

New visualization techniques in dialect geography

The merging of analytic and synthetic mapping in the virtual and interactive cartography of VerbaAlpina

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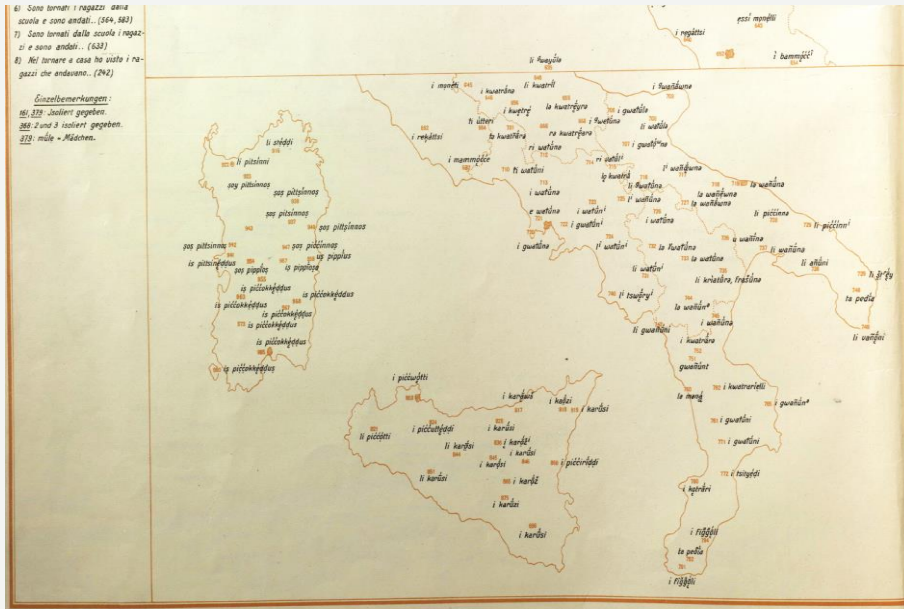




1. Traditional linguistic cartography: Pros and Cons
2. New cartographic approach of VerbaAlpina
 - short project overview
 - the interactive map and its added value
3. Visualization of linguistic data via the interactive map
 - different modes of visualization
 - technical background

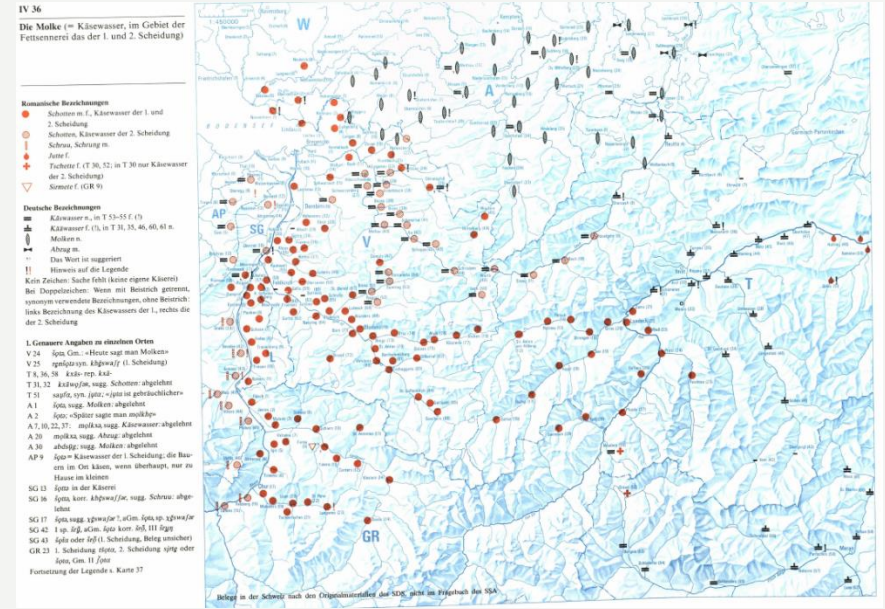
Two coexisting cartographic traditions:

analytic maps



AIS (linguistic atlas of Italy and southern Switzerland)

synthetic maps



VALTS (linguistic atlas of Vorarlberg)



