served as inspiration for my contribution to the volume.

In that period, Katharina and I had both decided to extend the scope of our linguistic interests by learning an “exotic” language: she chose Hausa, while I took advantage of the fact that German Sign Language (Deutsche Gebärdensprache, DGS) was offered for the first time at our university. Once we had acquired basic skills, it just so happened that both of us – independently of each other – selected the realization of negation in the respective language as topic of investigation. We noticed certain similarities between the two languages, which, in an odd sense of circularity, made her reference unpublished work of mine in a talk (Hartmann 1999), while I referred to that very talk in the published version of the chapter she had drawn information from (Pfauf 2001).¹

In the present chapter, I zoom in on a characteristic that the two (and many other) languages share, but which has not been discussed in much detail in the aforementioned works: the role of suprasegmentals in the expression of negation. In Section 2, I start by sketching selected properties and functions of suprasegmentals in the two modalities.² Section 3 addresses negative particles

¹Only quite recently, we finally embarked on a joint research project on (asymmetric) coordination in Sign Language of the Netherlands (Hartmann et al. 2021).

²In sign language linguistics, the term “modality” is commonly used to refer to the modality

(L) and movements (M), which are sequentially combined to form syllables. Leaving many complexities aside, it has been argued that Ls correspond to consonants and Ms to vowels, i.e., that Ms generally constitute the syllable nucleus (e.g., Perlmutter 1992), and that the canonical sign is monosyllabic (Brentari 1998, Sandler 2008). Crucial in the present context is the observation that non-manual features (such as movements of the mouth, eyebrows, and head) can be coarticulated simultaneously with segmental material, and just as tone in spoken languages, such features may convey lexically, morphologically, and syntactically relevant information (Pfau 2016b).

For illustration, consider the examples in (2). Sign Language of the Netherlands (*Nederlandse Gebarentaal*, NGT) features a sign which we gloss as AREA in (2-a). The sign is articulated with a 5-hand (all fingers extended, palm down) performing a circular movement in the space in front of the signer. In context, the meaning of this sign is commonly disambiguated by a so-called mouthing, i.e., the silent articulation of a Dutch word; depending on the accompanying mouthing, the general sign can take on specific meanings like ‘country’ (2-a), ‘room’, or ‘situation’. In this way, the mouthing functions much like tone in the Cantonese examples in (1-a): it is articulated simultaneously with segmental material, and it disambiguates meaning.³

- (2) a. LAST YEAR INDEX₁ SEVEN ^{/land/} AREA
 ‘Last year, I visited seven countries.’ (NGT)
- b. POSS₁ FRIEND HOUSE BUY
 ‘My friend bought a small house.’ (DGS)

Example (2-b) illustrates the use of a morphological non-manual in DGS. In DGS, just as in many other sign languages, the diminutive and augmentative can be realized by configurations of the cheeks. In (2-b), we observe that the cheeks are sucked in (glossed as ‘)(’ on the non-manual line) while the noun HOUSE is signed, thus marking the diminutive (Pfau and Quer 2010: 388). Note that the example does not contain a manual adjective (see Fornasiero (2023) for a detailed discussion of non-manual evaluative morphemes in Italian Sign Language).

These few examples thus illustrate that suprasegmental features exist in both

³Notation conventions: Signs are glossed in SMALL CAPS with English words that approximate the meaning of the respective sign. INDEX is a pointing sign which functions as personal pronoun, poss is a possessive pronoun. Number subscripts indicate spatial loci: 1 refers to the signer’s body (i.e., index1 is a first-person pronoun), 3 to a locus in the signing space (which can be interpreted as third-person). Non-manual markers that simultaneously accompany (strings of) signs are given above the gloss line, the length of the line indicating the scope (i.e., onset/offset) of the non-manual marker.

modalities, and that they may fulfill (at least) lexical and morphological functions. For sure, these are interesting similarities; however, we also need to point out some crucial differences (see also Pfau 2016b). First, while in spoken languages, the same articulator, the vocal apparatus, is involved in the production of segmental and suprasegmental material, sign languages employ a variety of independent articulators – the hands, head, mouth, eyebrows, and torso – all of which may contribute suprasegmental information. This implies that multiple suprasegmental features may in principle simultaneously accompany a single sign (Wilbur 2000), while tones in spoken languages can only combine sequentially. Second, in spoken languages, at least at the surface, every tone-bearing unit must carry a tone, while signs (e.g., HOUSE in (2-b)) are not obligatorily accompanied by suprasegmental features. Third, in sign languages, suprasegmental features may associate with L- and M-segments, while tones usually only combine with the syllable nucleus. In Section 5, we will see that these differences impact the behavior of suprasegmentals in sign languages.

