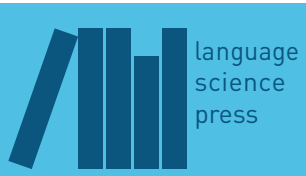
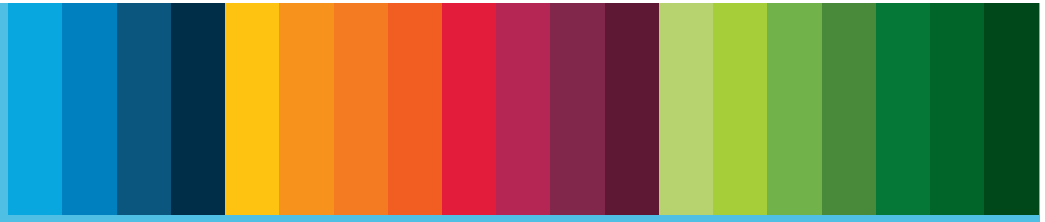




Retrieving entities from publications in linguistics

Sebastian Nordhoff

2018-09-04, HIRMEOS Workshop, SUB Göttingen

Language Science Press

language science press

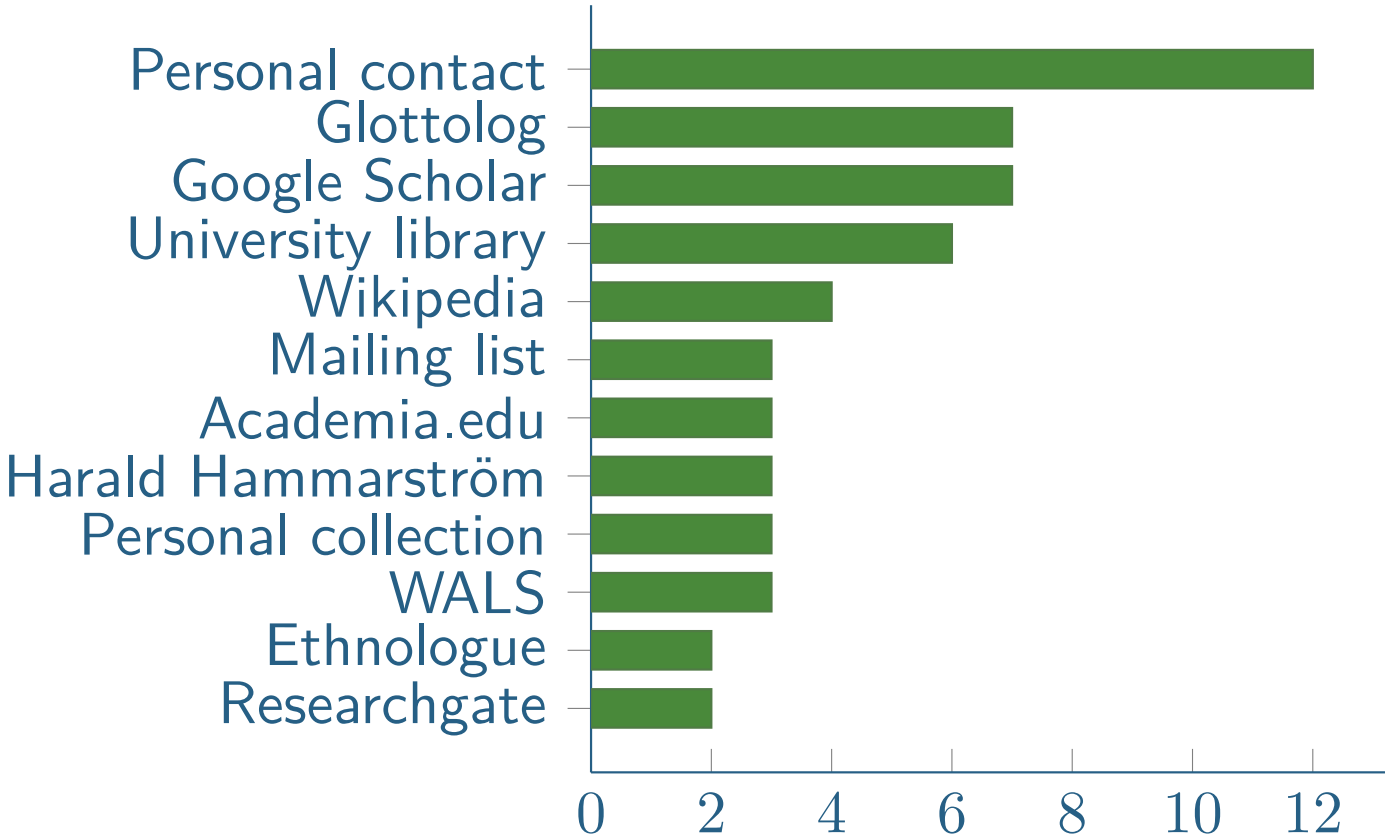
Outline

Linguistics

- ca. 25,000 linguists worldwide
- both monographs and articles
- longer publication cycles
- less output than for instance biology
  - possibility to keep track
- less sifting

How do linguists search for literature?

⟩ For a domain you have little expertise of, how do you find relevant literature?



question asked on list *Linguistic Typology* on 2018-08-29, no predefined answers

n=18, multiple answers possible

Language Science Press

⟩ start 2014; 75 books; 22 series

Language Science Press

- Available formats for books
  - pdf
  - tex
  - bib
- Indexes in books
  - Language index
  - Subject index
  - Name index
  - Indexes are a discovery tool, similar to NERD.

Bootstrapping index with sketchengine

⟩ A recent book on film subtitles and eyetracking had the following index candidates generated by sketchengine

image composition
eye tracking
speaking direction
typographic identity
fixation duration
audiovisual translation
aesthetic experience
title area
film material
speaker identification
film title
natural focus
text element
image track
information intake
graphical translation
title placement
bottom-centre area
typographic film
german image
split attention
gaze behaviour
reading speed
film identity
typographic film identity
tracking research
first fixation
additional language
narrative text
eye tracking research
visual attention
individual placement

NERD and linguistics

Goals

- higher level goals of text and data mining:
  - provide better tools for exploration:

  - automated reasoning:
    - gene $\longleftrightarrow$ protein
    - protein $\longleftrightarrow$ disease
    - gene $\longleftrightarrow$ protein $\longleftrightarrow$ disease

Goals

- stated goals (Hirmeos):
  1. enhance discoverability
  2. aggregation (word clouds)
  3. generate collections
  4. highlighting

Relevant knowledge bases

- The following knowledge basis can be seen as resources for disambiguation
  - **authority** (= Name Index)
    - GND
    - ORCID
  - **languoids** [languages, dialects, families] (= Language Index)
    - Glottolog
  - **concepts** (= Subject Index)
    - GOLD
    - concepticon

Keywords

⟩ Several platforms have fields for “keywords” (OMP, Zenodo)