Cons

- only onomasiological perspective
- only monolingual view on certain dialect regions
- limited accessibility (depends on place and time)

Pros

- works are permanent and can be unambiguously referenced



Project Overview

- *VerbaAlpina. Der alpine Kulturraum im Spiegel seiner Mehrsprachigkeit* (VerbaAlpina. The Alpine cultural region reflected through its multilingualism)
- Funded by the German Research Foundation (DFG)
- 1st term: 10/2014-10/2017, 2nd term: 11/2017-11/2020, 3rd term: 11/2020-10/2023 (perspective until 2026)
- Investigation of the multilingual Alpine region
- Combination of (geo-)linguistics and Digital Humanities (DH)



Research Aims

- Selective and analytical investigation of the linguistically and dialectally highly fragmented alpine space in its historico-cultural and historical-linguistic unity
- Overcoming of the traditional limitation of geolinguistic investigation to nation-states
- recognition of connections regarding the etymology of the individual dialectal words
- Setting up a portal by using modern media technology: documentation, data collection, collaborative development
- cooperation with other projects is fundamental for VerbaAlpina



Area under investigation: The Alpine region

- Area of investigation is limited to the territorial borders defined by the Alpine convention
- surface area of 190,600 km², encompasses parts of six different countries (D, A, CH, I, F, SLO) and two entire countries (FL, MC)
- ethnographic and topographic homogeneity and strong linguistic heterogeneity → 3 language families





Three conceptual domains

project years

1	2	3	4	5	6	7	8	9
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calendar year

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
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quarter

i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv	i, ii, iii, iv
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project phase

I	II	III
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focus

<p>traditional life</p> <ul style="list-style-type: none"> • alpine pasture farming • milk processing 	<p>nature</p> <ul style="list-style-type: none"> • landscape formations • weather • fauna • flora 	<p>modern life</p> <ul style="list-style-type: none"> • ecology • tourism
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Data

Multiple different sources

- printed atlases/dictionaries (georeferenced)
- digital material from project partners
- crowdsourcing



Crowdsourcing-Tool
www.lmu.de/verbaalpina

Wählen Sie eine Gemeinde aus.

Wie sagt man zu *Begriff* in *Gemeinde*? Ihre Antwort



Data access via

- interactive map
- Lexicon Alpinum
- API



Data access via

■ interactive map → visualization of data

■ Lexicon Alpinum

■ API

The screenshot displays the Lexicon Alpinum web application. At the top, there is a navigation bar with the LMU logo and links for Home, Interaktive Karte, Lexicon Alpinum, Methodologie, Beiträge, Mitmachen!, and Personen. A search bar is present with the placeholder text 'Bitte Suchbegriff eingeben...'. Below the search bar, there are options for 'Kartographische Darstellung' (Physical and Hexagonal) and a legend section. The legend is expanded to show a list of items with checkboxes and a close button (X). The items include:

- Flächen und Regionen Sprachgebiete
- Konzept BUTTER
- (nicht typisiert) (369 Belege)
- Morpho-lexikalischer Typ aigre / agro (roa) (1 Beleg)
- Morpho-lexikalischer Typ Anke (gem m.) (351 Belege)
- Morpho-lexikalischer Typ Anke (gem) (91 Belege)
- Morpho-lexikalischer Typ Ankeballlein (gem)

The map on the right shows a geographical view of the Alpine region with numerous colored markers (circles) representing data points. The markers are color-coded according to the legend. The interface also includes a 'Menü schließen' button at the bottom of the legend and a footer with 'Leaflet | Map tiles by Stamen Design, CC BY 3.0 — Map data © OpenStreetMap'.