3 Negative particles

Having sketched some basic properties of suprasegmentals in spoken and signed languages, we now turn our attention to negation. A first relevant observation regarding the role of suprasegmentals in negation concerns the fact that in tone languages which employ negative particles, these particles are lexically specified for tone. In the Musgu (Chadic; Cameroon) example in (3-a), this is a low tone on the clause-final particle (Meyer-Bahlburg 1972, in Dryer 2005: 454). In this context, we can, once again, bring Hausa to the stage. Hausa is interesting, as it involves split negation in most aspects, that is, a low-toned prefix combines with a high-toned clause-final particle (Caron 1990). In (3-b), we illustrate this pattern for the habitual aspect (Hartmann 1999). Hartmann argues that the prefix occupies the head of the negative phrase, while the particle is hosted by the specifier of NegP, which she assumes to be on the right.

- (3) a. à sɑ̀dɑ̀ cécébè **pà̀y**.
 3SG.M know jackal NEG
 ‘He didn’t see the jackal.’ (Musgu)
- b. Kàndé **bà̀**-tá-kàn dáfà kíffíí **bá**.
 Kande NEG-3SG.F-HAB cook fish NEG
 ‘Kande usually doesn’t cook fish.’ (Hausa)

Negation is a domain of grammar that has been studied for a considerable number of sign languages from all over the world (Zeshan 2004, 2006a), and all sign languages studied to date employ negative particles (for overviews, see Quer 2012, Gökgöz 2021). Of relevance in the present context is the fact that

these particles are usually accompanied by suprasegmental features. It may not come as a surprise that the most common non-manual marker observed in negative contexts is a headshake ('hs'). In (4-a), we offer an example from Inuit Sign Language (*Inuit Ukturausingit*, IUR), a rural sign language that is used in some communities throughout Nunavut (adapted from Schuit 2013: 50). Next to headshakes, some sign languages use a backward head tilt ('bht') in the context of negation. This is clearly an areal feature, as the same non-manual is also used as a negative co-speech gesture in hearing communities in the Eastern Mediterranean area. Use of the backward head tilt is illustrated by the Turkish Sign Language (*Türk İşaret Dili*; TİD) example in (4-b) (Zeshan 2006b: 150).⁴

- (4) a. POLAR.BEAR SEE $\frac{\text{hs}}{\text{neg1}}$
 'I didn't see a polar bear.' (IUR)
- b. INDEX₁ TURKEY BIRTH $\frac{\text{bht}}{\text{not}}$
 'I was not born in Turkey.' (TİD)

Both IUR and TİD are so-called manual dominant sign languages, which implies (i) that the use of a negative particle is obligatory, and (ii) that the relevant non-manual only accompanies that particle. In this way, the examples in (4) are comparable to the ones in (3): all four languages employ clause-final negative particles that are specified for a suprasegmental feature. In the next section, we will see that other sign languages display a different pattern.

4 Suprasegmental negation

As first observed by Zeshan (2004) in a typological study involving data from 38 sign languages, there is an interesting typological dichotomy among sign languages when it comes to the realization of clausal negation. Next to manual dominant sign languages, we find non-manual dominant ones, in which the use of a negative particle is optional, and clauses are commonly negated by only a headshake.⁵ DGS belongs to this group, as is illustrated in (5-a), where

⁴For an insightful discussion of different hypotheses regarding the origin of gestural head movements signaling negation in spoken languages, see Bross (2020) for speculations about the grammaticalization of headshakes in sign languages in terms of Jespersen's Cycle, see Pfau (2015).