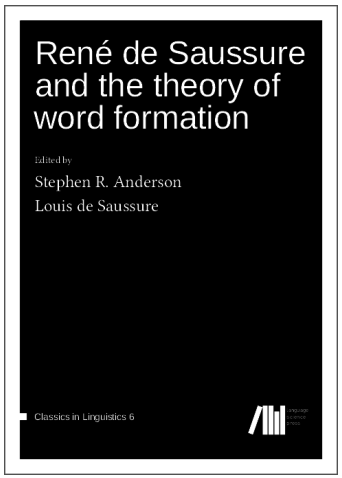
Keywords

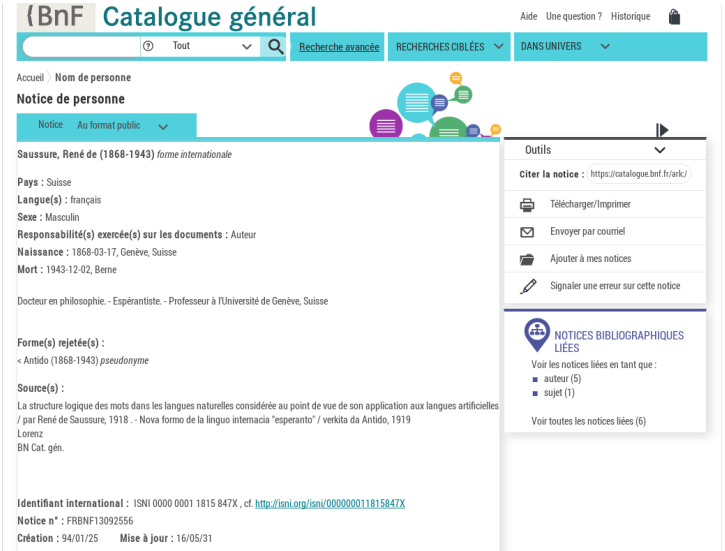
⟩ But should I really enter strings there?

Alternative names

hhbib_lgcode:
B. 2009)
Meson de Guadalupe
Mixtec-Mixtepec
San Juan Mixtepec
San Juan Mixtepec-Oaxaca
lexvo:
Mixtepec Mixtec [en]
multitree:
Eastern Juxtlahuaca Mixtec
Mixtec, Mixtepec
Mixteco de San Juan Mixtepec
Northern Misteko
Northern Mixteco

