The perception of historical and present-day regional boundaries by the society of Czechia

JAN D. BLÁHA[1], JITKA MOČIČKOVÁ[2], ALEŠ VYSKOČIL[2], JIŘÍ PÁNEK[1]

[1] Czech Technical University in Prague, Faculty of Civil Engineering, Department of Geomatics, Prague, Czechia; e-mail: jan.d.blaha@gmail.com, jirkapanek@gmail.com
[2] Institute of History of the Czech Academy of Sciences, Prague, Brno, Czechia; e-mail: mocickova@hiu.cas.cz, vyskocil@hiu.cas.cz

ABSTRACT The study addresses the question: How does contemporary Czech society perceive historical and present-day boundaries, and what role do these perceptions play in shaping regional identity? Using mental and participatory mapping, the authors analyse how today's inhabitants of Czechia perceive geographical space through boundaries defined by historical, cultural, administrative, and subjective factors. The research is based on a large-scale questionnaire survey and employs geographic information system (GIS) tools. Particular attention is paid to generational differences, educational and regional backgrounds, and how regional identity is reflected in respondents' mental maps. The study integrates approaches from the humanities, social sciences, and technical disciplines, offering an interdisciplinary framework for analysing boundaries in space. The findings demonstrate that while some boundary perceptions remain deeply rooted in history, others are shaped by contemporary socio-cultural influences. The combined methodological approach of participatory mapping and historical contextualization provides new insights into evolving boundary perceptions and contributes to the theoretical development of spatial identity studies.

KEY WORDS cognitive mapping – participatory mapping – boundary perception – regional identity – historical geography – Czechia

BLÁHA, J.D., MOČIČKOVÁ, J., VYSKOČIL, A., PÁNEK, J. (2025): The perception of historical and present-day regional boundaries by the society of Czechia. Geografie, 130, 4, 415–443.
https://doi.org/10.37040/geografie.2025.019
Received June 2025, accepted November 2025.

1. Introduction

Boundaries – whether historical or present-day – are not merely lines on a map. They represent social constructs that reflect political power, historical legacies, and cultural identification. In recent decades, increasing scholarly attention has been devoted to understanding how individuals and communities perceive these boundaries, especially in contexts shaped by administrative discontinuities or contested regional identities. Research on spatial perception and its representations is currently one of the established topics of human geography. Among the most methodologically prominent approaches is cognitive mapping, which allows researchers to visualize how individuals and entire groups perceive, structure, and symbolically construct geographical space. In addition to capturing spatial behaviour or preferences, mental maps are increasingly employed to analyse regional identities and socially constructed boundaries. From this perspective, cognitive mapping provides insight into how people reproduce, reject, or redefine institutional spatial frameworks, and how memory, experience, and heritage shape their relationship to place.

Czechia provides a particularly suitable context for such an investigation due to its layered territorial history, marked by the long-term erosion of historical land boundaries and repeated state-driven administrative restructuring since the mid-20th century. The main aim of this study is to contribute to the growing body of research on boundaries in Czechia, with broader relevance to the Central European context. It addresses the main research question: How does contemporary society in Czechia perceive historical and present-day boundaries? Grounded in the concept of the social production of space (Lefebvre 1991) and employing participatory cognitive mapping, the study focuses on two distinct cases examining how the population reflects on both historical land boundaries and current regional administrative divisions:

1. *Moravia* serves as a historical land in Czechia whose borders have been gradually eroding from public consciousness due to more than seventy years of administrative restructuring, yet they continue to appear in population censuses and persist in various aspects of cultural and social life (Netrdová, Korčák, Nosek 2024);
2. *Vysočina* (corresponding approximately to the Bohemian–Moravian Highlands) and *East Bohemia* represent regions with a fluid regional identity, where past and present administrative boundaries have contributed to a more ambiguous spatial perception.

These two cases exemplify different types of boundary perception on a local scale – one based on historically institutionalised boundaries, the other shaped by administrative fluidity and regional ambiguity.

Based on these cases, the article tests several working hypotheses:
- that perception of boundaries varies according to their historical fixity and institutionalisation
- that respondents from so-called border districts are more likely to draw boundaries with greater precision
- and that age influences spatial perception due to differing experiences with past administrative structures.

The study also responds to several gaps in existing research:
1. the lack of a comprehensive spatial analysis of the Moravian boundary as a whole, which has previously been addressed only in isolated segments (cf. Siwek, Kaňok 2000; Šerý, Šimáček 2012; Marek 2020, etc.)
2. the near-absence of research on the perception of the boundaries of East Bohemia and the Vysočina Region (cf. Burda 2016; Burda, Felcman 2025);
3. and the still insufficiently explored question of whether residents of certain regions with a complex administrative past retain historical or cultural affiliations that conflict with current territorial divisions (cf. Vainikka 2013; Šerý, Daňková 2021).

To address these questions, the research team conducted an online survey using the participatory mapping, aiming to create sufficient and relevant data. A total of 850 respondents from across Czechia were asked to draw perceived boundaries of selected regions. The drawn data were subsequently analysed with respect to various socio-demographic factors (age, origin, education, etc.) and interpreted in the light of theoretical concepts concerning the social production of space, regional identity, and symbolic boundaries.

The article proceeds as follows: section 2 introduces the theoretical and methodological background of the study, section 3 presents the findings from the two selected cases and discusses their implications, section 4 generalises the findings and addresses key limitations and section 5 concludes by highlighting the theoretical and empirical contributions of the study and outlines possible directions for future research.

2. Theoretical background, field research methodology and data creation

2.1. Literature review

Since the pioneering works by K. Lynch (1960) and P. Gould with R. White (1974, 1986), mental maps have been used not only to study spatial behaviour or preferences, but also to examine collective ideas, territorial, resp. regional identities,

and socially constructed borders (in the Czech research context, i.a. Hynek, Hynková 1979; Drbohlav 1991, Siwek, Bogdová 2007; Kynčlová, Hudeček, Bláha 2009; Polonský, Novotný, Lysák 2010; Bláha, Pastuchová Nováková 2013; Bláha, Nováček 2016; Pánek, Šenkeříková 2018; Nováček, Bláha, Zajíčková 2025).

Current theoretical approaches emphasise mental maps as a means of revealing so-called "soft" borders – borders that are not firmly defined institutionally but arise in everyday experience and cultural reproduction. Such borders, often referred to as phantom borders (Hirschhausen et al. 2019; Netrdová, Korčák, Nosek 2024), continue to influence spatial behaviour and identity of residents, even long after their formal abolition. In the Czech context, a typical example is the Bohemian-Moravian historical border (see Section 3.1.). From this perspective, mental maps are not only a descriptive tool, but also a critical means for examining regional identity and transformation processes that concern both the external demarcation of regions and their internal symbolic content. They allow us to analyse how people reproduce, reject, or redefine institutional structures, how they internalise or question territorial reforms, and how memory, heritage and everyday experience intertwine in the process of spatial identification (Paasi 2002; Šerý, Šimáček 2013).

Another inspiring scholarly approach is participatory mapping, a methodology that encompasses research and planning strategies that seek to involve local actors actively in defining problems, collecting data, interpreting results, or proposing solutions. The goal is not only to gain a deeper understanding of a given space from the perspective of its inhabitants, but also to strengthen their relationship to the place and support social cohesion and responsibility. Participatory mapping can include methods such as online mapping (Peng 2001; Kyem, Saku 2009; Bugs et al. 2010), crowdsourcing (Lundine, Kovačič, Poggiali 2012), or the use of Volunteered Geographic Information / Citizen science (Goodchild 2007; Elwood 2008; Tulloch 2008; Brown, Kelly, Whitall 2014). Citizen science offers the possibility of involving the public in "scientific" projects. In Czechia, for example, the StareMapy.cz (2025) project is well-known. The research presented here used the platform PocitoveMapy.cz (2025) to collect opinions, in the form of a drawing of individual borders in the form of polygons.

The perception of boundaries and their meaning have been shaped in the past by various intellectual concepts (e.g., Laine 2015, García-Alvarez, Puente-Lozano 2022). F. Ratzel (1903) laid the foundations of modern political geography with his concept of the state as a living organism, for which borders are a variable zone and a tool for expansion (*Lebensraum*). He was then followed by his students, supporters of geographical determinism and classical geopolitics, for whom border control was a key tool for maintaining power. A departure from deterministic interpretations and the concept of borders as the result of long-term socio-spatial processes was brought about by the French school of Annales (Febvre 1922).

These classical approaches also create an interpretative framework for current changes, when there is a significant shift in the perception of borders as a result of processes of deterritorialization – that is, the weakening of the link between territory and political power. As demonstrated by Newman and Paasi (1998), the rapid movement of people, capital, and information, as well as the growing degree of transnational integration, lead to the increasing permeability of borders and their functional weakening. In this context, borders increasingly cease to function as physical separations and take on a more symbolic or institutional form. It is this shift that constitutes one of the key impulses for research into their current mental and cultural perception.

One can use the concept of the social production of space by H. Lefebvre (1991), in which space is not the physical background of events, but a produced social phenomenon in which power interests, everyday practices and symbolic meanings collide, to theoretically anchor the analysis of the perception of historical borders. This space arises because of the tension between three basic dimensions: (1) spatial practice, i.e. everyday use, spatial orientation, and perception of the border in the form of a visible barrier (e.g., marking of borders, border checks), (2) representation of space, i.e. conceptualised borders (e.g., territorial administrative divisions), (3) representational spaces relating to symbolic, imaginative, and emotional space, i.e. experienced through memory, identity, stories, etc. It is precisely within the third dimension that mental maps have their essential place and are intended to answer the questions of where people perceive borders, whether they consider them an important part of their identity, or how borders are manifested in their mental maps (see also Semian 2016, who adapts Lefebvre's concept to the social production of the region).

