THE CORRELATION BETWEEN WORD CLASS AND MOUTH ACTIONS IN IRISH SIGN LANGUAGE (ISL)

Susanne Militzer, University of Cologne, Germany

susanne.militzer@uni-koeln.de

Mouth Actions Research

Increasing research on non-manual markers in different sign languages (e.g. Pfau & Quer 2007; Sutton-Spence & Woll 2006) has shown that apart from the hands, other articulators such as e.g. the body and different parts of the face are linguistically important for sign language communication. Actions of the mouth also fulfil certain linguistic functions of which many have not been clearly determined yet.

However, there is a general distinction between *mouthings* and *mouth gestures* in sign languages (e.g. Crasborn et al. 2008). Mouthings refer to mouth patterns that are supposedly derived from language contact between signed and spoken languages. Mouth gestures refer to sign language inherent mouth movements.

Example 1 (mouthing): manual sign LADDER accompanied by a mouthed 'ladder'
Example 2 (mouth gesture): manual sign SHAPE-OF-ENGINE accompanied by an 'open, teeth clenched' mouth
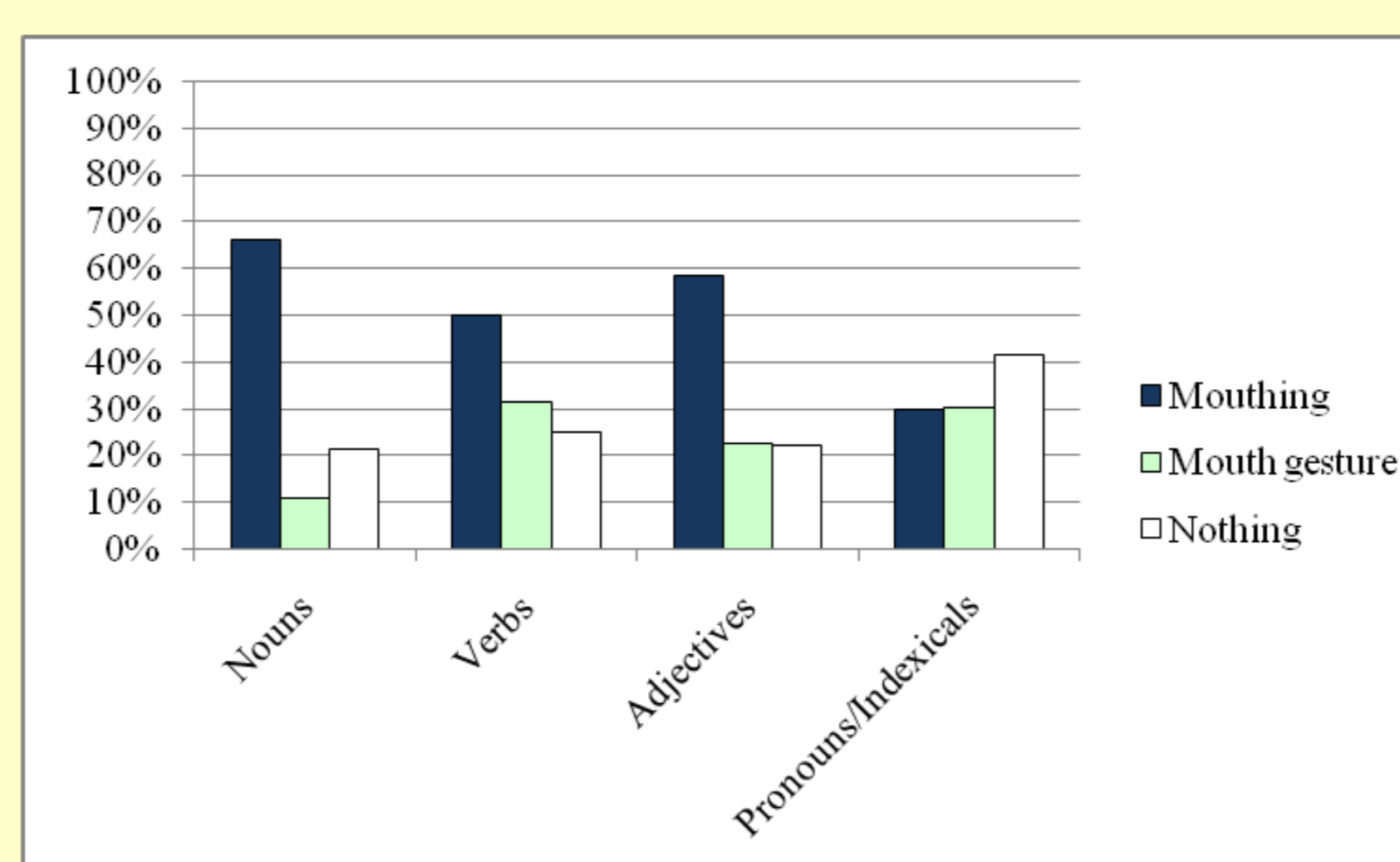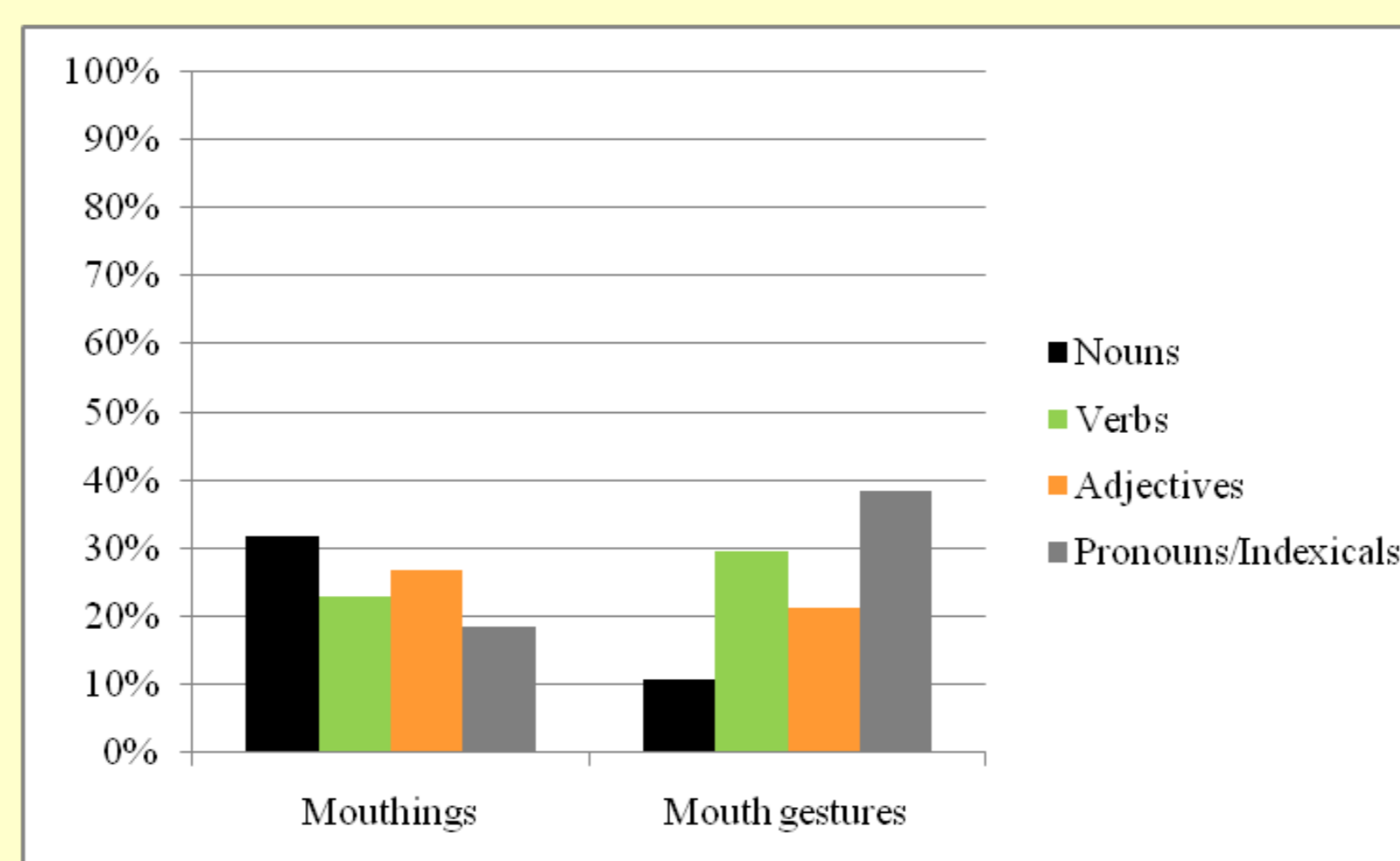
Subjects and Methods