Person names

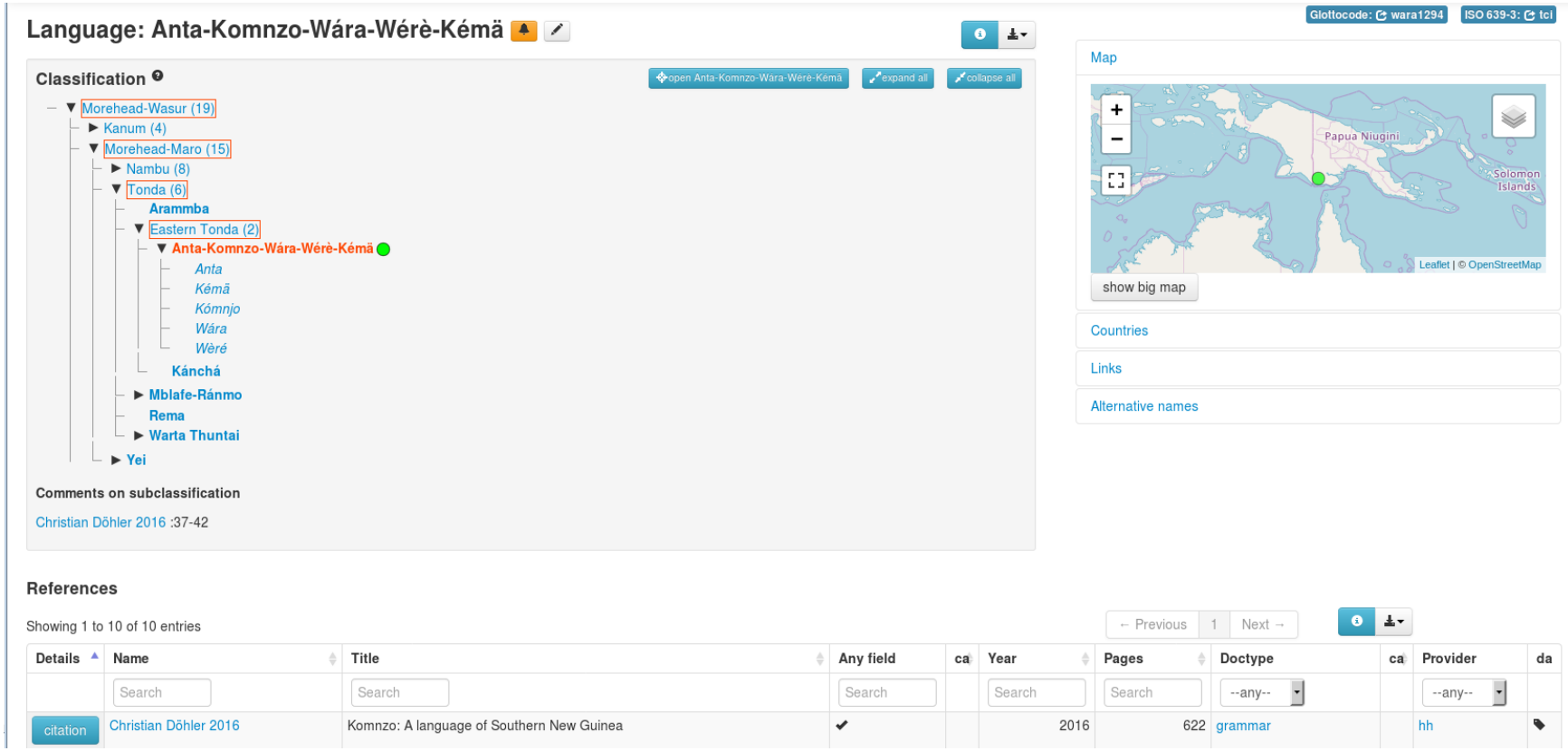




ORCID iD	First/given name	Last/family name
https://orcid.org/0000-0003-2051-4706	Wei	Wang
https://orcid.org/0000-0001-9168-3297	Wei	Wang
https://orcid.org/0000-0003-2428-8515	wei	wang
https://orcid.org/0000-0002-7025-9435	Wei	Wang
https://orcid.org/0000-0003-1726-5120	Wei	Wang
https://orcid.org/0000-0003-0248-6094	Wei	Wang
https://orcid.org/0000-0002-8598-0831	Wei	Wang
https://orcid.org/0000-0003-1666-7531	Wei	Wang
https://orcid.org/0000-0002-6776-0528	Wei	Wang
https://orcid.org/0000-0002-1568-2396	Wei	Wang

