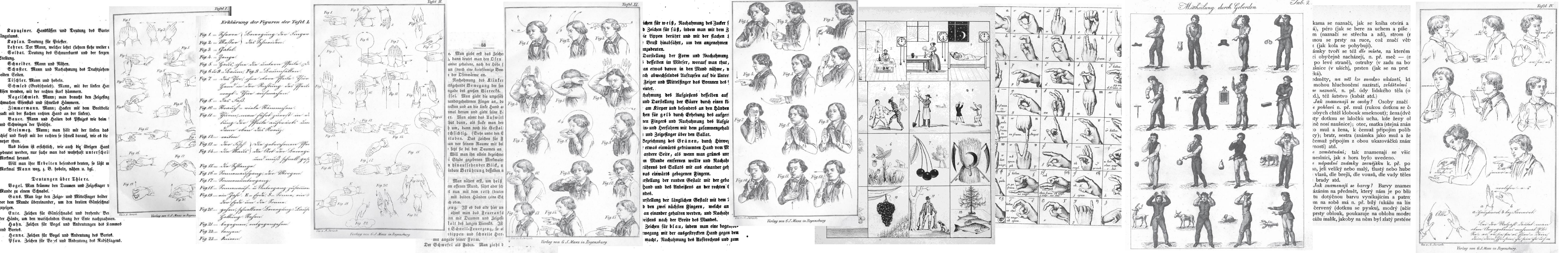


Designing a Data Model for a Diachronic Sign Language Database

A Case Study of Nineteenth-Century Bohemian Sources

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Identifying Historical Sources and Sign Attestations



Printed and manuscript materials in textual and pictorial form

From scattered sources to structured data with explicit uncertainty

DIACHRONIC SIGN LANGUAGE DATABASE

RECORD ANCHOR

- Identifier & Glossing
- Source metadata

- Stable identifier • English reference gloss • source label • additional glosses • compounds and component segmentation
- Authorship • publication and manuscript details • language and script • page or folio • institutional affiliation • provenance • repository and facsimile

PRIMARY DOCUMENTATION

- Textual evidence
- Visual evidence

- Diplomatic transcription • normalised transcription • English translation • editorial commentary • palaeographic observations • legibility and certainty ratings
- Full-page scan • cropped sign image • plate and figure identifiers • editorial image processing • graphic style • medium • parameter readability • viewpoint

ANALYTICAL LAYERS

- Structural annotation
- Motivation, iconicity, metaphor
- Lexical origin, contact, relational links

- Sign type • attested and inferred manual and non-manual parameters • confidence ratings • source terminology • Stokoe-style handshape groupings
- Attested versus inferred motivation • iconic and metaphorical mapping type and coding • degree of transparency • cross-linguistic universality risk
- Native or non-native formation • borrowing • semantic extension • fingerspelling and initialisation • institutional context • confidence rating • provisional families

DIACHRONIC CONTEXT

- Chronology, geography, sociolinguistic context
- Relational navigation, search

- Year or date range • region • political entity • institutional transmission • circulation and pedagogical context • documented continuity and change
- Semantic retrieval through reference glosses and provisional semantic groupings • formal retrieval through sign type and phonological parameters • links among attestations • future alignment with contemporary resources

Source traceability

Cross-source comparison

Variants and parallels

Semantic linking

Diachronic change

Transmission and contact

Historical relatedness

Example Output: MIRROR across Sources

Spiegel. Man hält die linke flache Hand wie einen Spiegel vor das Gesicht, ahmt mit einiger Bewegung des Kopfes das Hinschauen nach und richtet sich dabei etwas an seiner Kleidung.

Record ID: MU-1834-102-01-156 **Reference gloss (EN):** MIRROR **Source label:** Spiegel **Gloss (DE):** SPIEGEL **Gloss (CZ):** ZRCADLO **Author:** Mücke Johann (1770–1840), director of Prague Institute (1820–1840) **Year:** 1834 **Publisher:** Gottlieb Haase **Place of publication:** Prague **Source:** Anleitung zum Unterrichte der Taubstummen in der Lautsprache **Source type:** Printed book **Page:** 102 **Section:** Einige Haus- und Tischgeräthe **Language:** German **Script:** Schwabach **Record type:** Lexicographic written description **Evidence type:** textual **Political entity:** Austrian Empire **Region:** Bohemia **Institutional context:** Prague Institute for the Deaf and Dumb

Diplomatic Transcription (Latin script)
SPIEGEL. Man hält die linke flache Hand wie einen Spiegel vor das Gesicht, ahmt mit einiger Bewegung des Kopfes das Hinschauen nach und richtet sich dabei etwas an seiner Kleidung.

English Translation
MIRROR. One holds the left flat hand in front of the face like a mirror, imitates, with some movement of the head, the act of looking into it, and at the same time adjusts oneself somewhat at one's clothing.