2.2. Conception, question formulation and technological implementation of the questionnaire

The design of the questionnaire was guided primarily by two criteria: content integrity and reasonable time demands on respondents. The authors estimated that 10–15 minutes was the maximum time participants would be willing to spend, as longer surveys often lead to lower response rates due to fatigue or dropout. To ensure the comparability of responses and a uniform sociological sample, all questions were made mandatory, which influenced the technical implementation.

For data collection, the participatory mapping platform PocitoveMapy.cz (Pánek 2018) was used. This crowdsourcing tool enables users to perform basic tasks, such as drawing elements on a base map (points, lines, or polygons) and assigning comments to these features. Although other tools (e.g. ArcGIS Survey123) could have been considered, the priority was to create an intuitive and user-friendly

geo-questionnaire (Czepkiewicz, Jankowski, Zwoliński 2018). We have used the basemap with topographic content (from which all borders except state borders were intentionally removed), where the respondent was first asked to draw an area in response to a specified question and could optionally add a comment or provide additional input.

Subsequently, respondents moved on to the general section, where they provided socio-demographic information: age, gender, highest level of education, field of study (up to two choices from the list), predominant sector of employment, place of origin and current residence (district and region), municipality size, and an open space for additional comments (free text).

The questionnaire included, among others, the following mapping tasks (each accompanied by additional questions in a pop-up window):

1. Mark on the map (as an area) where you think *Moravia* is located.
2. Mark two areas on the map where you think *Vysočina* and *East Bohemia* are located. Additional question: Which area is this? ("Vysočina" / "East Bohemia").

While the questionnaire contained several additional questions, these are not analysed in this paper.

After drawing a polygon, all mapping tasks were followed by these two questions:

a) On what basis did you mark the area? (single choice)
- natural features / landscape character;
- historical aspect;
- cultural or social aspect (language, tradition, character of local population);
- type of settlement / architecture;
- administrative aspect (regions, districts, etc.).

b) Where did your knowledge about the area come from? (single choice)
- completely subjective perception;
- information from family or local community;
- education / school;
- media and internet;
- professional knowledge.

A brief summary of the respondents' answers to these questions is shown in Figure 1.

2.3. Pilot testing and data creation

The questionnaire was initially pilot-tested among university students from both humanities and natural science disciplines. This phase revealed several issues, including ambiguous wording, navigation difficulties, and non-functional control elements. Based on the feedback received, several technical and content-related

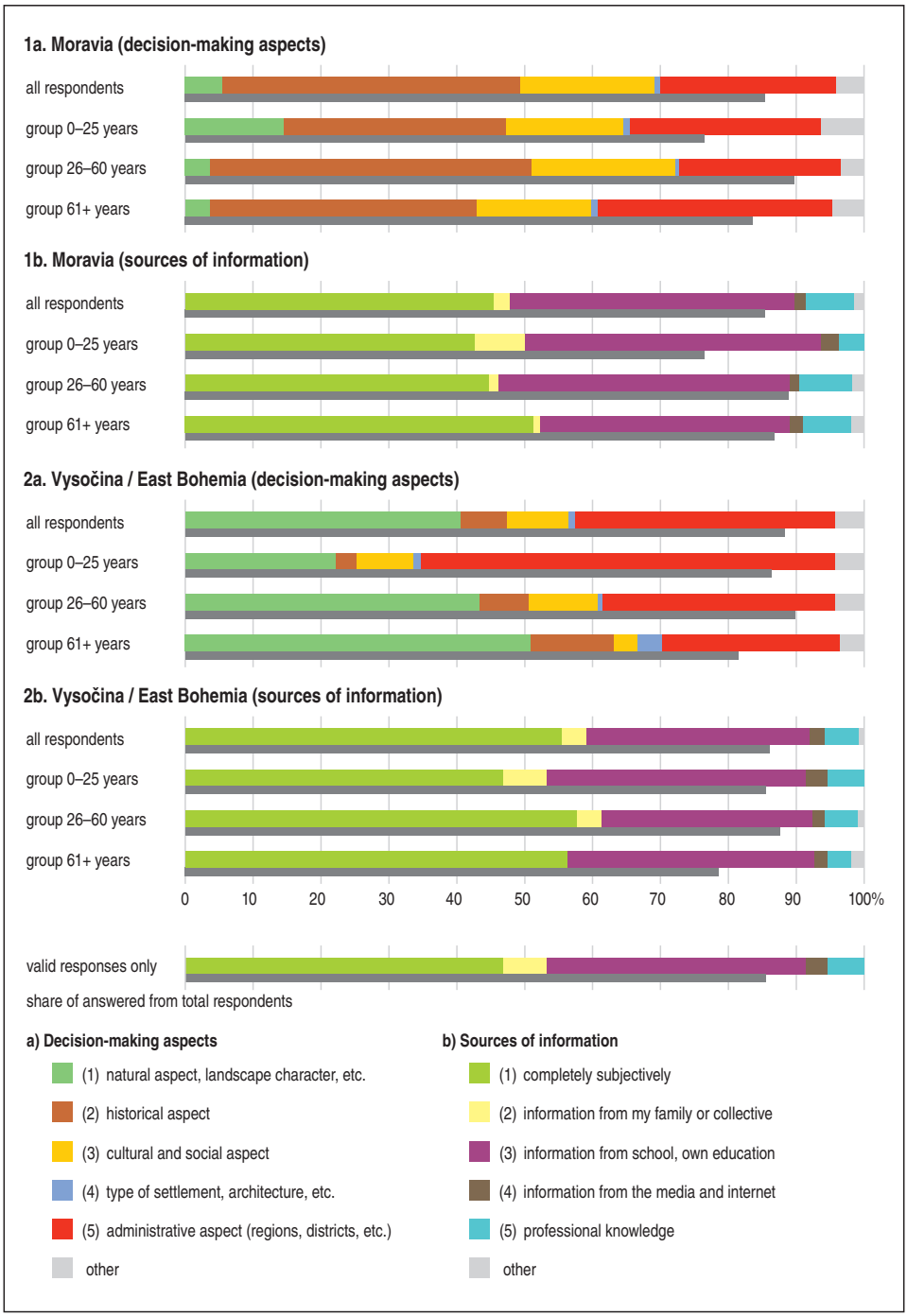

Fig. 1 – Summary of respondents' answers. Source: questionnaire survey, own processing.

Tab. 1 – The structure of respondents by age and geographical origin

Age	Population census ('000)	CZ0 Czechia	CZ010 Prague	CZ020 STČ kraj	CZ031 JIČ kraj	CZ032 PLZ kraj	CZ041 KVA kraj	CZ042 ÚST kraj
0–15	1 872	55	0	1	0	12	0	38
16–20	539	54	6	2	0	2	0	2
21–25	505	58	17	0	2	4	0	13
26–30	603	63	23	7	4	0	0	2
31–35	718	65	18	3	4	5	0	7
36–40	747	84	27	16	2	8	1	3
41–45	857	52	15	11	3	3	0	3
46–50	919	87	21	12	3	5	3	7
51–55	710	96	17	8	3	10	6	5
56–60	678	81	11	9	7	2	6	3
61–65	601	58	9	4	4	9	5	4
66–70	653	37	3	3	6	5	1	1
71–75	601	29	4	1	2	2	0	4
76–80	425	9	1	1	0	2	0	0
81+	400	5	1	0	0	0	0	1
not spec.	0	17	3	0	1	2	1	0
Total	**10 828**	**850**	**176**	**78**	**41**	**71**	**23**	**93**

Notes: categories of respondents with a lower than optimal representation according to the structure of the population of Czechia (see column *Population*) are marked with a light or darker shade of grey, * ... distinguishing respondents who do not have their birthplace or current residence in Czechia.
Source: ČSÚ (2023) and questionnaire survey; own processing.

adjustments were implemented to enhance the user experience. These changes were subsequently verified during a second round of testing at the Science Fair 2024 (Prague), where a more diverse sample – particularly including older participants – helped to identify additional needs. As a result, further improvements were made, such as the inclusion of clearer instructions and enhanced visual layout.

The actual data creation took place between July and November 2024. The goal was to obtain a sufficiently large number of responses from participants in Czechia, ideally approaching the size of a representative national sample (approximately 1,100 respondents). The structure of the respondent sample was designed to reflect, as closely as possible, the demographic and territorial composition of the population of Czechia. Throughout the data collection phase, the sample was continually monitored and compared against the target structure, particularly in terms of age and region of origin (defined either as current residence or, for Czechs living abroad, their place of origin).