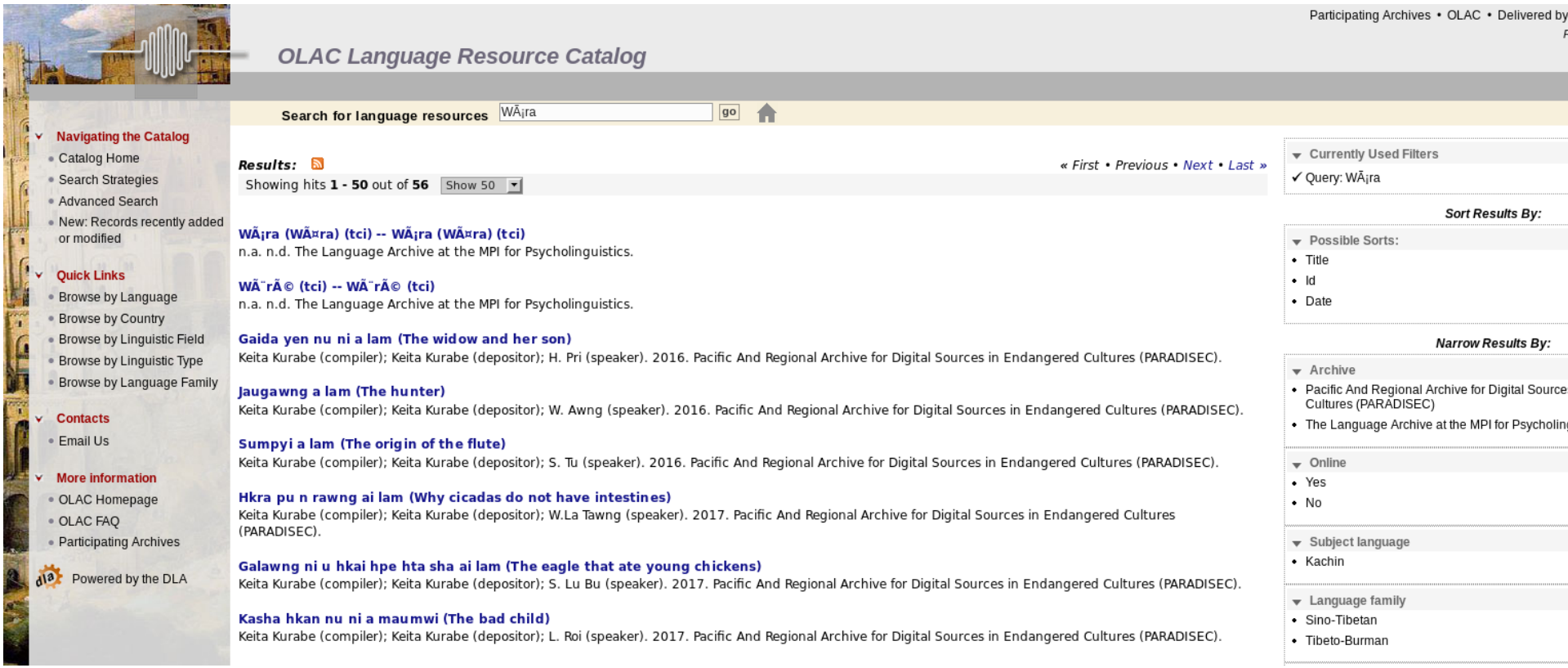
Language names: Glottolog

⟩ *A grammar of Komnzo*



Language names: OLAC

⟩ *A grammar of Komnzo*



Linguistic concepts

- cross-linguistic categories don't exist
- cross-linguistic categories don't exist
- cross-linguistic categories don't exist
- something called "dative" in language X cannot be equated with something called "dative" in language Y
  - General Ontology for Linguistic Description (GOLD) tried and failed

Inallative as "cross-linguistic category"

GOLD 2010 | issues | versions | xml | owl/rdf | gold community | help

top | definition | usage | examples | properties | issues