- integration of the two visualization traditions (synthetic + analytic)
- integration of different data sources
→ onomasiological and semasiological perspective
- simplifies a cross-national and cross-linguistic investigation + overcomes the restriction of traditional geolinguistics to political units (nation-states)
- accessible anytime and anywhere thanks to its online format
- qualitative and quantitative visualization
- function to create synoptic (i.e. collective) maps



- integration of features of analytic and synthetic maps

Default view: synthetic map with point symbols + an appropriate legend

For each data point access to: full linguistic and meta-information including the source, unification steps that have been undertaken (IPA), if possible: online version of the source is linked

- lack of transparency of traditional synthetic maps solved by interactivity
- Mantra: „overview first, zoom and filter, then details on demand“
(Shneiderman 1996, 336-343)

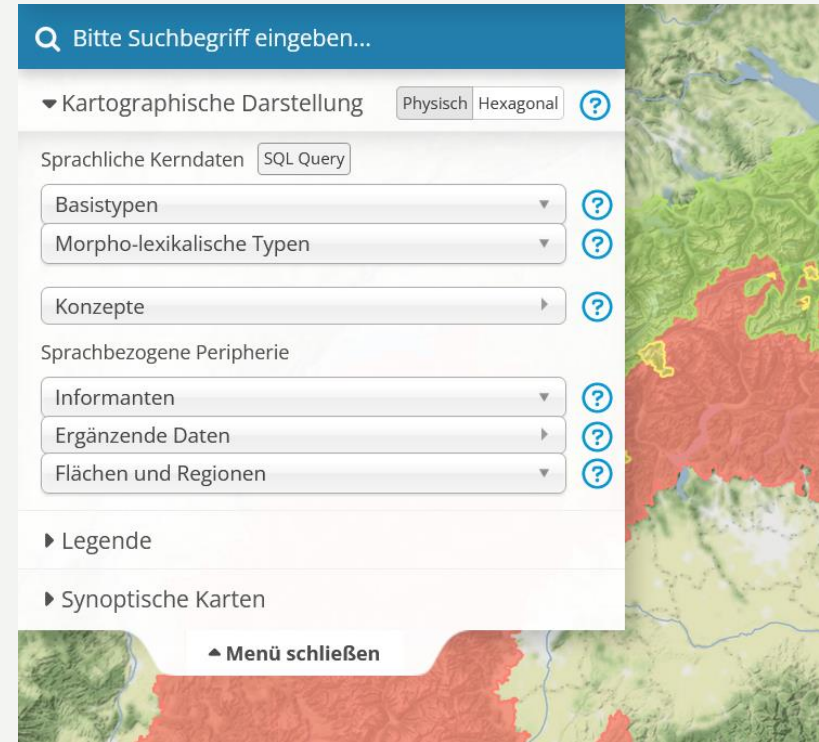


Detail view of one specific data point

The screenshot shows a detail view for the location 'Germasino'. The central panel displays linguistic data with callouts to various fields:

- IPA:** Darstellung: IPA VA, DST Quelle: láy. Callout points to the IPA transcription 'l'aj*' (Einzelbeleg).
- ISO Codes:** Callouts point to the morphological and lexical codes 'T' and 'C' (l'ait / latte (roa m.)), and the basic type code 'G' (läcte(m) (lat.)).
- source + online version:** Callout points to the source 'AIS 1208#2 222 (Germasino)' and the online version 'MILCH (Wikidata)'.
- Dictionaries:** Callouts point to 'Treccani: latte' and 'CNRTL: lait'.
- Etymologic dictionary:** Callout points to 'Georges: lac 2, 525'.
- Wikidata:** Callout points to the Wikidata link 'MILCH (Wikidata)'.

- onomasiological and semasiological perspective by using appropriate filters



- geographical/physical (NUTS 3 boundaries) vs. abstract (hexagons)
- qualitative vs. quantitative

geographical qualitative (semasiological perspective)

LMU Home Interaktive Karte Lexicon Alpinum Methodologie Beiträge Mitmachen! Personen DFG

Bitte Suchbegriff eingeben...