⁵In this short chapter, we cannot do justice to the complexities of sign language negation, but it is worth pointing out that recent studies indicate that the two-way classification originally proposed by Zeshan (2004) is not sufficient. Some sign languages present us with a hybrid system in that the negative particle is obligatory, but yet the headshake may extend beyond the particle (see, e.g., Rudnev and Kuznetsova 2021 for Russian Sign Language).

optionality of the clause-final particle is indicated by the brackets (adapted from Pfau 2002: 273). In DGS, the headshake obligatorily associates with (at least) the verb. It is worth noting that even when the particle is present, the verb must still be accompanied by a headshake.⁶ That is, (5-b), which is structurally very similar to the IUR and TĪD examples in (4), is ungrammatical in DGS. Pfau (2001, 2002, 2016a) assumes that the headshake on the verb is a featural affix located in the head of NegP, which combines with the verb after verb movement, while the particle occupies SpecNegP on the right. Just as in IUR, the particle is lexically specified for headshake. This implies that we are actually dealing with two separate suprasegmentals in (5-a), one lexical and one morphological. Phonetically, however, the two headshakes combine into one continuous headshake.

- (5) a. MOTHER FLOWER $\overline{\text{BUY}}$ $\left(\overline{\text{not}} \right)$
 ‘(My) mother does not buy a flower.’
- b. *MOTHER FLOWER BUY $\overline{\text{not}}$
 ‘(My) mother does not buy a flower.’ (DGS)

It is thus possible, and actually common, in DGS to express clausal negation by means of only a suprasegmental feature. The following examples show that purely suprasegmental negation strategies are also attested in spoken languages. In Gã (Kwa; Ghana), the realization of negation depends on the tense specification of the clause. Of particular interest is the past tense, where negation is marked only in the verb stem by means of vowel lengthening and high tone (6) (Ablorh-Odjidja 1968).

- (6) a. Mì-gbè gbèè kò.
 1SG.PST-kill dog ART
 ‘I killed a dog.’
- b. Mì-gbée gbèè kò.
 1SG.PST-kill.NEG dog ART
 ‘I did not kill a dog.’ (Gã)

A tone change is also observed as one of multiple negation strategies in Maan (Mande; Liberia), a five-tone language. However, in this language, the tone

⁶We also find interesting structural differences within the group of non-manual dominant sign languages. NGT, for instance, behaves very similarly to DGS with respect to headshake patterns, but allows for two positions for the negative particle: clause-final (as in DGS) and pre-VP (Oomen and Pfau 2017). In American Sign Language (ASL), headshake patterns are different: the headshake may co-occur with only the particle, but in the absence of NOT, it cannot co-occur with only the verb in transitive sentences (Neidle et al. 2000, cf. also Pfau and Quer 2010); see also footnote 7.

change does not affect the verb stem but rather the subject marker, as is illustrated in (7), where the tone on the first-person marker changes from mid (\bar{n}) to falling (\hat{n}) (Becker-Donner 1965: 44)

- (7) a. \bar{n} yídò.
1SG know
'I know.'
- b. \hat{n} yídò.
1SG.NEG know
'I don't know.'
- (Maan)

Having demonstrated that suprasegmental negation is attested in both modalities, we now return to the alternative realization in (5), that is, the one that includes the negative particle. Comparable instances of split negation, whereby a negative particle and a suprasegmental modification go hand in hand, are also by no means uncommon in spoken languages. Here, we provide examples from Ógrù, a Kwa language spoken in the Ivory Coast, as this language presents us with a particularly interesting pattern. We can see in (8-a)–(8-b) that clausal negation usually involves the combination of the post-verbal negative particle *mú*, which is specified for high tone, and a tone change from low to high on the pre-verbal aspectual marker. However, given a general tonal constraint which bans the appearance of three successive high tones, the negative particle never appears in sentences with monosyllabic high-tone verbs like *pá* ('buy') in (8-c). As a result, in such contexts, negation is realized only by tone change on the aspectual morpheme (8-d) (Mboua 1999: 15f).

- (8) a. Kirí ò búkù òkókò.
Kéré ASP ask.for.RES banana
'Kéré has asked for the banana.'
- b. Kirí **ó** búkù **mú** òkókò.
Kéré ASP.NEG ask.for.RES NEG banana
'Kéré has not asked for the banana.'
- c. Kirí à pá òkókò.
Kéré ASP buy.RES banana
'Kéré has bought bananas.'
- d. Kirí **á** pá òkókò.
Kéré ASP.NEG buy.RES banana
'Kéré has not bought bananas.'
- (Ógrù)

At the face of it, Ógrù thus presents us with a situation that is highly reminiscent of what we described for DGS: sometimes, clausal negation is realized by a suprasegmental modification in combination with a particle that is specified for a suprasegmental feature; at other times, negation is realized by supraseg-

mental modification alone. Yet, it has to be acknowledged that what motivates the choice of strategy differs between the two languages. While we seem to be dealing with true optionality in DGS (5-a), in Ógbrú, the choice is fully predictable given an independent phonological constraint – that is, (8-b) could never be realized without and (8-d) never with the particle *mú*.