- *Signs of Ireland Corpus* from Centre for Deaf Studies, Trinity College Dublin
- Corpus of 40 Deaf signers (16=m, 24=f) of different ages (18-60+) from 5 locations in the Republic of Ireland (Dublin, Waterford, Wexford, Cork, Galway)
- Data was collected in 2004, annotated in 2004-7 by several deaf researchers
- Personal stories, frog stories, Volterra picture task elicited material

Data analysed for this study:
- personal stories of 12 signers (6=m, 6=f) from Dublin
- Additional ELAN annotations in the form of a word class tier were added
- Differentiation between mouthings and mouth gestures
- Data were evaluated for 4 word classes: nouns, verbs, adjectives, pronouns/indexicals
- Verbs were distinguished into three sub-classes: plain, spatial and agreement verbs
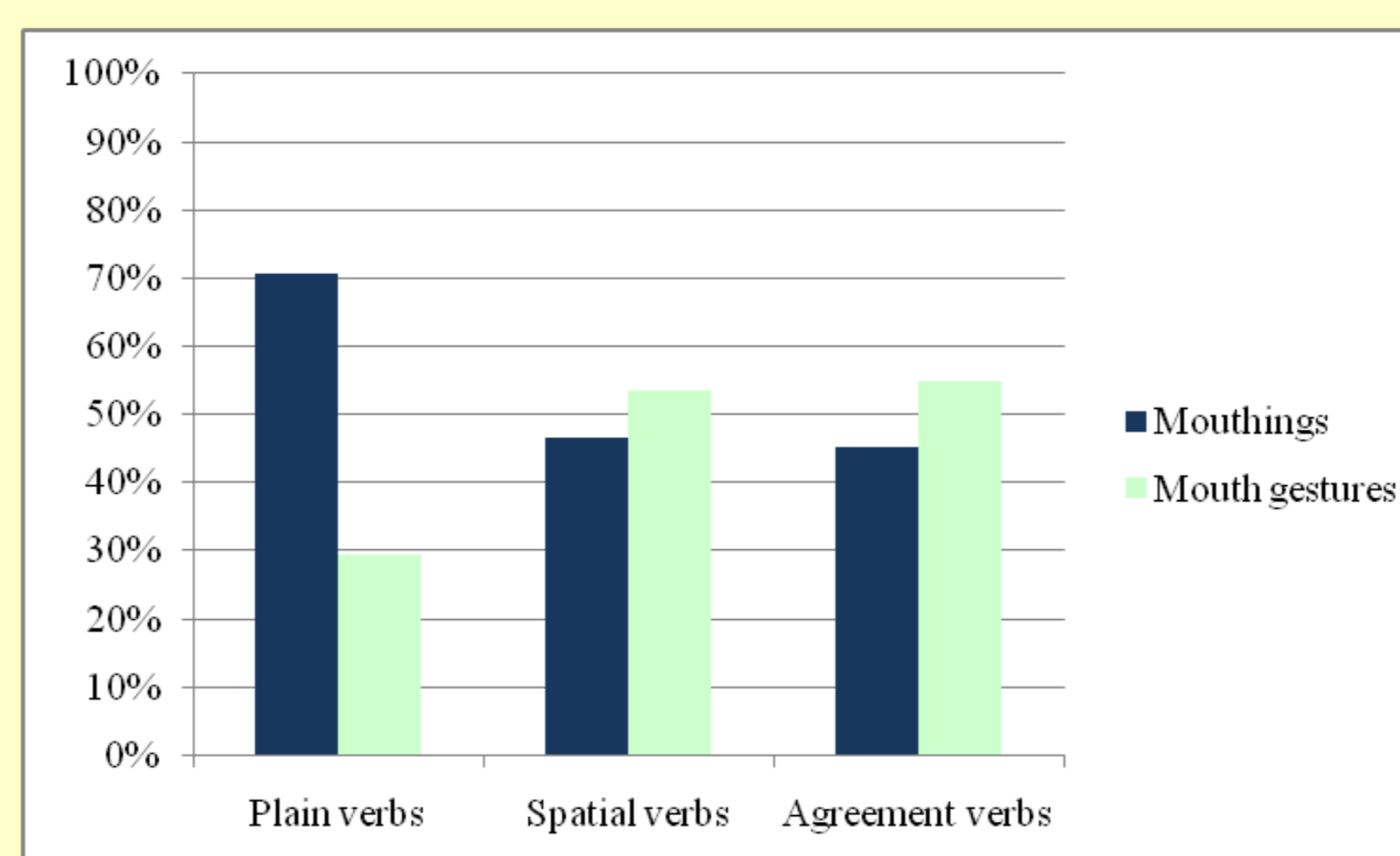
Results

