Mouthing as grammatical code-blending in Auslan (Australian Sign Language)

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Outcomes of language contact in deaf communities

Adapted from Lucas and Valli (1992)

Between two sign languages	**Between sign language and spoken languages**	
Same as for spoken languages		**Unique phenomena**
Lexical borrowing	Code-switching	Fingerspelling
Foreigner talk	Lexical borrowing	Fingerspelling/sign combination
Interference		Mode-switching
Pidgins, creoles		Code-blending: (1) co-speech signing (2) co-sign mouthing

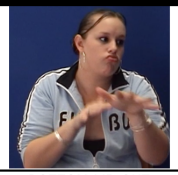
Mouthing as code blending

- Code-*blending* involves aspects of a signed and a spoken language being combined simultaneously (cf., Emmorey et al., 2008).
- Distinct from sequential code-*switching* and code-*mixing* which may occur in both signed and spoken language contact situations (mode-switching?).
- Here, code-blending refers to the silent mouthing of lexical items from a spoken language during the production of signs from a signed language.

Mouth actions

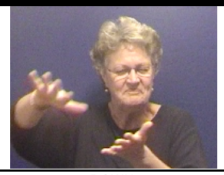
- Since Boyes-Braem & Sutton-Spence (2001), two main types of mouth actions have been recognised as co-occurring with signs:
- (1) mouth gestures: actions have the mouth that are unrelated to speech (some examples on the next slide)
- (2) mouthing: silent mouthing of words from a spoken language

BLOW
air moves inwards or outwards through the lips which may be pursed or rounded
CN8, CN17, ON16-18

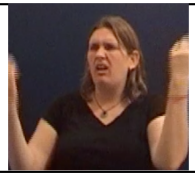


BOTTOM-LIP-OUT
bottom lip is pushed forward, out or up

CN3, CN20, ON11, ON14



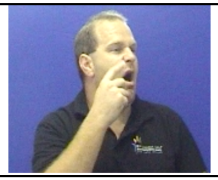
DOWN
the corners of the mouth are pulled down, mouth can be open or closed, lips can be pressed together, tense or relaxed
CN4, CN22, ON4, ON9, ON15



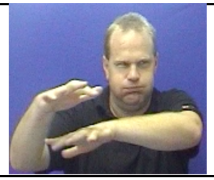
LIP-CURL
top lip is pulled up on one or both sides, as in a sneer
CN1, ON5, ON10

LIPS-OUT
lips pushed forward, as in a pout or “shh”
CN11-14, CN16, ON16

LIPS-PRESSED (‘MM’)
lips are pressed together but the mouth corners are relaxed
CN5, CN6, CN21, CN23,

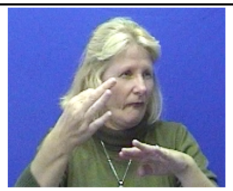


OPEN
mouth is open
ON1-3



PUFF
puffed cheeks
CP1-8

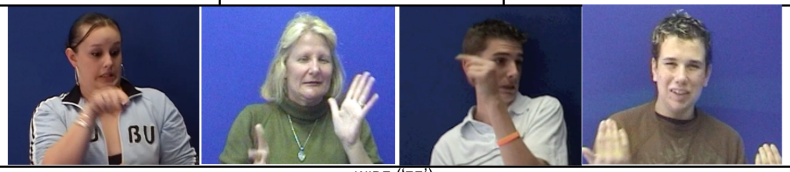
SLIGHTLY-OPEN
mouth is slightly open
ON6, ON12



SUCKED-IN
cheeks are sucked inwards
CN24

TONGUE (‘TH’)
tongue pokes out or is visibly forward all OT codes & CN19

TRILL (‘BRRR’)
lips vibrate
CN7, CN9-10, CN13-15, CN18, CP5,



WIDE (‘EE’)
the corners of the mouth are pulled wide, mouth can be open or closed, lips can be pressed together, tense or relaxed
CN2, ON7, ON8, ON13, ON14

Mouthing in sign languages

- This phenomenon has been explored for a number of sign languages (Boyes-Braem & Sutton-Spence, 2001), but there is a little agreement about its role.
- Some researchers suggest that at least some mouthings ought to be considered part of the lexical entry for the co-occurring sign (e.g., Boyes-Braem, 2001)