CZ051 LIB kraj	CZ052 KHR kraj	CZ053 PAR kraj	CZ063 VYS kraj	CZ064 JIM kraj	CZ071 OLM kraj	CZ072 ZLN kraj	CZ080 MSL kraj	not spec. / out of CZ*
0	0	0	0	0	0	0	4	0
0	0	2	10	3	0	2	25	0
0	1	3	2	11	2	1	2	1
1	1	3	1	8	9	1	3	0
2	3	5	2	4	7	1	4	0
1	1	3	6	8	5	2	1	1
0	1	0	3	5	5	0	3	0
4	4	5	4	11	1	2	5	2
2	4	8	5	12	4	3	9	2
5	4	4	4	12	7	4	3	4+1*
2	3	1	3	1	4	2	7	0
3	1	2	1	6	2	0	3	1
3	1	1	1	7	0	0	3	0
0	0	1	2	2	0	0	0	0
0	0	0	0	1	1	0	1	1*
0	1	1	0	2	2	1	3	14
23	**25**	**39**	**44**	**93**	**49**	**19**	**76**	**25+2***

Representativeness was also secondarily assessed based on the highest completed level of education and size of municipality of residence. Other personal characteristics were considered only during data analysis, and only when deemed relevant. Although previous studies (e.g., Šerý, Šimáček 2012, 2013) suggested that gender may influence boundary perception, the findings of this study revealed no statistically significant differences. Consequently, gender was excluded from the analytical interpretation. For each mapping task, analysis was conducted only on those respondents who completed the specific task, with additional variables such as age or place of origin included where relevant.

To reach a sufficiently broad and diverse audience, multiple recruitment channels were used with varying levels of success. These included social media platforms operated by research and academic institutions. Moreover, primary and secondary schools were actively engaged during the campaign, and in a later stage, underrepresented demographic groups were specifically targeted through coordinated paid Facebook advertisements.

In total, 877 respondents participated in the survey, of which 850 provided valid information about at least one location in Czechia (place of birth or residence), forming the sample structure presented in Table 1. Due to limited success in

engaging schools and the nature of online distribution, the sample was underrepresented in both the youngest and oldest age categories. In terms of territorial distribution, respondents from Prague, Plzeň, and Ústí nad Labem were overrepresented, while participants from the Central Bohemian, Hradec Králové, Liberec, Moravian-Silesian, and Zlín Regions were underrepresented. Representation in the remaining regions was broadly proportional to their share in the population.

In particular, the results of Task 1 (related to the perception of Moravia) may be influenced by the fact that the distribution of respondents across Bohemia, Moravia, and Silesia does not fully correspond to their actual share in population of Czechia. Although the χ^2 test of agreement showed statistically significant differences between the ideal and actual sample structure, the sample can still be considered reasonably representative for the purposes of this study – especially when considering the available time and financial resources.

2.4. Processing of mapping and other visual outputs

The primary data output from the PocitoveMapy.cz platform is a GeoJSON file – a text-based format built on JSON (*JavaScript Object Notation*), commonly used for storing and transferring geographic data. GeoJSON is widely applied in GIS and web mapping applications such as Leaflet, Mapbox, or Google Maps. Unlike traditional shapefiles, it can store multiple geometry types within a single file.

The collected spatial data were imported into QGIS, where individual map outputs were created. To streamline analysis and facilitate team collaboration, viewing applications were also created in the ArcGIS Online environment. These were used to interpret participant responses. Additional spatial analyses – particularly those verifying Hypotheses 1 and 3 from Task 2 – were conducted in ArcGIS Pro using tools such as *Overlay / Intersect* and *Overlay / Tabulate Intersection*. Processing in QGIS involved several steps:

1. Importing GeoJSON data and converting it to shapefile format.
2. Cleaning polygon topology, primarily correcting self-intersection errors caused by inaccurate user input.
3. Creating a regular hexagonal grid with 5 km (Task 1) and 3 km (Task 2) spacing between cell centres.
4. Calculating overlapping polygons over individual grid cells.

Each hexagon was assigned a count of intersecting polygons. These values were then ranked and classified into ten quantile groups (deciles), which served as the basis for visualisation. Final cartographic outputs were produced using graphic software such as CorelDRAW and Adobe Illustrator. Other visual elements, particularly graphs, were generated in MS Excel and subsequently refined in the

aforementioned graphic software. A similar methodological approach has been applied in previous studies by the authors (see references).

3. Results and their interpretation

The specific character of each task (see Section 2.1) affects not only the chosen methodology but also the interpretation of results. The authors consistently aim to explain the rationale behind these choices. The selection of tasks reflects the contrast between clearly and stably defined borders (whether historical or contemporary) and those that are blurred or ambiguously perceived. This distinction illustrates the broad spectrum of ways in which borders are experienced and constructed in contemporary society.

The research team worked with various types of data collected through the questionnaire survey. While all data are available, not every data set was used for each task. Instead, only relevant subsets were purposefully selected to align with the specific analytical goals of individual tasks. This selective approach allowed for better adaptation of analytical tools to the nature of the phenomenon being investigated.

One limitation that may influence interpretation is the spatial resolution of respondents' origin or affiliation, recorded only at the level of current districts. This scale may not fully capture the finer nuances of regional identity within those territorial units.

3.1. Moravia as an example of a historical land whose boundaries have long been ignored by administrative structures

The territory of Moravia represents a historical entity with relatively stable boundaries, formed by late medieval colonization. Although minor adjustments were still made in the modern era, these did not significantly alter the already defined course. When assessing the perceived dimension of Moravia's historical boundaries, it is important to take into account their internal heterogeneity, which necessitates segmentation due to differing historical developments and territorial circumstances. Relevant aspects include the degree of institutionalisation, the length of time during which the borders functioned as meaningful territorial division, and the period that has elapsed since their dissolution. In the southern and eastern parts of Moravia, the historical boundaries – aside from minor deviations (such as the Valtice area) – generally corresponded to the outer borders of Czechia. These boundaries separated Moravia from the Land of Lower Austria (part of the former Habsburg Austrian lands, and later present-day Austria) to the south, and

from the so-called Upper Hungary (present-day Slovakia) to the east. In this segment, the historical boundary of Moravia remains clearly recognisable even today.

The situation developed differently in the northern and western sections of the Moravian boundary. In these areas, the historical territory was demarcated from Bohemia or (Czech, Austrian) Silesia by a land boundary that now survives as a historical relict line, only partially reflected in the current administrative structure. The dismantling of the land system and the related weakening of the territorial image of Moravia in the collective memory of the population began in 1949, when the newly established territorial-administrative network completely disregarded the boundaries of the historical lands for the first time (Hledíková, Janák, Dobeš 2005). In the case of the Moravian–Silesian boundary, its image has already been fading since 1928, when Moravia and Silesia were merged into a single administrative unit (the Moravian-Silesian Land).

The perception of territorial boundaries is sustained by certain symbols of the historical institutionalization of Moravia – physical-geographical features (such as

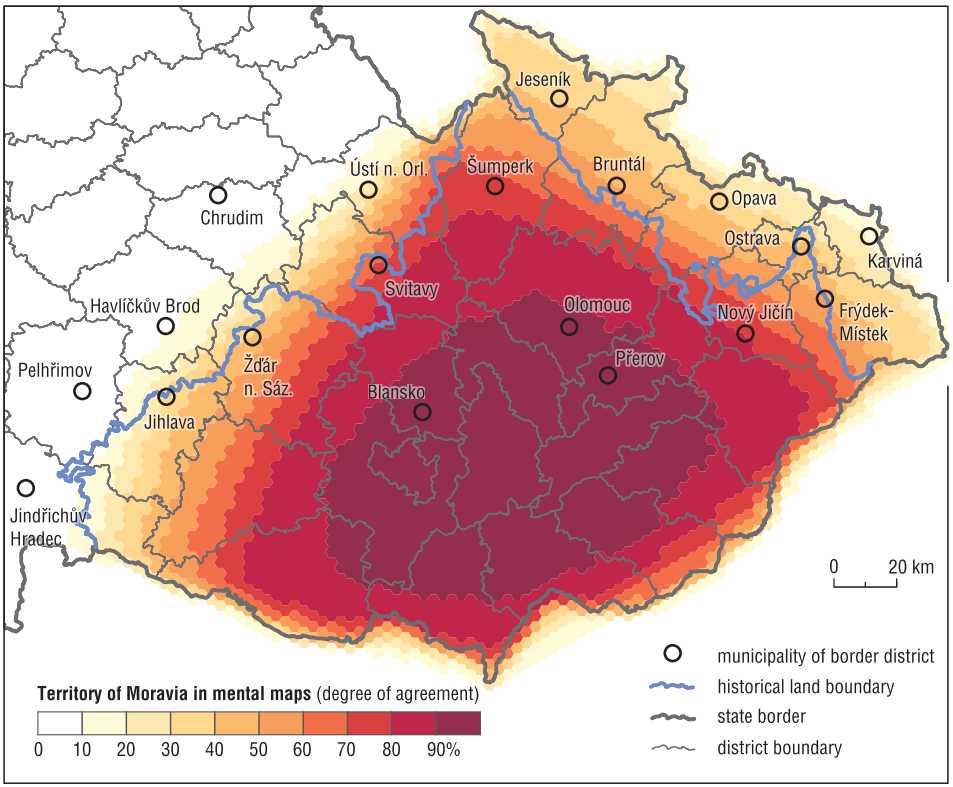

Fig. 2 – Perceived boundary of *Moravia* of all respondents involved. Source: questionnaire survey, own processing.

mountain ridges, watercourses), boundary stones, or toponyms (Marek 2023). The deinstitutionalisation of this part of the Moravian boundary is further mitigated by the linguistic anchoring of these historical regions – including the constructed identity of the local population as Czechs, Moravians, and Silesians – as well as by several other cultural and historical factors (Marek 2022).

