On the nature of classifiers in Russian Sign Language

Vadim Kimmelman and Evgeniia Khristoforova

GLOW 41 Sign, Budapest, April 14th, 2018
Classifiers in sign languages

• Classifier: a handshape reflecting some visual/semantic properties of an argument

• Classifiers combine with verbs of movement/location to form classifier predicates
  • Parallel: verbal classifiers in spoken languages (Aikhenvald 2003)

• Various theoretical analyses possible and available

• **Our aim**: a formal analysis of classifiers in Russian Sign Language (RSL)
Outline

1. Basic properties of classifiers
2. Methodology
3. Basic data
4. Possible analyses
5. Our proposal
6. Conclusions
Classifier predicates

• Classifier predicates (CLPs):
  verbs of movement/location (MOVE, BE) (Zwitserlood 2012)
  • Phonologically: movement only

• Classifiers (CLs):
  morphemes classifying arguments
  • Phonologically: handshape
  • Similar to verbal classifiers in spoken languages:

```
sa      kam      put-ra-ho-o [Waris]
coconut 1SG  [CL:ROUND] get-BEN-IMP
‘Give me a coconut!’
```
Types of classifiers

• Whole-entity classifiers (e.g. human, car, plane)
• Body-part (e.g. leg, hand, head)
• Handling (e.g. holding a thin object, holding a round object)
  • We do not consider them further in this talk (Kimmelman et al. 2017)
Classifiers in lexical signs

- The same handshapes with apparently the same underlying meaning occur in lexical signs (Zwitserlood 2012):

(7)

- a. ‘to knit’
- b. ‘handicap’
- c. ‘fireworks’
- d. ‘temperature’
- e. ‘key’
- f. ‘to fish’
- g. ‘to brush teeth’
- h. ‘curtains’
Possible analyses of classifiers

• Non-linguistic entities/linguistic entities but not parallel to any phenomena in spoken languages (Cogill-Koez 2000)
Possible analyses of classifiers

• Non-linguistic entities/linguistic entities but not parallel to any phenomena in spoken languages (Cogill-Koez 2000)
• Noun incorporation
• Pronominal arguments
• Argument-introducing functional heads
• Agreement markers
Possible analyses of classifiers

• Non-linguistic entities/linguistic entities but not parallel to any phenomena in spoken languages (Cogill-Koez 2000)
• Noun incorporation
• Pronominal arguments
• Argument-introducing functional heads
• Agreement markers
• Predicate modifiers
Methodology

• Russian Sign Language (RSL)
  • Used by at least 120,000 people in Russia
  • ≈ 200 years old

• On-line corpus of RSL (Burkova 2015):
  http://rsl.nstu.ru/site/index/language/en
  • 230 recordings (5 hours 30 minutes) by 43 signers
  • Glosses for signs and sentence-level translation

• Additional elicitation:
  • Picture-description task (Zwitserlood 2003) by 7 native signers
  • Acceptability judgments by 4 native signers
Basic data

• RSL has various classifiers of various types:
  • Whole-entity classifiers (CAR, TREE, UPRIGHT.BEING, TWO.LEGGED, etc.)
  • Body-part classifiers (LEG, ARM, HEAD, TAIL)
  • (Handling classifiers)

• Classifiers combine with verbal roots of movement/location to form classifier predicates
  • The same handshapes also occur in lexical signs

• Morphological and syntactic aspects of classifiers and classifier predicates in RSL are roughly similar to what has been described for other sign languages (with some exceptions)
Noun incorporation

Idea: a classifier handshape is an incorporated noun

• Problem 1: classifiers do not saturate arguments of classifier predicates (Zwitserlood 2003)

\[(1) \quad \ast\text{(MAN) CL}()\text{-COME}\]

‘A man came.’
Noun incorporation

Idea: a classifier handshape is an incorporated noun
• Problem 1: classifiers do not saturate arguments of classifier predicates (Zwitserlood 2003)

\[(1) \quad *(\text{MAN}) \ CL(\text{B})\text{-COME} \]
\[\text{‘A man came.’}\]
• Problem 2: what is incorporated? The nominal sign and the classifier often do not share the form (Glück & Pfau 1988).

\[(2) \quad \text{MAN/WOMAN/CHILD CL(\text{B})-COME} \]
\[\text{‘A man/woman/child came.’}\]
Pronominal arguments

Idea: even when a full NP argument is present, it is in fact an adjunct, and the classifier itself is the argument (Baker 1996)

• Predictions of Pronominal Argument Hypothesis
  • Free word order, including discontinuous noun phrases
  • Null anaphora
  • No true D-quantifiers
  • No movement from the “argument” NPs
Pronominal arguments

• Predictions of Pronominal Argument Hypothesis
  • Free word order, including discontinuous noun phrases
    • Word order is more rigid with classifier predicates (V-final)
    • Discontinuous noun phrases possible with all types of predicates
  • Null anaphora
    • Possible, but with all types of predicates (with some limitations)
  • No true D-quantifiers
    (3) NOBODY CL(ヴ)-COME
    ‘Nobody came.’
  • No movement from the “argument” NPs
    (4) GIRL IX-a, POSS-a SISTER CL(ヴ)-COME
    ‘This girl, her sister is coming.’
Argument-introducing functional heads

• Benedicto & Brentari (2004): argument structure of classifier predicates in ASL depends on the type of classifier:
  • Whole-entity classifier -> unaccusative predicate
  • Body-part classifier -> unergative predicate
  • Handling classifier -> transitive predicate

• Analysis: classifiers are functional heads introducing argument-hosting projections. The heads determine the thematic role of the argument.
Argument-introducing functional heads

• Problem: both whole-entity and body-part classifier predicates can be intransitive or transitive:

  (5) CHAIR CL(\text{I})-MOVE
  ‘A chair moves.’