5 Spreading

We need to add one more complexity to the picture we are sketching here, viz. the fact that in non-manual dominant sign languages like DGS and NGT, the headshake is capable of spreading. In transitive clauses, it is, for instance, not uncommon for the headshake to also accompany the object, as shown in the DGS example in (9-a), where we leave out the optional negative particle. Crucially, the spreading does not impact the interpretation of the clause, that is, it cannot be argued to be a convenient strategy for marking the semantic scope of negation. Furthermore, it has been shown for both DGS and NGT that (non-pronominal) subjects are outside the scope of the headshake.

- (9) a. MOTHER $\overline{\text{FLOWER BUY}}^{\text{hs}}$
 ‘(My) mother does not buy a flower.’
- b. INDEX₁ POSS₁ BROTHER INDEX₃ $\overline{\text{PROUD}^{\wedge}_1 \text{PAM}_3}^{\text{/štolts/}}$
 ‘I am proud of my brother.’ (DGS)

Other non-manuals are capable of spreading, too. In (9-b), we observe spreading of a mouthing from the adjectival predicate PROUD (*stolz* in German) onto the adjacent auxiliary PAM (‘person agreement marker’), which realizes subject/object agreement by moving from locus 1 close to the signer’s body towards a locus in the signing space associated with the non-present referent BROTHER (Pfau and Steinbach 2006: 323). It has been argued that such instances of spreading can be indicative of cliticization, whereby a functional sign combines with a lexical sign, resulting in a single prosodic word (Sandler 1999, Bank et al. 2017, Pfau 2016b). In fact, in (9-b), the auxiliary also manually attaches to the preceding adjective (indicated by the ‘ \wedge ’ symbol): the two signs are articulated with one continuous movement, and we observe regressive handshape assimilation. That is, spreading of mouthing, sometimes in combination with manual modifications, may mark a prosodic domain.

Pfau (2016b) and Oomen and Pfau (2017) speculate that headshake spreading may also be prosodically motivated – at least in DGS and NGT.⁷ This could

⁷For ASL, Neidle et al. (2000) claim that the spreading domain of the headshake is syntactically determined. In the absence of the particle NOT, which occupies a position between subject

explain (i) why nominal subjects fall outside the scope of the headshake, in contrast to subject pronouns, which are more easily prosodically integrated, and (ii) why prosodically light clause-final signs, like ‘palm-up’ and pointing signs are commonly accompanied by headshake. Yet, further research is necessary to verify this claim.

The potential to spread is another characteristic that tones in spoken languages share with non-manuals in sign languages. Spreading of a non-manual – be it a mouthing or a headshake – from one sign onto another could then be likened to cases of external tone sandhi in spoken languages. In (10-a), we provide one representative example from Tsonga (Bantu; South Africa). Underlyingly, the noun *nhwànyànà* (‘girl’) carries only low tones. However, when following a high tone verb, the high tone spreads onto all syllables of *nhwànyànà* except the last one (Baumbach 1987: 48). In (10-b), we illustrate this spreading process.

- (10) a. *nhwànyànà* → *ú rhándzá nhwányànà*.
 girl he likes girl
 ‘He likes the girl’ (Tsonga)
- b.
- | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|-----------|---|---|---|---|---|---|---|---|---|
| r | h | á | n | d | z | á | | n | h | w | á | n | y | á | n | à |
| | | | | | | | - - - - - | | | | | | | | | |
| | | H | | H | | | | | | | L | L | L | | | |

While external tone sandhi is a common process in spoken languages, we did not come across examples where it would be observed in the context of negation (e.g., spreading of the tone associated with a negative particle onto an adjacent word). Still, we would like to argue that the Tsonga example in (10-a) can be compared to the DGS example in (9-a), in that a suprasegmental feature associated with a verb spreads onto a direct object. In the DGS case, the relevant suprasegmental (headshake) is of a morphological nature, while in Tsonga, it is lexically specified. Also remember from our discussion in Section 2 that the nature of spreading differs: while spreading in Tsonga requires delinking of lexically specified low tones (as indicated by the ‘=’ symbol in (10-b)), delinking is not required in DGS, given that the object FLOWER is not underlyingly specified for a competing suprasegmental (it might, however, be specified for a suprasegmental feature that involves a different articulator, e.g., a mouthing). Given this qualitative difference between tones and non-manuals, it may well be the case that spreading of non-manuals is generally less constrained.

and VP, the headshake must spread over the c-command domain of Neg, i.e., over the entire VP. Consequently, in a transitive clause, both the verb and the object must be accompanied by headshake – in contrast to DGS.