3.1.1. Assumptions

The following hypotheses were formulated for this part of the study, taking into account the contextual and historical factors outlined above:

1. Regional variation can be expected in how sharply the boundaries of Moravia are perceived along their course. This stems primarily from differences in the degree of spatial fixation between internal land boundaries and the state borders, particularly between the southeastern and northwestern segments. Regardless of the internal composition of the respondent sample, it can also be assumed that the Moravia-Silesia boundary will be perceived less distinctly than the dividing line between Bohemia and Moravia.
2. It can be assumed that respondents from the so-called border districts – i.e., those situated along the Bohemia–Moravia and Moravia–Silesia land boundaries – demonstrate a higher level of awareness of these historical divisions. This may be reflected not only in more accurate local delineations, but also in broader patterns of spatial perception and regional identification.
3. A difference in the perception of problematic boundary segments can also be expected based on the age of the respondents, as this likely reflects differing levels of influence by the dominant administrative structures – particularly regional arrangements introduced in 1960 and revised in 2000, resp. 2020.[1]

3.1.2. Discussion of results

When analysing this part of the questionnaire, the authorial team worked with a total of 815 responses. Hypothesis (1) was clearly confirmed. The course of the southern and eastern boundary, which is also the state border of Czechia (and was included in the base map in the questionnaire), is depicted relatively accurately (Fig. 2).[2]

---

[1] The 1960–2000(–2020) period denotes the administrative structure created in 1960, replaced by self-governing regions in 2000 and legally repealed in 2020.

[2] The historical land boundary is based on the situation in 1949. This boundary as well as regional boundaries (for Section 3.2.) are constructed as a part of a project (see project dedication) based on the "CZ Retro" database. For more details on the historical development of Czechia see HÚ AV ČR, ČVUT 2020.

As for the northern boundary of Moravia, respondents tend to perceive the current Czech–Polish state border as its primary line (cf. Didelon-Loiseau, de Ruffray, Lambert 2018). This confirms that the former Moravian–Silesian land boundary (formally abolished in 1928) no longer functions as a generally recognised territorial divide (Marek 2023). The historically accurate segment between Ostrava, Frýdek-Místek and the Czech–Slovak state border remains the most clearly identified. In contrast, west of Ostrava, awareness of the historical land boundary becomes notably weaker. The tendency to identify the boundary with the current Czech–Polish state border prevails. The inland (historically accurate) course of the Moravia–Silesia boundary is only faintly visible in clusters of lines leading from Ostrava towards the geographically correct historical boundary peak Smrk (the tripoint of Bohemia, Moravia, and Kłodzko/Poland), or in an almost parallel cluster of lines ending around the town of Králíky. In both cases – more distinctly in the case of Králíky) – the clustering of lines can be explained by visually prominent breaks in the current state border, while still reflecting some awareness of the historical land boundary. The drawings also show an effort to locate the Moravia–Silesia boundary along the Králický Sněžník – northern Beskydy Mountains axis.

The Králický Sněžník area thus emerges as an exceptionally concentrated point, functioning in this context as an alternative tripoint. It also serves as the point of origin for the depiction of the Bohemia–Moravia land boundary. This segment appears blurred, forming a fan-shaped cluster of drawings, with only a slightly dominant schematic axis connecting Králický Sněžník, Jihlava, and the Bohemia-Moravia-Lower Austria tripoint. The western end of this border, along the southern axis, oscillates between the aforementioned historically accurate tripoint and the area around Znojmo. This ambiguity is likely driven by a weakened perception of Jihlava as a prototypical Bohemia–Moravia border town, as well as by the existence of the Vysočina Region (established in 2000, and earlier in 1949–1960, see Section 3.2.), the eastern edge of which may currently be perceived by part of the population as the dividing line between Bohemian and Moravian territories. The findings suggest a partial shift in the perception of the relic Bohemia–Moravia boundary, influenced by the current regional administrative structure (Terlouw, van Gorp 2014; Marek 2023).

The role of so-called "border towns" as anchor points for delineating historical land boundaries turned out to be not entirely fixed (Passi 1986, 2002). In the case of Ostrava and Frýdek-Místek – towns located on the Moravia–Silesia boundary – their position influenced the depiction of the historical land boundary only to a limited extent, as respondents predominantly conflated the northern boundary of Moravia with the present-day Czech–Polish state border. The degree of fixation of the course of the Bohemia–Moravia boundary via Jihlava was somewhat stronger, though not unambiguous. Among respondents from the aforementioned regions

(districts of Jihlava, Ostrava-město and Frýdek-Místek; a total of 60 individuals), local knowledge was reflected in the precision of the delineations (cf. Šerý, Šimáček 2012; 2013). However, when viewed in the context of the entire land boundary, the accuracy was comparable to that of other respondents.

The declared sources of information on which the respondents based their drawings did not lead to any fundamental differences – except in the case of those relying on professional knowledge. This group demonstrated significantly more precise and less schematic delineations, particularly in problematic segments of the historical land boundary. Their responses also revealed a stronger influence of border towns. Overall, they produced by far the most accurate representations of the boundary lines.

Aware that the distinction between "local" and "non-local" respondents could introduce potential distortion, the dataset was subsequently restructured based on the territorial affiliation of the participants. Five respondent groups were identified: those from the core areas of Bohemia (539 respondents), Moravia (136) and Silesia (14), and those from two defined border zones – between Bohemia and Moravia (79 respondents) and between Moravia and Silesia (133 respondents). Due to its limited sample size, the core Silesian group was excluded from further analysis. The definition of the border regions was not based on self-declared identity but on the spatial relevance of overlap or contact between the present-day district layer (in effect since 1960, including the re-established Jeseník district) and historical land boundaries (Fig. 3). The exception is the group of respondents from the Šumperk district, who were classified within both the Bohemia–Moravia and Moravia–Silesia border groups, as the district partly overlaps with the historical boundaries of all three lands. The set of selected districts thus includes administrative units located on both sides of the historical land boundary – typically the districts of Jihlava or Jindřichův Hradec (on the Bohemian–Moravian boundary) and Bruntál or Frýdek-Místek (on the Moravian–Silesian boundary) – as well as districts where the extent of contact or overlap with the historical line is relatively limited (e.g., Blansko, Pelhřimov, or Olomouc). In such cases, inclusion may conflict with their traditionally perceived land affiliation, often understood as part of the "core" area. The classification of border district was based on the assumption that residents of these areas – either currently living there or originating from them – would possess a more spatially grounded awareness of the nearby historical land boundary, even if such knowledge may be locally limited (see Lefebvre 1991 on dimensions of spatial practice; Paasi 1986 on the institutionalisation of regions and their boundaries; Šerý, Šimáček 2012; 2013 on local perception of historical boundaries; Marek 2023 on the cognitive and affective dimensions of regional identity).

Hypothesis (2), which assumed a more precise awareness of the course of the historical land boundaries among respondents from the border districts of

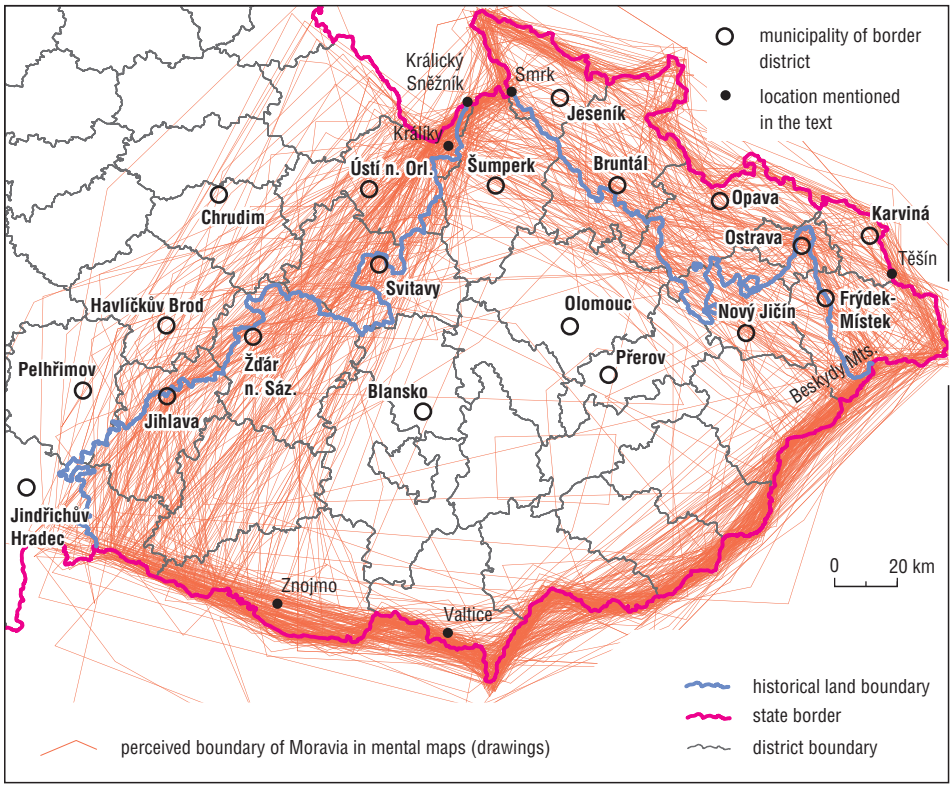

Fig. 3 – Perceived boundary of *Moravia* by respondents from border districts. Source: questionnaire survey, own processing.