Inallative Case (Concept)

http://purl.org/linguistics/gold/InallativeCase

Thing
- |_ Abstract
  - |_ Linguistic Property
    - |_ Morphosyntactic Property
      - |_ Case Property
        - |_ Inallative Case

Definition:

InallativeCase expresses that something is moving toward the region that is inside the referent of the noun it marks. It has the meaning 'towards in(side)'. Kibrik says that Archi (aqc) possesses a nominal spatial form expressing InallativeCase, namely -aši [Kibrik 1998: 470].

Usage Notes

Examples

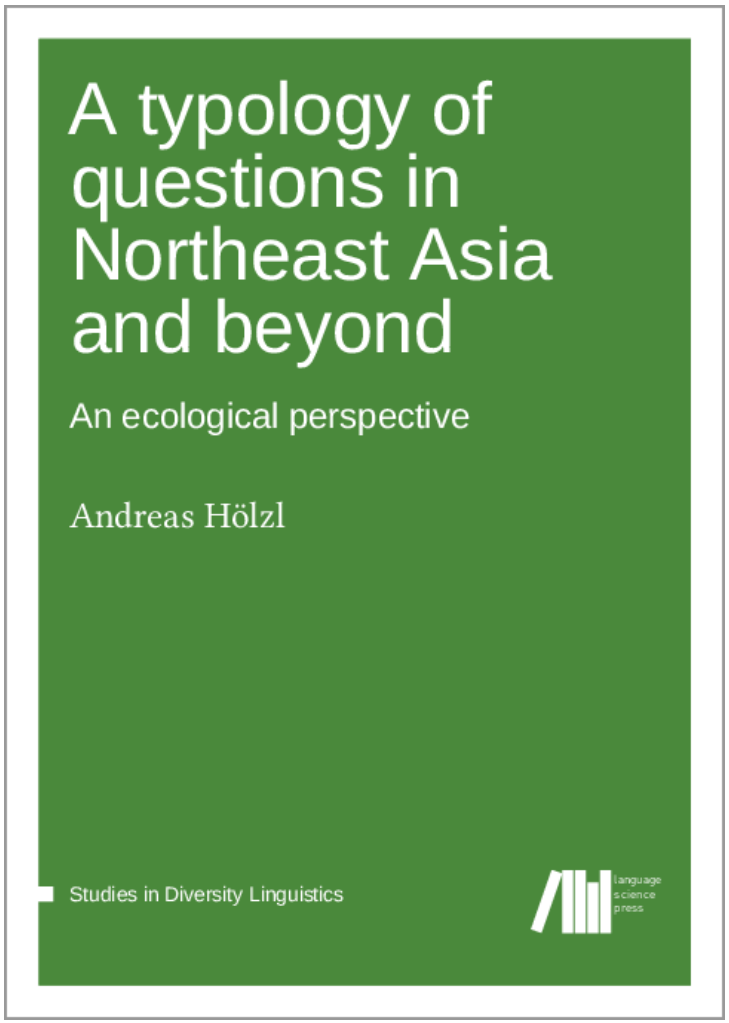
Properties	Values	Definition

User Submitted Issues

What have the Romans ever done for us?