6 Conclusion

Both spoken and signed languages make use of suprasegmental features that may fulfill lexical and morphological functions. Suprasegmentals are characterized by the fact that they associate simultaneously with segmental positions and are capable of spreading. In an abstract sense, it could thus be argued that sign languages are tone languages. Still, as has also been alluded to in this short chapter, there are also important differences between non-manual markers and tones.

Here, we focused on the role of suprasegmentals in the domain of negation, and our discussion brought to the fore some interesting similarities: in both modalities, we find cases in which negation is realized (i) by a negative particle that is lexically specified for a suprasegmental feature (tone vs. head movement), (ii) by a negative particle in combination with a suprasegmental modification on another element within the clause, and (iii) by means of only a suprasegmental feature.

More generally, we think that our study clearly illustrates why it is beneficial, and thus worthwhile, to include sign languages in typological studies – an approach that we hope will be more commonly implemented in future typological work.

References

- Ablorh-Odjidja, J. R. (1968). *Ga for beginners*. Accra: Waterville Publishing.
- Bank, R., O. Crasborn, and R. van Hout (2017). Alignment of two languages: The spreading of mouthings in Sign Language of the Netherlands. *International Journal of Bilingualism* 19(1), 40–55.
- Baumbach, E. J. M. (1987). *Analytical Tsonga grammar*. Pretoria: University of South Africa.
- Becker-Donner, E. (1965). *Die Sprache der Mano (Sitzungsbericht der Österreichischen Akademie der Wissenschaften 245(5))*. Wien: Böhlhaus.
- Brentari, D. (1998). *A prosodic model of sign language phonology*. Cambridge, MA: MIT Press.
- Bross, F. (2020). Why do we shake our heads? On the origin of the head shake. *Gesture* 19(2/3), 269–298.
- Caron, B. (1990). La négation en Haoussa. *Linguistique Africaine* 4, 32–46.
- Dryer, M. S. (2005). Negative morphemes. In M. Haspelmath, M. S. Dryer, D. Gil, and B. Comrie (Eds.), *The world atlas of language structures*, pp. 454–457. Oxford: Oxford University Press.
- Fornasiero, E. (2023). *Evaluative constructions in Italian Sign Language: A multi-theoretical analysis*. Berlin: De Gruyter Mouton.
- Gökgöz, K. (2021). Negation: Theoretical and experimental perspectives. In J. Quer,

