

# Simultaneity vs. Sequentiality:

Developing a transcription system of  
Hong Kong Sign Language  
acquisition data

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# Introduction

- This presentation discusses the transcription system developed for the ***Hong Kong Sign Language Child Language Corpus***, with a specific focus on the simultaneous constructions involving the two manual articulators.

# Hong Kong Sign Language Child Language Corpus

- This corpus includes:
  - Longitudinal and cross-sectional acquisition data
  - Digitized video recordings and transcriptions
- Transcription
  - Uses the ELAN program (Max Planck Institute for Psycholinguistics)
  - Includes 4 tiers:
    - 2 tiers of basic glosses
    - 1 utterance tier
    - 1 morphosyntactic tier
  - Is compatible with the CLAN program (CHILDES)



# Glossing tiers

- **Right-hand vs. Left-hand** (Nyst, 2007; Nilsson, 2007; Vermeerbergen and Demey, 2007)
- **Dominant-hand vs. non-dominant hand** (Leeson & Saeed, 2007)
- **Main gloss vs. non-dominant hand gloss** (MacLaughlin, Neidle and Greenfield, 2000)
- Two glossing tiers in this corpus:
  - Gloss 1 (g1)
  - Gloss 2 (g2)

# Glossing tiers

The glossing tiers for the two manual articulators in the literature:

Tiers	Advantages	Problems
<p>Right-hand vs. Left-hand (Nyst, 2007; Nilsson, 2007; Vermeerbergen and Demey, 2007)</p>	<p>- be able to capture two independent morphological units</p>	<p>- to label two-handed lexical signs (i) code the sign twice: misrepresenting the number of morphemes (ii) add a 'both-hand' tier: more difficult viewing</p>
<p>Dominant-hand vs. non-dominant hand (Leeson &amp; Saeed, 2007)</p>	<p>- to represent the phonetic relation of the two hands for: (i) two-handed signs (ii) two-handed classifier constructions consisting of <i>figure and ground</i></p>	<p>- not able to label classifier constructions in which both hands represent figures actively involved in the predicate</p>
<p>Main gloss vs. non-dominant hand gloss (MacLaughlin, Neidle and Greenfield, 2000)</p>	<p>(iii) holding of (part of) a sign in one hand while the other hand continues to sign</p>	<p>- not able to label both hands when they represent independent morphemes: e.g. IX_3 and MALE "that man"</p>

# Glossing tiers

- Gloss 1 (g1)
  - Individual signs (one-handed/two-handed)
  - Classifier predicates signifying the motion or locate property of a single referent
  - Manual gestures
- Gloss 2 (g2)
  - For several types of simultaneous constructions to be discussed below

# Lexical sign plus gesture

- The lexical sign and the gesture are not related morpho-syntactically

(1) "It is shameful for you to become angry."

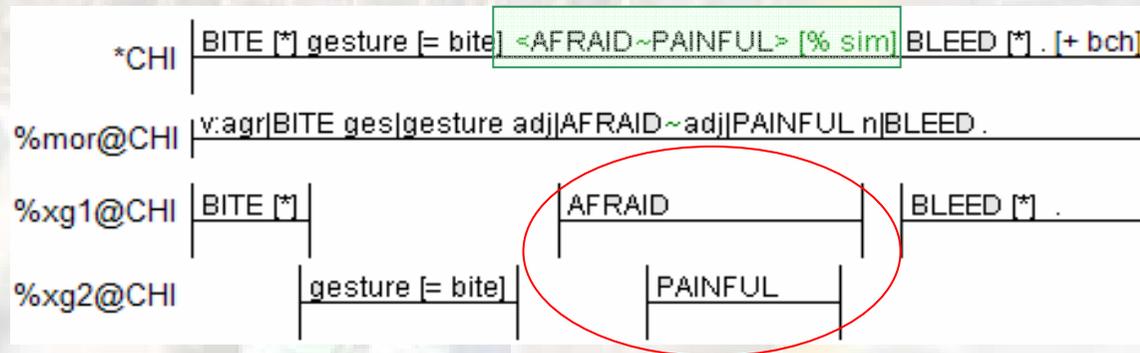
*BRE	<IX_2-gesture [= get someone's attention]> [% sim] ANGRY ASHAMED IX_2. [+ bch]		
%mor@BRE	n:pro IX_2-ges gesture adj ANGRY adj ASHAMED n:pro IX_2.		
%xg1@BRE	IX_2	ANGRY	ASHAMED IX_2.
%xg2@BRE	gesture [= get someone's attention]		