Kartographische Darstellung Physisch Hexagonal

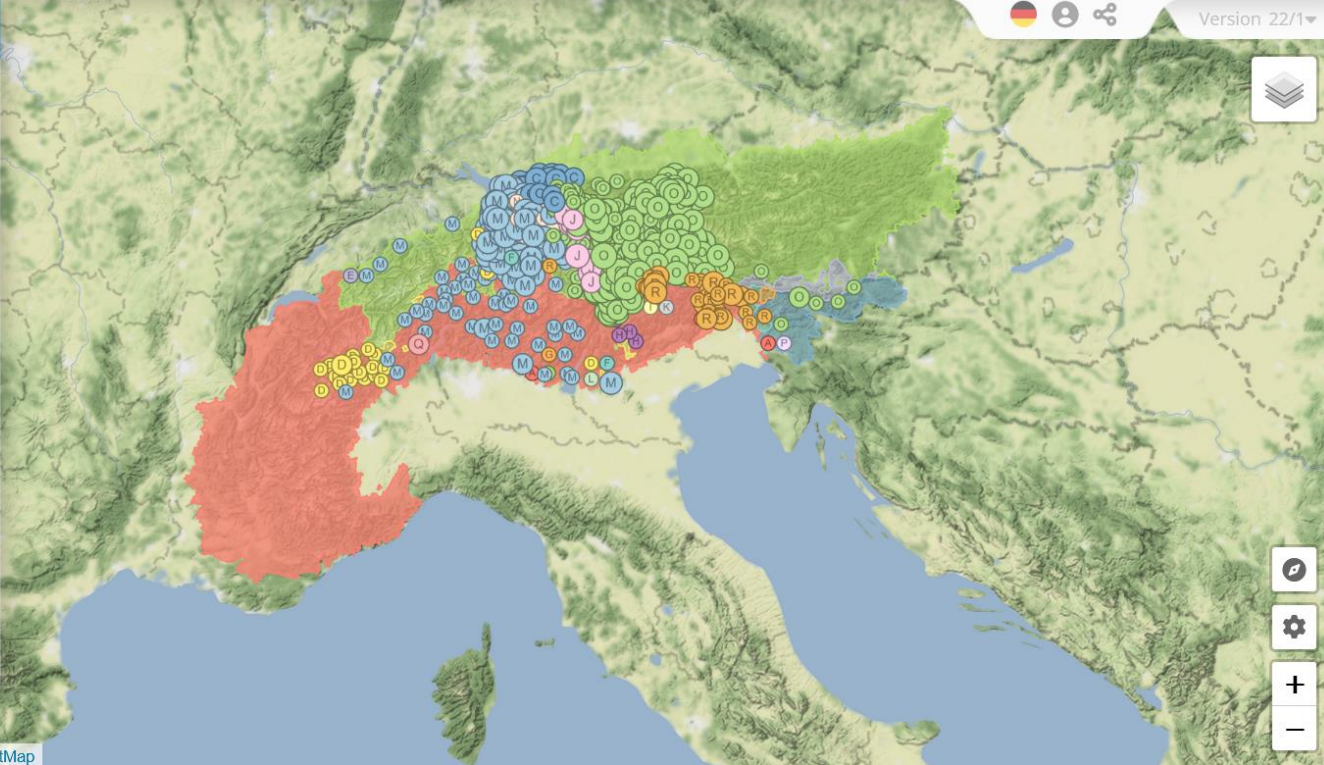
Legende

- Flächen und Regionen Sprachgebiete
- Basistyp **excōcta (lat)**
- (kein Konzept) (4 Belege)
- Konzept **DIE SONNE IST GLÜHEND** (1 Beleg)
- Konzept **EIWEISSTEILCHEN, DIE BEI ERHITZEN DER MOLKE AUFSTEIGEN, NACH DER ZWEITEN SCHEIDUNG** (65 Belege)
- Konzept **FLÜSSIGKEIT NACH ENTNAHME DER FESTEN MASSE, ZWEITE**