Occurrence of word classes in different mouth actions

Occurrence different mouth actions in word classes

Frequency of different mouth actions for verb subclasses

Discussion

- Mouthings are the largest category in nouns, verbs and adjectives while pronouns and indexicals mostly do not take a mouth action at all.
- Mouth gestures occur most often with pronouns (39%) and frequently with verbs (30%), while they are rare in nouns.
- It could be expected that mouthings are most frequent in nouns and adjectives because of their nominal character and their lower morphological complexity compared to verbs.
- It was to be expected that mouth gestures are most frequent in verbs and pronouns because of their higher morphological complexity as compared to nouns and adjectives.
- Pronouns are especially interesting as frequencies for mouthings and mouth gestures are almost equal (50% mouthings, 51% mouth gestures) and they are mostly not combined with any mouth action at all → may be due to the fact that they do not need mouth patterns for disambiguation of homonyms as other word classes
- If pronouns are combined with a mouth pattern it is often a spread pattern from an adjacent sign which establishes syntactic or prosodic linking.
- Looking at the different subclasses of ISL verbs, plain verbs most often occur with mouthings (70%) while spatial and agreement verbs occur slightly more frequently with mouth gestures than with mouthings (54% mouth gestures in spatial and 55% mouth gestures in agreement verbs).
- In the light of the hypothesis that mouthings are usually combined with morphologically less complex linguistic items while mouth gestures accompany the more complex ones, it could be expected:
  a. that plain verbs occur most often with mouthings as they do not take agreement
  b. that spatial and agreement verbs occur most often with mouth gestures as their agreement morphology is more complex
- The unexpectedly high percentage of mouthings in spatial and agreement verbs might be due to the fact that many high frequency verbs (e.g. SEE, LOOK, GIVE) belong to this category and might no longer be perceived as complex.
- Besides the morphological, syntactic and semantic criteria used for the distinction of word classes in spoken languages, sign languages seem to possess another tool available in visual-gestural languages only: mouth actions.
- Availability of this tool is due to the non-concatenative morphology of signed languages.
- Conclusion for contact linguistics: morphologically simpler items accommodate borrowed material more easily than morphologically complex ones.

Summary:
1. **Of the four word classes investigated, three show preferences for co-occurrence with either mouthings or mouth gestures.**
2. **Morphological complexity of signs, i.e. more numerous agreement options of signs, increases the frequency of sign language inherent mouth patterns.**
3. **A sub-classification of verbs into the traditionally established classes of plain, spatial and agreement verbs is also visible in the co-occurrence of mouth actions and manual signs.**
4. **Correlations between mouth actions and manual signs can be used as an additional indication of word class in ISL.**

References

- Crasborn, O.; van der Kooij, E.; Waters, D.; Woll, B. and Mesch, J. 2008. Frequency distribution and spreading behavior of different types of mouth actions in three different sign languages. *Sign Language & Linguistics* 11(1). 45-67.
- Pfau, R. & Quer, J. 2007. Nonmanuals: their grammatical and prosodic roles. In Perniss, P. M.; Pfau, R. and Steinbach, M. (eds.) *Visible Variation. Comparative Studies on Sign Language Structure,* 1-21. Berlin/New York: Mouton de Gruyter.
- Sasse, H.-J. 1993. Syntactic Categories and Subcategories. In: Jacobs, J.; von Stechow, A.; Sternefeld, W. and Vennemann, T. (eds.) *Syntax: An International Handbook of Contemporary Research.* Berlin : de Gruyter, 646–686.
- Sutton-Spence, R. & Woll, B. [1999] ²2006. *The Linguistics of British Sign Language.* Cambridge: Cambridge University Press.

Nouns (syntactic category): discourse function of reference, semantic class of physical objects

Verbs (syntactic category): discourse function of predication, semantic class of physical actions

Plain verbs: invariant beginning (b) & end (e) points

Spatial verbs: b & e points determined by spatial referents

Agreement verbs: b & e points determined by R-loci of gramm. arguments

Adjectives (syntactic category): discourse function of modification, semantic class of physical properties

Pronouns (syntactic category): discourse function of substitution of the corresponding full-word category

Noun: TRAIN

Verb: DRIVE

Adjective: BAD

Pronoun/Index: INDEX+hi, fr