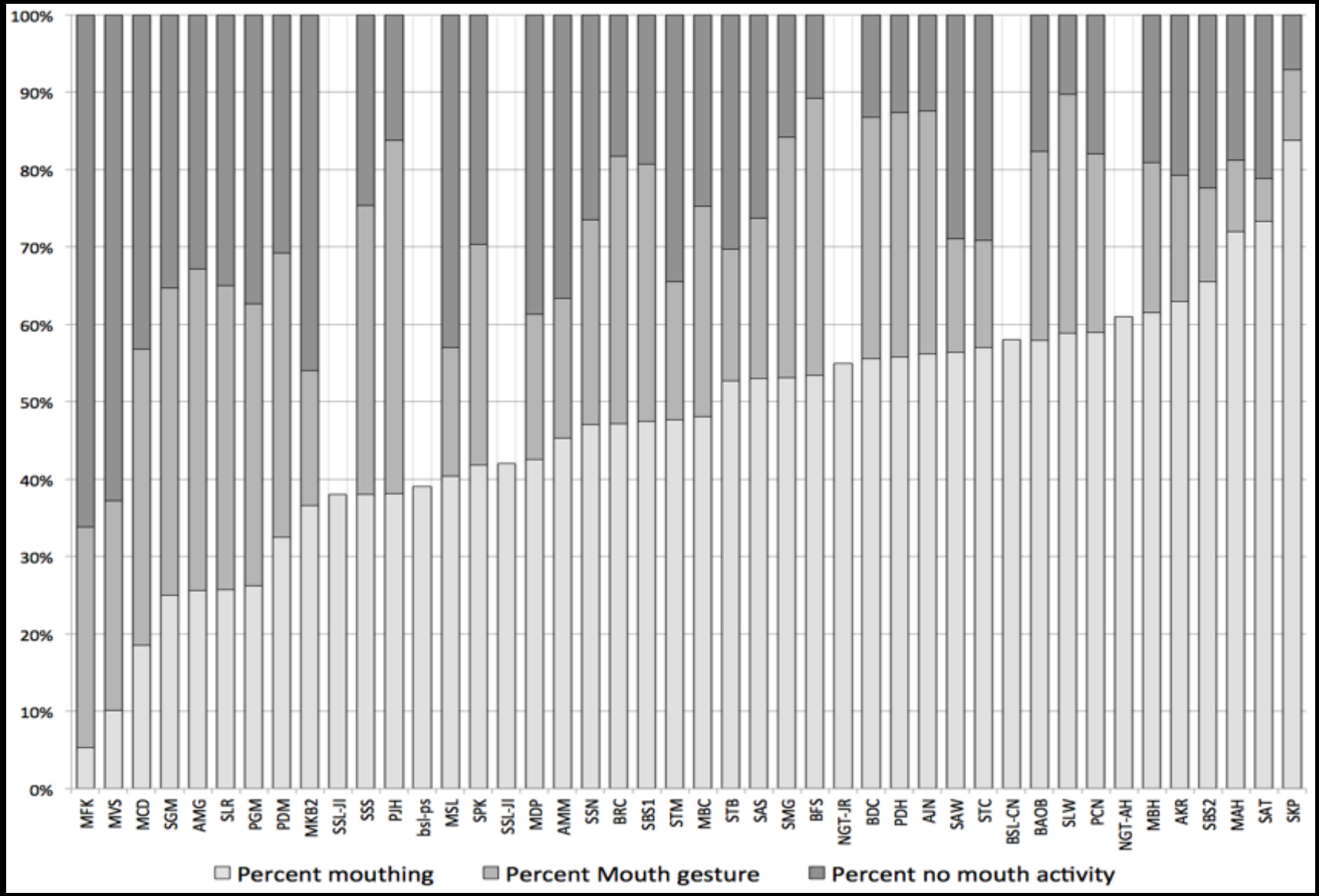
Mouthing in sign languages

- Ebbinghaus & Hessman (2001) argue mouthings are instead independently meaningful.
- Recent experimental research, however, provides evidence for the code-blend analysis, as mismatches between the production of mouthing and signs in British Sign Language suggest that they have separate mental representations which are accessed independently of each other (Vinson et al., 2010).

How common is mouthing in Auslan?