- R. Pfau, and A. Herrmann (Eds.), *The Routledge handbook of theoretical and experimental sign language research*, pp. 266–294. New York: Routledge.
- Hartmann, K. (1999). Doppelte Negation im Hausa. Talk presented at *Generative Grammatik des Südens 1999*, Stuttgart, 14 May 1999.
- Hartmann, K., R. Pfau, and I. Legeland (2021). Asymmetry and contrast: Coordination in Sign Language of the Netherlands. *Glossa: a journal of general linguistics* 6(1), 1–33.
- Mboua, C. (1999). Le système aspecto-modal de l'Ógbrù: De la description des marqueurs préverbaux à la structure de la phrase en Ógbrù. Geneva: Université de Genève MA thesis.
- Meier, R. P. (2002). Why different, why the same? Explaining effects and non-effects of modality upon linguistic structure in sign and speech. In R. P. Meier, K. A. Cormier, and D. G. Quinto-Pozos (Eds.), *Modality and structure in signed and spoken languages*, pp. 1–25. Cambridge: Cambridge University Press.
- Meier, R. P. (2012). Language and modality. In R. Pfau, M. Steinbach, and B. Woll (Eds.), *Sign language: An international handbook*, pp. 574–601. Berlin: De Gruyter.
- Meyer-Bahlburg, H. (1972). *Studien zur Morphologie und Syntax des Musgu*. Hamburg: Buske.
- Needle, C., J. Kegler, D. MacLaughlin, B. Bahan, and R. G. Lee (2000). *The syntax of American Sign Language: Functional categories and hierarchical structure*. Cambridge, MA: MIT Press.
- Newman, P. (1992). The development of falling contours from tone bending in Hausa. In L. A. Buszard-Welcher, J. Evans, D. Peterson, L. Wee, and W. Weigel (Eds.), *Proceedings of the Berkeley Linguistics Society, Special Session on the Typology of Tone Languages*, pp. 128–133. Berkeley: Berkeley Linguistics Society.
- Oomen, M. and R. Pfau (2017). Signing not (or not): A typological perspective on standard negation in Sign Language of the Netherlands. *Linguistic Typology* 21(1), 1–51.
- Perlmutter, D. M. (1992). Sonority and syllable structure in American Sign Language. *Linguistic Inquiry* 23(3), 407–442.
- Pfau, R. (2001). Typologische und strukturelle Aspekte der Negation in Deutscher Gebärdensprache. In H. Leuninger and K. Wempe (Eds.), *Gebärdensprachlinguistik 2000: Theorie und Anwendung*, pp. 13–31. Hamburg: Signum.
- Pfau, R. (2002). Applying morphosyntactic and phonological readjustment rules in natural language negation. In R. P. Meier, K. A. Cormier, and D. G. Quinto-Pozos (Eds.), *Modality and structure in signed and spoken languages*, pp. 263–295. Cambridge: Cambridge University Press.
- Pfau, R. (2015). The grammaticalization of headshakes: From head movement to negative head. In A. D. M. Smith, G. Trousdale, and R. WALTERIT (Eds.), *New directions in grammaticalization research*, pp. 9–50. Amsterdam: Benjamins.
- Pfau, R. (2016a). A featural approach to sign language negation. In P. Larrivée and C. Lee (Eds.), *Negation and polarity: Experimental perspectives*, pp. 45–74. Dordrecht: Springer.
- Pfau, R. (2016b). Non-manuals and tones: A comparative perspective on suprasegmentals and spreading. *Revista de Estudos Linguísticos da Universidade do Porto* 11,

19–58.

- Pfau, R. and J. Quer (2010). Nonmanuals: Their grammatical and prosodic roles. In D. Brentari (Ed.), *Sign languages (Cambridge Language Surveys)*, pp. 381–402. Cambridge: Cambridge University Press.
- Pfau, R. and M. Steinbach (2006). *Modality-independent and modality-specific aspects of grammaticalization in sign languages*. Potsdam: Universitätsverlag Potsdam.
- Quer, J. (2012). Negation. In R. Pfau, M. Steinbach, and B. Woll (Eds.), *Sign language: An international handbook*, pp. 316–339. Berlin: De Gruyter.
- Rudnev, P. and A. Kuznetsova (2021). Linearization constraints on sentential negation in Russian Sign Language are prosodic. *Sign Language & Linguistics* 24(2), 259–273.
- Sandler, W. (1999). Cliticization and prosodic words in a sign language. In T. A. Hall and U. Kleinhenz (Eds.), *Studies on the phonological word*, pp. 223–245. Amsterdam: Benjamins.
- Sandler, W. (2008). The syllable in sign language: Considering the other natural language modality. In B. L. Davis and K. Zajdó (Eds.), *The syllable in speech production*, pp. 379–407. New York: Lawrence Erlbaum.
- Schuit, J. (2013). *Typological aspects of Inuit Sign Language*. Ph. D. thesis, University of Amsterdam.
- Wilbur, R. B. (2000). Phonological and prosodic layering of nonmanuals in American Sign Language. In K. Emmorey and H. Lane (Eds.), *The signs of language revisited: An anthology to honor Ursula Bellugi and Edward Klima*, pp. 213–244. Mahwah: Lawrence Erlbaum.
- Yip, M. (2002). *Tone*. Cambridge: Cambridge University Press.
- Zeshan, U. (2004). Hand, head, and face: Negative constructions in sign languages. *Linguistic Typology* 8, 1–58.
- Zeshan, U. (2006a). Negative and interrogative constructions in sign languages: A case study in sign language typology. In U. Zeshan (Ed.), *Interrogative and negative constructions in sign languages*, pp. 28–68. Nijmegen: Ishara Press.
- Zeshan, U. (2006b). Negative and interrogative structures in Turkish Sign Language (TİD). In U. Zeshan (Ed.), *Interrogative and negative constructions in sign languages*, pp. 128–164. Nijmegen: Ishara Press.