- Is there an "inallative" in *Romani ite domu**m***?
- Is there an "inallative" in ***au*** *foyer*?
- Is there an "inallative" in ***t****huis*?
- Can you equate the usages in the three examples?
- take-home-message: it's complicated, and automated reasoning will not work.

Testing NERD



- *A typology of questions in Northeast Asia and beyond*
- Book chosen as the most recent publication
- Variety of countries, languages, ethnic groups, concepts, etc.
- 546 pages
- NERD running on local machine

Test section: Mongolic

Table 5.85: Spatial deictics in Mongolian according to Janhunen (2012b: 131), slightly reduced

	PROX (hearer)	DIST	INT
LOC	naa-n'	tzaa-n'	xaa-(n')
LOC ABL	naa-n-aas	tzaa-n-aas	xaa-n-aas
LAT	naa-sh	tzaa-sh	xaa-sh
PROL	naa-g.oor	tzaa-g.oor	xaa-g.oor

Table 5.86 shows five of the interrogatives that can be found in most modern Mongolic languages.

Table 5.86: Five Proto-Mongolic interrogatives and their modern representatives

	*ken 'who'	*yaxun 'what'	*alin 'which'	*kejixe 'when'	*kaxana 'where'
Dagur	xeng	yoon	aly	xejee	xaan
Mongolian	xen	yuun	alyn	xedzee	xaan'
Buryat	xen	yüün	ali	xezee	xaana
Khamnigan Mongol	ken	yɛɛn	ali	kejie	kaana
Ordos	ken	yüün	ali	kejee	kaa
Written Oirat	ken	you/n	ali	kezee	xamigha(a)
Oirat	ken	yuu/n	äl ~ äl-k	keze	xamaa
Kalmyk	ken	yuun	aly(-k)	kezā	xama, aly-d
Shira Yughur	ken	yima	aali	kejee	xana
Santa	kien	yang	ali	giezhe	khala
Bonan	kang	yang	ane	kece(-)	hala
Kangjia	kɔ	jɔ ~ jaŋ	ani(ye)	gədʒe	χana
Huzhu Mongghul	ken	ya(a)n	ali	kijee	an-ji(i)
Minhe Mangghuer	kan	ya, yang	a(yi)ge	kejie	ang(-ji)
Moghol	ken ~ kiyan	emah ~ imas etc.	?	keja	?

According to Janhunen (2003d: 20) the stem *ke- originally had the meaning 'who' as well as 'what', which is an unlikely scenario from a cross-lingusitic point of view. As has been shown by Cysouw (2005), the only place worldwide where this pattern is not extremely rare or altogether absent is South America.

Proto-Mongolic had two resonances (submorphemes), one in *k~ that is still present in most Mongolic languages but changed to x~ in Dagur, Buryat and Mongolian, and one in *y~ that has survived up to today. Similar changes from *k~ to > *x~ can be seen in Turkic

Results

- NERD retrieved some pretty specialized concepts
  - Recall is good
- NERD also retrieved a lot of irrelevant concepts (“South America”) or lookalikes (business names)
- NERD was rather aggressive and colored whole pages.
- the system seems to have understood that the book is about linguistics and often selects a linguistic concept. However, sometimes, the concept chosen is off the mark (Australia).
  - Precision is low.

Results

- Installation procedure was OK
- Loading the book in the browser worked out of the box
- Loading the book in the browser takes several minutes

Questions from a publisher

- in how far does NERD help the readers/authors?
  - Exploration/Discovery
    - currently, discoverability of content via series, e.g. *Contemporary African Linguistics*
    - linguists seem to prefer personal/social interaction to automated recommender systems
  - Automated reasoning
    - limited potential given the fuzzy nature of cross-linguistic concepts