Synoptische Karten

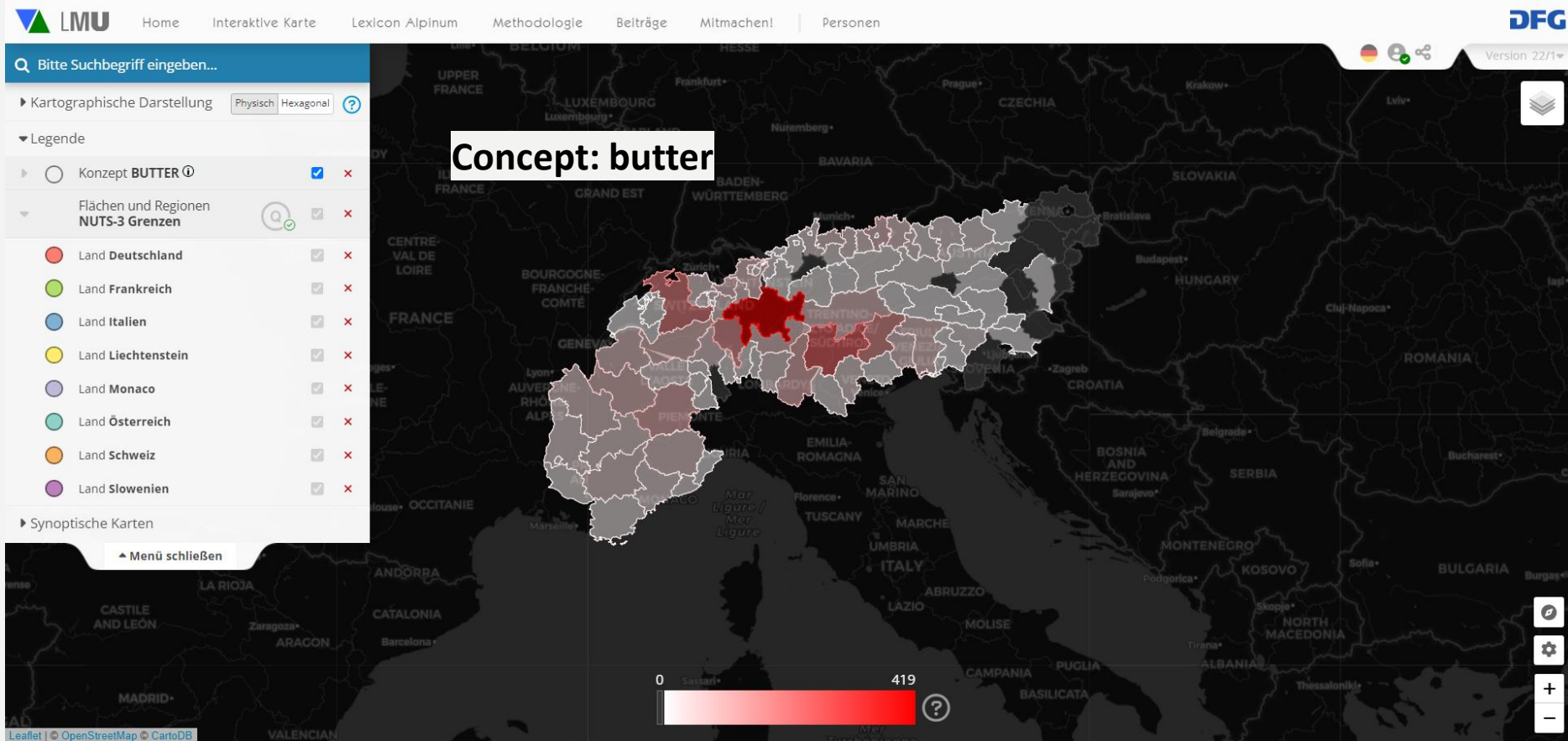
Menü schließen

Leaflet | Map tiles by Stamen Design, CC BY 3.0 — Map data © OpenStreetMap



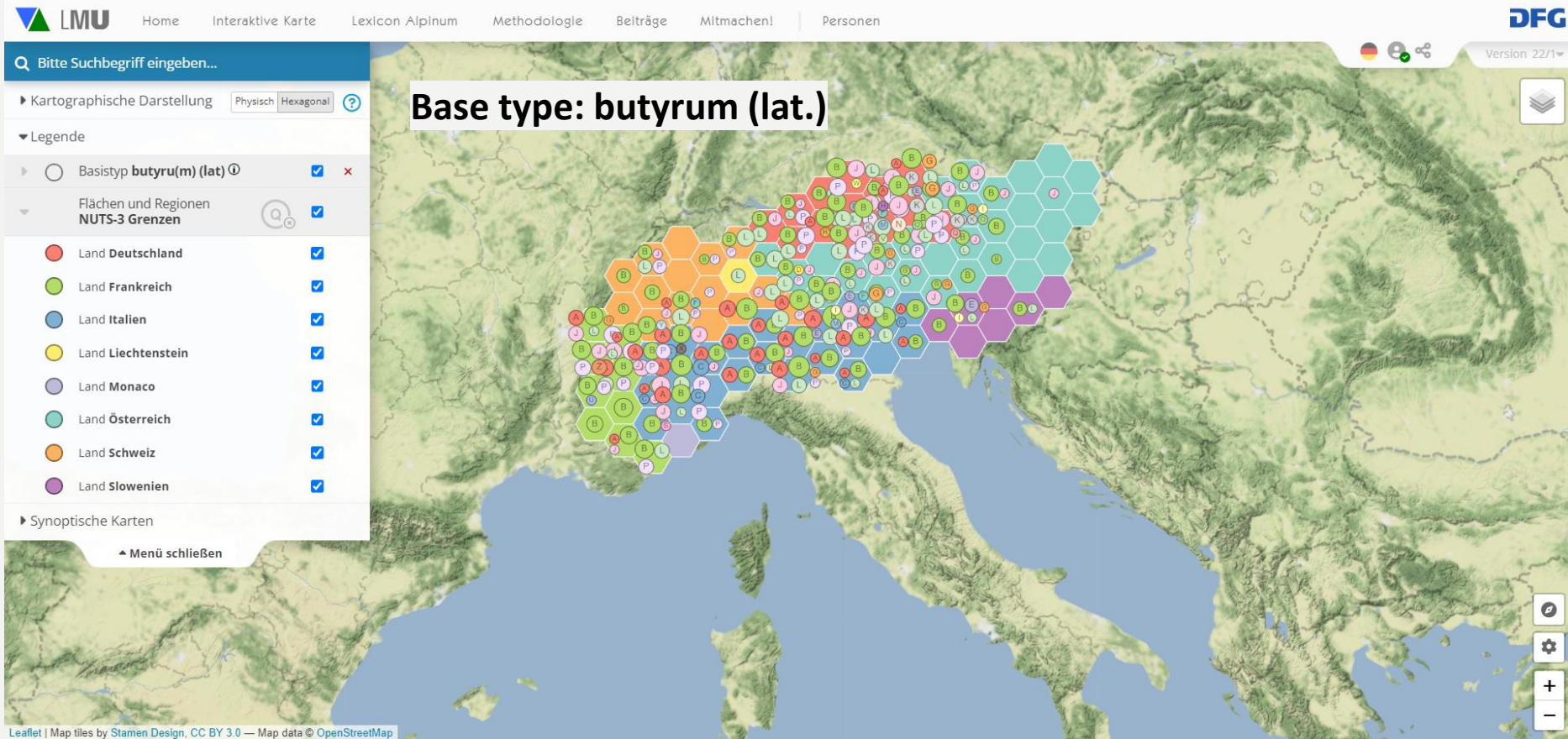


geographical quantitative (onomasiological perspective)