Structural Annotation Sign type: 2H-asym (inferred); Dominance: H1R (inferred) H1R (dominant, active); HS = 0; ORI = 0; LOC = torso (inferred); MV = small adjusting movement (attested) H2L (non-dominant, passive); HS = flat (attested) (B-type, subtype undetermined); LOC = face-front (attested); ORI = 0; MV = static (inferred) NM: several head movements (attested).

Phonological specification: low
Iconicity and Motivation
Motivation: holding a flat hand as a mirror, imitating looking into it and adjusting one's clothing (attested)
Iconic mapping type: object representation + pantomimic enactment
Iconic encoding:
– H1R performing a grooming movement, hand-as-hand; pantomimic enactment (attested)
– H2L flat hand representing the mirror surface, hand-as-object (attested)
– NM head movement representing the act of looking (attested)
Transparency: high
Cross-linguistic universality risk: high (everyday embodied action)
Lexical origin: native iconic formation
Contact: not attested; possible

Record ID: CZ-1836-02-07-07 **Reference gloss (EN):** MIRROR **Source label:** Spiegel **Gloss (DE):** SPIEGEL **Gloss (CZ):** ZRCADLO **Author:** Czech Franz Hermann (1788–1847), catechist and teacher at the Vienna Institute (1818–1841) **Year:** 1836 **Publisher:** Commission der Mechitaristen-Congregations-Buchhandlung **Place of publication:** Wien **Source:** Vernünftliche Denk- und Sprachlehre mit Anwendung auf die Religions- und Sittenlehre und auf das Leben **Source type:** Printed book **Page:** 60, Table 2 **Section:** Mittheilung durch Geberden **Language:** German **Script:** Schwabach **Record type:** pictorial representation - copperplate engraving + written equivalent **Figure framing:** full body **Viewpoint:** left profile **Political entity:** Austrian Empire **Region:** Lower Austria **Institutional context:** Vienna Institute for the Deaf and Dumb

Structural Annotation Sign type: 2H-asym; Dominance: undetermined H1R: HS = flat (B-type, subtype undetermined; image unclear); ORI = palm toward body; fingers upward; LOC = face-front; MV = 0 (unspecified) H2L: HS = pinch (probable, image unclear) (O-type, subtype flat O); LOC = chest-centre; ORI = palm downward and toward body; fingers toward body; MV = chest contact (unspecified). NM: eye gaze toward palm (attested)
Phonological specification: moderate
Iconicity and Motivation
Motivation: holding a flat hand as a mirror in front of the face, tie-adjusting (inferred)
Iconic mapping type: object representation + pantomimic enactment
Iconic encoding:
– H1R flat hand representing the mirror surface, hand-as-object
– H2L hand-as-hand pinch the tie (attested)
Transparency: high
Cross-linguistic universality risk: high (everyday embodied action)
Lexical origin classification
Lexical origin: native iconic formation
Contact: not attested; possible.

Record ID: JA-1851-03-13-73 **Reference gloss (EN):** MIRROR **Source label:** Spiegel **Gloss (DE):** SPIEGEL **Gloss (CZ):** ZRCADLO **Author:** Jarisch Johann Anton (1818–1890), private teacher of the deaf (1847–1852) **Year:** 1851 **Publisher:** Verlag von G. Joseph Manz **Place of publication:** Regensburg **Source:** Methode für den Unterricht der Taubstummen in der Lautsprache im rechnen und in der Religion **Source type:** Printed book **Page:** Tafel III. – Fig. 13, Erklärung der Figuren der Tafel III. **Section:** appendix **Language:** German **Script:** Kurrent **Record type:** pictorial representation + handwritten equivalent **Figure framing:** head and hand **Viewpoint:** left profile **Political entity:** Austrian Empire **Region:** Bohemia, Lower Austria **Institutional context:** not specified **Digital facsimile:** Google Books

Diplomatic Transcription (Latin script)
der Spiegel

English Translation
the mirror

Structural Annotation Sign type: 1H; Dominance: H1R H1R: HS = flat (B-type, subtype: Bo thumb slightly adducted); ORI = palm upward and toward body; fingers upward and away from body; LOC = face/upper chest-front (image unclear); MV = 0 (unspecified) NM: eye gaze toward palm, head slightly tilted toward palm (attested)
Phonological specification: moderate
Iconicity and Motivation
Motivation: holding a flat hand as a mirror in front of the face
Iconic mapping type: object representation
Iconic encoding:
– H1R flat hand representing the mirror surface, hand-as-object
Transparency: high
Cross-linguistic universality risk: high (everyday embodied action)
Lexical origin classification
Lexical origin: native iconic formation
Contact: not attested; possible.

Towards systematic research in diachronic sign language linguistics and history