Bohemia–Moravia and Moravia–Silesia, was confirmed (cf. Šerý, Šimáček 2012, 2013). Unlike the general tendency among respondents from Silesia's Opava area to equate the Moravia–Silesia historical land boundary with the current Czech–Polish state border, respondents from the Moravia–Silesia border districts exhibited a tendency to trace the historical land borderline more precisely across its entire length. Similarly, among respondents from the Bohemia–Moravia border districts, the assumed local knowledge was evident in a more accurate delineation of the land border. Their drawings notably lacked the typical fan-shaped pattern common among the other respondents, suggesting stronger awareness of key border localities – such as the city of Jihlava, or the pair of towns Frýdek-Místek and Ostrava. However, this local knowledge of one historical land boundary (Bohemia–Moravia or Moravia–Silesia) among respondents from the respective border districts did not extend to awareness or more accurate delineation of the other historical boundary.

Among respondents from the core regions of Bohemia and Moravia, knowledge of the Frýdek-Místek – Ostrava segment of the Moravia–Silesia boundary was

evident (more strongly among core Moravian respondents). In the western section of this boundary, however, drawings showed considerable spatial dispersion, along with a tendency to conflate the historical land boundary with the present-day state border – a pattern consistent with fuzzy and simplified borders typical of mental mapping (Didelon-Loiseau, de Ruffray, Lambert 2018). Another observable pattern was the use of a schematic shortcut line, roughly following the axis from Králický Sněžník to the northern part of the Beskydy Mountains – particularly among core Bohemian respondents. Among core Moravian respondents, the Bohemia–Moravia historical boundary was generally drawn with greater accuracy.

Overall, two main tendencies were observed: (a) to reduce Silesia to the Ostrava and Těšín regions, likely due to the anchoring role of prominent border towns such as Frýdek-Místek and Ostrava, and the absence of equivalent reference points further west along the Moravia–Silesia land boundary; and (b) to overlook the existence of Silesia altogether. This displacement of the historical land boundary toward the current state border confirms the ongoing deinstitutionalisation of historical regional identities (Marek 2022, 2023).

For the purposes of testing hypothesis (3), respondents were divided into three age categories: up to 25 years (144 respondents), 26–60 years (515 respondents) and 61 years and older (128 respondents). Among the oldest age group, the distinction between Moravian and Silesian territories was largely absent – the prevailing reference was the current state border. By contrast, younger respondents showed a growing tendency to define Silesia as a distinct region, reflecting generational re-layering of regional identities (Terlouw, van Gorp 2014; Šerý, Daňková 2021). Among the youngest respondents, Silesia was clearly marked, although not always accurately. These results partially contradict the original assumption, as younger respondents – despite lacking direct experience with earlier territorial divisions – tended to conceptualise Silesia more clearly than older generations. The deviation can be linked both to the shifting sources of territorial knowledge – for instance, curricular changes in geography and history education – and to the changing modes of regional identification in post-2000 Czechia (Šerý, Daňková 2021; Marek et al. 2024).

In contrast, no clear generational differences were observed in the perception of the Bohemia–Moravia boundary. Its representation was relatively stable across all age groups, suggesting that this historical division remains embedded in the collective mental map independently of lived experience or educational background. Therefore, hypothesis (3) was only partially confirmed: while age appears to influence the perception of Silesia, it does not significantly affect the perception of the Bohemia–Moravia border.

3.2. Vysočina and East Bohemia as examples of regions with fluid identity

The region of the northeastern Havlíčkův Brod district has undergone several significant changes in administrative regional borders over the past eighty years. Between 1949 and 1960, it was part of the Pardubice Region; from 1960 to 2000, resp. 2020, it belonged to the East Bohemian Region with its centre in Hradec Králové; and since 2000, it has been included in the Vysočina Region, administered from Jihlava (Fig. 4). Similar shifts occurred in areas of Pelhřimov, Pacov, Humpolec and Dačice (South Bohemia × Jihlava Region/Vysočina), as well as Svitavy and Moravská Třebová (Brno Region × East Bohemian Region × Pardubice Region) or other, mainly eastern areas of today's Vysočina Region, which have long been part of the region with its catchment centre in Brno, and their identity was connected with Moravia (Burda 2016, ČSÚ 2016, Marek 2025). In contrast, the area corresponding to today's Hradec Králové Region, i.e. the core of East Bohemia,

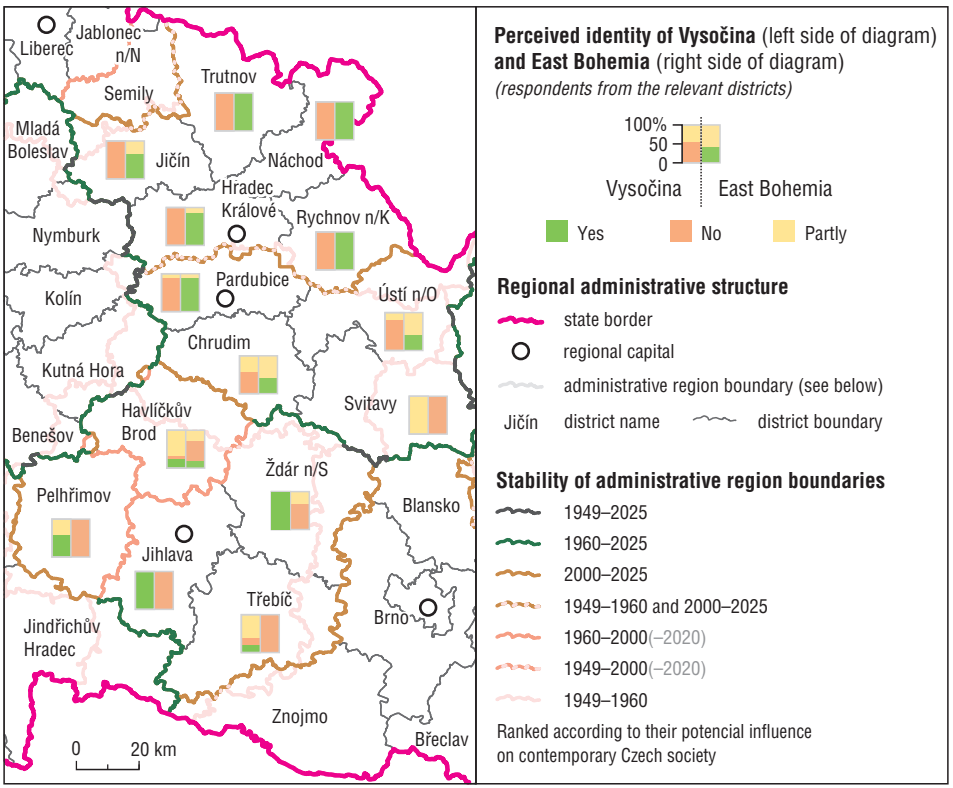

Fig. 4 – Perceived identity of *Vysočina* and *East Bohemia* by respondents from selected districts. Source: questionnaire survey; own processing; Note: "Partly" refers to respondents marking only part of their district as belonging to the Vysočina/East Bohemia region.

remained relatively stable. Such frequent administrative changes can foster the emergence of fluid identity of regions.[3]

3.2.1. Assumptions

The above-described historical and administrative developments were taken into account in formulating the following hypotheses:

1. Frequent changes in administrative structures are assumed to influence the identity of the region itself, leading to a less stable and more fluid perception of its boundaries among the society (see Marek 2022).
2. Due to these changes, it is expected that the collective memory of the current population of Czechia reflects blurred boundaries in the transitional area between Vysočina and East Bohemia. In contrast to East Bohemia, whose boundary partly tends to follow the state border of Czechia, Vysočina is expected to display a more diffuse boundary and a smaller, less stable core area. By contrast, East Bohemia is assumed to have a broader and more coherent core area, shaped by a historically rooted regional identity present in both administrative practice and cultural-geographical discourse (Marek 2022, 2023);
3. Among older respondents, a greater influence of the 1960–2000(–2020) administrative structure is anticipated, as many lived most of their lives under this structure and continue to associate their regional identity with it, often through nostalgia rather than revisionism (Burda 2016; HÚ AV ČR, ČVUT 2020; Šerý, Daňková 2021);
4. After more than two decades of the current administrative structure (HÚ AV ČR, ČVUT 2020), it is assumed that the proportion of respondents who define East Bohemia (most often associated with the Hradec Králové and Pardubice Regions) as *adjacent* to Vysočina will be dominant, even though previous studies have rather emphasised the coexistence and *overlapping* of spatial identities (Terlouw, van Gorp 2014; Didelon-Loiseau, de Ruffray, Lambert 2018; Marek 2023).

3.2.2. Discussion of results

Out of 580 respondents who completed this part of the questionnaire, 532 marked both Vysočina and East Bohemia on the map, 30 drew only Vysočina, and 14 only East Bohemia (the remaining answers were not applicable). Only a small number (21) had difficulty geographically identifying East Bohemia: eight confused it with West Bohemia, three with South Bohemia, and ten mistakenly conflated "Čechy"

[3] Unlike the notion of *hybrid identity* (Melnychuk, Gnatiuk 2018; Marek 2022), which refers to spatially overlapping identities, authors use *fluid identity* to stress their temporal variability.

(Bohemia) with "Česko" (Czechia), drawing instead "Eastern Czechia" – i.e. various parts of Moravia or Silesia.