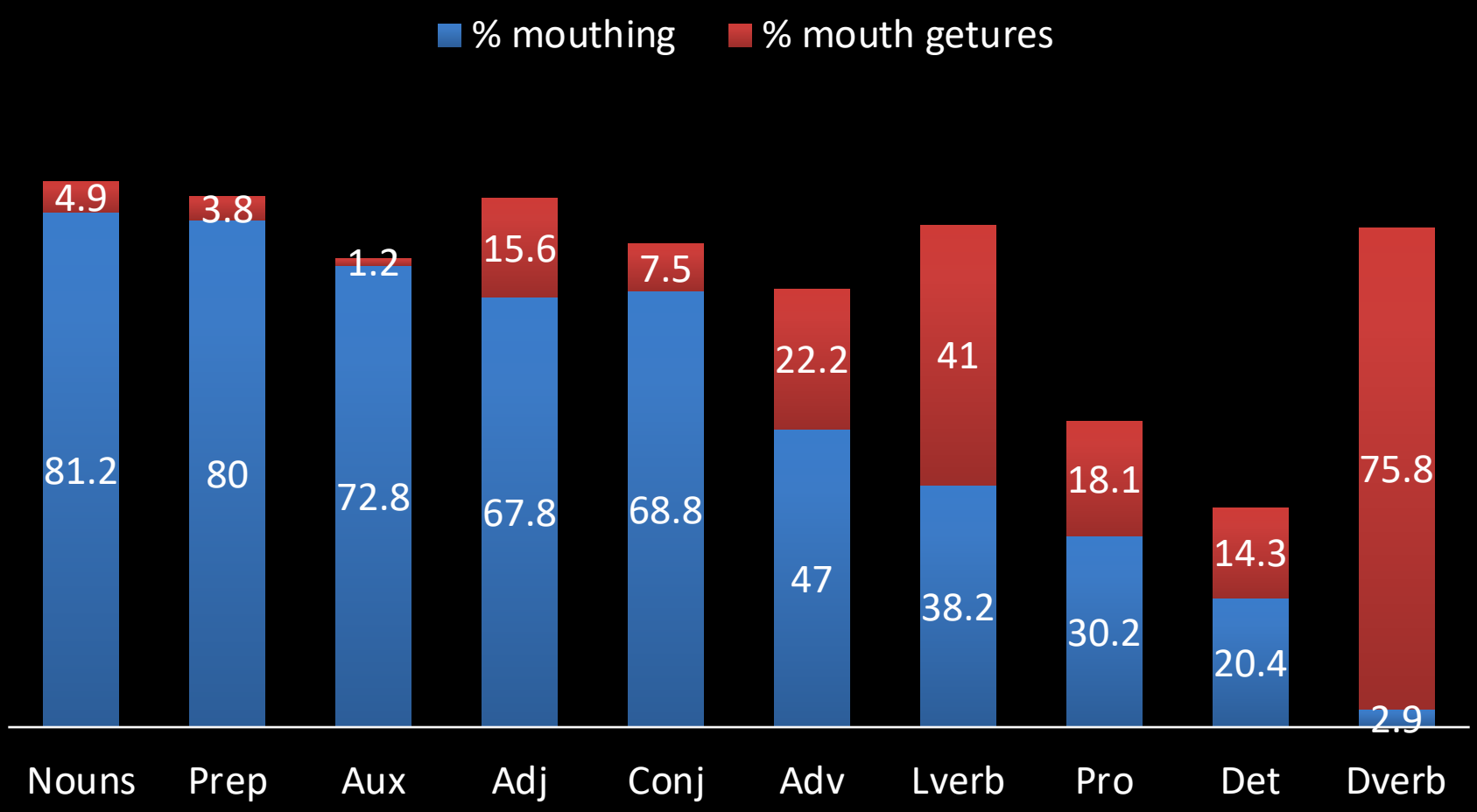
- In a recent study of mouth actions of a dataset of 17,002 signs produced by 38 deaf signers from the Australian Sign Language (Auslan) Corpus, we found that 57% of all signs were accompanied by the mouthing of English words (Johnston et al., 2015).
- Although frequent, the use of mouthing varies considerably between individual signers, with rates of mouthing varying from a low of 5% to a high of 82%.