# Lexical sign plus lexical sign

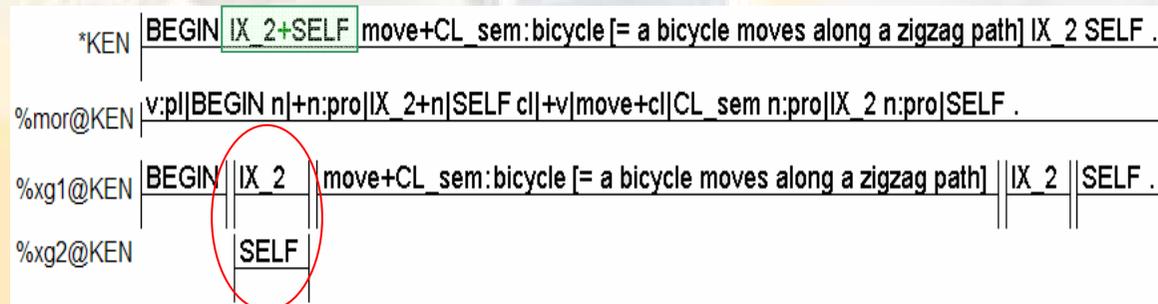
- Coordinated adjectival predicates

(2) “After being bitten (by the dog), (the cat) was frightened, in pain and (its body) bled.” (CC4;6.21)



- Formation of larger syntactic constituent

(3) “You just begin (to ride a bicycle). The bicycle will move along a zigzag path when you ride it on your own.”



# Classifier predicates involving classifiers for two independent referents

- Two classifiers forming a classifier predicate

(4) "Put the tea bag into the cup; pour water into the cup and (the water) changes to brown."

*BRE	TEA put+CL_hand:tea_bag+be_located+CL_sass:cup [= put a tea bag into the cup] &{I=CL_sass:cup
%mor@BRE	n TEA c +v put+c CL_hand+v be_located+c CL_sass c +v pour+c CL_hand+c CL_sass
%xg1@BRE	TEA   put+CL_hand:tea_bag [= put a tea bag into the cup]   pour+CL_hand:pot [= pour some water
%xg2@BRE	be_located+CL_sass:cup > CL_sass:cup



- Two classifier predicates representing two simultaneous events

(5) "Many birds flew together with the plane." (Tang et al. 2007)

*KEN	fly+CL_sem:plane HAVE MANY BIRD <fly+CL_sem:plane~fly+CL_sem:birds [= many bird fly together with the plane]> [% sim] .
%mor@KEN	c +v fly+c CL_sem v:p HAVE quant MANY n BIRD c +v fly+c CL_sem~c +v fly+c CL_sem
%xg1@KEN	fly+CL_sem:plane [= a plane fly in the sky] > fly+CL_sem:plane .
%xg2@KEN	HAVE    MANY    BIRD fly+CL_sem:birds [= many birds fly together with the plane]

# Phonetic suspension of a completed sign

- The suspension of the handshape of a completed sign in one hand while the other hand continues to sign.
- The suspension of the completed sign is represented by '>' with a different annotation

(6) "There is (a person wearing) a headscarf who is a witch." (CC4;6.21)

*CHI	HAVE [*] ONE tie+CL_hand:headscarf [= a headscarf] HAVE WITCH HAVE .
%mor@CHI	v:p  HAVE num ONE c  +v tie+c  CL_hand v:p  HAVE n WITCH v:p  HAVE .
%xg1@CHI	HAVE [*]    ONE    tie+CL_hand:headscarf [= a headscarf]    HAVE >    HAVE .
%xg2@CHI	WITCH



# Morphological resumption of a form

- A form may be held in the signing space for prosodic/discourse reasons, but its morphological function may be resumed.
- It combines with another co-occurring sign to form a larger morphosyntactic unit

(7) “The policeman fires the gun and the bullet shoots towards the thief.”

*BRE	<IX_2-gesture [= get someone's attention]>[% sim]&GUN be_located+CL_sem:thief & =CL_sem:thief gesture [=
%mor@BRE	n:pro IX_2 ges gesture cl +v be_located+c CL_sem ges gesture conj  IF cl +v fire_a_gun+c CL_sass+c CL_sem
%xg1@BRE	IX_2   &GUN   gesture [= get someone's atte   IF
%xg2@BRE	gesture [= get someone's atte   be_located+CL_sem:thief   >
(cont'd)	
*BRE	get someone's attention]IF shoot+CL_sass:gun+CL_sem:thief [= shoot the thief]shoot+CL_sass:bullet+CL_sem:
%mor@BRE	cl +v sneak+c CL_sass+c CL_sem cl +v fall+c CL_sem que YES_NO_YES ?
%xg1@BRE	shoot+CL_sass:gun [= shoot the thief]   shoot+CL_sass:bullet [= a bullet sneaks towards the thief]
%xg2@BRE	CL_sem:thief   CL_sem:thief
(cont'd)	
*BRE	thief [= bullet shoots towards the thief & =CL_sem:thief fall+CL_sem:thief [= the thief falls down] YES_NO_YES ?
%mor@BRE	
%xg1@BRE	>   YES_NO_YES ?
%xg2@BRE	fall+CL_sem [= the thief falls]   >



# Morphological resumption of a form (cont'd)

(8) "Put the tea bag into the cup; pour some water into the cup; the cup fills up with water and the water changes to brown."