For the purpose of testing hypothesis (1), respondents were classified as either "local" or "non-local" with respect to each of the two analysed regions. Unlike the approach used in Task 1 (see Section 3.1.), the principle of institutionalisation of the region was applied, considering historical continuity (Paasi 1986). Local residents of Vysočina were those respondents who indicated the districts of Havlíčkův Brod, Jihlava, Pelhřimov, Třebíč and Žďár nad Sázavou as their place of residence. For East Bohemia, the local group comprised respondents from the districts of Havlíčkův Brod, Hradec Králové, Chrudim, Jičín, Náchod, Pardubice, Rychnov nad Kněžnou, Svitavy, Trutnov and Ústí nad Orlicí (Fig. 4). The authors are aware of several limitations to this classification: (a) regional identity evolves over time and may not reflect recent relocations (Marek 2023; Marek et al. 2024); (b) district-level sample of respondents were relatively small and allow only indicative trends; (c) alternative definitions of Vysočina or East Bohemia (e.g. ethnographic, touristic/marketing, catchment, or natural regions such as the Bohemian-Moravian Highlands – see Melnychuk, Gnatiuk 2018; Burda, Felcman 2025) might yield different results in distinguishing locals from non-locals.

The aggregate results (Fig. 5), including respondents from all relevant districts, suggest regional identity of Vysočina and East Bohemia is most fluid in the Havlíčkův Brod district, which can be considered a transitional zone of multiple spatial affiliations (Marek 2022; 2023). A lower degree of ambiguity appeared in the Chrudim district, where East Bohemian identity dominates. Interestingly, this ambiguity was not initially anticipated in hypotheses (1) and (2), as the district was never officially part of Vysočina. This finding supports the notion that many respondents associate these territories with more than just administrative division – a pattern typical of hybrid or transitional regional identities (Melnychuk, Gnatiuk 2018; Marek 2023). East Bohemian identity was also somewhat uncertain in the districts of Jičín, Ústí nad Orlicí and Žďár nad Sázavou; for Vysočina, this uncertainty was noted in Pelhřimov and Třebíč districts. In this respect, it can be stated that hypothesis (1) was more or less confirmed.

Visual analysis of the results indicates that hypothesis (2) is only partially confirmed: near the state border, the boundaries of both monitored regions are indeed sharp (Fig. 5), however, the relative size of the core areas is similar. Anomalies, such as the extension of East Bohemia into Havlíčkův Brod district, may be due to erroneous conceptualisations (cf. Kynčlová, Hudeček, Bláha 2009; Didelon-Loiseau et al. 2018) – e.g. drawing a north-south strip through Czechia that separates Bohemia from Moravia.

Hypothesis (3), regarding age-related differences in boundary perception, cannot be unequivocally confirmed. Younger respondents showed greater variability in their depictions of East Bohemia, which can be explained more by errors in

geographical delimitation, yet their drawings of Vysočina more or less exactly corresponds to the extent of the Vysočina Region. This group showed more reflection on administrative structures (somewhat surprisingly both the 1960–2000(–2020) and post-2000 periods), probably due to the influence of geography curricula and

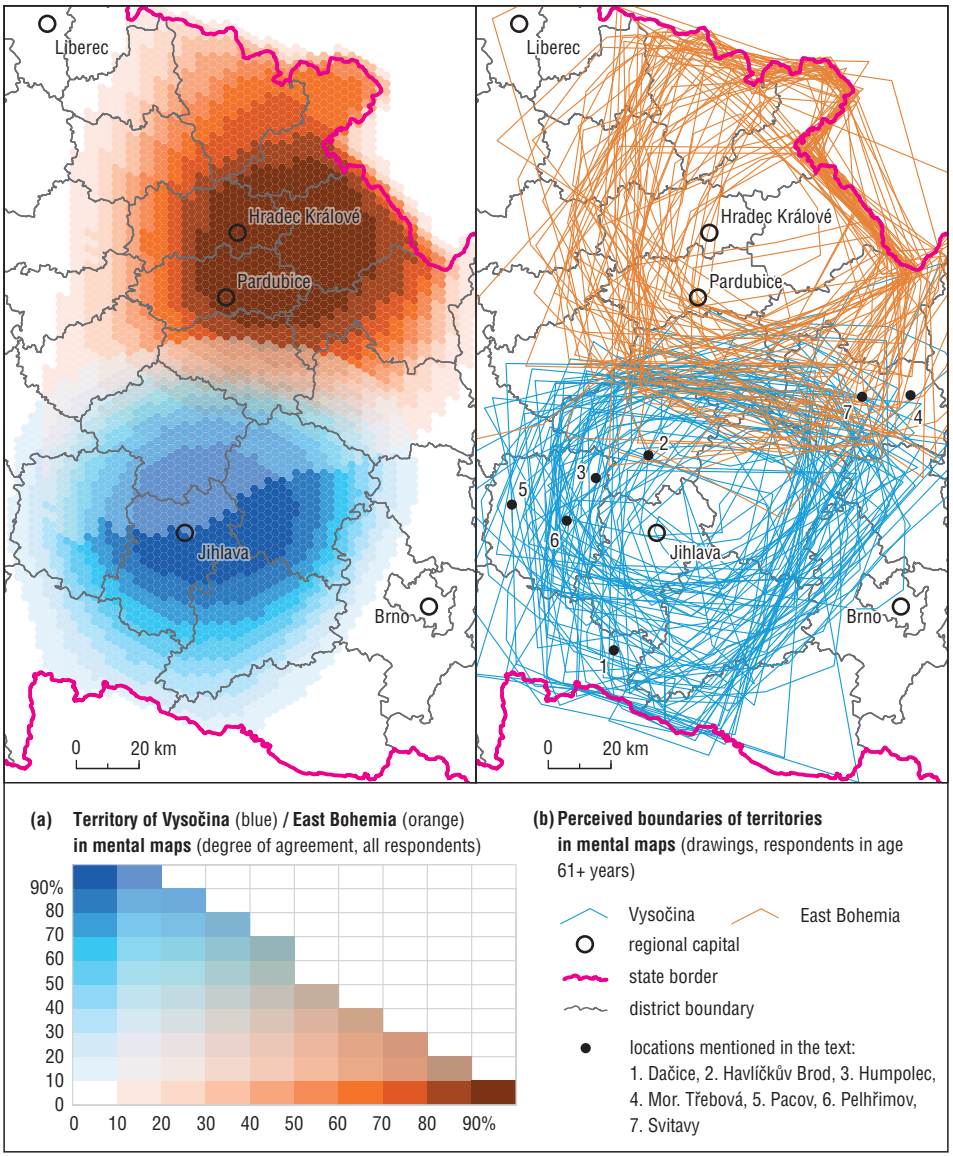

Fig. 5 – Perceived boundaries of *Vysočina* and *East Bohemia:* (a) spatial aggregation; (b) respondents' drawings. Source: questionnaire survey; own processing.

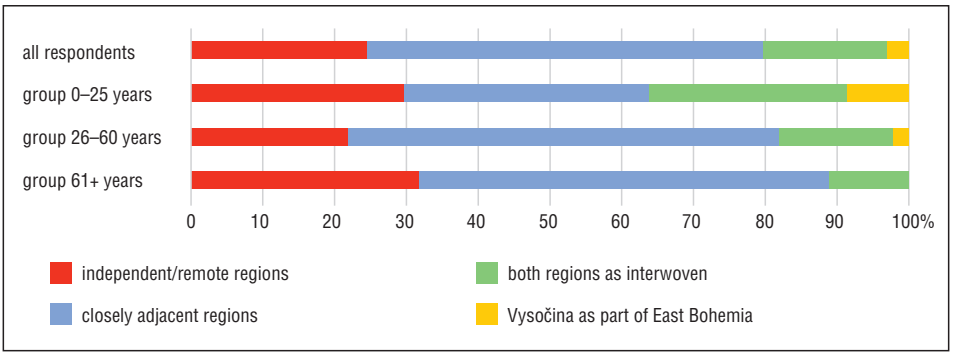

Fig. 6 – Different forms of the drawings of *Vysočina* and *East Bohemia* regions by respondents. Source: questionnaire survey, own processing.

educational content (Marek 2023; Šerý, Daňková 2021) – (Fig. 1). Respondents aged 26–60 drew slightly overlapping regions, but core areas were practically identical to other age groups. For the oldest group of respondents (61+), there is a greater tendency to separate the regions from each other (Fig. 5b), the areas of both regions are smaller, and their cores shifted slightly northward (for Vysočina between Jihlava, Havlíčkův Brod and Žďár nad Sázavou, for East Bohemia up to the level of Hradec Králové). Neither age group included the "Jičín spur" of the Hradec Králové Region and the eastern part of the Svitavy district in East Bohemia. This may reflect both past administrative changes and a tendency to draw simplified, rounded shapes in inland areas when mentally mapping regions (Waterman, Gordon 1984; Gould, White 1986; Costa, Bonetti 2018).

The final hypothesis (4) was only partially confirmed (Fig. 6). Among the 532 respondents, most depicted the two regions as closely adjacent (over 50%); however, younger respondents were significantly more likely to portray them as interwoven (almost 30%), or even to include Vysočina as part of East Bohemia. Whether this reflects genuine perception or geographical confusion remains uncertain. Nevertheless, when cognitive mapping such regions, respondents tend to draw clearly delineated, non-overlapping polygons, influenced by the design of the task itself, which is also to some extent demonstrated by Didelon-Loiseau, de Ruffray, Lambert (2018) by identifying "hard" and "soft" regions. This tendency contrasts with theoretical accounts that describe regions as products of overlapping and coexisting spatial and institutional processes (Paasi 1986; Terlouw, van Gorp 2014) and suggests that our respondents' representations are more influenced by cartographic conventions than by multi-layered regional belonging.

4. General discussion and limitations of the study

In addition to the specific discussions presented in Sections 3.1.2. and 3.2.2., several overarching findings and limitations must be addressed. Unlike earlier studies (Šerý, Šimáček 2012, 2013), no statistically significant influence of gender on the perception of regional borders – or on the accuracy of drawn polygons – was identified. Consequently, gender was not further analysed in this study.