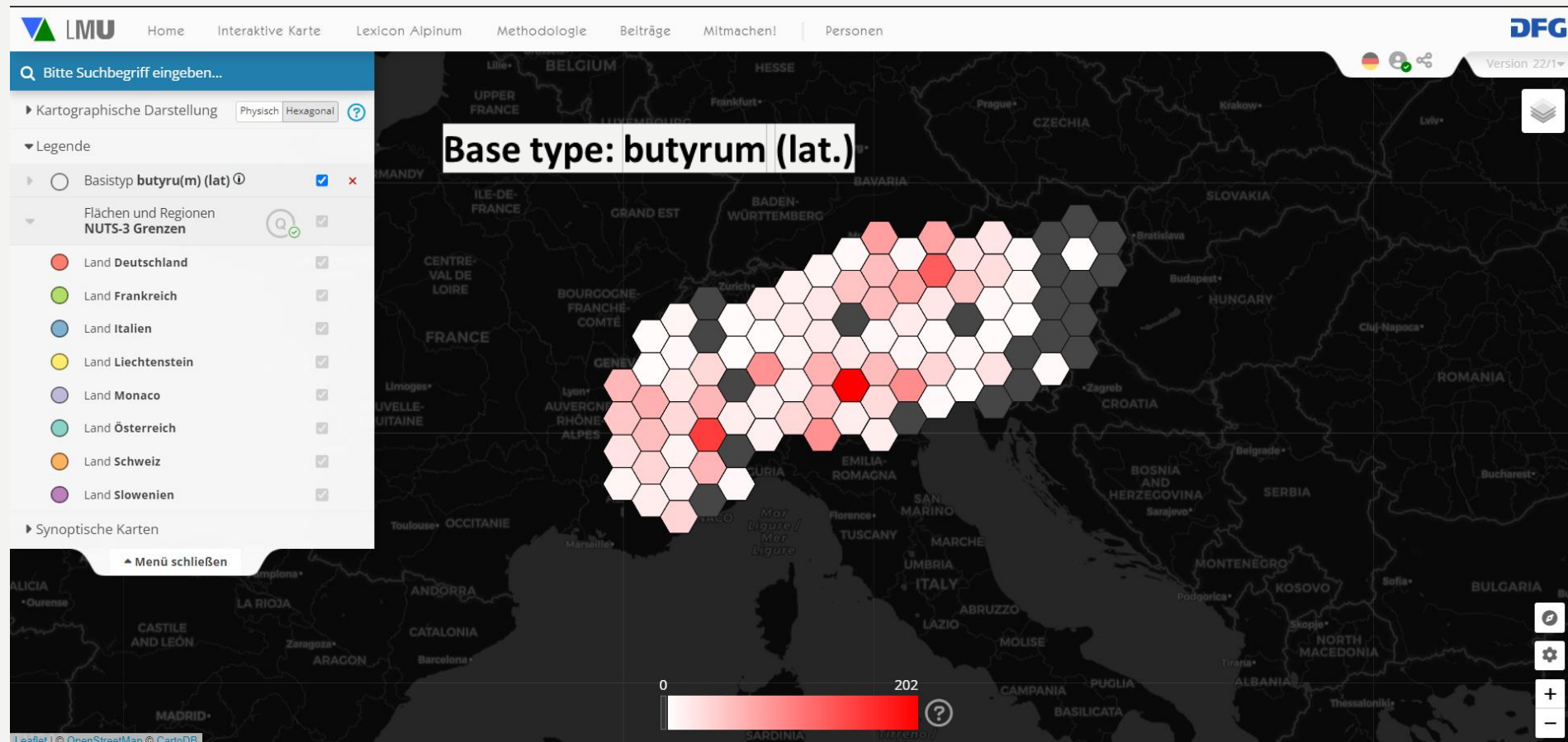




abstract qualitative (onomasiological perspective)



abstract quantitative (onomasiological perspective)





Technical background

- exclusively web-based project using open-source or free software (<https://github.com/VerbaAlpina/>)
- website based on the content management system Wordpress
- interactive map module based on JavaScript and PHP with a MySQL backend
- basis for each visualization:
a sound/trustworthy data model (relational database)
- Frontend: libraries Leaflet for the basic map functionalities + PixieJS (uses WebGL) for the map overlays



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Thank you for your attention!

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