  (6) IX-1 CHAIR CL(\text{I})-MOVE
  ‘I move a chair.’

  (7) MY LEG CL(\text{B})-MOVE
  ‘My leg moves.’

  (8) IX-1 LEG CL(\text{B})-MOVE
  ‘I move my leg.’

• And the same is true for instrumental classifiers, as also shown for other sign languages (de Lint 2018)
Agreement markers

• The most common theory: since the choice of the classifier is dependent on some features of the argument and it does not saturate the argument, it is an agreement marker
  • E.g. Zwitserlood 2003: gender agreement
Agreement markers

• Problem 1: the noun does not fully determine the choice of the classifier

  (9) GIRL CL(B)/CL(b)-COME
       ‘A girl came.’

• Problem 2: the verbal root might influence the choice of the classifier: CL(b)-JUMP, never *CL(B)-JUMP
Agreement markers

- Problem 3: agreement with internal arguments (not subjects) is unusual (Moravcsik 1978)
- Problem 4: there is no gender/class marking on the noun phrase itself or anywhere else except for on the predicate – this is unusual (Aikhenvald 2003)
Our proposal

• Davidson (2015) without much detail analyses classifier handshapes as modifying/restricting the reference of the argument.
• Similar phenomena in spoken languages: some types of indefinites and incorporation does not saturate arguments, but restricts its reference (Chung & Ladusaw 2004).
Our proposal

• Davidson (2015) without much detail analyses classifier handshapes as modifying/restricting the reference of the argument.
• Similar phenomena in spoken languages: some types of indefinites and incorporation does not saturate arguments, but restricts its reference (Chung & Ladusaw 2004).
• Semantic analysis:

  \[
  [[\text{MOVE}]] = \lambda x \lambda e [\text{move}(x, e) \& \text{theme}(x)]
  \]

  \[
  [[\text{CL}(b)]] = \lambda x [\text{two-legged}(x)]
  \]

  \[
  [[\text{CL}(b)-\text{MOVE}]] = \text{Restrict}(\lambda x \lambda e [\text{move}(x, e) \& \text{theme}(x)], \lambda x [\text{two-legged}(x)])
  \]

  \[
  = \lambda x \lambda e [\text{move}(x, e) \& \text{theme}(x) \& \text{two-legged}(x)]
  \]
Our proposal

Morphosyntax:
• A classifier is a root
  • Shouldn’t it be an open class then? Well it sort of is: three-legged creatures
Our proposal

Morphosyntax:
• A classifier is a root
  • Shouldn’t it be an open class then? Well it sort of is: three-legged creatures
• It combines with a verbal root to form a compound
  • The verbal root only selects an internal argument (a Theme) which explains why classifiers are always connected to the Theme argument
  • Similar to the analysis of lexical affixes in Salish (Wiltschko 2009)
Our proposal

Morphosyntax:
• A classifier is a root
  • Shouldn’t it be an open class then? Well it sort of is: three-legged creatures
• It combines with a verbal root to form a compound
  • The verbal root only selects an internal argument (a Theme) which explains why classifiers are always connected to the Theme argument
  • Similar to the analysis of lexical affixes in Salish (Wiltschko 2009)
Our proposal

What does this analysis capture?
• Classifiers do not saturate argument slots of the predicate
• Classifiers do not have the same form as arguments they cross-reference
• Classifiers do not fully depend on the referent of the argument
• Classifiers are related to argument structure (e.g. they are mostly associated with the theme argument) but do not determine it
• Additional advantage: a unified analysis of classifier predicate and classifiers within lexical signs
Our proposal

• Zwitserlood 2003:
  • Classifiers in classifier predicates are agreement markers
  • Classifiers in lexical signs are roots forming root compounds
    • Classifiers are not restricted to the Theme argument
    • The lexical sign does not have to be a predicate
Our proposal

• Zwitserlood 2003:
  • Classifiers in classifier predicates are agreement markers
  • Classifiers in lexical signs are roots forming root compounds
    • Classifiers are not restricted to the Theme argument
    • The lexical sign does not have to be a predicate

• Our account:
  • Classifiers are always roots forming root compounds
  • The category of the resulting compound is determined by the other root: whether it is a verbal root (a verb of movement) or something else
  • Connection to argument structure is due to the properties of the verbal root
Conclusions

• RSL has classifiers (whole-entity, body-part, and handling) used in classifier predicates and as components of lexical signs

• They are not incorporated nouns, pronominal arguments, argument-introducing functional heads, or agreement markers

• They are roots forming compounds with other roots and semantically functioning as predicate modifiers
Thank you!
References

It has been suggested that what is often analyzed as verbal agreement in sign languages are clitics (Nevins 2011).
• Idea: maybe classifiers are clitics

Predictions:
• Clitics do not saturate arguments (neither does agreement)
• They have a low selectivity of hosts – not true for classifiers
• They tend to compete in clusters – phonological restrictions
• They do not depend on tense – no evidence for tense marking in RSL
• They might be optional (agreement is obligatory) – classifiers seem obligatory due to phonology

Conclusions: non-conclusive