The findings also indicate that experts may overestimate the influence of administrative structure on boundary perception. Respondents' mental maps were shaped not only by historical or current administrative borders, but also by natural features, tourist or marketing-defined regions, and – importantly – by the character of the landscape itself. The role of formal education and didactic materials (particularly geography curricula) appears to be significant, as does the implicit, often unacknowledged, influence of the media, including social networks. These contribute to the semantic association of specific places with particular regional identities.

Differences also emerged in how respondents perceived the identity of regions. While *Moravia* was primarily perceived in historical, administrative, or socio-cultural terms, the perception of *Vysočina* and *East Bohemia* often rested more on physical geography and landscape character. In some cases, respondents' drawn boundaries did not fully align with their written explanations, suggesting internal contradictions or uncertainties.

The primary concern relates to the sociological representativeness of the respondent sample. Participation in the survey was voluntary and unpaid, introducing potential self-selection bias. Gender distribution was also imbalanced: of the 860 respondents, 521 were men, 325 women, and 14 identified otherwise. Further limitations regarding representativeness were outlined in Section 2.2.

Another important limitation stems from the use of an online participatory mapping tool. This required respondents not only to have access to digital technologies but also to possess basic digital literacy and familiarity with cartographic interfaces. The accuracy of drawn boundaries was partly constrained by the reference scale of the base map. Respondents wishing to locate specific toponyms – such as "Moravský/á/é" (Moravian) or "Český/á/é" (Czech) – had to switch between zoom levels, which may have affected the precision of their drawings.

Compared to traditional analogue surveys (e.g. Bláha, Nováček 2016), the online method likely reduced the risk of researcher influence on participant responses, especially by focusing on a certain smaller territory. The content of the base map itself (e.g. density of settlement layers or inclusion of certain border lines) can shape cognitive mapping results. For this reason, only the state border was included, and all lower-level administrative boundaries were intentionally omitted. As confirmed by the study, the visible state border was frequently used as

a reference in drawings. A high degree of generalisation of the shapes of drawn lines and polygons (a natural concept *à la vue*) is typical for cognitive mapping, especially in areas without supporting orientation elements of the map base and support in knowledge and experience (inland, monotonously perceived territories, etc.). This corresponds with findings of the above-cited research (e.g. Waterman, Gordon 1984; Costa, Bonetti 2018). The verification of hypothesis (4) in Task 2 may also have been affected by the aforementioned tendency of participants to draw non-overlapping polygons, which is partly driven by task design. The authors intentionally avoided evoking current administrative structure in Task 2 (cf. *East Bohemian Region* vs. *East Bohemia*) to minimise this influence.

In interpreting the results, the authors could rely solely on pre-defined socio-demographic variables and closed-response categories (e.g. birthplace and residence were recorded only at the district level). While respondents were categorised as "local" or "non-local" for hypothesis testing, the internal diversity of larger districts – such as proximity to state border or central/peripheral location – could not be systematically monitored. Moreover, the study focused on the perception of boundaries based on geographical proximity rather than on subjective regional identity of the respondents, which was not explicitly assessed (see Bláha, Hudeček 2010).

The authors paid special attention to the evaluation and analysis of the obtained drawings. For some characteristics, they evaluated, categorised, and interpreted the maps individually. Nevertheless, some interpretative errors may persist. These could only be fully addressed through follow-up interviews with each individual respondent – an approach beyond the scope of this study.

5. Conclusion

This study provides an original, empirically grounded, and interdisciplinary perspective on the perception of geographical space in the context of social and historical change. Despite the diversity of individual tasks, the findings yield coherent and nuanced insights into how contemporary society of Czechia perceives historical and present-day regional boundaries. Drawing on the concept of the social production of space (Lefebvre 1991) and the symbolic persistence of phantom borders (Hirschhausen et al. 2019), the study demonstrates how subjective spatial perceptions are shaped by overlapping administrative, historical, and cultural layers.

The analysis of the two case studies – Moravia and the regions of Vysočina and East Bohemia – enabled the testing of several hypotheses and offered insights into the cognitive and affective dimensions of border perception. In the case of Moravia, the study confirmed the hypothesis that the Bohemia–Moravia boundary

remains more clearly embedded in the collective mental map than the Moravia–Silesia divide. Respondents with local or expert knowledge demonstrated higher spatial precision, but the overall awareness of historical land boundaries remains limited. The anticipated influence of age on boundary perception was only partially confirmed: younger respondents were more likely to conceptualise Silesia as a distinct region, while the Bohemia–Moravia boundary appeared relatively stable across generations.

In the case of Vysočina and East Bohemia, the research confirmed the hypothesis that frequent administrative changes result in more fluid and ambiguous regional identities. While East Bohemia was delineated more consistently, Vysočina exhibited greater spatial uncertainty. However, contrary to expectations, respondents across all age groups tended to draw rather simplified and rounded shapes, a pattern likely influenced both by the design of the task and by the structure of the data-collection instrument. This discrepancy shows that mental maps do not always correspond to how people actually perceive and experience space.

Importantly, the findings demonstrate that the perception of regional boundaries is shaped not primarily by formal administrative divisions, but by a combination of historical memory, geographical features, generational differences, educational background, symbolic associations, and other socio-demographic factors. In this respect, the study supports and extends the theoretical claims of Paasi (1986) and Lefebvre (1991), who argue that space is socially produced through the interplay of institutional structures, spatial practices, and symbolic representations.

Rather than attempting an exhaustive analysis of particular cases, the study seeks to reframe familiar topics through an integrative methodological lens that enables comparison with existing research and invites alternative interpretations. Methodologically, it showcases the potential of participatory mental mapping as a tool for capturing subjective territorial knowledge. The integration of GIS-based participatory tools with historical and sociological analysis offers a transferable model for future interdisciplinary research in geography, historiography, and the social sciences. By visualising how individuals imagine and delineate regions, this research enables deeper reflection on the symbolic construction of space, the resilience of historical imaginaries, and the evolving nature of regional identities in post-socialist Central Europe.

References

BLÁHA, J.D., HUDEČEK, T. (2010): Hodnocení kartografických děl mentálními mapami. Kartografické listy, 18, 1, 21–28.

BLÁHA, J.D, NOVÁČEK, A. (2016): How Central Europe is Perceived and Delimited. Mitteilungen der Österreichischen Geographischen Gesellschaft, 158, 193–214. https://doi.org/10.1553/moegg158s193

BLÁHA, J.D., PASTUCHOVÁ NOVÁKOVÁ, T. (2013): Mentální mapa Česka v podání českých žáků základních a středních škol. Geografie, 118, 1, 59–76. https://doi.org/10.37040/geografie2013118010059

BROWN, G., KELLY, M., WHITALL, D. (2014): Which 'public'? Sampling effects in public participation GIS (PPGIS) and volunteered geographic information (VGI) systems for public lands management'. Journal of Environmental Planning and Management, 57, 2, 190–214. https://doi.org/10.1080/09640568.2012.741045

BUGS, G., GRANELL, C., FONTS, O., HUERTA, J., PAINHO, M. (2010): An assessment of Public Participation GIS and Web 2.0 technologies in urban planning practice in Canela, Brazil. Cities, 3, 27, 172–181. https://doi.org/10.1016/j.cities.2009.11.008

BURDA, T. (2016): Historické hranice a proces polarizace prostoru v Česku. P3K, Praha.

BURDA, T., FELCMAN, O. (2025): Odkud až kam sahají východní Čechy? Geografické rozhledy, 34, 5, 4–7.

COSTA, M., BONETTI, L. (2018): Geometrical distortions in geographical cognitive maps. Journal of Environmental Psychology, 55, 2, 53–69. https://doi.org/10.1016/j.jenvp.2017.12.004

CZEPKIEWICZ, M., JANKOWSKI, P., ZWOLIŃSKI, Z. (2018): Geo-questionnaire: A Spatially Explicit Method for Eliciting Public Preferences, Behavioural Patterns, and Local Knowledge – An Overview. Quaestiones Geographicae, 37, 3, 177–190. https://doi.org/10.2478/quageo-2018-0033

ČSÚ (2016): Historie krajského zřízení sahá hluboko do minulosti, https://csu.gov.cz/vys/historie-krajskeho-zrizeni-saha-hluboko-do-minulosti (11. 2. 2025).

ČSÚ (2023): Obyvatelstvo – lidé. ČSÚ, Praha, https://www.czso.cz/csu/czso/obyvatelstvo_lide (10. 10. 2023)

DIDELON-LOISEAU, C., DE RUFFRAY, S., LAMBERT, N. (2018): Mental maps of global regions: identifying and characterizing "hard" and "soft" regions. Journal of Cultural Geography, 35, 2, 210–229. https://doi.org/10.1080/08873631.2018.1426950

DRBOHLAV, D. (1991): Mentální mapa ČSFR: definice, aplikace, podmíněnost. Geografie, 96, 3, 163–175. https://doi.org/10.37040/geografie1991096030163

ELWOOD, S. (2008): Volunteered geographic information: future research directions motivated by critical, participatory, and feminist GIS. GeoJournal, 3, 72, 173–183. https://doi.org/10.1007/s10708-008-9186-0

FEBVRE, L. (1922): La terre et l'évolution humaine. Introduction géographique à l'histoire. La Renaissance du Livre, Paris.