% Mouth action types in Auslan dataset


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MFK
MVS
MCD
SGM
AMG
SLR
PGM
PDM
MKB2
SSL-JI
SSS
PJH
bsl-ps
MSL
SPK
SSL-JI
MDP
AMM
SSN
BRC
SBS1
STM
MBC
STB
SAS
SMG
BFS
NGT-JR
BDC
PDH
AJN
SAW
STC
BSL-CN
BAOB
SLW
PCN
NGT-AH
MBH
AKR
SBS2
MAH
SAT
SKP
Percent mouthing
Percent Mouth gesture
Percent no mouth activity

Rbrul analysis

- In an Rbrul analysis of this dataset, none of the social factors we coded for (gender, age, region, and age of sign language acquisition) predicted the use of mouthing
- Grammatical class was, however, significant.
- For example, some grammatical classes (such as nouns, prepositions, adjectives, and conjunctions) favoured the use of mouthing, while others (such as verbs and pronouns) disfavoured mouthing.


% mouthing
% mouth getures
4.9
81.2
3.8
80
1.2
72.8
15.6
67.8
7.5
68.8
22.2
47
41
38.2
18.1
30.2
14.3
20.4
75.8
2.9
Nouns
Prep
Aux
Adj
Conj
Adv
Lverb
Pro
Det
Dverb

Focus on pronouns

- In a second follow-up study, we investigated the use of mouthing in pronominal signs, focusing on grammatical code-blends.
- Like most sign languages, pronominal signs are similar to non-signers' pointing gestures (see Cormier, Schembri & Woll, 2013; Johnston, 2013)
- Unlike English, Auslan pronouns are not marked for case or gender.
- Pronominal signs, however, may occur with mouthings of English pronouns (e.g., the sign PRO1 co-occurring with mouthed 'I' or 'me').

Results

- All tokens in which the gloss included PRO were included.
- 1634 tokens were identified of 8 types : PRO1SG, PRO1PL, PRO2SG, PRO2PL, PRO3SG, PRO3PL, PRO, PRO/LOC (data from 38 participants).
- The number of case/gender marked forms was higher than expected (n = 493).

Factor	Log odds	Tokens	Percentage	Factor weight
Y (15-29 years old)	0.961	711	44.3%	0.723
M (30-49 years old)	-0.052	713	21.5%	0.487
O (50-80 years old)	-0.910	210	11.9%	0.287
p = 0.00221				

Focus on verbs

- In the first follow-up study, we investigated the use of mouthing in verbal signs, focusing on grammatical code-blends.
- Unlike English, Auslan verbs are not marked for tense.
- Verb signs, however, may occur with mouthings of English irregular past tense forms of verbs (e.g., the sign LOOK co-occurring with mouthed ‘saw’).

Results

- Note that only a subset of corpus has been annotated for verbs vs. other parts of speech
- 1052 tokens were identified of 24 types in which there was at least one example of irregular verb past tense form (data from 38 participants).
- The number of past tense forms was surprisingly low (n = 61), so these results need to be interpreted with caution, pending further annotation.

Factor	Log odds	Tokens	Percentage	Factor weight
Y (15-29 years old)	0.707	471	8.9%	0.670
O (50-80 years old)	-0.090	151	4.6%	0.477
M (30-49 years old)	-0.616	430	2.8%	0.351
p = 0.0156				

Age

- Our analysis suggests that this subset of the data is in fact influenced by a single social factor – signer's age – with younger signers significantly favouring the use of English mouthing with Auslan pronouns, and possibly verbs.
- It is likely that this grammatical code-blending represents the legacy of the use of manually encoded English systems, such as Australasian Signed English, in late 20th century schools for deaf children, as well as other aspects of increased language contact between English and Auslan.

Conclusions

- Linguistic status of mouthing: mouthing clearly forms an integral part of communication between deaf people, but the fact that there is a considerable degree of individual variation suggests that they are not integral part of Auslan per se.
- Thus, we would argue that they represent a variable outcome of on-going language contact, rather than an integral part of the Auslan lexicon.

Reflections

- What can sign language sociolinguistics research teach spoken language sociolinguistics?
  - We need sociolinguistics to collect more audio-visual, multimodal data!
  - Code-switching is a modality effect of spoken languages – code blending shows that translanguaging/language contact is more complex
- What can spoken language sociolinguistics teach sign language sociolinguistics?
  - Third wave approaches: we need to follow the lead of spoken language sociolinguistics more microlevel and ethnographic studies of sign languages (Palfreyman, McKee)
  - Greater variation of statistical methodologies (Mudd et al.)
  - Sociophonetics: spoken language phoneticians have well-established tools for acoustic phonetic analysis (Puupponen, 2019)

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