*BRE	TEA put+CL_hand:tea_bag+be_located+CL_sass:cup [= put a tea bag into the cup] & =CL_sass:cup	
%mor@BRE	n TEA c +v put+c CL_hand+v be_located+c CL_sass c +v pour+c CL_hand+c CL_sass	
%xg1@BRE	TEA	pour+CL_hand:pot [= pour some water]
%xg2@BRE	be_located+CL_sass:cup	=CL_sass:cup
(cont'd)	*BRE pour+CL_hand:pot+CL_sass:cup [= pour some water into the cup] WATER fill_up+CL_sass:water+	
%mor@BRE	n WATER c +v fill_up+c CL_sass+c CL_sass v:p CHANGE_1 adj BROWN .	
%xg1@BRE	into the cup]	fill_up+CL_sass:water [= the cup fills up with water]
%xg2@BRE	>	CL_sass:cup
(cont'd)	*BRE CL_sass:cup [= the cup fills up with water] CHANGE_1-a BROWN & =CL_sass:cup .	
%mor@BRE	_____	
%xg1@BRE	CHANGE_1-a	BROWN.
%xg2@BRE	>	_____



# Summary

- g1/g2 tiers:
  - The angle bracket ‘>’ for phonetic suspension
  - New annotation for the morphological resumption of a form
- Utterance tier:
  - ‘A+B’ for two signs which form a larger syntactic constituent
  - ‘<A~B> [% sim]’ for two morpho-syntactically unrelated signs that are co-articulated
  - ‘&{|=A B A+C D A+E &}|=A’ brackets the suspension of the sign A which has been morphologically resumed

# Conclusion

- Advantages of the proposed transcription system:
  - able to draw a distinction between signs with active morphosyntactic content and co-articulated forms that are maintained in space to serve a discourse or prosodic function
  - clearly captures and distinguishes different types of simultaneous constructions produced by the two manual articulators
- Areas for future development:
  - not all simultaneously presented morphemic units are coded explicitly at this stage
  - the non-manual features of the signs has not been coded in the system yet

# Reference

- Leeson, L., Saeed, J. (2007). Conceptual blending and the windowing of attention in simultaneous constructions in Irish Sign Language. In M. Vermeerbergen, L. Leeson, & O. Crasborn (Eds) *Simultaneity in Sign Languages: Form and Function*. Amsterdam/Philadelphia: John Benjamins, pp.55--72.
- MacLaughlin, D., Neidle, C., Greenfield, D. (2000). *Sign Stream TM User's Guide (Version 2.0)*. University of Boston.
- Nyst, V. (2007). Simultaneous construction in Adamorobe Sign Language (Ghana). In M. Vermeerbergen, L. Leeson & O. Crasborn (Eds) *Simultaneity in Sign Languages: Form and Function*. Amsterdam/Philadelphia: John Benjamins, pp.127--145.
- Nilsson, A.-L. (2007). The non-dominant hand in a Swedish Sign Language Discourse. In M. Vermeerbergen, Lor. Leeson & O. Crasborn (Eds) *Simultaneity in Sign Languages: Form and Function*. Amsterdam/Philadelphia: John Benjamins, pp.163--185.
- Tang, G. (2006) *A Linguistic Dictionary of Hong Kong Sign Language*. Hong Kong: Chinese University Press.
- Tang, G., Sze, F., Lam, S. (2007) Acquisition of simultaneous constructions by deaf children of Hong Kong Sign Language. In M. Vermeerbergen, L. Leeson & O. Crasborn (Eds) *Simultaneity in Sign Languages: Form and Function*. Amsterdam/Philadelphia: John Benjamins, pp. 283--316.
- Vermeerbergen, M., Demey, E. (2007). Comparing aspects of simultaneity in Flemish Sign Language to instances of concurrent speech and gesture. In M. Vermeerbergen, L. Leeson & O. Crasborn (Eds) *Simultaneity in Sign Languages: Form and Function*. Amsterdam/Philadelphia: John Benjamins, pp.257--282.

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