GARCÍA-ÁLVAREZ, J., PUENTE-LOZANO, P. (2022): Beneath the Lines: Borders and Boundary-Making from the 18th to the 20th Century. Springer, Cham. https://doi.org/10.1007/978-3-030-96904-2

GOODCHILD, M.F. (2007): Citizens as sensors: the world of volunteered geography. GeoJournal, 1–15. https://doi.org/10.1007/s10708-007-9111-y

GOULD, P., WHITE, R. (1974): Mental Maps. Penguin Books, Harmondsworth.

GOULD, P., WHITE, R. (1986): Mental Maps. 2nd ed. Routledge, London.

HIRSCHHAUSEN, B. VON, GRANDITS, H., KRAFT, C., MÜLLER, D., SERRIER, T. (2019): Phantom Borders in Eastern Europe: A New Concept for Regional Research. Slavic Review, 78, 2, 368–389. https://doi.org/10.1017/slr.2019.93

HISTORICKÝ ÚSTAV AV ČR, ČVUT (2020): Elektronický mapový portál Český historický atlas, https://cha.fsv.cvut.cz/ (11. 2. 2025).

HLEDÍKOVÁ, Z., JANÁK, J., DOBEŠ, J. (2005): Dějiny správy v českých zemích od počátků státu po současnost. Lidové noviny, Praha.

HYNEK, A., HYNKOVÁ, J. (1979): Prostorová percepce životního prostředí města Boskovice ve výchově k péči o životní prostředí. Geografie, 84, 4, 287–299. https://doi.org/10.37040/geografie1979084040287

KYEM, P., SAKU, J. (2009): Web-Based GIS And The Future Of Participatory GIS Applications Within Local And Indigenous Communities. The Electronic Journal of Information Systems in Developing Countries, 38, 1, 1–16. https://doi.org/10.1002/j.1681-4835.2009.tb00270.x

KYNČLOVÁ, M., HUDEČEK, T., BLÁHA, J.D. (2009): Hodnocení kartografických děl: analýza mentálních map orientačních běžců. Geografie, 114, 2, 105–116. https://doi.org/10.37040/geografie2009114020105

LAINE, J.P. (2015): A Historical View on the Study of Borders. In: Sevastianov, S.V., Laine, J.P., Kireev, A.A. (eds.): Introduction to Border Studies: A Textbook. Dalnauka, Vladivostok, 14–32.

LEFEBVRE, H. (1991): The Production of Space. Blackwell, Malden.

LUNDINE, J., KOVAČIČ, P., POGGIALI, L. (2012): Youth and Digital Mapping in Urban Informal Settlements: Lessons Learned from Participatory Mapping Processes in Mathare in Nairobi, Kenya. Children Youth and Environments, 2, 22, 214–233. https://doi.org/10.1353/cye.2012.0020

LYNCH, K. (1960): The Image of the City. MIT Press, Cambridge, Massachusetts.

MAREK, P. (2020): Transformation of the identity of a region: Theory and the empirical case of the perceptual regions of Bohemia and Moravia, Czech Republic. Moravian Geographical Reports, 28, 3, 154–169. https://doi.org/10.2478/mgr-2020-0012

MAREK, P. (2022): Transformace regionální identity v Česku: Případová studie částečně deinstitucionalizovaných Čech a Moravy pohledem obyvatel česko-moravského pomezí. Geografie, 127, 3, 271–297. https://doi.org/10.37040/geografie.2022.007

MAREK, P. (2023): Reproduction of the identity of a region: perceptual regions based on formal and functional regions and their boundaries. Geografiska Annaler, B, 105, 1, 79–98. https://doi.org/10.1080/04353684.2022.2097113

MAREK, P. (2025): Svitavy a Moravská Třebová ve východních Čechách? Geografické rozhledy, 34, 5, 30–33.

MAREK, P., ŠTAMPACH, R., SVITÁK, Z., JEŘÁBEK, M. (2024): Possibilities of reconstruction and documentation of the relict border: the example of the Bohemian-Moravian land boundary. Geografie, 129, 3, 323–355. https://doi.org/10.37040/geografie.2024.014

MELNYCHUK, A., GNATIUK, O. (2018): Regional identity and the renewal of spatial administrative structures: The case of Podolia, Ukraine. Moravian Geographical Reports, 26, 1, 42–54. https://doi.org/10.2478/mgr-2018–0004

NEWMAN, D., PAASI, A. (1998): Fences and neighbours in the postmodern world: boundary narratives in political geography. Progress in Human Geography, 22, 2, 186–207. https://doi.org/10.1191/030913298666039113

NETRDOVÁ, P., KORČÁK, M., NOSEK, V. (2024): Measuring and mapping the existence of phantom borders at a local scale: example of Sudetenland in Czechia. Journal of Maps, 20, 1, 2300260. https://doi.org/10.1080/17445647.2023.2300260

NOVÁČEK, A., BLÁHA, J.D., ZAJÍČKOVÁ, A. (2025): Border between West and East of Europe in the mental maps of European university students. Hungarian Geographical Bulletin, 74, 1, 23–36. https://doi.org/10.15201/hungeobull.74.1.2

PAASI, A. (1986): The institutionalization of regions: a theoretical framework for understanding the emergence of regions and the constitution of regional identity. Fennia: International Journal of Geography, 164, 1, 105–146. https://doi.org/10.11143/9052

PAASI, A. (2002): Bounded spaces in the mobile world: Deconstructing 'regional identity'. Tijdschrift voor Economische en Sociale Geografie, 93, 2, 137–148. https://doi.org/10.1111/1467-9663.00190

PÁNEK, J. (2018): Emotional Maps: Participatory Crowdsourcing of Citizens' Perceptions of Their Urban Environment. Cartographic Perspectives, 91, 17–29. https://doi.org/10.14714/CP91.1419

PÁNEK, J., ŠENKEŘÍKOVÁ, M. (2018): Kde leží Blízký východ? Srovnání definic a mentální mapy regionu očima vysokoškolských studentů. Informace ČGS, 37, 2, 31–41.

PENG, Z.R. (2001): Internet GIS for public participation. Environment and Planning B, 6, 28, 889–906. https://doi.org/10.1068/b2750t

POCITOVÉ MAPY (2025): Pocitové mapy, https://www.pocitovemapy.cz (13. 4. 2025)

POLONSKÝ, F., NOVOTNÝ, J., LYSÁK, J. (2010): Cognitive Mapping of Major World Regions among Czech Geography Students. Journal of Maps, 6, 1, 311–318. https://doi.org/10.4113/jom.2010.1083

RATZEL, F. (1903): Politische Geographie: Oder die Geographie der Staaten, des Verkehres und des Krieges. Oldenbourg, München. https://doi.org/10.1515/9783486733785

SIWEK T., BOGDOVÁ, K. (2007): České kulturně-historické regiony ve vědomí svých obyvatel. Czech Sociological Review, 43, 4, 1039–1053. https://doi.org/10.13060/00380288.2007.43.5.09

SIWEK, T., KAŇOK, J. (2000): Mapping Silesian identity in Czechia. Geografie, 105, 2, 190–200. https://doi.org/10.37040/geografie2000105020190

STARÉ MAPY.CZ (n.d.): Staré mapy Česka a světa, https://staremapy.cz/ (13. 4. 2025)

ŠERÝ, M., DAŇKOVÁ, M. (2021): When regional identities differ over generation: Deinstitutionalisation of regions and regional identities in a regional amalgam. Journal of Rural Studies, 82, 430–441. https://doi.org/10.1016/j.jrurstud.2021.01.033

ŠERÝ, M., ŠIMÁČEK, P. (2012): Perception of the historical border between Moravia and Silesia by residents of Jeseník area as a partial aspect of their regional identity (Czech Republic). Moravian Geographical Reports, 20, 2, 36–46.

ŠERÝ, M., ŠIMÁČEK, P. (2013): Vnímání hranic obyvatelstvem regionů s rozdílnou kontinuitou socio-historického vývoje jako dílčí aspekt jejich regionální identity. Geografie, 118, 4, 392–414. https://doi.org/10.37040/geografie2013118040392

TERLOUW, K., VAN GORP, B. (2014): Layering spatial identities: the identity discourses of new regions. Environment and Planning, 46, 852–866. https://doi.org/10.1068/a45689

TULLOCH, D.L. (2008): Is VGI participation? From vernal pools to video games. GeoJournal, 3–4, 72, 161–171. https://doi.org/10.1007/s10708-008-9185-1

VAINIKKA, J. (2013): The role of identity for regional actors and citizens in a splintered region: The case of Päijät-Häme, Finland. Fennia, 191, 1, 25–39. https://doi.org/10.11143/7348

WATERMAN, S., GORDON, D. (1984): A quantitative-comparative approach to analysis of distortion in mental maps. The Professional Geographer, 36, 3, 326–337. https://doi.org/10.1111/j.0033-0124.1984.00326.x

ACKNOWLEDGEMENTS

This research was supported by the Ministry of Culture of the Czech Republic under the NAKI III Programme for Applied Research in National and Cultural Identity (2023–2030), within the framework of the project *Borders as a Cultural-Historical Phenomenon: Specification, Analysis, Comparison and Interpretation* (Grant No. DH23P03OVV030).

ORCID

JAN D. BLÁHA
https://orcid.org/0000-0002-7273-3655

JITKA MOČIČKOVÁ
https://orcid.org/0000-0002-1524-0977

ALEŠ VYSKOČIL
https://orcid.org/0009-0009-0709-0428

JIŘÍ PÁNEK
https://orcid.org/0000-0002-6390-3149